Preliminary Design Program

Somerville High School

81 Highland Avenue, Somerville MA

February 29, 2016

SMMA No. 15070.00

Symmes Maini & McKee
Associates

SMMA

PMA Consultants
Est. 1971
25 Braintree Hill Office Park, Suite 303
Braintree, MA 02184
Tel: 781.794.1404
Fax: 781.794.1405

TRANSMITTAL

To: Karl Brown

Company: MSBA

Phone: **Fax:**

From: Chad Crittenden

Re: Somerville High School Project – PDP Submission

Date: February 29, 2016

CC: File

ENCLOSURES:

Information ☒ **Document(s)** ☐ **Letter(s)** ☐ **Schedule(s)** ☐**Report(s)**

COMMENTS:

☐ **Urgent** ☐ **Please Review** ☐ **Please Comment** ☐ **Please Reply**

Comments:

Includes:

(2) Hard Copies of PDP

(2) Electronic Copies (compact disk) of PDP

(1) Electronic File of Entire Submission in PDF Format (via MSBA dropbox)

Karl Brown
Project Manager
Massachusetts School Building Authority
40 Broad Street, Suite 500
Boston, MA 02109

February 29, 2016

RE: Preliminary Design Program for Somerville High School Project

Dear Mr. Karl Brown:

In accordance with the MSBA's Feasibility Study Submittal Procedures, PMA has reviewed and coordinated the materials contained within the Somerville High School Project's Preliminary Design Program submittal.

PMA finds the submittal to be complete and certifies that that Somerville High School Building Committee has officially approved the submittal and the materials contained within. The formal approval of the School Building Committee was obtained on the evening of Wednesday, February 10th, 2016. Meeting minutes from this meeting are contained within the PDP submission as required under section 3.1.7.

The District, along with PMA and SMMA have performed in-depth analysis on a total of nine alternatives for the purposes of this study; two of the considered alternatives consisted of new construction on two different sites (existing site and Trum/DPW site), five of the alternatives were varying approaches to an addition/renovation scheme and the two remaining options were a base code upgrade and a base repair which will not satisfy the district's Educational Program as submitted.

Due to a combination of site size constraints, soil contaminant concerns, a lengthy Article 97 land disposition policy process, and traffic/parking limitations at the Trum Field / DPW site, the District, PMA and SMMA feel that the remaining addition/renovation options on the existing High School site are more economically viable alternatives and warrant further investigation during development of the Preferred Schematic Report.

We look forward to the MSBA's review and are eager to begin final evaluation of the proposed alternatives. As always, please feel free to contact me with any questions or concerns.

Sincerely,

Chad Crittenden
Director | Senior Project Manager
PMA Consultants, LLC

25 Braintree
Office Hill Park
Suite 303
Braintree, MA
02184
Tel: 781.794.1404
Fax: 781.794.1405

WWW.PMACONSULTANTS.COM

PRELIMINARY DESIGN PROGRAM

SOMERVILLE HIGH SCHOOL
81 Highland Avenue, Somerville MA

SMMA
1000 Massachusetts Avenue
Cambridge, MA 02138
www.smma.com

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1. INTRODUCTION

2. EDUCATIONAL PROGRAM

INTRODUCTION

1.1 STATEMENT OF INTEREST SUMMARY

The existing Somerville High School is located at 81 Highland Avenue, in Somerville, MA. The existing school was built over the course of many years, with the oldest portion dating back to 1895. The site measures approximately 13 acres around the high school, and is located on a shared parcel that also includes Somerville City Hall and the Somerville Main Public Library branch.

In April, 2013, the City of Somerville submitted a Statement of Interest (SOI) to the Massachusetts School Building Authority (MSBA) for the High School. At the November 19, 2014 Board of Directors meeting, the MSBA board voted to issue an invitation to the City to conduct a feasibility study for this Statement of Interest to identify and study possible solutions and, through a collaborative process with the MSBA, reach a mutually-agreed upon solution. The SOI focused on the replacement, renovation or modernization of aged and inoperable facility systems, and replacement or addition to obsolete buildings to provide for a full range of educational programs. Since the submission of the SOI, an evaluation of all major building systems has shown that the HVAC, plumbing, electrical, technology, fire alarm and emergency power systems are all at the end of their useful life. The existing 360,000 square foot building, with the oldest section dating back to 1895, is supported on conventional spread footings; aside from the most recent additions constructed in 1986, there is no lateral force resisting structural system in the building. The existing exterior wall system is a combination of uninsulated brick mass masonry walls and brick veneer walls over metal stud backup with limited insulation within the stud cavity. The existing building is completely non-compliant with the current energy code. The building is partially accessible but the third and fourth floors of the school are served by a single elevator that does not comply with current car size requirements. Asbestos in located throughout the building including behind the exterior brick veneer in the 1986 construction; see Section 4.9 for a detailed analysis. In addition, there are a number of general educational concerns in the building including: a geographic separation between the general academic and vocational portions of the comprehensive high school; classrooms not equipped for 21st century instruction; and a lack of differentiated learning environments. Additional existing conditions information is included in Section 4 and the complete SOI is included in Appendix 8.1.

1.2 INVITATION TO FEASIBILITY STUDY

At the November 19, 2014 Board of Directors meeting, the MSBA board voted to issue an invitation to the City to conduct a feasibility study for this Statement of Interest to identify and study possible solutions and, through a collaborative process with the MSBA, reach a mutually-agreed upon solution. The invitation is included in Appendix 8.2.

1.3 DESIGN ENROLLMENT

The District and the MSBA met and reviewed population, student enrollment and out-migration historical patterns from 2004 through 2013 and projections through 2034; and on September 9, 2014 agreed to a design enrollment of 1,515 students for Somerville High School, housing grades 9 – 12. Furthermore, the District and MSBA agreed to a potential additional enrollment of 50 students for the Full Circle High School and 35 students for the Next Wave Junior High School, both of which are alternative schools and may be co-located with the high school as part of the project. The combined maximum enrollment for all three programs was agreed to as 1,590 students. The design enrollment agreement is included in Appendix 8.3.

1.4 CAPITAL BUDGET STATEMENT

The City of Somerville's outstanding governmental debt as of June 30, 2015, totaled $72,594,873 of which $40,435,373 is for school projects, a total of $16,759,500 for municipal government purposes, and $15,400,000 for District Improvement Financing (DIF) for the Assembly Square Development Infrastructure. The DIF infrastructure debt service is funded through incremental commercial property tax revenue resulting from new development in the Assembly Square area. In addition to governmental debt, the business-type Water, Sewer, and Ice Rink Enterprise Funds carry an outstanding debt of $12,838,188. This debt is fully funded by Water and Sewer Charges and program fees and does not rely upon the General Fund for a subsidy.

Moody's Investors Services has assigned an Aa2 bond rating to the City's outstanding debt noting the City's strengths such as its sizeable tax base which has experienced significant growth in recent years due to ongoing redevelopment efforts. Additionally, the Moody's rating incorporates the stable financial position supported by healthy reserve levels, as well as manageable long-term liabilities for pension and OPEB. Standard & Poors has assigned a AA+ long-term rating to the City. Both Moody's and Standard & Poors, believe the city's debt to remain manageable due to its average direct debt burden. Total governmental fund debt service is 4.81% of total governmental fund expenditures and net direct debt is 41% of total governmental fund revenue. Overall net debt is low at 0.9% of market value, which in Standard & Poors's view is a positive credit factor. All of Somerville's debt is fixed rate, and principal amortizes at a below average pace of 66% within 10 years.

The City has made a concerted effort to build and maintain ample reserves. Somerville closed fiscal 2015 with $50,217,701 in available reserves, including an unassigned, assigned, and committed fund balance. As the close of FY2015, total General Fund Stabilization Balances equaled $30,065,350, and are available with legislative body approval. In addition to General Fund Stabilization Funds, the City has a balance of $7.6 million in the Water-Sewer Stabilization fund to be used for water-sewer infrastructure debt service. In FY2015, the Mayor, with the approval of the Board of Aldermen, established a Facility Construction and Renovation Stabilization Fund. The initial appropriation to the fund was $2 million. The City intends to supplement this fund on an annual basis with free cash appropriations. The purpose of this fund is to support new building construction and renovation of old city buildings. The City intends to tap this fund and other reserves for the Somerville High School Construction/Renovation Project.

Somerville is experiencing unprecedented commercial growth. Major economic projects in such areas as Assembly Square, Union Square, Boynton Yards, Inner Belt/Brickbottom, and neighborhoods adjacent to the Green Line Extension subway stations are expected to greatly expand Somerville's property tax base. The City's FY2016-FY2025 Long Range Forecast of Revenues predicts a growth of close to $100 million in property tax revenues during this period. This will be the primary source for funding debt service for major infrastructure projects in the City's Capital Investment Plan, including the Somerville High School Construction/Renovation Project. In addition to the tax levy and reserves, other sources may include the proceeds from the sale of surplus municipal real estate, grant assistance, unexpended/unobligated bond proceeds from other projects, and free cash.

The sheer magnitude of cost associated with the renovation/construction of Somerville High School leads the City to seriously consider a Proposition 2 ½ Debt Exclusion Ballot Measure to exclude a portion of the debt service required from the tax levy. The City considers this as one tool of many that will be utilized to finance the project. The City has kept this option alive in its previous Capital Investment Plan (2012-2016) and the one currently in place. (2016-2025). To that end, the City Administration is prepared to take steps to place a Proposition 2 ½ Debt Exclusion Ballot question on the November 2016 State Election Ballot.

The preliminary estimated costs for this project ranges from approximately $73 million to $296 million. Based upon available market data and early cost projections, a target budget of $245M to $275M would be appropriate for a project of this magnitude that would fully satisfy Somerville's comprehensive Educational Program. The detailed Capital Budget Statement is currently being tailored to the MSBA format and will be included as required within the district's Preferred Schematic Report submission. At this point it is anticipated that any operational cost increases for the proposed project will be substantially offset by the increases in building efficiency and reduced maintenance costs, a more detailed operational cost analysis will be performed upon selection of a preferred schematic option.

1.5 PROJECT DIRECTORY

The project directory with contact information of the project's key stakeholders is attached.

1.6 PROJECT SCHEDULE

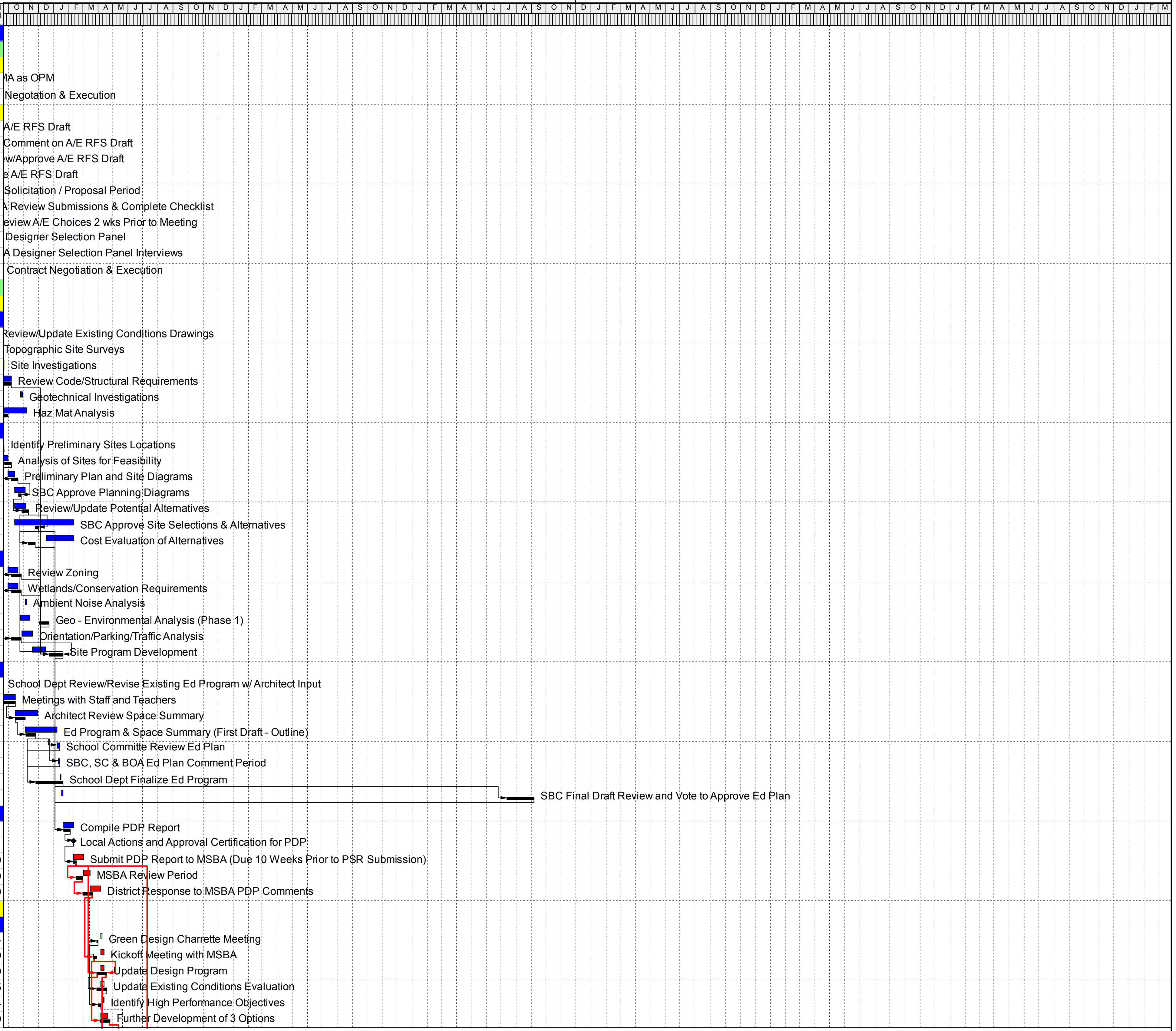
The project schedule anticipates MSBA Board of Director's approval to proceed into Schematic Design at their July 20, 2016 meeting and MSBA Board of Director's approval of the Project Scope and Budget Agreement at their January 25, 2017 meeting. District-wide appropriation voting will occur prior, in the month of November 2015. The project schedule follows.

Somerville High School Project
Project Directory - 2/10/16

Role	Name	Title	Phone No.	Ext.	E-Mail	Cell	Address
OWNER	**City of Somerville**						
	Joesph Cutatone	Mayor of Somerville			mayor@somervillema.gov		93 Highland Ave, Somerville MA 02143
	Tony Pierantozzi	Chair of Building Committee	857 247-6599		tpierantozzi@k12.somerville.ma.us		76 Putnam Road, Somerville, MA 02145
	Anthony Ciccariello	Liason to the Mayor for construction	617 625-6600	3640	tciccariello@k12.somerville.ma.us		150 Glen Street, Somerville MA, 02145
	Robert King	Director of Capital Projects and Planning	617 625-6600	5123	rking@somervillema.gov		1 Franey Road, Somerville, MA 02145
	Mary Skipper	Superintendent of Schools	617 625-6600	6005	mskipper3333@gmail.com		42 Cross Street, Somerville MA, 02145
	Omar Boukili	Aide to the Mayor	617 625-6600		oboukili@somervillema.gov		
	Edward Nuzzo	PM for Capital Projects	617 625-6600		enuzzo@somervillema.gov	617 869-6505	1 Franey Road, Somerville, MA 02145
	John Breslin	Director of IT for SPS	617 625-6600		jbreslin@k12.somerville.ma.us		
	Dave Goodridge	Somerville IT Department	617 625-6600		dgoodridge@somervillema.gov		
	Arn Franzen	Director of Parks & Open Space	617 625-6600	2500	afranzen@somervillema.gov		93 Highland Avenue, Somerville MA, 02145
	Kevin Kelleher	Fire Chief	617 623-1700	8100	kkelleher@somervillema.gov		266 Broadway, Somerville MA 02145
	David Fallon	Police Chief	617 625-1600		dfallon@somervillema.gov		220 Washington St, Somerville MA 02143
	Goran Smiljic	Superintendent of Inspectional Services	617 625-6600	5600	gsmiljic@somervillema.gov		1 Franey Road, Somerville MA, 02145
	Charles F. Quigley	Director of Engineering	617 666-3311	5165	cquigley@somervillema.gov		1 Franey Road, Somerville MA, 02145
	Walter Whitney	Superintendent of Buildings and Grounds	617 666-3311		wwhitney@somervillema.gov		1 Franey Road, Somerville MA, 02145
	Steve MacEahearn	Superintendent Highways and Sanitation	617 666-3311		smeceachern@somervillema.gov		1 Franey Road, Somerville MA, 02145
	Ginger Barrett	Superintendent Water and Sewer	617 625-6600	5850	gbarrett@somervillema.gov		
	Rachel Kelly	ConCom	617 625-6600	2516	rkelly@somervillema.gov		
	George Proakis	Design Review Committee - Director			ospcd@somervillema.gov		
	Vithal Deshpande	Environmental Coordinator	617 625-6600	5070	vdeshpande@somervillema.gov		
	John Power	Chief Wire & Electrical Inspector	617 625-6600	5634	jpower@somervillema.gov		1 Franey Road, Somerville MA, 02145
	SHS Building Committee						
	Joesph Cutatone	Mayor of Somerville	617 625-6600	2100			
	Tony Pierantozzi	Chair of Building Committee	857 247-6599		tpierantozzi@k12.somerville.ma.us		76 Putnam Road, Somerville, MA 02145
	Robert King	Director of Capital Projects and Planning	617 625-6600	5123	rking@somervillema.gov		1 Franey Road, Somerville, MA 02145
	Steven Roix	School Committee Representative	617 863-7649		sroix@k12.somerville.ma.us		21 Pinckney Street, Somerville MA, 02145
	Mary Skipper	Superintendent of Schools	617 625-6600	6005	mskipper3333@gmail.com		42 Cross Street, Somerville MA, 02145
	Stan Koty	Commissioner of Public Works	617 625-6600	5109	skoty@somervillema.gov		1 Franey Road, Somerville, MA 02145
	John Oteri	Headmaster SHS	617 625-6600	6111	joteri@k12.somerville.ma.us		81 Highland Avenue, Somerville MA, 02145
	Richard Melillo	Director of Student Services	617 625-6600	6028	rmelillp@k12.somerville.ma.us		42 Cross Street, Somerville MA, 02145
	Edward Bean	Finance Director/Auditor	617 625-6600	3210	ebean@somervillema.gov		93 Highland Avenue, Somerville, MA 02145
	Thomas Bent	President of Bent Electric	617 628-0831		tbent@bentelectric.com		59 Innerbelt Road #A, Somerville MA, 02145
	Anthony Ciccariello	Mayor's Liason to Construction	617 625-6600	3640	tciccariello@k12.somerville.ma.us		150 Glen Street, Somerville MA, 02145
	Mary Jo Rossetti	Former School Committee, BoA	617 623-0092		Mrossetti2@somervillema.gov		80 Electric Avenue, Somerville MA, 02145
	Nelia Braga	SHS Teacher	617 529-5201		nbraga@k12.somerville.ma.us		351 Washington Street, Somerville MA, 02145
	Adda Santos	SHS Teacher	NA		asantos@k12.somerville.ma.us		27 Conwell Street, Somerville MA, 02145
	Board of Alderman						

Role	Name	Title	Phone No.	Ext.	E-Mail	Cell	Address
	John M Connolly	Alderman at Large	617 625-0781		aldermanconnolly@gmail.com		
	Mary Jo Rossetti	Alderman at Large	617 623-0092		MJRossetti@somervillema.gov		
	Dennis M Sullivan	Alderman at Large	617 628-1857		aldermansullivan@aol.com		
	William A White Jr.	Alderman at Large (President)	617 625-9110		william.a.white@verizon.net		
	Matthew Mclaughlin	Ward 1	617-999-0924		mmclaughlin@somervillema.gov		
	Maryann M Hueston	Ward 2	617 492-5331		mheuston@hotmail.com		
	Robert J McWalters	Ward 3	617 623-7053		RMcWatters@somervillema.gov		
	Tony Lafuente	Ward 4	617 686-6397		tony@tonylafuente.com		
	Mark Neidergang	Ward 5	617 629-8033		M.Niedergang@comcast.net		
	Rebekaj L Gewirtz	Ward 6	617 718-0792		rebekah.gewirtz@gmail.com		
	Katjana Ballantyne	Ward 7	617 440-4433		katjana@katjana.org		
	School Committee						
	Adam Sweeting	Ward 3 Chairperson	617 666-8787		asweeting@k12.somerville.ma.us		
	Carrie Normand	Ward 7	617 623-0321		cnormand@k12.somerville.ma.us		
	Steven Roix	Ward 1	617 863-7649		sroix@k12.somerville.ma.us		21 Pinckney Street, Somerville MA, 02145
	Dan Futrell	Ward 2	617 651-1070		dfutrell@k12.somerville.ma.us		
	Christine T. Rafal	Ward 4	617 335-0164		crafal@k12.somerville.ma.us		
	Laura Pitone	Ward 5	617 776-6035		lpitone@k12.somerville.ma.us		
	Paul Bockelman	Ward 6	617 623-8863		pbockelman@k12.somerville.ma.us		
	William A White Jr.	Alderman					
	Mary Skipper	Secretary to the School Committee, Superintendent of Schools					
OWNER'S PROJECT MANAGER	**PMA**						
	Chris Carroll	Project Director	781 519-1060	1060	ccarroll@pmaconsultants.com	617 964-9260	25 Braintree Hill Office Park, Suite 303 Braintree MA 02184
	Chad Crittenden	Asst Project Director	781 519 -1076	1076	ccrittenden@pmaconsultants.com	508 494-7088	
	Kevin Nigro	Asst Project Director			knigro@pmaconsultants.com	781 964-9560	
	Sean Burke	Project Manager			sburke@pmaconsultants.com	617 538-5432	
	Walter Hartley	Asst Project Manager	781 519-1066	1066	whartley@pmaconsultants.com	508 496-3503	
	John Lyons	Clerk of the Works			jlyons@pmaconsultants.com	617 833-7142	
	Ronald Marsden	Assistant Clerk of the Works			rmarsden@pmaconsultants.com		
ARCHITECT	**SMMA**						
	Alex Pitkin	Senior Vice President	617 547-5400		apitkin@smma.com	617 233-5768	1000 Massachusetts Avenue Cambridge, MA 02138
	Lorraine Finnegan	Principal	617 547-5400		lfinnegan@smma.com	781 640-3756	
	Matt Rice	Senior Associate	617-520-9489		mrice@smma.com	617-417-4648	
	Phillip Poinelli	Principal - Educational Planner	617 547-5400		ppoinelli@smma.com		
	Robert Hicks	Senior Project Manager	627 547-5400		rhicks@smma.com		
STATE	**MSBA**						
	Karl Brown	Senior Architect			Karl.Brown@MassSchoolBuildings.org		40 Broad St, Suite 500 Boston, MA
	Katie Loeffler	Capital Program Manager			Katie.Loeffler@MassSchoolBuildings.org		
	Jess Delconio	Project Coordinator			Jess.Deleconio@MassSchoolBuildings.org		

Activity Name	Original Duration	Start	Finish	Total Float
Somerville High School Master Schedule				
OPM / Architect Contract (MSBA Module 2 "Forming the Team")				
OPM				
MSBA Approval of PMA as OPM	0		15-Feb-15 A	
OPM Contract Negotiation & Execution	8	09-Mar-15 A	22-Apr-15 A	
Architect				
PMA Develop A/E RFS Draft	4	20-Apr-15 A	23-Apr-15 A	
City Review / Comment on A/E RFS Draft	2	24-Apr-15 A	29-Apr-15 A	
MSBA Review/Approve A/E RFS Draft	5	29-Apr-15 A	11-May-15 A	
PMA Finalize A/E RFS Draft	1	11-May-15 A	12-May-15 A	
A/E RFS Solicitation / Proposal Period	15	20-May-15 A	10-Jun-15 A	
City/PMA Review Submissions & Complete Checklist	5	10-Jun-15 A	18-Jun-15 A	
DSP Review A/E Choices 2 wks Prior to Meeting	10	18-Jun-15 A	01-Jul-15 A	
MSBA Designer Selection Panel	0		07-Jul-15 A	
MSBA Designer Selection Panel Interviews	0		21-Jul-15 A	
A/E Contract Negotiation & Execution	10	22-Jul-15 A	04-Aug-15 A	
Feasibility Study / Preferred Option for Schematic (MSBA Module 3)				
Preliminary Design Program (PDP)				
Existing Conditions Evaluation				
Review/Update Existing Conditions Drawings	20	05-Aug-15 A	01-Sep-15 A	
Topographic Site Surveys	20	12-Aug-15 A	08-Sep-15 A	
Site Investigations	20	26-Aug-15 A	22-Sep-15 A	
Review Code/Structural Requirements	20	09-Sep-15 A	06-Oct-15 A	
Geotechnical Investigations	20	26-Oct-15 A	30-Oct-15 A	
Haz Mat Analysis	20	21-Sep-15 A	06-Nov-15 A	
Preliminary Evaluation of Alternatives				
Identify Preliminary Sites Locations	10	02-Sep-15 A	15-Sep-15 A	
Analysis of Sites for Feasibility	10	16-Sep-15 A	29-Sep-15 A	
Preliminary Plan and Site Diagrams	10	30-Sep-15 A	13-Oct-15 A	
SBC Approve Planning Diagrams	5	14-Oct-15 A	04-Nov-15 A	
Review/Update Potential Alternatives	10	14-Oct-15 A	05-Nov-15 A	
SBC Approve Site Selections & Alternatives	5	14-Oct-15 A	10-Feb-16 A	
Cost Evaluation of Alternatives	15	17-Dec-15 A	10-Feb-16 A	
Site Development Requirements				
Review Zoning	15	30-Sep-15 A	20-Oct-15 A	
Wetlands/Conservation Requirements	15	30-Sep-15 A	20-Oct-15 A	
Ambient Noise Analysis	3	04-Nov-15 A	06-Nov-15 A	
Geo - Environmental Analysis (Phase 1)	15	26-Oct-15 A	13-Nov-15 A	
Orientation/Parking/Traffic Analysis	15	28-Oct-15 A	18-Nov-15 A	
Site Program Development	20	19-Nov-15 A	16-Dec-15 A	
Educational Program & Space Summary				
School Dept Review/Revise Existing Ed Program w/ Architect Input	40	23-Jul-15 A	16-Sep-15 A	
Meetings with Staff and Teachers	20	17-Sep-15 A	14-Oct-15 A	
Architect Review Space Summary	15	15-Oct-15 A	30-Nov-15 A	
Ed Program & Space Summary (First Draft - Outline)	15	04-Nov-15 A	08-Jan-16 A	
School Committe Review Ed Plan	8	08-Jan-16 A	13-Jan-16 A	
SBC, SC & BOA Ed Plan Comment Period	3	11-Jan-16 A	13-Jan-16 A	
School Dept Finalize Ed Program	2	14-Jan-16 A	15-Jan-16 A	
SBC Final Draft Review and Vote to Approve Ed Plan	3	18-Jan-16 A	20-Jan-16 A	
PDP Report				
Compile PDP Report	10	21-Jan-16 A	10-Feb-16 A	
Local Actions and Approval Certification for PDP	0		10-Feb-16 A	
Submit PDP Report to MSBA (Due 10 Weeks Prior to PSR Submission)	3	11-Feb-16 A	01-Mar-16	0
MSBA Review Period	10	02-Mar-16	15-Mar-16	0
District Response to MSBA PDP Comments	15	16-Mar-16	05-Apr-16	0
Preferred Schematic Report				
PSR Submission				
Green Design Charrette Meeting	3	06-Apr-16	08-Apr-16	14
Kickoff Meeting with MSBA	5	06-Apr-16	12-Apr-16	0
Update Design Program	5	06-Apr-16	12-Apr-16	0
Update Existing Conditions Evaluation	5	06-Apr-16	12-Apr-16	5
Identify High Performance Objectives	3	11-Apr-16	13-Apr-16	14
Further Development of 3 Options	10	06-Apr-16	19-Apr-16	0



▬	Project Baseline Bar	🟩	Remaining Work
🟦	Actual Work	🟥	Critical Remaining Work
◆	◆ Milestone		

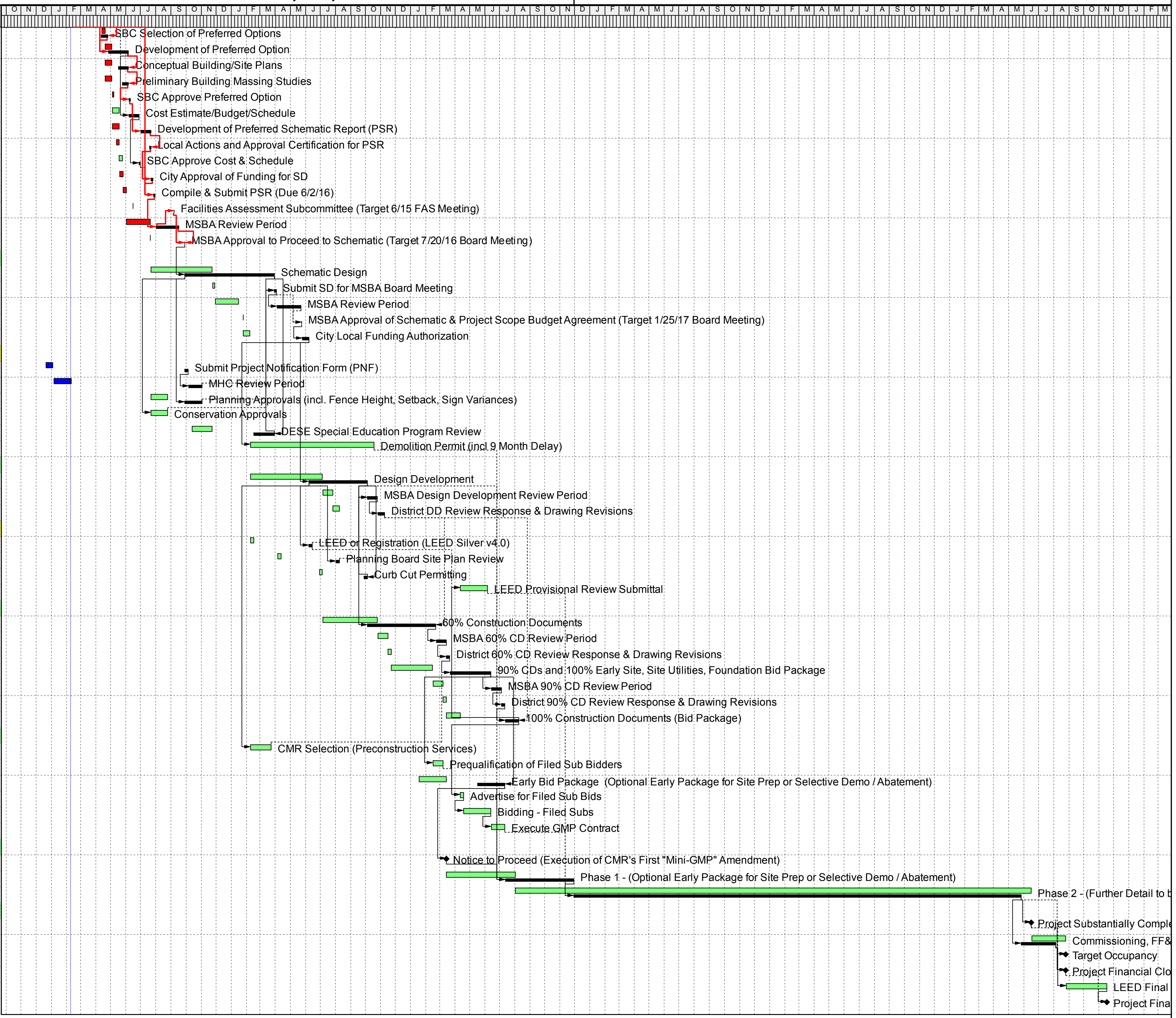
TASK filter: Hide PMA Resource Bars.

Somerville High School Master Schedule

PMA MSBA Project Layout

09-Feb-16 10:21

Activity Name	Original Duration	Start	Finish	Total Float
SBC Selection of Preferred Options	5	13-Apr-16	19-Apr-16	0
Development of Preferred Option	10	20-Apr-16	03-May-16	0
Conceptual Building/Site Plans	10	20-Apr-16	03-May-16	0
Preliminary Building Massing Studies	10	20-Apr-16	03-May-16	0
SBC Approve Preferred Option	3	04-May-16	06-May-16	0
Cost Estimate/Budget/Schedule	10	04-May-16	17-May-16	1
Development of Preferred Schematic Report (PSR)	11	04-May-16	18-May-16	0
Local Actions and Approval Certification for PSR	5	12-May-16	18-May-16	0
SBC Approve Cost & Schedule	5	18-May-16	24-May-16	1
City Approval of Funding for SD	5	19-May-16	25-May-16	0
Compile & Submit PSR (Due 6/2/16)	5	26-May-16	01-Jun-16*	0
Facilities Assessment Subcommittee (Target 6/15 FAS Meeting)	1	15-Jun-16	15-Jun-16*	0
MSBA Review Period	35	02-Jun-16	20-Jul-16	0
MSBA Approval to Proceed to Schematic (Target 7/20/16 Board Meeting)	1	20-Jul-16	20-Jul-16*	0
Schematic Design (MSBA Module 4)				
Schematic Design	90	21-Jul-16	23-Nov-16	6
Submit SD for MSBA Board Meeting	3	24-Nov-16	28-Nov-16	6
MSBA Review Period	35	29-Nov-16	16-Jan-17	6
MSBA Approval of Schematic & Project Scope Budget Agreement (Target 1/25/17	1	25-Jan-17	25-Jan-17*	0
City Local Funding Authorization	10	26-Jan-17	08-Feb-17	5
Schematic Phase Permitting				
Submit Project Notification Form (PNF)	1	21-Dec-15 A	04-Jan-16 A	
MHC Review Period	20	06-Jan-16 A	10-Feb-16	212
Planning Approvals (incl. Fence Height, Setback, Sign Variances)	25	21-Jul-16	24-Aug-16	71
Conservation Approvals	25	21-Jul-16	24-Aug-16	71
DESE Special Education Program Review	30	13-Oct-16	23-Nov-16	6
Demolition Permit (incl 9 Month Delay)	180	09-Feb-17	18-Oct-17	110
Design Development				
Design Development	105	09-Feb-17	05-Jul-17	5
MSBA Design Development Review Period	15	06-Jul-17	26-Jul-17	10
District DD Review Response & Drawing Revisions	10	27-Jul-17	09-Aug-17	10
DD/CD Phase Permitting				
LEED or Registration (LEED Silver v4.0)	5	09-Feb-17	15-Feb-17	110
Planning Board Site Plan Review	5	06-Apr-17	12-Apr-17	70
Curb Cut Permitting	5	29-Jun-17	05-Jul-17	10
LEED Provisional Review Submittal	40	12-Apr-18	06-Jun-18	45
Construction Documents				
60% Construction Documents	80	06-Jul-17	25-Oct-17	5
MSBA 60% CD Review Period	15	26-Oct-17	15-Nov-17	5
District 60% CD Review Response & Drawing Revisions	5	16-Nov-17	22-Nov-17	5
90% CDs and 100% Early Site, Site Utilities, Foundation Bid Package	60	23-Nov-17	14-Feb-18	5
MSBA 90% CD Review Period	15	15-Feb-18	07-Mar-18	20
District 90% CD Review Response & Drawing Revisions	5	08-Mar-18	14-Mar-18	20
100% Construction Documents (Bid Package)	20	15-Mar-18	11-Apr-18	20
Procurement				
CMR Selection (Preconstruction Services)	30	09-Feb-17	22-Mar-17	180
Prequalification of Filed Sub Bidders	15	15-Feb-18	07-Mar-18	45
Early Bid Package (Optional Early Package for Site Prep or Selective Demo / Ab	40	18-Jan-18	14-Mar-18	5
Advertise for Filed Sub Bids	5	12-Apr-18	18-Apr-18	20
Bidding - Filed Subs	40	19-Apr-18	13-Jun-18	20
Execute GMP Contract	20	14-Jun-18	11-Jul-18	20
Construction				
Notice to Proceed (Execution of CMR's First "Mini-GMP" Amendment)	0	15-Mar-18		5
Phase 1 - (Optional Early Package for Site Prep or Selective Demo / Abatement)	100	15-Mar-18	01-Aug-18	5
Phase 2 - (Further Detail to be Provided at SD, incl selective demolition)	750	02-Aug-18	16-Jun-21	5
Closeout				
Project Substantially Complete	0		16-Jun-21	59
Commissioning, FF&E, IT, Move, Punchlist	50	17-Jun-21	25-Aug-21	5
Target Occupancy	0		25-Aug-21*	5
Project Financial Closeout (District Level)	0		25-Aug-21	69
LEED Final Review Submission	60	26-Aug-21	17-Nov-21	9
Project Final Completion - Ready for MSBA Final Audit	0		17-Nov-21	9



▬	Project Baseline Bar	🟩	Remaining Work	◆	◆ Milestone
🟦	Actual Work	🟥	Critical Remaining Work		

TASK filter: Hide PMA Resource Bars.

EDUCATIONAL PROGRAM

2.1 GRADE AND SCHOOL CONFIGURATION POLICIES

A. Current grade configuration

Somerville High School currently serves students in grades 9-12. The ages of students at SHS range from 13 to 22 years old. The current SHS Grade 9-12 configuration includes a small group of special education students whose IEPs call for education until they are 22 years old. They belong to either the Life Skills program or to the SHIP program which services students with complex medical/health issues.

B. Proposed grade configurations to be considered

While no changes are planned to the existing 9-12 grade configuration for the comprehensive curriculum at SHS, the district's special education day/alternative junior high school and high school (Next Wave – grades 6-8; and Full Circle – grades 9-12) are planned to occupy a portion of the new Somerville High School design as a separate educational program located in a substantially separate space within the building that includes a separate entrance. Students who currently attend Next Wave and Full Circle are housed in a separate building, the Edgerly, which is a 15-minute walk from Somerville High School. The design of the school is to serve 60% students on IEPs and 40% students who are at risk and need an alternative education model. Although some Full Circle students are independent enough to take classes in the CTE program at SHS or to participate in sports and extracurricular activities at SHS, the sheer distance between the buildings and commute time serves as a barrier for this to happen on any regular basis. Our current proposal aims to locate Next Wave/Full Circle within the new SHS building so that this group of students, if their education plans allow for it, can benefit from a more comprehensive school experience by having easy access to CTE programs, sports programs, clubs and extracurricular activities, a full-time nurse, and ELL services.

C. Advantages of proposed grade configuration

I. Describe District's Approach to Facilitating Student Transitions

A transition plan is in place for rising 8th grade students throughout the district to visit Somerville High School and to attend a formal transition orientation during the summer months. These transitional experiences have been successful in helping SHS staff identify the academic, social and emotional needs of rising 8th graders so that they are able to make a more seamless transition to the 9th grade. Somerville High School also offers a Ninth Grade Experience (NGE) designed to provide a strong support structure to ninth graders as they ease into high school.

Ninth grade teachers function as a team and meet two times per week to determine strategies aimed at maximizing the potential of the students they teach, focusing on maintaining parental and support service contact. These teachers meet regularly with Housemasters, guidance counselors, adjustment counselors, and special education liaisons to ensure students are receiving the full spectrum of support they need to get a good start in high school. Biweekly meetings are also used to discuss student progress, develop curriculum materials, and to meet or talk by telephone with parents and guardians.

Additionally, for students attending Next Wave/Full Circle, there will be a transition plan in place as part of each student's educational plan for how and how often the student is able to access and participate in SHS resources and activities. This transition plan will include appropriate supports and mechanisms for monitoring each student.

II. If a Different Grade Configuration is Proposed Describe the Plans to Facilitate Transitions in the Proposed Configuration

The new design plan for Somerville High School proposes including the District's alternative programs, Next Wave and Full Circle, into a substantially separate section of the new building. Next Wave and Full Circle currently serve as the District's special education day and alternative education programs, serving students whose IEPs call for substantially separate placement. Next Wave serves grades 6-8 and Full Circle serves grades 9-12. Particularly for students in grades 6-8, there will be a transition component built into each student's education plan that will allow for a student's gradual participation in SHS's 9-12 educational program. This transition component may include participation in advanced courses, i.e. Algebra I, sports and other curricular activities.

Transitions within the building between the distinct Next Wave/Full Circle and SHS education programs will be mitigated by housing Next Wave/Full Circle in a substantially separate section or wing of the building that includes a separate entrance, flexible classrooms that will accommodate an 8:1 student-teacher ratio but can also accommodate combined classes as well, therapeutic facilities to meet the specialized needs of students, a separate meeting space/conference room, an independent science lab/maker space to be utilized exclusively by NW/FC students, and other core educational facilities. The use of adjacent common areas such as the gymnasium, auditorium, or cafeteria will be coordinated through careful scheduling and supervision.

The highly specialized therapeutic program offered to Next Wave/Full Circle students requires a substantially separate environment in which students can work on gaining the skills to be able to function in a more inclusive environment. Placement of special education students into Next Wave/Full Circle is driven by IEPs that call for a substantially separate, smaller therapeutic educational setting. In contrast, special education students in the inclusion model at Somerville High School often need accommodations to help them access the curriculum, but are able to effectively function in a larger school environment and do not need the intense psychological/social interventions provided at Next Wave/Full Circle.

The SHS Career and Technical program also entered into a new manufacturing job training partnership with Somerville Community Corporation in January of 2016 targeted at supporting young adults with their re-entry into the workforce. The Advanced Manufacturing Training Program (AMTP) targets Somerville residents ages 18-24 and focuses on preparing program participants for high-paying careers in the manufacturing industry. AMTP includes a full-time (500 hours) program which will be offered during the day with AMTP students learning alongside SHS students in the advanced manufacturing program, and a part-time (150 hours) evening program.

2.2 CLASS SIZE POLICIES

A. District policies, targets and guidelines by grade

Somerville School Committee policy does not address class size. The Unit A contract between the School Committee and the Somerville Teachers Association stipulates maximum sizes listed below, "to the extent possible, within the existing facilities." Due to the broad range of educational needs of students, the target maximum class size at SHS is 23, but will be lower for specialized programs as noted below. The wide range of educational needs and programs/ courses offered to most effectively meet the needs of Somerville High's student population requires smaller class sizes to facilitate more personalized instruction. Class sizes are also dictated by safety considerations based on the course, and space constraints in the current building classroom configurations.

Kindergarten (One Teacher)	30	Special Class	18
Grades 1-6	30	Bilingual	20
Grades 7-9	30	Physical Education	30
Grade 10	32	Vocational	20
Grades 11 and 12	30	Secondary Corrective Reading	15

B. Current average class sizes by grade

Because of the wide range of educational needs at every grade level, average class sizes by program more accurately reflect the complexity of Somerville High School's curriculum structure than average class sizes by grade. As noted above, actual class sizes are dictated by the wide range of educational needs of Somerville's student population, safety considerations based on the course (i.e., working with a kiln in an art course), and space constraints in the current building classroom configuration.

Fall Semester 2015 Class Size Averages by Department/Program:

- Art Department: 15
- Business: 14
- English as a Second Language (ESL): 14
- English: 18
- Re-Direct Program: 9
- Health: 19
- Mathematics: 18
  Media: Film Studies – 13; TV/Media Production (Semester 2) 17
- Music: Chorus – 29; Band – 45; Orchestra – 42; World Percussion: 2; General Music – 13
- Physical Education/Fitness: 18
- Science: 18

- Social Studies: 19
- World Language: 17
- Career Technical Education – class sizes and staffing ratios in State – approved programs are regulated by Chapter 74 guidelines: Child Development – 8; Cosmetology – 16; CAD – 8; Graphic Design & Visual Communication – 10; Dental Assistant – 6; Health Careers – 9; Machine Tech – 4; Computer Tech/Cisco – 12; Carpentry – 10; Culinary – 12; Metal Fabrication – 11; Automotive – 8; Electrical - 11
- Special Education: Study Skills – 10; Resource courses – 15; Life Skills – 15; Transition – 3; SHIP - 3

Note: co-taught courses that include a subject area teacher and Special Education teacher are scheduled in the four major subject areas (ELA, Match, Science, Social Studies). Class sizes are not reported separately for these courses as they are representative of the department averages as a whole.

C. Proposed changes and why or statement that no changes are proposed

No changes to class size policies are currently being proposed.

2.3 SCHOOL SCHEDULING METHOD

A. Current scheduling methodology including advantages and disadvantages

The current scheduling structure for a school day at Somerville High School is broken down into six "blocks" for a total of thirty blocks per week. Each block is fifty-five (55) minutes in duration with the exception of the first block, which is sixty-seven (67) minutes long to allow for daily morning video announcements. Students have four minutes to transition from one block to the next. Students enroll in seven courses per semester with each course meeting for four blocks each week. This accounts for 28 of the 30 blocks. The advantage of the current scheduling structure is the built-in flexibility of the remaining two blocks per week, which are devoted to student support and enrichment, advisory, school-wide assemblies and student early release days for teacher professional development.

Block	Start	End	Monday	Tuesday	Wednesday	Thursday	Friday
1	7:55	9:02	A1	A2	A3	A4	B4
2	9:06	10:01	B1	D2	B2	B3	C4
3	10:05	11:00	C1	Rotating Extension Block	C2	C3	D4
4	11:04 11:34 12:04	11:34 12:04 12:34	D1	E2	D3	E3	E4
5	12:38	1:33	E1	F1	F2	F3	F4
6	1:37	2:32	G1	G2	Advisory/Common Plan. Time/Assemblies	G3	G4

B. Proposed changes and why or statement that no changes are proposed

While the current scheduling structure offers some distinct advantages, such as the flexibility of two built-in blocks to allow for the delivery of student support and advisory programming and initiatives, we anticipate the need to make changes to scheduling as educational practices and the needs of students evolve in the years, and even decades ahead, in the new building. The current schedule could be further enhanced by building in additional flexibility, such as a before-school or after-school block that would expand students' scheduling options, thereby providing them with greater exposure to a wider range of courses. A building/layout that can support a more flexible schedule structure through thoughtful adjacencies, design of adaptable and agile classrooms and other learning environments, and improved transition flow will facilitate a flexible scheduling structure that better meets the needs of all students regardless of their primary academic pathway (CTE, standard, honors, AP, ELL).

Unlike most Vocational/CTE programs, Somerville High School does not do a week on/week off schedule or a block schedule, in order to ensure that ALL students, including those in the CTE program can take full advantage of academic courses such as Advanced Placement and world language course offerings. The use of smaller, discrete blocks of time in space that will allow for a variety of instructional approaches such as 1:1, small group, independent studies, flipped classrooms, etc. will enable and maximize a more personalized and differentiated approach to teaching and learning that the current SHS structure does not allow to happen.

Changes in scheduling are dictated in large part by evolving educational practices. In order to ensure that SHS students are receiving the most current and relevant education that prepares them for the demands of globally competitive markets, a building layout should allow for a variety of different scheduling methodologies, and be flexible enough to accommodate changing educational practices.

2.4 TEACHING METHODOLOGY AND STRUCTURE

(e.g., academies, departments, houses, teams, etc.)

A. Administrative and academic organization/structure

(e.g., academies, departments, houses, grade based cohorts, teams, room assignment policies etc.)

I. Current Organization

Somerville High School is a public, 4-year comprehensive high school with a House administrative organizational structure and a traditional academic departmental structure that includes the following departments: Visual Arts, Business Education, English, English Language Learner, Health Education/Family & Consumer Sciences, Library Media Services, Mathematics, Music, Physical Education, Science, Social Studies, Special Education, World Languages, Center for Career and Technical Education (CTE), and Athletics. Each department is located in a separate section of the building and is overseen by a supervisor/department head responsible for department curricula and for the supervision, support and evaluation of all department staff members.

SHS currently offers an integrated structure of student support in the form of a House system. There are four houses, each consisting of a Housemaster/Assistant Principal, a Guidance Counselor, and a House Secretary. House staff members are located within the building in four house clusters that are distributed throughout the current building. Each includes separate offices for the Housemaster/AP and the Guidance Counselor, a reception area, and a conference room. Additionally, there is a Guidance Counselor for ELL students who, is based near the ELL Welcome Center, and a guidance counselor for freshman CTE students who is based in the CTE wing of the existing building. Students are assigned to houses alphabetically based on last name and are assigned to the same Housemaster throughout the duration of their SHS career.

Academic programming is offered based on grade level with students generally selecting a college prep, Advanced Placement, and/or CTE pathway. A Ninth Grade Experience (NGE) is offered to all freshmen to assist in their transition to high school; that experience includes a CTE exploratory experience.

The current Administrative/Academic structure also includes a number of team-taught inclusion classes for special education students offered jointly by the special education department and academic departments, a Redirect program to support high needs students who are not in Special Education, and an Advisory program for all students. In Advisory, groups of students meet with their advisor to strengthen skills that will help them improve their academic performance and social responsibility. Advisory incorporates academic guidance, planning, organizational skills, and community building.

The Career and Technical Education program consists of six clusters, each containing one or more individual programs as follows:

- Construction Cluster: Carpentry, Electrical
- Transportation Cluster: Auto Technology
- Information Technology: Information Support Services and Networking
- Manufacturing Cluster: Architectural Design/Pre-Engineering, Machine Technologies, Metal Fabrication and Welding;
- Health Care and Human Services Cluster: Child Development, Dental Assisting Program, Health Careers/Introduction to Nursing Assistant Program;
- Commercial Services Cluster: Cosmetology, Culinary Arts, Graphic Arts & Visual Communications.

II. Proposed Changes and Why or Statement that No Changes are Proposed.

While the current administrative ‘House’ system offers an integrated structure of support within each House, the current building configuration does not allow for seamless integration of academic and support services, sharing of resources, ready access to additional support services available at the high school, or the opportunity to easily share professional expertise. Guidance and College & Career Readiness staff members are spread throughout the building, not all student support services are jointly located or adjacent to one another, and support programs are isolated from one another.

Proposed changes to the Administrative structure include the following:

- Thoughtful placement of administrative and student support services in adaptable, flexible spaces that could allow for the centralization of some administrative and student support services;
- Thoughtful placement of administrative and student support services which promotes a sense of connection and identity throughout the building, and provides for the informal supervision of students by non-teaching staff, which in turn allows students to use flexible student work areas more independently;
- Spaces and placement of spaces that will facilitate interdisciplinary work, professional collaboration, and communication between administrative and student support staff and teachers;
- Flexible classroom and conference meeting space to accommodate one-to-one or small confidential and non-confidential meetings, as well as larger meetings or professional development workshops of up to 15 people;
- Be in proximity to the Health Center and any other support services provided by the community

The current departmental structure does not facilitate interdisciplinary work or daily interdepartmental professional collaboration. Flexible classroom and spaces and thoughtful program adjacencies between specific core academic and career and technical education programs, coupled with centralized professional meeting and planning spaces, will allow for a wider range of educational program methodologies, increased and interdisciplinary teacher collaboration, larger group project work, and sharing of expertise and resources.

B. Curriculum delivery methods and practices

I. Current Practices – General Academics Covering Many Disciplines:

Many teachers are moving to more student-centered and personalized learning but are significantly influenced by current conditions that limit opportunities for more contemporary educational delivery methodologies. Teachers work to implement more contemporary educational methodologies in the best way possible, but are limited by inflexible classrooms designed for more traditional delivery methods, and limited technology due to building limitations. The English, Math, Science, Social Studies, and World Language departments design and implement curricula designed to help students master core academic content as well as develop important 21st century skills. Opportunities for authentic, relevant, real-world learning experiences are also woven into core instructional programs. Some of the existing limitations include:

- Small classrooms that limit flexibility
- Single teaching wall in many classrooms, making differentiation difficult
- Lack of ubiquitous technology that would allow students to participate in interactive and engaging methodologies
- Departmental organization that limits interdisciplinary activity
- Traditional classroom to classroom adjacencies that limit communication

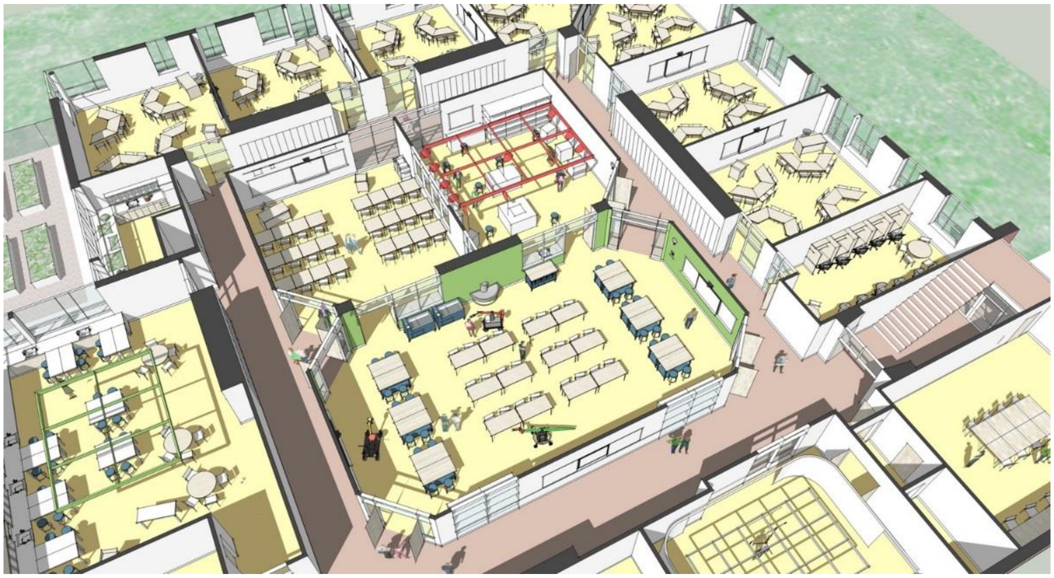
- A feeling of two schools sharing a campus (academic and CTE) with little academic cross fertilization

II. Proposed Changes and Why, or Statement that No Changes are Proposed

The goal is to move towards more student centric and personalized models that incorporate various educational delivery methodologies and which promote the development of 21st Century skills including: communication, collaboration, creativity, critical thinking, problem solving, global citizenship and others. Flexibility and adaptability within the classroom and through adjacencies are key elements to supporting a student-centered learning experience that is inviting, engaging, relevant, robust, and dynamic. In all classrooms, technology must be integral to teaching and learning. A future 1:1 ratio of laptops/devices to students should be assumed, as should the ubiquitous use of interactive technology throughout the facility.

The ability to store and charge devices within classrooms and other learning environments plays an essential role in the seamless integration of technology, providing opportunities for anywhere, anytime learning. The proper appointment of flexible, adaptable furniture including longer tables and standing-height tables that facilitate project work, as well as quiet nooks for independent work, are also critical in supporting scaffolding and differentiation.

Students should be able to showcase their learning, growth, and mastery in a variety of ways including through written papers and reports, performing scenes and skits in class, participating in debates and simulations, creating projects, presenting orally or by using multimedia in front of peers. Throughout their studies, students also need to be able to make ‘real world’ connections through project-based assignments that are relevant to current issues, and through interdisciplinary opportunities to talk with and learn from professionals and experts from the community. Ample wall space, exhibition space, storage space, lecture space, and flexible classroom spaces that can support small- to large-group instruction (100 or more students) are all elements that can further enhance instructional practices.



Organization and building elements that can contribute to these goals include:

- Interweaving of some CTE programs with academic teaching spaces
- Adjacencies of spaces that encourage communication between students and teachers
- Adjacencies of space that encourage interdisciplinary and project-based learning
- Classrooms of the proper size and appointments that promote flexible and changing use of the rooms
- Multiple teaching walls in learning environments that allow for student to student and small group teaching, and differentiation within a classroom
- Lightweight, ergonomic, and flexible furniture that contribute to the points above
- Spaces that can support burgeoning collaborative high-tech programs and extra-curricular activities available to all interested students at the school such as the FIRST Robotics Team, which is advised and supported by a collaboration of math, science and CTE teachers
- Transparency to and from classrooms to flexible student work areas, to allow for informal supervision of students as they work in more independent and small group contexts
- Multiple venues for the ongoing exhibition, showcasing and presentation of high quality student work

C. English Language Arts/Literacy

I. How Curriculum is Delivered

See paragraph 2.4.B.I for a general description of current curriculum delivery.

II. Proposed Changes and Why, or Statement that No Changes are Proposed

See paragraph 2.4.B.II for a general description of proposed changes and why.

D. Mathematics

I. How Curriculum is Delivered

See paragraph 2.4.B.I for a general description of current curriculum delivery. Additionally, in math and science students work collaboratively to conduct experiments and use manipulatives and a variety of technology to explore, understand and explain abstract concepts, create projects, solve problems, and complete activities.

II. Proposed Changes and Why, or Statement that No Changes are Proposed

See paragraph 2.4.B.II for a general description of proposed changes and why. The daily integration of current technology and resources, including the move toward a one-to-one laptop model, that would allow students to build hardware as well as program software in Makerspace-type flexible learning environments, would greatly enhance how curriculum is delivered in math classes.

E. Science

I. How Curriculum is Delivered

See paragraph 2.4.B.I for a general description of current curriculum delivery.

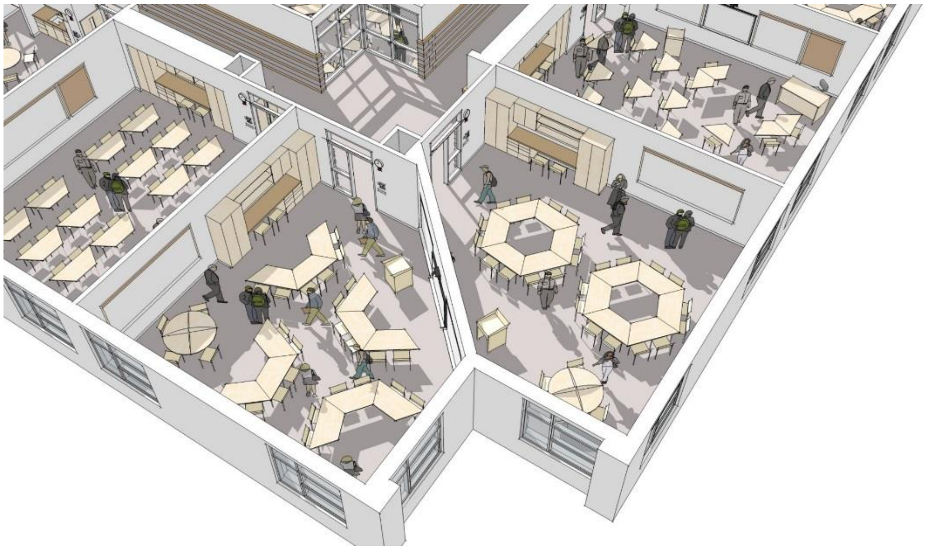
Science labs currently include traditional fixed benches that take up much of the room. Most lectures are conducted within these same (undersized) rooms. Though there is a desire to move from lecture and discussion mode to experiments, the room sizes make the transition difficult. Inflexible and traditional placement of fixed furnishings, such as laboratory tables, limit group sizes because of safety concerns. The sizes of the rooms are also not conducive to collaborative interdisciplinary project work.

II. Proposed Changes and Why, or Statement that No Changes are Proposed

See paragraph 2.4.B.II for a general description of proposed changes and why.

Additionally, Computer Science classes require a space with interactive whiteboards, tables that can be arranged in flexible groupings, adequate storage for portable technology and devices, and laptops for every student. Flexible, Makerspace-type spaces would provide students with the opportunity to build hardware as well as program software, and work with community partners regularly to gain real-world exposure and experience.

Science and engineering classrooms need to be flexible spaces to accommodate lecture and lab work and that would enable more academic cross pollination with other programs, particularly Math and CTE. Appropriate program adjacencies are critical to supporting this interdisciplinary work. Lab work and student research will be integrated into all lessons rather than the traditional separate lecture and lab portions of class. As already stated, the flexibility between a lecture and lab space is vital to provide for seamless integration of the two. Rooms need to be equipped with proper safety equipment, several sinks, peripheral and/or ceiling utilities, ample storage including cabinets, gas lines, fume hoods, and cutting-edge life and physical science lab equipment.



F. Social Studies

I. How Curriculum is Delivered

See paragraph 2.4.B.I for a general description of current curriculum delivery.

II. Proposed Changes and Why, or Statement that No Changes are Proposed

See paragraph 2.4.B.II for a general description of proposed changes and why.

Social Studies students would benefit from proximity to the Graphic Design & Visual Communications program and the Culinary Arts program. Interdisciplinary projects could include developing posters, maps, graphs, and other types of media, or creating meals from different cultures and historical periods. Social Studies students would also benefit from sharing space with the Art and Music departments, allowing for interdisciplinary art and music projects that support what students are learning about history.

G. World Languages

I. How Curriculum is Delivered

To some degree, current practices follow those described above in paragraph 2.4.B.I. This is strongly supplemented by our language lab as described below. The language lab is a vital instructional space that allows students to master all modalities of the language acquisition process.

II. Proposed Changes and Why, or Statement that No Changes are Proposed

We build a strong community within each classroom. Students and teachers consistently collaborate, take risks, and make connections to the real world. Thus, it is important that classrooms are warm, bright, flexible, and inviting, instead of impersonal and institutional.

In all classrooms, technology must be integral to teaching and learning. Access to technology throughout class is crucial and there should not be access barriers for either students or teachers. The ability to store and charge devices within each classroom plays an essential role in the seamless integration of technology. Personal technology provides opportunities for anywhere, anytime learning.

III. If Considering Language Labs Describe the Types of Activities Anticipated for the Space, How It will be Staffed, Equipped

Somerville High School currently has a language lab that it considers as an integral part of its current and future programs. World Language instruction at SHS is strongly enhanced through the language lab, a virtual space that allows students to individually or in pairs rapidly access the internet and speak and record oral activities, and interact one on one with the teacher. The teacher is able to archive the student's recordings, create a zip file, and email the student's recordings to their email or mobile device.

The lab is an instrumental part of the SHS World Language curriculum and is staffed and used on a daily basis by all 9 World Language teachers. The language lab allows students the opportunity to master all domains of language acquisition. In addition, students in the Advanced Placement Language and Culture course take their AP exams in the lab. The lab should be equipped with a minimum of 30 student computers, 2 computers for teachers, mobile partitions for testing, and the ability to project teacher and student work on an interactive board.

H. Academic support programming spaces

(e.g. ELL academic coaches etc.)

I. How Program is Delivered

English Language Learner Program

The primary goal of Somerville High School's English Language Learner (ELL) Program is to provide an educational environment that ensures that students whose first language is other than English participate fully in the school community and the community at large in order to reach his/her full potential and be prepared for the successful transition to college or career. The academic program for English Learners at Somerville High School includes a leveled sequence of English as a Second Language (ESL) courses offering explicit instruction in all of the language domains (listening, speaking, reading, writing, grammar) and placing a strong emphasis on the development of academic language proficiency. All English Language Development curricula are aligned to the World-Class Instructional Design and Assessment (WIDA) Standards as well as the 2011 Massachusetts Curriculum Frameworks and the Common Core State Standards.

ELL students are enrolled in "sheltered" content area courses in core subject areas such as math, history, science, social studies, and health to provide meaningful access to grade level curriculum as students become proficient in English. In addition, the ELL Program provides native language (Spanish and Portuguese) content support classes in math. Teaching methods and instructional strategies in these courses are highly interactive and include comprehensible input provided through visual and graphic displays and multimedia sources.

The ELL Program also provides specialized support classes for low-literacy students and students who have experienced gaps in formal schooling. These courses focus on academic language and skills that can be applied across the content areas. For ELL students who are identified with learning difficulties, there is a Resource ESL class with individual students' needs being addressed one-to-one by a dually certified (ESL and Special Education) teacher.

Teachers assume shared responsibility for the achievement of ELL students, and cross-disciplinary school-wide teams that include the ESL teachers, content-area teachers who teach English language learners, counselors who specialize in the needs of ELL students, and key staff members from the Welcome Center who speak the students' language, work closely to ensure success of all ELL students. These teams meet to create individualized supports for students who need to succeed academically. They meet regularly to align curriculum; plan integrated, cross-content projects; address student concerns; and monitor student progress and to ensure that ELL students have access to an array of learning resources and services.

The English Learner Welcome Center and the SAFE (Students Accessing Formal Education) Program at Somerville High School provide critical academic and social support to this population of students. A description of these support services follows:

English Learner Welcome Center

The Welcome Center is a support center for English Learners and their families providing tutoring, enrichment, and resource and referral. Multilingual staff members enroll new ELL students, conduct initial language and academic assessment, discuss school information with students and family members, and assist in orientation to SHS. Support to students is available at the Welcome Center on an ongoing basis including before and after school. The ELL Welcome Center is currently co-located in the SHS Guidance office in order to access counseling resources. Additional services that are available to students through the ELL Welcome Center include the ELL Wrap-Around Coordinator (mental health), Safe Harbors (housing), COPE (pregnancy and parenting), and services made available through city and community partnerships.

SAFE (Students Accessing Formal Education) Program

Students with Interrupted Formal Education (SIFE) are offered a cluster of courses to prepare them academically for full engagement in Somerville High School curriculum. A SIFE student’s course of study is determined by the ELL guidance counselor after a thorough review of educational history. In addition SIFE students are offered academic tutoring before and after school at the ELL Welcome Center, and may enroll in the Summer ELL newcomer program to receive intensive English Language development and Math instruction. SAFE Program teachers and the ELL Welcome Center staff meet on a regular basis to review student’s academic progress and need for additional social supports and community resources.

Ninth Grade Experience (NGE)

The goal of the ninth grade experience is to assist incoming ninth graders in adjusting to high school standards, expectations, and routines through a variety of educational and social opportunities. The ninth grade team consists of twelve teachers, three from each core academic department (English, Mathematics, Science, and Social Studies), who work closely together to build community and maximize student potential.

The ninth grade team meets together twice per week to address the needs particular to ninth grade students. The team works closely with the guidance counselors and Housemasters to identify specific student needs, plan interventions, and celebrate student successes. They also utilize weekly meeting time to communicate with families and create engaging and relevant interdisciplinary projects and units.

Students’ needs are served through this program by providing the ninth grade teacher team with the time, resources, and flexibility to implement the program. The ninth grade experience allows ninth graders to form a strong foundation for successful high school careers and beyond.

Newcomer Experience Support Team (NEST)

NEST is the ELL component of the Ninth Grade Experience and is designed to assist ELL ninth grade students in adjusting to high school standards, expectations and routines through a variety of educational and social opportunities. The implementation of the NEST program is targeted to foster academic success, improve attendance, reduce drop-out rates, and provide services needed for an acute population. The NEST Team consists of five teachers, and ELL and content SEI teachers who work closely together to build community and maximize student potential.

The NEST team meets together weekly to address the needs of ELL 9th graders, utilizing triggers and analyzing data. The team works closely with the ELL counselor, wraparound service coordinator, and therapist, as well as the Housemasters to identify specific student needs, plan interventions, and celebrate student successes. They also utilize weekly meeting time to community with families and create engaging and relevant interdisciplinary projects and units.

Redirect Program

Redirect is a General Education tutorial program for students who would benefit from additional academic and social/emotional support. Students use the class to work on academic assignments, develop organizational skills, and set performance goals. Organizational skill building is integral to the class and use of a planner is required. The teacher/counselor provides tutoring and reaches out to faculty and family to assist students in tracking their assignments and progress. Students are referred to the program by the Student Intervention Team (SIT).

In-School Suspension Program

The in-school suspension program is a short-term program that allows students to recalibrate and reintegrate in a safe and supportive setting. The program is staffed by a full-time teacher and is structured so that students have the opportunity to catch up on work. Current capacity is 14 students, with an average of 8-10 students in the program at any given time. The program also provides opportunity for peer tutoring support, and teachers often stop by to offer students extra help.

II. Proposed Changes and Why, or Statement that No Changes are Proposed

English Language Learner Program

To meet the diverse needs of all ELL students requires taking a holistic look at the entire ELL department to create a student-centered learning community and a shift in three key dimensions:

- Teaching and learning
- System structure
- Culture

Within this community, it is important to have an environment where students and teachers work collaboratively to create multimedia presentations, and then present and deliver information to groups and initiate substantive dialogue. This can happen when there is space and time for common planning, teacher’s conference and work area, flexible students’ work area, project preparation space, and a computer room.

Furthermore all support groups like the Welcome Center, and wrap-around services should be close at hand and readily available. Proposed changes and program enhancements include:

- Expansion of SAFE programming at flexible hours during the day
- Programming for over-age ELL students (possibly co-located with adult education programs)
- ELL Wrap-around Coordinator office and meeting space with a “trauma-sensitive” safe space for refugee, unaccompanied minor, and SIFE students
- Space for common planning and cross-departmental collaboration
- Quiet and private space in Welcome Center/ELL Suite for Language and Academic assessments.

Ninth Grade Experience (NGE)

No changes to this program are currently proposed.

Newcomer Experience Support Team (NEST)

No changes to this program are currently proposed.

Redirect Program

The SHS Redirect Program will evolve into a more formalized, non-special education academic support center in which students can enroll as a school day course and which would include a formal program of support to meet the individual needs of students. Better use of data and trends that will allow us to best allocate resources to students. The Redirect program would be located within close proximity to academic and student support services to facilitate easy access to additional support services.

In-School Suspension Program

We envision this program evolving into a more comprehensive flexible support program that can also be used as a longer-term re-integration program for students who have been out for medical or other issues.

Afterschool Academic Support

A variety of flexible, technologically equipped, comfortable medium to large spaces where groups of students can receive additional afterschool academic support would alleviate inequities in technology resources available to students at home, and provide an extended learning opportunity for students. Spaces should be able to accommodate students with different learning needs, including special education students.

I. Student Guidance and Support Services

(social support, METCO, after school programs, anti-bullying programs etc.)

I. Current Services and Programs

School Counseling Department

SHS currently supports a comprehensive school counseling and college and career readiness curriculum for all students. The mission of the School Counseling Department is to facilitate the academic, personal/social and career development of all students through a School Counseling Program that is comprehensive, preventative and developmentally appropriate. Students receive counseling programming via advisory and through individual, small and large group meetings with all counselors.

Currently, school counselors provide overall coordination of academic, post-secondary and social/emotional support for all students. These services include: new student enrollment, 8th to 9th grade transition activities, individual academic advising, monitoring of graduation and post-secondary requirements, overall post-secondary and college application support, letters of recommendation for colleges, scholarships and other enrichment programming, college tours, Post-secondary/PSAT Day, scheduling, crisis intervention and student safety assessments, re-entry meetings and development of transition plans, short-term counseling, referrals to enrichment programs, referrals to community, mental health and school resources, a Career and Technical Education Exploratory class, redirect classes, adjustment counseling, PSAT/SAT/AP, MCAS and ACCESS testing oversight.

Counselors are integral members of IEP Teams and the SHS Student Intervention Team. Counselors oversee the referral, development and management of 504 accommodation plans. They actively work to facilitate communication between the home, community resources and school faculty in order to support student's high school overall success and graduation plan. In addition, Advisory curriculum lessons are created by the College and Career Readiness Director and delivered by teachers and counselors.

The School Counseling Department also supports a variety of other programming outside of the school day including a Post-Secondary Planning night, College and Career Day, the College Fair, FAFSA Day, SHS Scholarship Awards Night, and After the Acceptance Night.

Current Structure

Currently, Somerville High School counselors are spread throughout the building. Four (4) counselors are located within each of the 4 Houses and are not housed near the two administrators that oversee the school counseling programming, making it difficult for counselors to collaborate and provide consistent services for all students. Ongoing communication, professional development and supervisory support are imperative in the school counseling field, and counselors do not currently have easy access to other counseling professionals in the high school.

School counseling offices are located throughout the school on various floors. There are four house counselor offices on the third and fourth floor, a CTE counselor located in the CTE wing of the building, an ELL counselor in the Guidance Suite, and a regular education Adjustment counselor on the fourth floor. A Guidance Suite on the first floor houses the School Counseling Director, the College and Career Readiness Director, a secretary, a College and Career Readiness room and two conference rooms. These conference rooms offer space for special education meetings and school-based counseling. One of these conference rooms also serves as a storage room for student files.

SHS Mediation Program

The SHS Mediation program is staffed by SPS and several community health agencies. It is currently located in a small office suite adjacent to the Main School Administrative Office, houses a full time Director and one full time staff member, and includes several small meeting rooms to hold mediation sessions.

Anti-Bullying and Other Positive School Culture Initiatives

The School's Culture Committee is made up of a diverse set of SHS community members. The committee plans Somerville High's culture initiatives. Other school-wide initiatives include annual administration of a culture survey among both students and staff.

II. Proposed Changes to Services and Programs and Why or Statement that No Changes are Proposed

All counselors would be located in a Counseling Suite within close proximity to the ELL Welcome Center, SHS Mediation Office, School Resource Officer (SRO), Health Center and other support services provided by the community. The School Counseling Suite should include a secretary workspace and waiting room and a College and Career Readiness (CCR) Media Center/room equipped with computers and with enough space to have the ability to meet with small groups of students to deliver lessons. This CCR room should have a window into the counseling suite/waiting room so that students can use the space independently. There should also be a registrar's office with a sliding window into the waiting room for assisting students/families and a large locked room for storage of confidential student information including all records/cumulative files, transcripts and state/college testing materials. The envisioned School Counseling Suite would also include:

- Conference room to accommodate meetings of 12-15 people.
- Four small conference rooms for school-based counseling meetings.
- Space to accommodate other community resources, counseling interns, small group testing, and the Mediation Program.
- One bathroom.
- Common area/work space for photocopier/printer/other equipment.
- Offices for the School Counseling Director, College and Career Readiness Director.
- Multiple flexible office spaces for school counselors and a regular education adjustment counselor. Offices should be large enough to hold meetings of up

to 5-6 people, and should each be equipped with multiple computers/work stations that can be used by students.

The vision behind this School Counseling Suite is that student support resources would be available in a centralized location, within close proximity to other school resources. Students would be able to come to one office to work on college and career activities and receive social/emotional support at any given time. Counselors would be able to provide a comprehensive program for all students as ongoing collaboration and communication would be fostered by being together within one space.

2.5 TEACHER PLANNING

A. Existing teacher planning spaces and scheduled planning times and how they support delivery of curriculum

(differentiate between professional development time as discussed below and teacher planning time that teachers have every day, opportunities for lesson sharing, “lessons learned” from new teaching methodologies, interdisciplinary opportunities, etc.)

In our current schedule, teachers have six of hours of planning time per week, one hour four days per week and two hours one day per week. During those planning times, teachers most often use their classroom space, if it is available. If their regular classroom space is not available, they find an alternative space to work. There are no existing spaces specifically designated as “teacher planning spaces.” Alternative spaces that teachers find to work include department offices, computer labs (if not being used by a class), the library, or other empty classrooms.

In addition to the six hours of planning time per week, teachers also meet in Professional Learning Communities (PLCs) approximately once every other week, or about two hours per month. PLCs have been organized around grade level/subject teams to work on curriculum, instruction, and assessment. Again, there is no dedicated space for this work; teachers meet in classrooms during PLC time.

For small, interdisciplinary teacher or administrative team meetings, we have a small meeting room called Gallery 81 and the sign-up for that space is in the main office. That space is used for a variety of functions including meetings, interviews, conferences, and small staff celebrations. It is usually in high demand, but is not a particularly comfortable or professional space.

B. Proposed changes to planning time and number of spaces and why or statement that no changes are proposed

The PLC structure has proven particularly fruitful at SHS. This time for teachers to work in teams must be protected, if not increased. In addition to working in grade/subject level teams, it would be ideal to create space/time for teachers to work in additional teams, such as cross departmental/grade level teams, SEI/ELL teams, and Special Education/Support teams. It would be ideal to have numerous flexible, comfortable spaces in which teachers could work and collaborate on a regular basis; spaces that incorporate elements that encourage collaboration and productivity, such as easy access to mobile devices, wall space, data boards, phone, computers and/or an interactive board where teachers could create instructional materials, analyze data, and review student work together. These spaces would ideally be located throughout the school and in close proximity to the classrooms in which teachers are teaching.

C. Current professional development practices

Currently, teachers and counselors at SHS have, by contract, two hours per month of department and/or school-wide professional development time. For the past two years, most of the professional development time, about 75%, has been organized at the department level. Much of the time has been given to teachers to develop curriculum and common assessments, and to employ a data-cycle to analyze student work and design targeted instruction/intervention based on demonstrated student need. In departments, staff members also work as a full group on best practices and vertical alignment of curriculum. There is no dedicated space for this work; teachers meet in classrooms.

The school-wide professional development time for the past two years has been organized and run by the school's standing Culture Committee. This committee is comprised of twelve teachers and two administrators who use a data-cycle approach to assessing and improving school culture. When the entire SHS staff meets, we generally re-arrange furniture in the library or sit uncomfortably in the cafeteria, as these are the only appropriate spaces that can accommodate approximately 150 staff members for an active meeting. The only other space in which the full staff gathers is the auditorium, which is appropriate only for passive meetings.

D. Proposed changes to professional development and why or statement that no changes are proposed

(include retraining and/or additional certifications of staff who will be changing grade levels or disciplines as a result of proposed changes and associated timeline)

The addition of numerous comfortable spaces in which teachers can work collaboratively during PD times would maximize the impact of professional development work. Ideally these spaces would have elements that encourage collaboration and productivity, such as easy access to mobile devices, wall space, phone, data boards, or an interactive board so that teachers could create instructional materials and review student work together. Such spaces would be flexible enough to accommodate small group PD or large group PD organized by various content, grade-level, or project-based work assignments. Additionally, the school also needs spaces equipped with flexible furniture and various educational technology that can accommodate all 150 staff members in a working environment, as well as a space large enough to accommodate all teachers for large group presentations. Since PD may take the form of video conferences, web-based seminars, or live presentations, it is important the PD spaces allow for personal and virtual interaction, a variety of breakout spaces, and visual and tactile displays.

2.6 PRE-KINDERGARTEN

(SPED only, tuition programs, locations, full day, half day, if applicable); Not Applicable

2.7 KINDERGARTEN

(full day, half day, locations, if applicable); Not Applicable

2.8 LUNCH PROGRAMS

(number of servings, district kitchen, full service kitchens, warming kitchens, etc.)

A. How program is delivered

The Somerville High School kitchen and cafeteria is located in the basement of the school. Due to design constraints, the SHS kitchen currently serves as the backup central production kitchen for the district but should serve as the district's primary production kitchen. The SHS food service program currently delivers approximately 100-150 breakfasts per day and an estimated 650-700 lunch meals per day. Food is received from vendors via a service delivery dock area located at the back of the building and is either stored or prepared right away. Students scan their ID's as they retrieve their breakfast or lunch.

SHS's lunch program is delivered in three half-hour blocks (11:04-11:34, 11:34-12:04, 12:04-12:34). Students go to one of three service lines for their lunch -- one for 'grab and go' meals, one for main entree meals, and one for the salad bar option -- and proceed to one of seven check-out stations. Students can eat in either the main café across from the kitchen that can accommodate approximately 300 students, or in one of two smaller café's on either side, each of which can accommodate up to approximately 100 students. None of the current lunch spaces offer any type of natural lighting, and are furnished with traditional long school cafeteria tables, providing very limited flexibility in seating arrangements.

The school lunch service also provides bag/boxed lunches for students going on field trips. A separate snack area stocked with healthy food options is also available adjacent to the cafeteria spaces.

B. Proposed changes and why, or statement that no changes are proposed

The Somerville High School kitchen and cafeteria should be a place where students can not only enjoy a nutritious meal and re-energize for the day, but also a place where students can comfortably connect and interact in a space that inspires community-building.

The kitchen should be designed as the district's central main production kitchen and include ample storage (refrigerators, freezers, dry stock room) to accommodate up to 1,500 students. Updated cooking equipment that meets current food service requirements would help ensure that we are meeting food safety standards, and providing students with the best possible food service.

Ideally, the design/layout of the space would offer more college-style dining with multiple meal options and lines, which would relieve wait time. The space should be bright, comfortable, welcoming, and offer multiple and varying types of seating areas where students can congregate, work, or relax.

The space should also be equipped with state-of-the-art technology to (1) relieve congestion during checkout through more advanced, wireless registers, (2) allow for prominent electronic display of menu options, and (3) provide opportunities for students to stay connected with the outside world and learn about school projects via electronic programming displays. Additional proposed changes are the addition of a dumpster and proper disposal system, as well as a recycling and composting area to support efforts to improve school sustainability.

2.9 TECHNOLOGY INSTRUCTION POLICIES AND PROGRAM REQUIREMENTS

(labs, in-classroom, media center, required infrastructure, etc.)

A. Description of existing educational technology, how it is managed by the district, how it is used in the classroom, and overview of professional support and training offered to staff

The SPS Technology department manages the technology hardware and use throughout the district, and currently leverages wired and wireless infrastructure with a blend of stationary computers and mobile devices, such as Windows laptops, Chromebooks, iPads, as well as BYOD. Currently, most departments have their own computer lab that they share building-wide. The school also has a limited number of shared Chromebook and iPad carts available for use. Most classrooms are equipped with fixed projectors and interactive whiteboards.

The Technology Department also works in partnership with district and school departments in managing software, and offers various levels of support and training, from individual support to group workshops. The Department also utilizes a “train the trainer” method working with teachers who become experts and then help provide technology support and development to teachers within their department or across the school.

B. Proposed educational objectives being pursued as part of potential project, description of how updated equipment and systems would be managed and maintained by the district, how the equipment and systems would be used in the school, and plans for professional development, or a statement that proposed equipment and systems align with current equipment, systems and practices which are to be continued

Somerville High students and teachers have benefited greatly from the use of technology throughout the day. We are looking to build upon our successes and blend more mobile devices into the school, working toward a true 1:1 program for the new building. The Technology Department would continue to manage the devices, along with a robust wireless infrastructure to support the demand, and work with all school departments to align a curriculum that supports a 1:1 program. Ideally, the new Technology office areas at Somerville High would be constructed to provide Student Internship opportunities where students can operate portions of the Technology Help Center as well as provide support to mobile devices in the classrooms. The space should be more conducive to walk-in support and have adjacencies to areas for group Professional Development opportunities. Classrooms will benefit from having projection capabilities and interactive boards.

Technology will be used prominently and ubiquitously in the new SHS. The expectation is that students will use a wireless device accessible to them throughout the day to access the curricula, to receive instruction (blogs, video, media creation, applications, etc.), to create digital content, and to perform on a variety of assessments. Simulated labs, flipped classrooms, virtual classrooms, video conference, and digital content creation will be a frequent experience for all students. Much like a college campus, such activities will take place in classroom spaces, media spaces, common spaces, open spaces, cafeteria spaces etc. Technology both as content and tool will enable, support, and prepare our students with a personalized learning experience and global learning experience.

In order to realize this technology vision, staff will need to stay current with how to integrate evolving technologies. The District will be adopting an aggressive schedule of offerings presenting technologies both as content (e.g. specific applications, coding) and as a tool to be integrated into lesson planning, instructional delivery, and assessment. PD will happen local to the school, within the district, and at partner organizations i.e. Tufts, MIT, Harvard. Since the fundamental principle in the District is that technology should be used to strengthen teaching and learning and to solve educational problems, the use of technology will always be tied directly to teaching and learning with a vision toward future use and global education. The use of technology by teachers and students will be in support of STEAM principles and project-based learning as integrated throughout the teaching and learning landscape at SHS.

C. Media Center/Library

I. Current Programming and How it is Delivered (Central Location or Distributed)

The SHS Library Media Department offers classes in TV Media Production and Film Studies through an Apple Mac Lab running Final Cut video editing software. Each class is a semester long with multiple sections depending on enrollment. The Library Media Department at SHS is also responsible for running morning announcements out of the SHS TV studio, a small space located on the first floor just outside the main entrance to the school auditorium. The current space is significantly undersized, limiting the amount of educational programming that can safely and effectively occur in this space. The studio houses three cameras, a teleprompter and a Tricaster TV switching board that allows for the merging of live video switching, broadcast graphics, virtual sets, special effects, audio mixing, recording, social media publishing and web streaming. Morning announcements and other school messages are broadcast daily from this studio. Both students and SHS staff utilize this studio as much as possible on a daily basis, given the space limitations.

The Library Media Center is composed of a centrally located large space which was formerly the high school gymnasium and an additional space known as the Media Lab or Innovation Center, where students and staff can work on technology rich projects using Apple Macintosh Computers and audio and video equipment. This space meets an essential need for students who do not have access to technology at home. The Library Media Center also serves as a meeting space for the school administrative team and is often used for professional development. It is also utilized for out-of-school-time city meetings. The space is equipped with a Smart Board and 30 desktop PC's for student and staff use. Classes utilize the space and its technology on a sign-up basis. There are also 22 Chromebooks in the Library for student and class use, with an additional 35 Chromebooks currently on order for use in the library this year.

II. Current Staffing, Professional, Paraprofessionals, IT Specialists, Volunteers etc.)

The Library is currently staffed by one full time library media specialist and one full time library utility aide who manage the circulation of books and technology, and the collection and space. The library is staffed before and after school hours by teachers and staff members who receive an additional stipend for this out-of-school-time work.

Current staffing also includes one full-time TV Media Production Teacher who teaches Film Studies/TV Media Production classes, and is also responsible working with students to produce and deliver the school morning announcements.

III. Current Hours, Scheduling of Use During School and Non-School Hours for Group and Individual Use.

The library is currently open for school-related use Mondays through Fridays from 7:00 AM until 4:00 PM except on school holidays. Scheduling of the library during non-school hours is handled through a central facility registration system managed by the district's central office. The library is periodically used during the school day for a variety of other school-related activities, including for MCAS and Access testing for ELL students, concussion testing by the Athletics department, and for various school events such as Club Fair, College and Career Fair and musical instrument rentals. Other City departments often use the library for meetings during non-school hours.

IV. Proposed Changes and Why, or Statement that No Changes are Proposed

The use of the school library during the school day for activities such as MCAS testing that require closing the Library and/or Media Center reduces the availability of a critical educational learning space to the broader student body. A design that incorporates a separate space that can be closed off for such purposes in an appropriate location within the new school design would ensure the most efficient use of the Library and Media Center as a continuous educational space and resource for all students.

The new Library Media space should offer a comfortable and inviting environment with varied and flexible work areas, and be equipped with the proper technology to support thorough research and creative work. The space should be a place where students and teachers can work independently and in groups (small and large) and access the resources they need to produce their best work, therefore would need to have the flexibility to accommodate quiet work needs and interactive group projects. The inclusion of a MakerSpace in the Media Center would allow for the practical application and lab environment students will need to test their creativity, collaboratively problem solve, build and design their ideas, and produce their projects.

The environment should include good lighting, ample natural light, windows that open but which also have shades to darken rooms for presentations, and ample charging stations for portable connectivity. The space should also include varied types of seating areas including open carpeted graduated seating, comfortable chairs for independent reading and studying, a terraced seating area for students to stretch out and use their laptops, and cafe style high-top tables and stools for small group work.

The Library could be further enhanced as an active learning space for students and staff members by incorporating other currently existing programs/elements of the school as part of the new Library Media Center, including the following:

- Incorporate the TV studio as part of the Library Media Center, transforming it into an innovation lab that has its own entrance and classroom space equipped with computers for video editing;
- Build in small group instruction and large group instruction areas that are separated from reading and quiet study areas and research areas;
- Include a Professional Development space equipped with computers to train teachers and other staff members, that could also be utilized for small group instruction/meetings;
- Add a Makerspace for STEAM-related activities, including working with equipment such as 3-D printers.

V. Narrative Description of the Types of Educational Activities Anticipated for a Media Center(s) Over the Course of a Typical School Day;

During the school day, students will utilize the Library Media Center to check out print and digital media, laptops and other devices, work on independent and collaborative research projects, and work on media-rich projects (including blogging, podcasts, green screens, video editing, and music production).

Teachers and staff members will also utilize the space for professional development and staff meetings. Students and other community agencies can use the space in the evenings to showcase individual or group dance, theater or musical performances, or for community meetings.

Activities will vary on any given day in the Library Media Center, from large classes coming in to individual students looking for a quiet area to read, complete homework and projects, and conduct research using multiple devices. The space will be particularly busy before school, after school and during the three lunch periods, making the need for flexible, adaptable spaces within the Center important to ensure that the space can be used for a wide range of activities, all of which support a strong, engaging, 21st-century focused learning experience. The Library Media Center should function not only as a critical educational space during the school day, but also as a safe and inviting place where students can meet for an after-school activity or merely to socialize and re-energize.

2.10 VISUAL ART PROGRAMS

(in-classroom, specialized area)

A. How curriculum is delivered, number of periods per academic cycle, and number of students participating in art programs

The current art department offers a large compliment of classes covering a diverse range of skills and techniques for students at Somerville High. The art curriculum integrates twenty-first century skills and all academic subjects to provide a ‘well-rounded education’ for the diverse student population in Somerville. The current enrollment is 600 students and has been subject to increase changes each semester for the past few years. Each of the four Art Teachers sees students 4 times per week during each semester, for 55-minute blocks (except block 1 which is 67 minutes).

The art department offers a wide range of courses aimed at students of varying abilities and interests. Currently, there is a wet photography darkroom and art computer labs which serve current and future curriculum. All students have the opportunity to explore the visual arts and enrich their academic and life experiences. In addition, students who wish to pursue careers in art are offered specialized courses and portfolio preparation. Students who wish to pursue an independent study in art should contact the art department supervisor. We currently offer 16 electives for students to take during their four years at SHS. We also have a Chapter with the National Art Honor Society which provides student members avenues for recognition of artistic talents and opportunities for leadership roles as visual arts students. Students provide community service through spotlighting the visual arts’ program and through community work, such as painting murals for the City Hall break room and the SHS cafeteria, and creating scenery for school plays.

B. Proposed changes and why, or statement that no changes are proposed

In order to offer students a high-quality program and meet the growing demand for this program of study for students in grades 9-12, visual arts space needs to be designed and equipped to accommodate a wide range of projects. All Art rooms should have windows that can be opened in order to allow for ventilation and the use of natural lighting for creative development. Studio art rooms should be equipped with appropriate filtration for clean air and ventilation, and classrooms should be adaptive to meet the needs of all students and accommodate courses for Skill level students that need adaptive facilities.

The following spaces have been identified as key to ensuring a robust, state-of-the-art visual arts program. These spaces currently exist, but each is currently undersized and deficient in functionality that would allow student experimentation and expression to flourish:

- Photography Lab: Should include both a studio space and a dark room facility with large sinks. Studio space should accommodate student computers with digital projection capabilities.
- Ceramics Room: Classroom studio needs to incorporate a kiln room, large sinks, and active storage area. Typical equipment would include potters wheels, pug mill, raw clay, glazes, slab roller, and drying racks.
- Computer Art Lab: Should include graphics-capable student computers, a teacher computer with digital projection capabilities, as well as a large-format professional printer and 3D printer.
- Studio Art Room(s): Multimedia art rooms for 2D and 3D artwork, with student computers and digital projection capabilities in each room to enhance student usage.

The development of visual arts skills is greatly enhanced by the opportunity for students to showcase their work. A neutral color scheme and school design that incorporates multiple display options for 2-D and 3-D student work throughout the facility would not only support student visual arts development, but would promote a strong community culture that builds student pride and represented by student creativity.

2.11 PERFORMING ARTS PROGRAMS

(music, dance, drama theater, in-classroom, specialized area)

A. How curriculum is delivered, number of periods per academic cycle, and number of students participating in music programs

Somerville High School's Music Department's mission is "to inspire and guide every student in active music making through the use of a sequential and creative curriculum that nurtures the human spirit and promotes cultural understanding." A diverse menu of course offerings and an approach to "tiered learning" is designed to inspire students and faculty to practice a growth mindset in relation to students developing sequential skills that foster continuous improvement and musical skills that promote applied music literacy in a creative and joyful environment with an outcome that will lead to continued participation in music for life. The SHS music program differs greatly from more "traditional" high school programs in that SHS ensembles and classes are open to every student. There are no audition requirements and students are accepted at every level of musicianship.

Curriculum in the SHS Music Department is delivered by highly qualified teaching artists through the use of a sequential and tiered skills based model. The curriculum focus is rooted in the concept of “Authentic Learning”, meaning that skills learned are directly related to the creation of organized sound. Constant synthesis of learned skills inspires students to take risks by improvising, as well as creatively moving to the next tier of proficiency. For the majority of SHS ensembles, learning is measured through the development of musical skills expressed in elements of effective communication, teamwork, and respect and understanding of diversity of cultural expression in the school community and in the world.

Currently, the music department has 378 students enrolled for the 2015-16 academic year with approximately 35% of students taking multiple music classes. All full year performance ensembles are operating at maximum capacity (75 choral students, 55 band students, 51 orchestral students). Our three ensemble rooms are used for 26 periods weekly. Music students share a technology lab with TV Media/Production which the Music Department occupies for music technology programming for 8 periods weekly. Another small classroom functions as the Intro to Guitar, Advanced Guitar and Jazz Band learning space. The Music Department also has access to an audio/visual room with sound equipment for traveling performances and recording, and a music technology learning space equipped with 14 iMacs for writing and recording music.

The music department space also has two distinct elements that operate outside of the school day. The first is that district middle school ensembles use our SHS ensemble rooms for their weekly rehearsal. There are 95 students in the All-City Middle School Chorus, 65 students in the All-City Middle School Orchestra and 45 students in the All-City Middle School Band. There is also an All-City Chamber Orchestra that has 25 students. Secondly, the SHS annual musical and drama production group uses the SHS ensemble rooms and the school’s sole auditorium from September until April. More than 60 students are involved in the musical production and over 50 students are involved in the drama production. Currently, there is no adjacent space to the auditorium for use as a prop/dressing room. Both productions have used the high school library to assemble their sets and to practice blocking for their productions.

B. Proposed changes and why, or statement that no changes are proposed

In addition to the need for a music and performing arts learning environment that can provide large group and small group opportunities, the SHS Music Department has tremendous need for instrument and music storage. Each space utilized for music instruction and performances currently has very limited storage space for an estimated 2,500 instruments and other performance equipment.

The SHS Music/Drama Faculty, in order to appropriately allow for creative expression and provide students with a robust music program, proposes the following changes in the new SHS building design:

- Multiple music ensemble rooms with an average capacity of 75-100 students adjacent to each other and situated around the perimeter of a main auditorium, with adjacent offices for ensemble teachers. Adequate storage for instruments, equipment and uniforms adjacent to each ensemble space would be ideal, including a string instrument storage space where temperature can be controlled locally. Small break-out/practice ensemble rooms attached to the larger ensemble rooms that can be monitored from the main ensemble room would allow for proper preparation prior to performances.

- Large, modern auditorium with sloped seating, professional level sound reinforcement, and a functional stage that allows ensembles to be setting up behind the curtain while another ensemble is performing. Proximity to a space for set, prop and costume construction, with adequate storage, allowing for a rich, full production learning experience. The auditorium space should also include adjacent dressing rooms, additional storage for audio/video equipment (microphones, monitors, cables, etc.), and be within close proximity to the City Cable editing/storage room.
- An informal space that offers “Black Box” functionality which can be used for drama classes, musical/drama rehearsals, full faculty meetings, professional development, smaller performances, presentations, and cultural events. Adjacency to an area/room for costume changes and space for prop storage would be ideal.
- Guitar/Jazz Ensemble room with a 25-30 student capacity for alternative performance ensembles. The room should be sound-proofed and include adequate storage for acoustic/electric guitars, basses and drums
- A flexible space to accommodate a Music Technology/Piano Lab for up to 20 students for electronic keyboarding and music technology classes, with appropriate storage for mid-sized electronic keyboards
- Music Practice Rooms – multiple small music practice sound-proofed rooms that would each accommodate 1-2 students for more individual instruction/study
- Music Department Main Office equipped with technology stations that can be utilized by students and teachers for performance planning, music project research, interdisciplinary projects, and professional development.

2.12 PHYSICAL EDUCATION PROGRAMS

A. How curriculum is delivered

The focus of the Somerville High School Physical Education program is on whole student wellness. The suggested Health and Physical Education path for students to fulfill their graduation requirements currently includes the following grade-level requirements:

- Freshman: Health I
- Sophomores: Physical Education
- Juniors: Health II
- Seniors: Physical Education

Currently, SHS Health and Family/Consumer Science classes are taught in four general classrooms with limited lab space and equipment, and inconsistent technology. Fashion courses are taught in a separate room equipped with sewing machines. We currently offer three sections of Physical Education (PE) each block. Each section has 15-28 students.

B. Proposed changes and why, or statement that no changes are proposed

The following proposed changes detail the existing program structure and delivery, and the reasons for the proposed program changes.

Wellness Center

Health classrooms in close proximity/attached to fitness room and gymnasium. Currently, SHS Health and Family/Consumer Science classes are taught in four general classrooms with limited lab space and equipment, and inconsistent technology. Fashion courses are taught in a separate room equipped with sewing machines. Health Education classes are transitioning to Wellness courses, incorporating fitness concepts. As such, students will be using fitness equipment, large open spaces (gymnasium), and other physical education equipment during health/wellness classes. Ideally, these classrooms would be connected to the Multi-functional lab space described below for easy access.

Flexible grouping and fitness based furniture for health classrooms and transitional. Upon moving to Wellness courses, the health classrooms will include fitness-based furniture to allow for exercising in the classroom. Research shows that more movement and less sitting better prepares students for learning. Equipment may include stand-up desks with elliptical climbers underneath, stationary bike-desks, and yoga balls.

Multi-Functional Lab Space

As we transition into Wellness courses, classes will incorporate more inquiry-based and scientific activities. This includes dissecting muscle samples, using manipulatives, analyzing cells and other samples under microscopes, spaces to investigate bones structures, joints, and the human body. This space will also be used for CPR/First Aid trainings. It would be ideal for the classrooms to be connected to the lab to facilitate easy access, and adjacency to the Science classrooms might facilitate interdisciplinary work.

Multi-Purpose Room

Due to lack of space, current physical education course offerings must be held in the fitness room, weight room or field house, which limits our ability to offer a wide variety of courses in which students have expressed an interest. A flexible multi-purpose room would allow us to offer dance, yoga, Pilates, plyometrics, and meditation. An Introduction to Dance course will begin in the 2016-2017 school year and will run on the stage in the auditorium. The stage is not an ideal size for this program, and scheduling the only large meeting space in the building is problematic. Additionally, having students practice dance on the stage can create safety concerns that would be alleviated with a multi-purpose space where students could perfect their form on a safe, floor level space before performing on the stage. This multi-purpose space could also be utilized to serve students with Adaptive Physical Education accommodations in smaller, more intimate spaces. The space should be in close proximity to the gym, fitness center, health classrooms and lab.

Large Multi-Use Fitness Center

Space constraints not only significantly limit enrollment in weight training and fitness education courses, but also create safety concerns for students and staff. The current weight room and the fitness room only allow for 20 students per class. One large flexible fitness center that can accommodate 50+ students at a time would allow us to increase the enrollment for these classes and be able to incorporate both free weights and cardio machines for both classes. Currently, if a student is enrolled in Weight Training and wants to use a cardio machine, the student needs to leave one space and walk through a hallway to get to the other space, creating both safety and supervision concerns. The Fitness Center should also include space and equipment for other workouts, including kettlebells, box jumps, training ropes, and medicine balls. The fitness room should be in close proximity to the health classrooms, lab, and gymnasium and could be designed to allow for use by members of the Somerville community during non-school hours.

Gymnasium

We currently offer three sections of Physical Education (PE) each block. Each section has 15-28 students. The space currently used is equivalent to three basketball courts, with two courts being 42’x75’ and one auxiliary court being 60’x75’. The space is sufficient for some activities, but not all. A large gymnasium is needed for maximum capacity and to mitigate safety concerns when implementing specific activities. Within the cross courts should be one main floor for athletic competitions. Currently, the gym also houses equipment for physical education and athletics in two storage rooms.

Additional gymnasium storage space is an important consideration as the current two storage rooms in the gymnasium are inadequate to store all of the physical education and athletic equipment needed for effective program delivery. Additionally, the large volume of traffic in this space during school and non-school hours requires a high-impact multi-purpose floor. PE has integrated technological devices to measure students’ resting and target heart rates. Students use the monitors not only in the fitness room but also as a warm up; as they train for their presidential fitness exams or the cooper walk/run test. This activity is done on the existing 6-lane track that surrounds the gymnasium floor. The track is also used for other activities within the lifetime activities, athletic and community events.

Locker Rooms

There are currently two locker room spaces located off of the gymnasium area. Each space also houses the physical education staff offices, showers, and a bathroom. A locker room that has secure lockers, privacy areas, showers, and is attached to the gymnasium will address many safety issues. There is also a need for two team rooms to be used for meeting spaces as well as locker room spaces for competitions. Locker room accommodations should also include unisex or transgender changing spaces. Currently, we only have two changing spaces -- separate boys’ and girls’ locker rooms. There is a need for an additional office space/bath shower space for sporting event officials. This space should be separated from the team rooms for privacy and safety reasons.

Physical Therapy & Athletic Training Treatment Space

SHS does not currently have a space that is conducive to physical therapy or athletic training. Both programs operate in tight quarters in a physical education space, with treatment space in an area that was designed for storage located close to the Field House. There is no designated space for Physical Therapy. A large enough space that can accommodate physical therapy to serve student-athletes in all athletic programs, a growing Sports Medicine course, and the athletic training program can also allow us to provide an effective, proactive approach to injury prevention and assessment. The appropriate location is in or adjacent to the fitness room, and the space should include adequate storage for physical therapy and training equipment and supplies.

Outdoor Space

There is currently no outdoor space designed for physical education programming for SHS students. A flexible outdoor space for wellness and physical education programming and for use by athletic teams for practice when weather conditions allow would help alleviate current field scheduling challenges and would allow us to offer additional activities and courses. The space could also serve as an additional community space when not in use for school programming.

Project Adventure/Rock Climbing Activities

Existing ropes course and climbing wall at the school are out of date and not up to code, therefore we are no longer able to incorporate this vital aspect into our Lifetime Activities class. An updated ropes course and rock climbing wall would allow us to offer an Adventure to Fitness class that will provide students with cooperation skills, team-building experiences, and which would serve as another avenue to inspire students to lead a healthy lifestyle. This type of course directly influences students who might not be interested in other fitness programs currently offered, and allows us to provide a variety of options to meet the varying interests of students.

Technology

We are currently piloting heart-rate monitors in two of our Fitness classes. The monitors allow us to quantify effort levels. They are a motivating factor that allows students to exercise efficiently and effectively. With Wi-Fi access in the gymnasium, we would be able to use the monitors for all activities in the gym. This would allow a student to practice a skill in a particular sport or activity and receive real time feedback in regards to how much more effort they need to exert to achieve maximum levels of fitness.

Adjacencies and Proximities

Having physical education and health classrooms be adjacent to the multi-functional health lab will promote and facilitate increased use of all spaces. Additionally, having classrooms adjacent to the fitness room and gym will allow staff to provide hands on practical instruction.

2.13 SPECIAL EDUCATION PROGRAMS

(in-house, collaborative, facility restrictions)

A. Review the special education rubric included in appendix 1 and describe where existing program and spaces align with the rubric, where they do not, and potential changes to remedy in the proposed project

The Somerville High School Special Education program is multifaceted and consists of a wide range of programming and services to meet the needs of students as determined through the IEP team process. The program is implemented in inclusionary, pull out, self-contained, and community based models. Although the majority of students are supported in an inclusionary model, some students require a more intensive and specialized level of support that is best met in a substantially separate setting. All students are included as appropriate through a thoughtful process of planning and support(s).

B. List current special education programs serving students in the proposed project including the number of special education students currently served in each program

SHS currently offers the following special education programs:

- Self-contained Life Skills program for students with severe physical and significant intellectual disabilities, serving 8-10 students up to age 22 in grades 9-12, which offers a modified curriculum with a focus on pre-vocational experience and adaptive living skills.
- A self-contained SHIP (Somerville High School Intensive Program) classroom for students in grades 9-12 with severe, often multiple disabilities and/or medical frailties. The program includes a full-time nurse and necessary medical equipment. The program has a focus on life skills, pre-vocational, and adaptive living skills.
- A self-contained Transition Life Skills program for students from 18-22 years old. The program focuses on life skills, post-secondary employment, independent living, travel training, vocational, and adaptive living skills.
- Resource Room ELA and Math program serving 10-12 students with moderate special needs in grades 9-12, who require substantially separate programs with modifications to the facility and to core content.
- Study Skills programs. Resource Rooms for students with moderate special needs in grades 9-12, serving 10-12 students. Focus on executive functioning, remediation, educational planning, and becoming independent learners.
- Team Core Academic Classes (ELA, Math, Science, History and Social Sciences). Students are team- taught by general educators and special educators within the general education setting.
- School Adjustment Counseling programs for students in grades 9-12 offers students with individual/ small group counseling, social skills/social thinking development, and crisis management support.

- Related Special Education Services include:
    - Occupational Therapy - sensory and fine motor, individual and group
    - Physical Therapy - gross motor, motor planning individual
    - Speech Therapy - speech and language therapy individual & group
    - Vision services - visual planning, tracking, orientation and mobility
    - Assistive Technology - augmentative and assistive technology

C. List Deficiencies in the Existing Program that have been Identified Locally or Through State Review

- Lack of Special Education Department Head at SHS
- Appropriate classroom based toileting facilities for Life Skills and SHIP classrooms
- Functional daily living facilities model apartment that includes (but is not limited to) a kitchen with sink and refrigerator, washing machine and dryer, and shower
- Vocational/Job Readiness work space

D. List Specialized Programs and Collaborative Spaces/Program Located in the Current School.

Specialized special education programs currently located at Somerville High School include the following. Program descriptions are included in section 13b above.

- Self-contained Life Skills program
- Self-contained SHIP (Somerville High School Intensive Program) program
- Self-contained Transition Life Skills program
- Study Skills programs
- School Adjustment Counseling programs

Collaborative special education spaces/programs currently located at Somerville High School include:

- Team-taught Core Academic Classes
- Life Skills Vocational Class taught by a special education teacher in collaboration with staff from the SHS CTE program
- Occupational Therapy - sensory and fine motor, individual and group
- Physical Therapy - gross motor, motor planning individual
- Speech Therapy - speech and language therapy individual & group
- Vision services - visual planning, tracking, orientation and mobility
- Assistive Technology - augmentative and assistive technology
- Cambridge Health Alliance/Teen Connection program
- Student Mediation program
- ELL Welcome Center

E. List Proposed Programs Any Program/Service Needs that the District Hopes to Address in the Proposed Project

The following proposed programs and services will address identified deficiencies and enhance special education services to SHS students:

- SHIP Transition Program for students up to age 22 to address a 48-month age gap in current program services. The SHIP Transition Program will require a full-time nurse in a program separate office with necessary medical equipment including a large wheelchair access toilet room with a changing table that allows for adult assistance; a ceiling built lift for moving, changing, and lifting multiple physically handicapped non-ambulatory students. The program focus would be on life skills, post-secondary employment, independent living, travel training, vocational training, and adaptive living skills.
- There needs to be a dedicated space for a Transition Specialist who works to prepare SHS Special Education students for college, career (vocational), and life success. The Transition Specialist requires an office space along with a flexible space to instruct students 1:1 or in a small group format.
- Special Education Department Head office and conference room to meet with staff, parents, and other departments to work collaboratively to meet the specialized needs of students.
- A Life Skills/SHIP Apartment Model. Various special education programs require a separate space designed to provide a simulated daily living environment. The apartment should include a kitchen, living area, a large toilet room that allows for adult assistance, and a shower. This room would also be used by related service personnel when working with students in the transitional programs to help students develop and apply functional skills and increase independence within a natural environment.
- A High Functioning Autism Spectrum Disorder Resource Room/Classroom, moderate needs. The district has identified a high level of programming need for students with high-functioning autism/ spectrum disorder with an emphasis on social skill development. This program requires a classroom space with a break-out room that allows for students to engage in small group activities as appropriate with access to smaller setting spaces to access a safe zone, sensory activities and individual/small group therapies. Additionally, this program requires a small private space that can be used for individual counseling or family meetings. This program should be located in close proximity to the Sensory Room.
- An Autism classroom (nonverbal), severe needs. SPS currently has an autism program for students in grades K-8 that will be expanding programming as our middle school students move up to the high school. This program will require a classroom space with a break-out room that allows for students to engage in small group activities as appropriate with access to smaller setting spaces to access a safe zone, sensory activities and individual/small group therapies. This program should be located in close proximity to the Sensory Room.
- A Therapeutic Classroom for students with emotional anxiety, with an attached therapeutic office/workspace. SPS has identified a high level of programming need for students with significant school phobia and anxiety at the high school level. This program requires a classroom space with its own separate entrance

and a break-out room that allows for students to engage in small group activities as appropriate. Additionally, this program requires a small private space that can be used for individual counseling or family meetings.

- A Sensory Room for Occupational Therapy. This room is needed for students diagnosed with autism and/or sensory processing disorder or sensory integration disorder. Sensory processing disorder is a neurological condition in which a person responds inappropriately to sensory signals. These students require a therapeutic space for sensory which can be overwhelming and that often prevents the brain from getting and interpreting sensory information. Inappropriate reaction to bright lights, loud noises, motion, and other sensory experiences can trigger anxiety, motor problems, behavioral disturbances, and cause difficulty learning. The Sensory Room would have stations with active areas, calming areas, and various types of sensory activities. Rooms often have dim lighting, soothing colors, vestibular swings which hang from the ceiling and other sensory devices.

F. List programs/services that will continue

The following special education programs and services will continue. Program descriptions are included in paragraph 2.13.B above.

- Self-contained Life Skills program
- Self-contained SHIP (Somerville High School Intensive Program) program
- Self-contained Transition Life Skills program
- Study Skills programs
- School Adjustment Counseling programs
- Team-taught Core Academic Classes
- Related Special Education Services including:
    - Occupational Therapy - sensory and fine motor, individual and group
    - Physical Therapy - gross motor, motor planning individual
    - Speech Therapy - speech and language therapy individual & group
    - Vision services - visual planning, tracking, orientation and mobility
    - Assistive Technology - augmentative and assistive technology

G. List programs that will be eliminated

None.

H. List programs that will be added or enhanced as a result of the proposed project

The Next Wave and Full Circle special education day and alternative education programs will be enhanced as a result of moving over to the new Somerville High School. NW/FC students will benefit from access to additional resources and educational programs available at SHS, including CTE classes, modern language, athletic programs and additional after-hours support programs and activities.

SHIP Grades 9-12 & SHIP Transition Programs will be enhanced by the use and access to a sensory room, model apartment, and transitional specialist for transitional post-secondary planning.

All SHS Special Education programming will be enhanced by the addition of a Transition Specialist and vocational planning work area to help students with a wide range of disabilities focus on post-secondary planning (college and career readiness, independent living and group work settings, vocational planning, transition to adult agencies), working with all collateral agencies for improved post-secondary outcomes.

The addition of the SHS Special Education Department Head will significantly improve the level of support and alignment with SPS goals for all students and increase inclusive and integrated opportunities for special education students.

The addition of the Life Skills/SHIP Apartment Model will make a significant difference in students' ability to apply skills learned in a natural setting that simulates a daily living environment. The apartment would also be used by related service personnel when working with students in the Transitional programs to help students apply functional skills and increase independence within a natural environment.

The Addition of the High Functioning Autism Spectrum Disorder Resource/Classroom will support SPS' identified need of programming for students with high functioning autism/spectrum disorder with an emphasis on social skills development.

Students are team taught by general educators and special educators within the general education setting. The addition of a special education work space near/attached to team core academic classes (ELA, Math, Science, History and Social Sciences) will offer the flexibility of grouping and allow students access to multiple modalities of instruction. This will help to minimize distraction and create a variety of teaching opportunities and environments that support student learning.

SPS currently has an autism program for students in grades K-8 diagnosed with autism that will be expanding programming as middle grades students move up to the high school. The addition of an Autism classroom for nonverbal students on the severe spectrum will help students be more successful within their community and with their typical peers.

The addition of a Therapeutic Classroom for students with emotional anxiety with a separate entrance and an attached therapeutic office/workspace will help to meet the SPS identified high level of programming need for students with significant school phobia and anxiety at the high school level.

The addition of a Sensory Room (Occupational Therapy) is needed for students diagnosed with autism and/or sensory processing disorder or sensory integration disorder and will allow students to access a therapeutic space for sensory that can be overwhelming to these students, and which prevents the brain from getting and interpreting sensory information.

Four special educators at SHS currently do not have a work space/office to share or work collaboratively. Special educators at SHS have a core area of academic focus (ELA, Math, Science, History) and would greatly benefit from work space for collaboration with their co-teachers, for testing students, and to conduct meetings. The addition of work spaces for special educators would greatly enhance their ability to meet the needs of students with a wide range of special needs. These office spaces would serve 2 special educators in the core academic area.

Conference spaces for meetings with special education teams, teachers, parents, and outside agencies are essential for education planning and collaboration.

I. List programs or services that will be moved from within the district (from which school they are being moved) as a result of the proposed project

Next Wave Junior High School (grades 6-8) and Full Circle High School (grades 9-12) currently serve as Somerville's special education day and alternative education programs. Both are designed to meet the special academic, social, emotional, and behavioral needs of adolescents who, for many reasons, are unable to experience success in the traditional education settings. By combining the clinical concept of a therapeutic community with the educational concepts of individualized and specialized integrated learning experiences, Next Wave/Full Circle affects academic, social, and personal successes for very high-risk students between the ages of 12 and 21. The proposed project will move Next Wave/Full Circle to a wing or separate part of the newly designed Somerville High School.

J. Previous coordinated review

I. Provide the Date of the Last Coordinated Review Program and List Any Issues and/or Problems Identified in that Review

The most recent Coordinated Program Review was completed December-March of the 2014-2015 School Year. The following issues/problems were identified in that review:

- The need to provide Professional Development for general education around the IEP process and improve inclusion practices and meeting the needs of diverse students.
- Age Span Requirements - some programs and classrooms with more than 48-month age span.
- Determination of Placement - increase in participation of general educators in team meetings and education planning
- Team Meeting Attendance - increase in participation of general educators in team meetings and education planning
- Age of Majority - emphasis on transition planning and improved post-secondary outcomes aligned with IEP development.

II. Provide the Current Status and/or Remedy of Those Issues Identified as Part of the Review

Work is already under way to address all areas of concern identified in the latest CPR, including professional development to strengthen understanding of IEP process and inclusion practices.

The creation of work spaces both near/attached to team classes will provide greater ability for special educators and general educators to plan for the needs of all students in inclusive settings. Concerns regarding professional development and determination of placement will be addressed through the combination of special educators and general educators working together throughout the IEP process, and will be enhanced by locating special educators' office/work spaces in proximity to related core academic teachers. The addition of a SHS Special Education Department Head will support collaborative work with general education department heads around professional development and inclusive practices, which will in turn help increase Team Meeting attendance, resulting in an improved placement process.

The development of the SHIP transition program along with new programming for students with Autism and High Functioning Autism Spectrum Disorder, and the addition of a therapeutic classroom for students with emotional anxiety will support planning for students with relation to Age Span Requirements and Determination of Placement.

The addition of the Life Skills/SHIP Apartment Model, SHIP Transition classroom, and Transition Specialist will work to meet the requirements with regards to Age of Majority with an emphasis on transition planning and improved post-secondary outcomes aligned with IEP development.

K. List specialized programs and collaborative spaces/program that will continue, be eliminated or added as part of the proposed project

Somerville High School is committed to inclusive education and offering co-teaching opportunities in four major content areas. The existing building does not support the needs of special education co-teaching teams to be able to be flexible enough to provide individual, small group and whole class instruction in a room next to or near their general education classroom to access extra support and accommodations as needed. The addition of a special education work space in the areas of the four main core subjects (ELA, Math, Science, History) will offer the flexibility of grouping and allow students access to multiple modalities of instruction. This will help to minimize distraction and create a variety of teaching opportunities/environments that support student learning and will help move SHS toward an inclusion model for special education students.

Currently special educators at SHS do not have a work space/office to share or work collaboratively. Special educators at SHS have a core area of academic focus (ELA, Math, Science, History) and would benefit from workspace for collaboration with co-teachers, testing students, and for meeting with students. The addition of this space would greatly enhance their ability to meet the needs of students.

L. List special education day school programs that the district currently provides or participates in, and whether the programs will continue in the proposed project

Next Wave Junior High School (grades 6-8) and Full Circle High School (grades 9-12) currently serve as the district's special education day and alternative education programs. Both are designed to meet the special academic, social, emotional, and behavioral needs of adolescents between the ages of 12 and 21 who, for many reasons, are unable to experience success in the traditional education settings and who require a substantially separate educational setting. Next Wave/Full Circle programs are currently housed in a separate building with very limited access to current Somerville high School resources. Next Wave/Full Circle will continue to operate as an independent educational program but will be housed in a wing or separate part of the newly designed Somerville High School so its students have an opportunity and access to the resources, programs, and supports SHS has to offer.

2.14 VOCATIONS AND TECHNOLOGY PROGRAMS

A. Current offerings

(separately list Chapter 74 programming and non-Chapter 74 programming)

Current Career and Technical Education program offerings at Somerville High School include the following, with current enrollment noted in parenthesis.

Chapter 74 Programs:

- Advanced Manufacturing (10)
- Automotive (41)
- Architectural Design/Drafting (14)
- Carpentry – (31)
- Cosmetology – (39)
- Culinary Arts – (41)
- Dental Assisting – (13)
- Early Education and Care – (22)
- Electrical – (35)
- Graphic Design and Visual Communications – (24)
- Health Careers – (34)
- Information Support Services and Networking – (25)
- Metal Fabrication/Welding – (30)
- Non-Chapter 74 Programs:
- Business – (140)
- Exploratory, Grade 9 (186)

B. Non-Chapter 74 Programming Vocational / Technical / Enrichment / STEM Programming

I. Describe Program (Design, Robotics, Maker Spaces, etc.), Activities, and how it is Coordinated with Other Curriculum as Applicable.

The following non-Chapter 74 programs are offered at the SHS Center for Career and Technical Education and are available to all Somerville High School students. Students can access these programs through the Guidance Department, or through the Program of Studies under the CTE Exploratory program.

- Career Center -- used six blocks per day, five days per week by all CTE students assigned
- OSHA-10 -- Every SHS CTE student becomes either OSHA 30 or OSHA 10 certified. This is an industry credential.
- Career-talent interest assessment -- Completed throughout the CTE students' lessons, with most of the assessment conducted during the exploratory process.
- Academic integration with Math and English Departments

- Resume writing support that assists students in gaining the necessary communication skills in every program
- College applications/preparation support
- Business: Entrepreneurship, personal finance, softs-skills, framework (140 students per week)

These non-chapter 74 programs and services address the following program strands:

- 4: Employability and Career Readiness Knowledge and Skills
- 5: Management and Entrepreneurship Knowledge and Skills
- 6: Technological Knowledge and Skills

II. How Curriculum is Delivered, Number of Periods per Academic Cycle, and Number of Students Participating in Program

Curriculum delivery:

- Grade 9: 4-blocks per week
- Related theory: (classroom instruction)
- Grade 10: 1-block per week
- Grade 11: 2-blocks per week
- Grade 12: 3-blocks per week

Lab/Practical shop time:

- Grade 10: 3-blocks per week
- Grade 11: 6-blocks per week
- Grade 12: 9-blocks per week

Center for Career and Technical Education (CTE) afterschool use:

- CTE-Safety committee – 30 students
- CTE-SKILLS USA – 30 students
- Culinary: Future chef's – 15 students

The number of students currently participating in each program is noted above under the "Current Offerings" (paragraph 2.14.A)

III. Proposed Changes and Why, or Statement that No Changes are Proposed

Chapter 74 Programs
Through research in employment trends and local data from the Regional Employment Board, the following four programs would be proposed to be added to the currently existing menu of CTE programs once the new building is online to continue providing students with skills and expertise in growing industries.

- Barbering
- Plumbing
- HVAC
- Medical Occupations

IV. Describe General Program Requirements Including Equipment, Practices, Safety Measures, Training, Partnerships and Support.

All 13 Chapter 74 approved programs have a complete list of equipment. Each of the 13 programs follows the Massachusetts State Frameworks in strands 1-6.

Students must pass safety strand 1 and follow a program specific safety plan before proceeding to strands 2-6.

CTE – Program Area	***Certifications***	***Articulation Agreements***	***Partnerships***
Automotive Technology *Chapter 74 approved*	*ASE-Student, OSHA-10, Chapter 74*	*Universal Technical Institute, Ben Franklin Institute, Massachusetts Bay Community Colleges, New England Tech*	*Somerville DPW, Herb Chambers Motors, Valvoline*
Carpentry *Chapter 74 approved*	*OSHA-30, Chapter 74*	*Local 55 Apprenticeship Union, Local 22 Laborers Union, Massachusetts Bay Community Colleges, Bennett Street School, New England Tech*	*Assembly Row, Block 6, Somerville Housing Authority, Boston Closet*
Culinary Arts *Chapter 74 approved*	*Osha-10, serve-safe, Chapter 74*	*Massachusetts Bay Community Colleges, Johnson &Wales, New England Tech*	*Future Chef's, Tufts University, Many local restaurants*
Dental Assisting *Chapter 74 approved*	*Dental Assisting Association, OSHA-10, Infection Control, Chapter 74*	*Middlesex Community College*	*Tufts University, several local dentist offices*
Early Education and Care *Chapter 74 approved*	*OSHA -10, Mass EEC, Chapter 74*	*Massachusetts Bay Community Colleges, New England Tech*	*City of Somerville Public schools, k-8, Somerville YMCA*
Electrical *Chapter 74 approved*	*Osha-30, Chapter 74*	*Wentworth Tech, New England Tech, Ben Franklin Tech*	*Local 103, Gibbons Electric, Costas Hatzis Electric*
Graphic Design and Visual Communications *Chapter 74 approved*	*OSHA-10, Adobe, Chapter 74*	*Massachusetts Bay Community Colleges, Suffolk University, New England Tech, Ben Franklin Tech*	*City of Somerville,*
Health Careers *Chapter 74 approved*	*CPR, First Aid,*	*Bunker Hill Community College, New England Tech,*	*Courtyard Nursing, Strongwater Farm, STAND-Students Taking Action On Nursing Diversity*

CTE – Program Area	***Certifications***	***Articulation Agreements***	***Partnerships***
Information Support Services and Networking ISSN *Chapter 74 approved*	*CISCO – Academy, OSHA-10, Chapter 74*	*Massachusetts Bay Community Colleges, New England Tech,*	*City of Somerville,*
Machine Technology *Chapter 74 approved*	*MAC-WIC, OSHA10, Chapter 74,*	*Massachusetts Bay Community Colleges, New England Tech, Ben Franklin Tech*	*Gillette, Greentown Labs, Dale Engineering, Lytron Inc,*
Metal Fabrication and Welding	*OSHA-10, Chapter 74*	*Local 7, Local 17, Local 22, New England Tech, Ben Franklin Tech*	*Local 7, Assembly Row*
Architectural Design/Drafting *Chapter 74 approved*	*OSHA-10, CAD, Solidworks*	*New England Tech, Ben Franklin Tech, Massachusetts Bay Community Colleges, Wentworth Tech*	*Gale Associates*
Cosmetology *Chapter 74 approved*	*OSHA-10, Massachusetts State Cosmetology License, Chapter 74*	*Massachusetts Bay Community Colleges*	*Christina's, Michael's on Newbury, Supercuts, Sportclips*

Additional program-specific requirements include the following:

- Health Careers - Grade 12 - Required for the Certified Nursing Assistant CNA license
  - Internships with Courtyard Nursing in Medford on Monday and Thursdays for 3-blocks
  - City of Somerville, working with school nurses on Fridays, 3-blocks
- Early Education and Care - Grade 12 - Required for EEC credential license
  - Internship with City of Somerville elementary schools, 9-blocks per week
- Dental Assisting - Grade 12 - Required for Dental chair and XRAY licenses
  - Internship at Tufts University School of Dentistry in Boston on Fridays, 3-blocks
  - Internship with local dentist one day per week, 3-blocks
- Co-operative education: Several programs, averaging around 10 students

C. Chapter 74 Programming

I. Existing Programming, Current Enrollment, and Capacity per Program

An aggressive five-year recruiting plan is in effect and has produced positive results in increased enrollment in various CTE programs. An annual Career and Technology Fair with authentic interaction has resulted in, and continues to produce increasing enrollment in CTE programs.

During Exploratory, Somerville High School students explore all 13 CTE areas and spend one block of each cycle being assessed for talent and interest. Students follow a specific exploratory outline that includes safety, talent and interest assessment, hands-on competencies, career opportunities, and reflective writing and shadowing. Each student explores for four blocks per week, from September to June, for a total of 144 hours.

A scope and sequence plan is designed for all 13 CTE programs. Each program varies, but the basic requirements for a chapter 74 certificate include passing all 3 years of 75% or better in 80% of the priority 1, 2 and 3 competencies in strands 1-6, OSHA-10 certification, completion of the business course, and secondary certification where applicable.

- Advanced Manufacturing (current enrollment 10; capacity 40)
- Automotive (current enrollment 41; capacity 60)
- Architectural Design/Drafting (current enrollment 14; capacity 40)
- Carpentry – (current enrollment 39; capacity 60)
- Cosmetology – (current enrollment 31; capacity 50)
- Culinary Arts – (current enrollment 41; capacity 60)
- Dental Assisting – (current enrollment 13; capacity 60)
- Early Education and Care – (current enrollment 22; capacity 40)
- Electrical – (current enrollment 35; capacity 50)
- Graphic Design and Visual Communications – (current enrollment 24; capacity 50)
- Health Careers – (current enrollment 34; capacity 50)
- Information Support Services and Networking – (current enrollment 25; capacity 40)
- Metal Fabrication/Welding – (current enrollment 30; capacity 50) – need additional teacher for capacity
- Exploratory, grade 9: (current enrollment 186; capacity 250)

II. If the District is maintaining the Same Curriculum and Offerings a Statement Confirming the District's Intentions.

Somerville High School will maintain its existing 13 programs with curriculum aligned with the Massachusetts State Frameworks. The SHS Center for Career and Technical Education has also proposed the addition of four new CTE programs when the new building comes online.

For further documentation associated with the existing and proposed Chapter 74 programs, refer to the attached Chapter 74 Programming Submission located at the end of this Section.

III. Schedule of Implementation for the Proposed Programming Regarding Staffing, Curriculum Development and Project Program Enrollment from Start to Full Implementation.

The schedule of implementation for the proposed programming is currently in development and will be submitted as a supplement to the PDP submission.

2.15 NARRATIVE DESCRIPTION OF THE TYPES OF EDUCATIONAL ACTIVITIES INTENDED FOR CORE ACADEMIC SPACES OVER THE COURSE OF A TYPICAL SCHOOL DAY

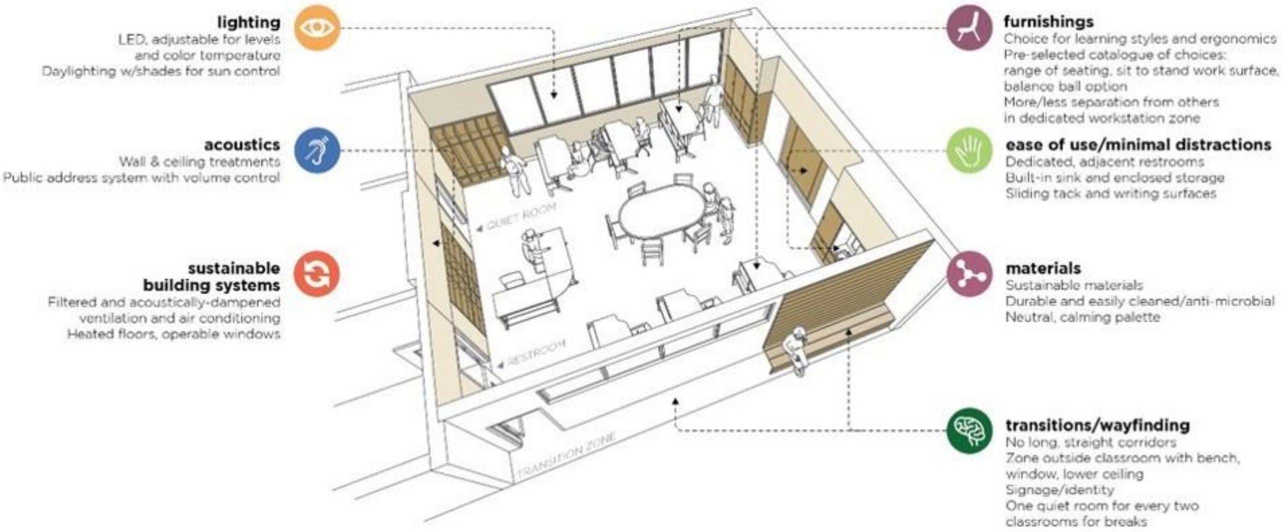
A. Narrative description of core academic educational activities intended inside the general classrooms. include how the activities support delivery of the educational program

The SHS academic curriculum will help students master core academic content as well as develop important 21st century skills including creative and critical thinking, communication, technology and media literacy, collaboration, and leadership. In order to help students develop engagement with their community, opportunities for authentic, relevant, real-world learning experiences should be woven into all core classes. Building a strong community within each classroom will allow students and teachers to consistently collaborate, take risks, and make connections to the real world. Thus, it is important that classrooms are warm, bright, and inviting, instead of impersonal and institutional.

Lessons delivered in classrooms will be student-centered and engage students in tasks that involve collaboration, problem solving, and application of knowledge. As a result, instructional practices will change frequently throughout class. At the start of class, a teacher may demonstrate a concept or skill by using direct instruction or flip the experience by using an online, blended model. During this time, the teacher or projection is the focus of the lesson and the configuration of the class reflects that. Then, the teacher differentiates and personalizes learning by splitting the class into pairs and/or small groups. The furniture shifts quickly. Students collaborate and they explore the task by sitting in small groups with their peers. Other students stand and move around to write on paper or boards located on the walls, some students utilize technology, and other students move into centers or zones and explore personalized learning stations. Once again, the furniture shifts. The students continue to collaborate, take initiative, and dig deep into their learning. At the end of class, the teacher brings the class back together for a whole class debrief and the space shifts once again. Flexibility and adaptability within the classroom are key, and ample space is needed in the room to allow for multiple configurations throughout a lesson and the course of the day.

The SHS curriculum contains a variety of assessments that require students to showcase their learning, growth, and mastery. The end of the unit assessments are relevant, robust and complex and vary by student readiness, interests, and learning style. Students write papers and reports, perform scenes and skits in class, participate in debates and simulations, create projects, and present orally or by using multimedia in front of their peers. Additionally, in math and science, students work collaboratively to conduct experiments, use manipulatives to explain abstract concepts, create projects, solve problems, and complete activities using technology including graphing calculators, computers, iPads, and lab probeware. In order for students to participate in authentic learning experiences and project based assessments, classrooms need longer tables and standing-height tables so that students can work on inventive, real world projects and products. Once again, flexibility, mobility, and adaptability of a space for all disciplines is essential to practice and hone 21st century skills and learning.

In all classrooms, technology must be integral to teaching and learning. Access to technology throughout class is crucial and there should not be access barriers for either students or teachers. The ability to store and charge devices in every classroom plays an essential role in the seamless integration of technology.



lighting
LED, adjustable for levels and color temperature
Daylighting w/shades for sun control

acoustics
Wall & ceiling treatments
Public address system with volume control

sustainable building systems
Filtered and acoustically-dampened ventilation and air conditioning
Heated floors, operable windows

furnishings
Choice for learning styles and ergonomics
Pre-selected catalogue of choices: range of seating, sit to stand work surface, balance ball option
More/less separation from others in dedicated workstation zone

ease of use/minimal distractions
Dedicated, adjacent restrooms
Built-in sink and enclosed storage
Sliding tack and writing surfaces

materials
Sustainable materials
Durable and easily cleaned/anti-microbial
Neutral, calming palette

transitions/wayfinding
No long, straight corridors
Zone outside classroom with bench, window, lower ceiling
Signage/identity
One quiet room for every two classrooms for breaks

Classroom furniture needs to be adaptable, flexible, and mobile. The furniture should include student desks that can move easily and configure into multiple groupings that will allow for scaffolding and differentiated instruction. When differentiating, the teacher will work one-on-one with a student or with a small group while the other groups are engaged and applying their knowledge. Ample space to work independently without disruption from other groups is essential for students. In order to accommodate group work, centers/zones, projects, individualized instruction and small group re-teaching, the room should be large enough so that students and teachers are not in close proximity. Classrooms need to be large enough to accommodate flexible grouping for large classes.

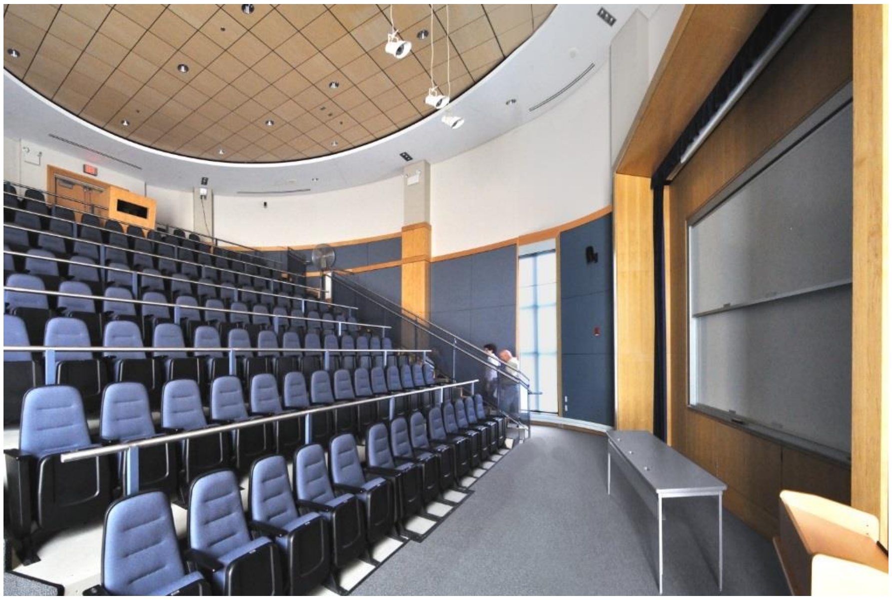
Currently, many teachers have limited space in the classroom and do not have multiple areas to collect and anchor ideas in their rooms on whiteboards, large post-its, etc. When teachers and students are collaborating or presenting their work, multiple large writing spaces on the wall are needed. Especially if classrooms are going to be shared by multiple teachers, there needs to be ample wall space so that student thinking such as anchor charts can be displayed throughout units and ample storage space including multiple teacher desks to accommodate the needs of at least two teachers. This is in addition to a central location where work is projected from a computer or device.

B. Narrative description of core academic educational activities intended outside of the general classrooms (including outdoor learning area)

I. Include Spaces Needed to Support that Activity, how the Activities Support Delivery of the Educational Program, how the Spaces would be Used by Students and Scheduled and Monitored by Staff, and Desired Spatial Relationships and Adjacencies.

In an ideal educational environment, learning should be happening in all areas of the school building, not just inside the four walls of a classroom. All building spaces should be utilized as learning environments, including presentation/lecture halls, the auditorium, hallways, common spaces, the cafeteria, and outdoor spaces.

Teachers consistently collaborate and want to combine classes to teach and support their students. In order to do so, a space that accommodates at least two classes (40 or more students) is necessary. A larger space (100 or more students) is also needed to accommodate student presentations, exhibitions, performances, and guest speakers. Because of our desire for students to connect the curriculum to the real world, we frequently bring in guest speakers; we have brought in multiple speakers to one event and have had students choose which speaker they would like to hear. These types of events are powerful, but require multiple medium to large spaces that can comfortably accommodate 150-200 students. In addition, a formal presentation space will be used for authentic assessment experiences in which students could make presentations and defend their work to larger groups and members of the community. Multiple spaces that can accommodate medium to large groups would allow us to expand our connection to the community.



Hallways and common spaces throughout the school can become places to inspire learning and creativity. Exhibition spaces in the hallways are necessary to showcase student work and 2-D and 3-D projects and common spaces can be utilized for collaborative work both during and outside of class time. Students who would like a small nook or “quiet” space to reflect on their own learning or complete a self-directed learning task should be able to find multiple spaces to do so throughout the building. Sufficient transparency should be provided to allow for views in and out of classrooms so that teachers can monitor students as they work independently and in small groups when outside of, but in close proximity of classrooms. Blinds can be provided to block these views when desired.

The Somerville High School cafeteria should be a place where students can not only enjoy a nutritious meal and re-energize for the day, but also a place where students can comfortably connect and interact in a space that inspires community-building and continuous learning. Students may choose to continue working on their studies in an Internet café-style environment, or sit with a peer group to work collaboratively on a project during a “working lunch.” Ideally, the design/layout of the space would be more like college-style dining with multiple seating and environment options.

Currently, we have very little outdoor spaces for students. Outdoor spaces could be used for multiple functions including biological and environmental studies and data collection, physical education and athletic teams, and as a common space for classes or student groups to meet throughout the school day.

Desired site adjacencies to consider include locating spaces utilized for external out-of-school-time programming -- such as the gymnasium, auditorium, and cafeteria -- together to limit access only to those areas during non-school hours and to facilitate non-school related usage, security, and scheduling.

2.16 TRANSPORTATION POLICIES

A. Current services and practices

Students generally walk, take public transportation, or are driven to and from school. Transportation to and from the high school is provided by the district only to students in homeless situations who are living outside the district and to special education students who have transportation services required in their Individual Educational Plan.

Transportation services for homeless students is provided by small van or cab, and arranged by the District Homeless Liaison. The number of homeless students attending Somerville High School varies throughout the year. Large yellow school buses are chartered for athletic events and field trips throughout the year. In addition, the school department owns two activity buses and several vans that are parked at the high school and are used for day or evening events.

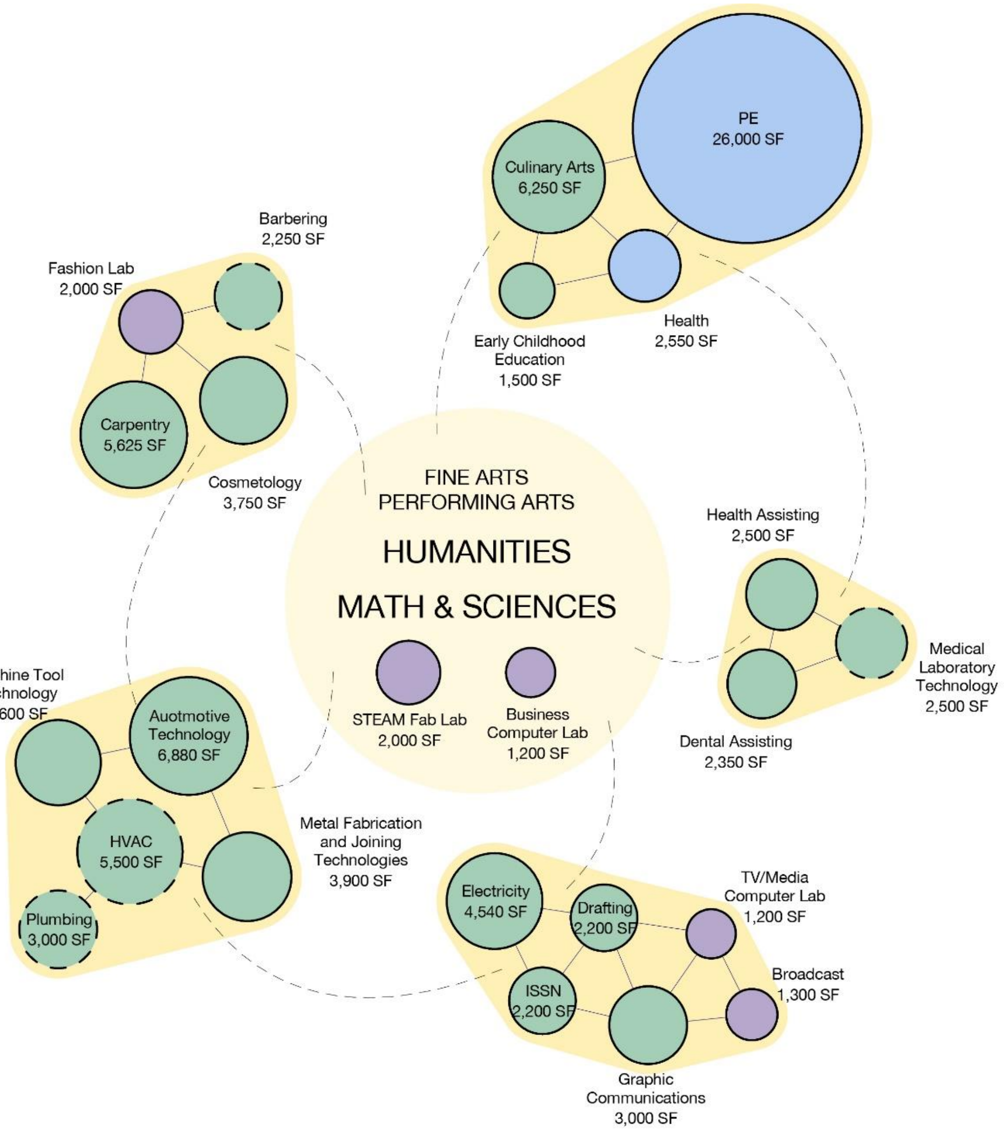
B. Proposed changes and why, or statement that no changes are proposed

While no changes to the current transportation policies are proposed, it’s important to note that the proposed Green Line extension will have some impact particularly on foot traffic in the area. The Green Line extension does include plans for a station at Gilman Square that would likely result in increased foot traffic coming up the hill from Medford Street, an important consideration in foot and auto traffic flow design around the building.

2.17 FUNCTIONAL AND SPATIAL RELATIONSHIPS

A. List and describe desired educational adjacencies and why

The new building should be designed in such a way that the designation of most academic classrooms, offices, and other spaces can be changed over time to accommodate important programmatic changes that may be needed, and to ensure the most efficient utilization of learning spaces. That being said, there are some programs with specific needs and requirements that may be more locked into a specific location once the building layout is created. This includes science and engineering labs/workshops, art rooms, and Career and Technical Education (CTE) spaces.



In terms of proximity and adjacencies, we would like to see greater integration of the science, math, and CTE departments, perhaps forming a STEM suite or wing within the building. Additional consideration should be given to the possibility of incorporating Arts into this complement of educational adjacencies to support STEAM programming. The biology and life-science based classes could benefit from being able to work more closely with Health Careers and Health and Physical Education programming, the chemistry classes could benefit from being able to work more closely with Culinary Arts, and the physics and engineering classes would benefit from being able to work more closely with Pre-Engineering/CAD, Machine Shop, and Metal Fabrication. Additionally, there could be great collaboration between math and science teachers if the classroom spaces were situated closer to one another. For example, natural partnerships include AP Physics with AP Calculus and AP Biology with AP Statistics. Being able to form meaningful interdisciplinary relationships is not only impacted by the physical space and proximity but also by the schedule and administrative support for teacher collaboration.

To further the integration, another potential use of taking advantage of the proximity and adjacencies could be the creation of a Humanities or Creativity Wing where English Language Arts, World Languages, Social Studies could collaborate with Culinary Arts, Graphic Communications and Visual Design, Music and Arts. Interdisciplinary projects and opportunities for hands on learning would flourish in these non-traditionally linked areas.

Our current building is organized by a single excessively long corridor which results in a remarkable amount of time to get from one end of the building to the other. We hope that the layout of the new building will allow for more proximities by utilizing a configuration other than a straight line. This new organization will foster closer academic relationships via commonalities, themes and connectedness.

B. List and describe desired site adjacencies and why

Desired site adjacencies to consider include locating spaces utilized for external out-of-school-time programming -- such as the gymnasium, auditorium, and cafeteria -- together to limit access only to those areas during non-school hours and to facilitate non-school related usage, security, and scheduling. Common areas should allow for independent and separate access by the two distinct educational programs that will be housed at the high school – the Next Wave/Full Circle special education/alternative education programs serving students in grades 6-12, and the existing SHS comprehensive program for students in grades 9-12 – to facilitate transitions by both programs during the school day and to provide equitable access opportunities.

Locating the Student Support Suite close to the Nurses’ station will further assist in providing students with all the wraparound services they need. These facilities should be located on the main floor for easy access by all students as well as emergency medical personnel.

As noted under desired educational adjacencies, interdisciplinary and project learning opportunities can be greatly enhanced through site adjacencies of academic and CTE programs that support STEM or STEAM programming, or potential Humanities programming.

Additional desired site adjacencies include locating physical education and health classrooms adjacent to the multi-functional health lab, which will promote and facilitate increased use of all physical education/health spaces. In addition, having classrooms adjacent to the fitness room and gym will allow staff to provide hands on practical instruction. The design would also need to allow for the ability to section off the fitness room and gymnasium for weekend use during after-school hours and weekend hours.

2.18 SECURITY AND VISUAL ACCESS REQUIREMENTS

A. Describe the local process for the collaboration, coordination, and review required to update emergency response plans for the proposed school and to establish physical and operational requirements regarding security and access for the proposed project

The process for coordinating, reviewing and updating SHS emergency response plans and to establish physical and operational requirements regarding security and access involves working collaboratively throughout the year with the following City and community partner agencies:

- Somerville Police Department (SPD): Superior Officers, Emergency Preparedness Consultant & Cyber Forensics
- Somerville Fire Department (SFD)
- Be Safe Consultants
- Somerville Health & Human Services
- Riverside Health
- Cambridge Health Alliance

Our District Emergency Response Plan (Manual) is reviewed annually by SPD and SFD assigned Superior Officers. The process also includes multiple district reviews by SPD, SFD, and Somerville Public Schools (SPS), coordinated by the district's Student Services Department.

SPS will work with the building project Safety Consultant throughout the project, and will consult with both SPD and SFD via a security analysis in regards to camera surveillance, and security entrances and exits to establish physical and operational requirements for the proposed project. SPD, SFD and the City's Department of Public Works responsible for building maintenance meet as needed to assess building safety concerns.

B. Indicate the date of the most recent medical emergency response plan that was submitted to these

The Somerville High School Medical Emergency Response Plan was submitted 1/2016.

C. Describe the physical and operational requirements

(e.g. main entrance design and how it is to function/be managed, classroom and hardware features, visibility, alternative entries, surveillance and lines of sight etc.)

With respect to physical and operational requirements, the new Somerville High School design must address both the educational mission of the school as well as the safety and security needs for an intensively –used, public building situated in a very dense urban environment.

Regarding interior security, best practice in design to make visible and easily monitored spaces, including the strategic use of glass walls, is desired. Student meeting spaces, sited adjacent to staffed office space, is one example of this approach.

Exterior considerations and the perimeter of the building must consider the urban environment of Somerville. Entry doorways should be kept to a minimum. The main entry space should allow for good sight lines and supervision from the Main Office or some similar space that is staffed throughout the day. Video monitoring is also needed, to be accessed by appropriate staff inside. Physical obstructions should be avoided in areas adjacent to the school perimeter in order to provide best monitoring.

Additional physical and operation requirements include:

- Bus and car drop-off areas with safe pedestrian walkways and minimal crossings on-site. Emergency vehicle access must be considered. Consideration should be given to access to public transportation access (bus and/or light rail).
- State of the art access control utilizing a security access fob device by authorized staff.
- Safe pathways for pedestrians and bicyclists coming from multiple directions. Bicycle parking adjacent to school's main entrance.
- Safe staff and visitor parking (visible, lighted and monitored)
- Safe access for kitchen, facility and shipping / receiving separate from school traffic to the main entrance.
- Safe and appropriate access to the perimeter of the building and to adjacent buildings and other public spaces near the High School.
- Separate external building entrance for Next Wave/Full Circle that contains the same security/access features as the school's primary main entrance.
- Separate external building entrance proposed for therapeutic classroom

Next Wave Alternative School Educational Program

2.1 GRADE AND SCHOOL CONFIGURATION POLICIES

A. Current grade configuration

Next Wave Alternative program (NW) currently serves students in grades 6-8 (ages 12-15) in a substantially separate environment.

B. Proposed grade configurations to be considered

No changes are proposed to the existing NW grade configuration.

C. Advantages of proposed grade configuration

I. Describe District’s Approach to Facilitating Student Transitions

The highly specialized therapeutic needs of Next Wave students requires a substantially separate environment. A transition plan will be in place as part of each Next Wave student’s educational plan for how and how often the student is able to access and participate in SHS resources and activities. This transition plan will include appropriate supports and mechanisms for monitoring each student. The use of adjacent common areas such as the gymnasium, auditorium, or cafeteria will be coordinated through careful scheduling and supervision.

The Next Wave program is designed to meet the special academic, social, emotional, and behavioral needs of adolescents who, for many reasons, have experienced difficulty in the traditional education setting. The program combines the clinical concept of a therapeutic community with the educational concepts of individualized and integrated learning experiences. Students work in partnership with teacher-counselors in small group settings that also include extensive individualized supports.

Next Wave students are housed in a substantially separate educational environment, along with Full Circle students in grades 9-12 whose specialized needs also require such a setting. Next Wave students who continue to require a substantially separate educational setting transition to the Full Circle Alternative High School program, which offers a standard although adapted and individualized high school curriculum. Next Wave students who are able to progress to a more traditional environment transition to Somerville High School, with the appropriate support structure to aid in their continued success.

II. If a Different Grade Configuration is Proposed Describe the Plans to Facilitate Transitions in the Proposed Configuration

No changes are proposed to the Next Wave/Full Circle grade configuration. The preliminary program educational design plan for Somerville High School proposes including the Next Wave (grades 6-8) alternative school into a substantially separate section of the new building, alongside the Full Circle (grades 9-12) alternative school. Next Wave and Full Circle currently serve as the District's special education day and alternative education programs, serving students whose IEPs call for substantially separate placement.

2.2 CLASS SIZE POLICIES

A. District policies, targets and guidelines by grade

Next Wave enrollment capacity is 40 students; current enrollment is 27. Because of the need for a substantially separate educational environment, small class settings, and the documented need for counseling support and services, the maximum target student-to-teacher ratio is 8:1 across the 3 grades (6-8). Next Wave students are taught by teacher-counselors who not only provide academic instruction, but also provide social-emotional and counseling support. Current average class sizes by grade is 8:1

B. Proposed changes and why or statement that no changes are proposed

No changes to class size policies are currently being proposed.

2.3 SCHOOL SCHEDULING METHOD

A. Current scheduling methodology including advantages and disadvantages

Next Wave is Somerville's alternative moderate special needs junior high school and is designed to meet the academic, social, emotional, and behavioral needs of troubled adolescents aged 12-15 who, for many reasons, have not been able to experience success in a traditional school setting. Next Wave combines the clinical concept of a therapeutic community with the educational concept of individualized experiences to help students prepare to move on to Somerville High School or the alternative high school, Full Circle.

Every student at Next Wave is required to participate in four academic classes, a Learning Support Group (LSG), Physical Education, All School Meeting, Connections, electives, and activities including regular field trips that are a critical part of the school's curriculum. Courses offered at Next Wave include Math, Science, English Language Arts, Social Studies, Counseling, Media, Woodshop, Physical Education, Art, and Music.

Below is a sample of a current Next Wave student schedule:

	Monday	Tuesday	Wednesday	Thursday	Friday
8:20	Homeroom				
8:30	1st ELA	1st ELA 2nd Soc. Studies	1st ELA	1st Woodshop	1st ELA
9:30	2nd Soc. Studies	Break 10:10	2nd Soc. Studies	2nd Woodshop	2nd Soc. Studies
10:30	Break	ASM/LSG 10:25-10:55	Break	Break	Break
10:40	Learning Support Group (LSG)	Connections 10:55-11:40	3rd Math	LSG	LSG
11:10	3rd Math	3rd 11:40-12:25 Math	4th 11:20 Science	3rd Math	3rd 11:25 – 12:10 PE
12:10	Lunch			Lunch	Lunch
12:30	4th Science	Lunch 12:25 4th 12:45-1:30 Media	Dismissal	4th Science	4th Science
1:30	Elective Choice of PE, Art, Music, clinical groups	Elective		Elective	Elective
2:20-2:30 2:30	Homeroom Dismissal	Homeroom Dismissal		Homeroom Dismissal	Homeroom Dismissal

Past electives have been:

Mondays:	Art, Basketball, Flag Football, Pinewood Derby cars
Tuesdays:	Music, Martial Arts, Teen Issues, School Apps for iPads, Next Wave of Leaders
Thursday:	Adirondack Chairs, Mudflat Pottery, Somerville Issues, Soccer
Fridays:	Girls’ Leadership Group, floor hockey, Tennis, Beautiful Stuff/ Arts & Crafts.

B. Proposed changes and why or statement that no changes are proposed

No changes to the current school scheduling method at Next Wave are proposed.

2.4 TEACHING METHODOLOGY AND STRUCTURE

(e.g., academies, departments, houses, teams, etc.)

A. Administrative and academic organization/structure

(e.g., academies, departments, houses, grade based cohorts, teams, room assignment policies etc.)

I. Current organization

Next Wave offers an integrated teaching and counseling environment for students in grades 6-8 who, for a number of reasons, have been unable to experience success in a traditional educational environment. Counseling is a critical part of the program and is incorporated into the daily schedule. Every student is assigned to a counseling group that meets biweekly. Emphasis is placed on conflict resolution through a verbal, rather than physical, expression of emotions. At all times, the school stresses two basic values: first, that the school environment must be a safe place for everyone; second, that every member of the school community must be treated with respect. Next Wave classes will at times partner with Full Circle classes, which are housed in the same substantially separate facility, as part of the social/emotional development structure of the program.

Both Next Wave and Full Circle Alternative Schools are led by the same Principal who is supported by a School Secretary. The current administrative and academic organization/structure for Next Wave also includes 5 Teacher/Counselors and a Crisis Counselor, and share the following staff with Full Circle - a Vocational Education Teacher, a Clinical Coordinator, and a Paraprofessional.

II. Proposed changes and why or statement that no changes are proposed.

No changes to the current administrative and academic organization/structure at Next Wave are proposed. The following facility considerations are recommended to ensure the most effective and efficient use of the proposed substantially separate space within the new Somerville High School building.

- Thoughtful placement of administrative and student support services in adaptable, flexible spaces that will allow for the critical support needs of these students and allows for shared resources between Next Wave and Full Circle;
- Thoughtful placement of administrative and student support services which promotes a strong sense of security, connection and identity within this substantially separate section of the new Somerville High School building, and which also provides for the informal supervision of students by teaching and

non-teaching staff, which in turn allows students to use flexible student work areas more independently;

- Spaces and placement of spaces that will facilitate interdisciplinary work, professional collaboration, and communication between administrative and student support staff and teachers;
- Spaces for confidential student counseling sessions, and a time-out space for students that need behavioral support outside of the classroom. The space will be staffed and should accommodate at least 8 Next Wave students at a time.
- Flexible classroom and conference meeting space to accommodate one-to-one or small confidential and non-confidential meetings, as well as larger meetings or professional development workshops of up to 20 people;
- An independent nurse's station equipped to meet the needs of this special student population

B. Curriculum delivery methods and practices

I. Current practices – General Curriculum Delivery methods and practices at Next Wave

Next Wave, Somerville's alternative moderate special needs junior high school, is designed to meet the special academic, social, emotional, and behavioral needs of adolescents aged 12-15, who, for many reasons, have not been able to experience success in the traditional mainstream educational environment. Next Wave combines the clinical concept of a therapeutic community with the educational concept of individualized experiences.

Next Wave students receive academic instruction and support in Math, Science, English Language Arts, Social Studies, Counseling, Media, Woodshop, Physical Education, Art, and Music. Every student at Next Wave is required to participate in four academic classes, a Learning Support Group (LSG), Physical Education, All School Meeting, Connections, electives (Art, Music), and various activities. Academic classes are assigned and are small enough to allow teachers to work individually with students as needed. LSG and Physical Education are also assigned. All Next Wave students take woodshop once a week. Students select their own electives each quarter. Once a week, students attend shop class with their 1st/2nd period class. Students learn woodworking skills and are expected to plan and complete projects.

Students at Next Wave earn rewards based on their behavior and participation in class. Students earn points in each class based on effort and attitude. Points are recorded on a daily point sheet. At the end of the week, all points are totaled and students are assigned to a level for the next week. Students earn privileges and rewards based on the level they have achieved with students on the highest level earning the most privileges and rewards.

Weekly homework is a requirement of academic classes and is figured into each student's grade. Staff is available before school to help students with homework. There is also a weekly homework club after school where students can stay to complete their homework and get additional assistance if needed. Physical education is mandatory for all students, unless a doctor's note is provided indicating that the student is unable to participate in physical education activities.

Field Trips are a regular and important part of the Next Wave curriculum, and play a critically important role in helping students develop teamwork, communication, and other 21st century skills that will support their continued progress. Students receive academic credit for participation. Field trips can involve the entire school, LSG groups, or certain class groups.

Opportunities for authentic, small-group, interactive learning experiences in small and safe learning environments are critically important to supporting the development of a high-risk student population. Some of the existing limitations include:

- Outdated classrooms that limit flexibility
- Single teaching wall in many classrooms, making differentiation difficult
- Lack of ubiquitous technology that would allow students to participate in interactive and engaging methodologies
- Traditional classroom to classroom adjacencies that limit communication
- Lack of proximity to resources available to traditional middle grades/high school students that could further enhance social/emotional development of this at-risk student population

II. Proposed changes and why, or statement that no changes are proposed

No changes to the curriculum delivery methods and practices are currently proposed.

The goal, however, is to enhance the already specialized educational delivery methodology at Next Wave and further promote the development of 21st Century skills. Flexible classrooms and adjacencies, and proximity to additional Somerville High School resources and programs, should support a student-centered learning experience that is inviting, engaging, supportive, and safe. In all classrooms, technology must be integral to teaching and learning. A future 1:1 ratio of laptops/devices to students should be assumed, as should the ubiquitous use of interactive technology throughout the Next Wave space.

Students should be able to showcase their learning, growth, and progress in a variety of ways. Ample wall space, exhibition space, storage space, lecture space, and flexible classroom spaces that can support small- and mid-sized group instruction (8-16 students) are all elements that can further enhance instructional practices. Organization and educational environment elements that can contribute to these goals include:

- Proximity to SHS common areas, College and Career Readiness/Guidance Department and CTE programs
- Proximity to Full Circle to access clinical and behavioral supports from shared counselors

- Adjacencies of space that encourage interdisciplinary and project-based learning
- Classrooms of the proper size and appointments that promote flexible and changing use of the rooms
- Multiple teaching walls in learning environments that allow for student to student and small group teaching, and differentiation within a classroom
- Lightweight, ergonomic, and flexible furniture that contribute to the points above
- Transparency to and from classrooms to flexible student work areas, to allow for informal supervision of students as they work in more independent and small group contexts
- Multiple venues for the ongoing exhibition, showcasing and presentation of student work
- Maker-space type educational environment/science lab to enhance STEM-related opportunities and community partnership work

C. English Language Arts/Literacy

I. How curriculum is delivered

See paragraph 2.4.B.I for a general description of current curriculum delivery.

II. Proposed changes and why, or statement that no changes are proposed

See paragraph 2.4.B.II for a general description of proposed changes and why.

D. Mathematics

I. How curriculum is delivered

See paragraph 2.4.B.I for a general description of current curriculum delivery.

II. Proposed changes and why, or statement that no changes are proposed

See paragraph 2.4.B.II for a general description of proposed changes and why.

E. Science

I. How curriculum is delivered

Science curriculum is currently delivered in traditional classroom settings. Next Wave does not currently have a Science Lab.

II. Proposed changes and why, or statement that no changes are proposed

See paragraph 2.4.B.II for a general description of proposed changes and why.

A flexible, Makerspace-type space/science lab would provide students with the opportunity to greatly enhance their STEM learning experience, and work with community partners regularly to gain real-world exposure and experience.

F. Social Studies

I. How curriculum is delivered

See paragraph 2.4.B.I for a general description of current curriculum delivery.

II. Proposed changes and why, or statement that no changes are proposed

See paragraph 2.4.B.II for a general description of proposed changes and why.

G. World Languages

I. How curriculum is delivered

To some degree, current practices follow those described above in paragraph 2.4.B.I. Students must meet a specific academic criteria in order to be able to take Spanish as an elective.

II. Proposed changes and why, or statement that no changes are proposed

Proximity and access to the Somerville High School language lab would great enhance a students’ world language experience.

III. If considering language labs describe the types of activities anticipated for the space, how it will be staffed, equipped

Somerville High School currently has a language lab that it considers as an integral part of its current and future programs. Proximity and access to this lab by Next Wave world language students would greatly enhance their world language acquisition. The SHS language lab is a virtual space that allows students to individually or in pairs rapidly access the internet and speak and record oral activities, and interact one on one with the teacher. The teacher is able to archive the student’s recordings, create a zip file, and email the student’s recordings to their email or mobile device.

The lab is an instrumental part of the SHS World Language curriculum and is staffed and used on a daily basis by all World Language teachers. The lab allows students the opportunity to master all domains of language acquisition. Students in the Advanced Placement Language and Culture course take their AP exams in the lab.

H. Academic support programming spaces (e.g. ell academic coaches etc.)

I. How program is delivered

English Language Learning support and other accommodations for Next Wave students are provided as indicated on their IEPs. The Next Wave Administrative team and Teacher/Counselors work with the District ELL staff to develop a strategy for meeting the ELL needs of Next Wave students.

Special programs and partnership play an important role in the Next Wave curriculum. Those special programs include:

- Small, therapeutic classes (maximum of 8:1 student-to-teacher ratio)
- Woodshop once a week
- One-on-one and group counseling
- Connections Groups – clinical groups for all students
- Backpack Meals Program – weekend food support for families
- Drug and Alcohol Counseling Services

Partnerships that support the Next Wave curriculum include the following:

- Veterans Memorial Skating Rink – ice skating Physical Education class
- Teen Empowerment –group meetings twice a week for 2 hours each time
- Mudflat Studios – pottery classes
- Parts & Crafts – weekly makerspace class
- Greater Boston Basketball League (GBBL) – Alternative School Basketball League
- Cambridge Health Alliance (CHA) – Teen Connections weekly group discussions related to healthy living
- SHS Guidance – occasional College & Career Readiness support meetings/discussions
- Riverside Mental Health – consulting with staff and counseling for students
- The Self Expression Center – new group starting up in 2015-2016
- Counseling Internship support from various local colleges and universities
- MCAS prep support
- Volunteer opportunities – feeding the homeless at Boston Rescue Mission

II. Proposed changes and why, or statement that no changes are proposed

No changes to the academic support programming are currently proposed.

I. Student guidance and support services (social support, METCO, after school programs, anti-bullying programs etc.)

I. Current services and programs

Next Wave students receive occasional College & Career Readiness support through the Somerville High School Guidance Department. The therapeutic structure of the school offers students with a daily, intensive social/emotional support system based on their individual needs, provided by Teacher/Counselors, a Clinical Coordinator and a Crisis Counselor.

Additional counseling support is provided as needed based on individual student needs through a partnership with Riverside Mental Health Services.

Structured field trips, District-wide initiatives, and community partnerships support anti-bullying efforts, development of positive social/emotional skills, and active engagement in social learning practices. Specifically, partnerships with Teen Empowerment, Cambridge Health Alliance (Teen Connections), UMass Boston (Drug and Alcohol awareness), and the Self Expression Center support positive social/emotional behaviors.

II. Proposed changes to services and programs and why or statement that no changes are proposed

No changes to the current student guidance and support services are currently proposed.

2.5 TEACHER PLANNING

A. Existing teacher planning spaces and scheduled planning times and how they support delivery of curriculum

(differentiate between professional development time as discussed below and teacher planning time that teachers have every day, opportunities for lesson sharing, “lessons learned” from new teaching methodologies, interdisciplinary opportunities, etc.)

Teacher/counselors have planning time built into their daily/weekly schedule. Teacher/counselors have individual prep time when their classes go to Woodshop and Media once a week. The 5 academic teacher/counselors have common planning time during the “Connections” block on Tuesdays. Teachers use their individual classrooms for planning.

B. Proposed changes to planning time and number of spaces and why or statement that no changes are proposed

A flexible space that can accommodate one or more groups at a time (up to 20 teachers) for teacher planning and professional development, would be ideal. The space should be equipped with flexible furnishings that support collaborative planning and work, and technology resources to facilitate research into best practices and online interactive partnership work.

C. Current professional development practices

NW teacher/counselors meet weekly after school (Mondays 2:30 – 3:30) to discuss student needs and behaviors, programmatic issues, field trips and any upcoming events. In addition, NW teacher/counselors meet weekly on Wednesday afternoons (12:30 – 2:30) with Full Circle teacher/counselors. These meetings are structured around Professional Development, Instructional Leadership Team presentations (ILT consists of NW and FC teachers), Clinical presentations (Clinical Coordinator, Crisis Counselors, Riverside consultant), School-wide initiatives like Positive Behavioral Intervention System (PBIS), behavioral interventions and management systems, technology and other programmatic issues.

D. Proposed changes to professional development and why or statement that no changes are proposed

(include retraining and/or additional certifications of staff who will be changing grade levels or disciplines as a result of proposed changes and associated timeline) Please see section 5b above.

2.6 PRE-KINDERGARTEN

(SPED only, tuition programs, locations, full day, half day, if applicable); NOT APPLICABLE

2.7 KINDERGARTEN

(full day, half day, locations, if applicable); NOT APPLICABLE

2.8 LUNCH PROGRAMS

(number of servings, district kitchen, full service kitchens, warming kitchens, etc.)

A. How program is delivered

Somerville school lunches are prepared by one Food Service employee in the kitchen and served in the cafeteria at Next Wave and Full Circle. Students have the option of eating lunch in a “quiet room” that is reserved for 6-8 students who need a quieter space than the loud cafeteria. Students have a choice of hot lunch, a salad with protein, or a cold sandwich as well as milk and cold water to drink. Students eat lunch from 12:10 – 12:30 (M, TH, F), 12:24 – 12:45 (T) and 12:00 – 12:15 (W).

B. Proposed changes and why, or statement that no changes are proposed

Because of the need for small learning environments and the challenges that Next Wave students have demonstrated functioning in larger environments, it is necessary for Next Wave (and Full Circle) students to have access to a separate and secure dining space from the larger Somerville High School dining space(s). The space should be flexible and have the capacity to accommodate up to 100 students from both alternative programs.

Ideally, the design/layout of the space would offer more college-style dining and should be bright, comfortable, welcoming, and offer multiple and varying types of seating areas where students can congregate, work, or relax. The space should also be equipped with state-of-the-art technology to provide opportunities for students to stay connected with the outside world and learn about school projects via electronic programming displays.

2.9 TECHNOLOGY INSTRUCTION POLICIES AND PROGRAM REQUIREMENTS

(labs, in-classroom, media center, required infrastructure, etc.)

A. Description of existing educational technology, how it is managed by the district, how it is used in the classroom, and overview of professional support and training offered to staff

The SPS Technology department manages the technology hardware and use throughout the district, and currently leverages wired and wireless infrastructure with a blend of stationary computers and mobile devices, such as Windows laptops, Chromebooks, iPads, as well as BYOD. Currently, most departments have their own computer lab that they share building-wide. The school also has a limited number of shared Chromebook and iPad carts available for use. Most classrooms are equipped with fixed projectors and interactive whiteboards.

The Technology Department also works in partnership with district and school departments in managing software, and offers various levels of support and training, from individual support to group workshops. The Department also utilizes a “train the trainer” method working with teachers who become experts and then help provide technology support and development to teachers within their department or across the school.

B. Proposed educational objectives being pursued as part of potential project, description of how updated equipment and systems would be managed and maintained by the district, how the equipment and systems would be used in the school, and plans for professional development, or a statement that proposed equipment and systems align with current equipment, systems and practices which are to be continued.

We are looking to build upon our successes and blend more mobile devices into the school, working toward a true 1:1 program for the new Somerville High School building. The Technology Department would continue to manage the devices, along with a robust wireless infrastructure to support the demand, and work with all school departments to align a curriculum that supports a 1:1 program.

Technology will be used prominently and ubiquitously throughout the new SHS building. The expectation is that students will use a wireless device accessible to them throughout the day to access the curricula, to receive instruction (blogs, video, media creation, applications, etc.), to create digital content, and to perform on a variety of assessments. Simulated labs, flipped classrooms, virtual classrooms, video conference, and digital content creation will be a frequent experience for all students. Much like a college campus, such activities will take place in classroom spaces, media spaces, common spaces, open spaces, cafeteria spaces etc. Technology both as content and tool will enable, support, and prepare students with a personalized learning experience and global learning experience.

In order to realize this technology vision, staff will need to stay current with how to integrate evolving technologies. The District will be adopting an aggressive schedule of offerings presenting technologies both as content (e.g. specific applications, coding) and as a tool to be integrated into lesson planning, instructional delivery, and assessment. PD will happen local to the school, within the district, and at partner organizations i.e. Tufts, MIT, Harvard. Since the fundamental principle in the District is that technology should be used to strengthen teaching and learning and to solve educational problems, the use of technology will always be tied directly to teaching and learning with a vision toward future use and global education. The use of technology by teachers and students will be in support of STEAM principles and project-based learning as integrated throughout the teaching and learning landscape at SHS.

C. Media Center/Library

I. Current programming and how it is delivered (central location or distributed)

Next Wave currently shares a media classroom with Full Circle, which is staffed by a District Media Specialist. Students work on a variety of media projects, including production of media pieces that support and promote other projects taking place at their school. Next Wave does not currently have a library.

II. Current staffing, professional, paraprofessionals, IT Specialists, volunteers etc.)

Media classes are taught by a district Media Specialist, and supported by the District Library/Media Supervisor.

III. Current hours, scheduling of use during school and non-school hours for group and individual use.

The Next Wave/Full Circle Media classroom is used throughout the school day by both Next Wave and Full Circle classes. The classroom is not available after hours for non-school groups and individual use.

IV. **Proposed changes and why, or statement that no changes are proposed**

A flexible space within the substantially separate area where Next Wave will be housed in the new SHS building that can serve as the program's Library Media Center would greatly enhance the media production learning experience for Next Wave students.

V. **Narrative description of the types of educational activities anticipated for a media center(s) over the course of a typical school day;**

During the school day, students will utilize the Library Media Center to work on independent and collaborative research projects, and work on media-rich projects (including blogging, podcasts, green screens, video editing, and music production). Teachers and staff members can also utilize the space for professional development and staff meetings. The Library Media Center should function not only as a critical educational space during the school day, but also as a safe and inviting place where students can meet for an after-school activity or merely to socialize and re-energize.

2.10 VISUAL ART PROGRAMS

(in-classroom, specialized area)

A. How curriculum is delivered, number of periods per academic cycle, and number of students participating in art programs

See paragraph 2.4.B.I for a general description of current curriculum delivery. Art instruction is currently provided in a separate Art Classroom located within the NW/FC building.

B. Proposed changes and why, or statement that no changes are proposed

No changes to the Next Wave visual arts program are proposed.

2.11 PERFORMING ARTS PROGRAMS

(music, dance, drama theater, in-classroom, specialized area)

A. How curriculum is delivered, number of periods per academic cycle, and number of students participating in music programs

See paragraph 2.4.B.I for a general description of current curriculum delivery.

B. Proposed changes and why, or statement that no changes are proposed

No changes to the Next Wave performing arts program are currently proposed.

2.12 PHYSICAL EDUCATION PROGRAMS

A. How curriculum is delivered

Physical Education is mandatory for all Next Wave students and is generally held in the school gymnasium. Students unable to participate in physical education instruction are required to submit a doctor's note. Students receive physical education instruction once a week by a Physical Education teacher from the district's Physical Education Department. Teacher/counselors supplement physical education instruction during afternoon electives. Teacher/counselors offer Physical Education opportunities that include, basketball, soccer, flag football and some activities that may take place off-site, such as at Veterans Memorial Skating Rink where students receive ice skating instruction weekly on Tuesdays.

B. Proposed changes and why, or statement that no changes are proposed

No changes to the Physical Education curriculum are currently proposed. Secure and supervised access to physical education and athletic facilities at Somerville High School (including the gymnasium and any fitness facilities) would greatly enhance the physical education learning experience for Next Wave students.

2.13 SPECIAL EDUCATION PROGRAMS

(in-house, collaborative, facility restrictions)

A. Review the special education rubric included in Appendix 1 and describe where existing program and spaces align with the rubric, where they do not, and potential changes to remedy in the proposed project

Please see Section 2.13 of the Somerville High School Educational Program Plan.

The Next Wave School, Somerville's alternative moderate special needs (503.4i) junior high school, is designed to meet the special academic, social emotional, and behavioral needs of troubled adolescents aged 12-15, who's IEPs call for a substantially separate educational setting. Accommodations are provided by Teacher/Counselors and supported by the school's Clinical Coordinator and Crisis Counselor.

B. List current special education programs serving students in the proposed project including the number of special education students currently served in each program

Please see Section 2.13 of the Somerville High School Educational Program Plan.

Next Wave is the District’s alternative moderate special needs (503.4i) junior high school. No additional special education programs are offered at Next Wave.

C. List deficiencies in the existing program that have been identified locally or through state review

Please see Section 2.13 of the Somerville High School Educational Program Plan.

D. List specialized programs and collaborative spaces/program located in the current school

Please see Section 2.13 of the Somerville High School Educational Program Plan.

E. List proposed programs any program/service needs that the district hopes to address in the proposed project

Please see Section 2.13 of the Somerville High School Educational Program Plan.

F. List programs/services that will continue

Please see Section 2.13 of the Somerville High School Educational Program Plan.

G. List programs that will be eliminated

None

H. List programs that will be added or enhanced as a result of the proposed project

The Next Wave and Full Circle special education day and alternative education programs will be enhanced as a result of moving over to the new Somerville High School. NW/FC students will benefit from access to additional resources and educational programs available at SHS, including CTE classes, modern language, college and career readiness/guidance, athletic programs and additional after-hours support programs and activities.

I. List programs or services that will be moved from within the district (from which school they are being moved) as a result of the proposed project

Next Wave Junior High School (grades 6-8) and Full Circle High School (grades 9-12) currently serve as Somerville's special education day and alternative education programs. Both are designed to meet the special academic, social, emotional, and behavioral needs of adolescents who, for many reasons, are unable to experience success in the traditional education settings. By combining the clinical concept of a therapeutic community with the educational concepts of individualized and specialized integrated learning experiences, Next Wave/Full Circle affects academic, social, and personal successes for very high-risk students between the ages of 12 and 21. The proposed project will move Next Wave/Full Circle to a wing or separate part of the newly designed Somerville High School.

J. Previous coordinated review

I. Provide the date of the last Coordinated Review Program and list any issues and/or problems identified in that review;

Please see Section 2.13 of the Somerville High School Educational Program Plan.

II. Provide the current status and/or remedy of those issues identified as part of the review;

Please see Section 2.13 of the Somerville High School Educational Program Plan.

K. List specialized programs and collaborative spaces/program that will continue, be eliminated or added as part of the proposed project

Please see Section 2.13 of the Somerville High School Educational Program Plan.

A. List special education day school programs that the district currently provides or participates in, and whether the programs will continue in the proposed project

Next Wave Junior High School (grades 6-8) and Full Circle High School (grades 9-12) currently serve as the district's special education day and alternative education programs. Both are designed to meet the special academic, social, emotional, and behavioral needs of adolescents between the ages of 12 and 21 who, for many reasons, are unable to experience success in the traditional education settings and who require a substantially separate educational setting. Next Wave/Full Circle programs are currently housed in a separate building with very limited access to current Somerville high School resources. Next Wave/Full Circle will continue to operate as an independent educational program but will be housed in a wing or separate part of the newly designed Somerville High School so its students have an opportunity and access to the resources, programs, and supports SHS has to offer.

2.14 VOCATIONS AND TECHNOLOGY PROGRAMS

A. Current offerings (separately list Chapter 74 programming and non-Chapter 74 programming)

Please see Section 2.14 of the Somerville High School Educational Program Plan for a complete listing of Current Career and Technical Education program offerings at Somerville High School.

Next Wave students currently receive vocational instruction in Woodworking (a Non-chapter 74 program), which is offered in a separate woodworking shop exclusively used by Next Wave and Full Circle students.

B. Non-chapter 74 Programming Vocational / Technical / Enrichment / STEM Programming

I. Describe program (Design, Robotics, Maker Spaces, etc.), activities, and how it is coordinated with other curriculum as applicable.

Please see Section 2.14 of the Somerville High School Educational Program Plan for a complete listing of Current Career and Technical Education program offerings at Somerville High School.

Next Wave students currently receive vocational instruction in Woodworking (a Non-chapter 74 program).

II. How curriculum is delivered, number of periods per academic cycle, and number of students participating in program

The Woodworking curriculum at Next Wave is offered in a separate woodworking shop exclusively used by Next Wave and Full Circle students. Next Wave students take woodworking once a week.

III. Proposed changes and why, or statement that no changes are proposed

A designated and properly equipped woodworking shop or flexible maker-space type area located within the substantially separate section of the new Somerville High School where Next Wave students will be housed would greatly enhance the woodworking learning experience for Next Wave students. Proximity and secure access to other SHS Career and Technical Education shops would further enhance Next Wave students' vocational experience, and support students' gradual transition into a more traditional educational environment.

IV. Describe general program requirements including equipment, practices, safety measures, training, partnerships and support.

Each Next Wave student is required to participate in a Woodshop safety class prior to entering the Woodshop classroom. The Vocational teacher provides the training multiple times during the school year to accommodate the rolling admission of new students. Students learn how to use the equipment and how to read construction plans for the projects they choose to build. Students build boxes, stools, lamps, birdhouses, and wood-carved signage to name a few. The students in woodshop play an active role in building materials for the annual tree lot fundraising event which helps raise funds to support school activities.

The Vocational instructor has developed a partnership with the Furniture Trust, which often donates materials. Next Wave students are exposed to the projects that the Full Circle students are working on with the Furniture Trust for the annual Eco-Challenge that takes place annually in April.

C. Chapter 74 Programming

I. Existing programming, current enrollment, and capacity per program

Please see Section 2.14.C.I of the Somerville High School Educational Program Plan for a complete listing of Chapter 74 programming at SHS.

II. If the District is maintaining the same curriculum and offerings a statement confirming the District's intentions.

Please see 2.14.C.II of the Somerville High School Educational Program Plan.

III. Schedule of implementation for the proposed programming regarding staffing, curriculum development and project program enrollment from start to full implementation.

Please see 2.14.C.III of the Somerville High School Educational Program Plan.

2.15 NARRATIVE DESCRIPTION OF THE TYPES OF EDUCATIONAL ACTIVITIES INTENDED FOR CORE ACADEMIC SPACES OVER THE COURSE OF A TYPICAL SCHOOL DAY.

A. Narrative description of core academic educational activities intended inside the general classrooms. Include how the activities support delivery of the educational program

Next Wave, Somerville's alternative moderate special needs junior high school, is designed to meet the special academic, social, emotional, and behavioral needs of troubled adolescents aged 12-15, who, for many reasons, have not been able to experience success in the traditional mainstream educational environment. Next Wave combines the clinical concept of a therapeutic community with the educational concept of individualized experiences.

Next Wave students receive academic instruction and support in Math, Science, English Language Arts, Social Studies, Counseling, Media, Woodshop, Physical Education, Art, and Music. Every student at Next Wave is required to participate in four academic classes, a Learning Support Group (LSG), Physical Education, All School Meeting, Connections, electives (Art, Music), and various activities. Academic classes are assigned and are small enough to allow teachers to work individually with students as needed. LSG and Physical Education are also assigned. All Next Wave students take woodshop once a week. Students select their own electives each quarter. Once a week, students attend shop class with their 1st/2nd period class. Students learn woodworking skills and are expected to plan and complete projects.

Students at Next Wave earn rewards based on their behavior. Students earn points in each class based on effort and attitude. Points are recorded on a daily point sheet. At the end of the week, all points are totaled and students are assigned to a level for the next week. Students earn privileges and rewards based on the level they have achieved with students on the highest level earning the most privileges and rewards.

Weekly homework is a requirement of academic classes and is figured into each student’s grade. Staff is available before school to help students with homework. There is also a weekly homework club after school where students can stay to complete their homework and get additional assistance if needed. Physical education is mandatory for all students, unless a doctor’s note is provided indicated that the student is unable to participate in physical education activities.

Field Trips are a regular and important part of the Next Wave curriculum, and play a critically important role in helping students develop teamwork, communication, and other 21st century skills that will support their continued progress. Students receive academic credit for participation. Field trips can involve the entire school, LSG groups, or certain class groups.

Opportunities for authentic, small-group, interactive learning experiences in small and safe learning environments are important to supporting the development of a high-risk student population. In order for students to participate in authentic learning experiences and project work, classrooms need to be properly furnished so that students can work on inventive, real world projects and products. Flexibility, mobility, and adaptability of a space for all disciplines is essential to practice and hone 21st century skills and learning.

In all classrooms, technology must be integral to teaching and learning. Access to technology throughout class is crucial and there should not be access barriers for either students or teachers.

B. Narrative description of core academic educational activities intended outside of the general classrooms (including outdoor learning area). Include spaces needed to support that activity, how the activities support delivery of the educational program, how the spaces would be used by students and scheduled and monitored by staff, and desired spatial relationships and adjacencies

In an ideal educational environment, learning should be happening in all areas of the school building, not just inside the four walls of a classroom. All building spaces should be utilized as learning environments, including the auditorium, hallways, common spaces, the cafeteria, and outdoor spaces. Flexible spaces that can accommodate multiple-size groups would allow us to expand our curriculum methodologies and our connection to the community.

Hallways and common spaces throughout the school can become places to inspire learning and creativity. Exhibition spaces in the hallways are necessary to showcase student work and 2-D and 3-D projects and common spaces can be utilized for collaborative work both during and outside of class time.

Students who would like a small nook or “quiet” space to reflect on their own learning or complete a self-directed learning task should be able to find multiple spaces to do so throughout the building. Sufficient transparency should be provided to allow for views in and out of classrooms so that teachers can monitor students as they work independently and in small groups when outside of, but in close proximity of classrooms. Blinds can be provided to block these views when desired.

Outdoor spaces could be used for multiple functions including biological and environmental studies and data collection, physical education and athletic teams, and as a common space for classes or student groups to meet throughout the school day. It’s important to keep in mind the need for safe and secure outdoor spaces that do not compromise the social/emotional safety needs of these students.

2.16 TRANSPORTATION POLICIES

A. Current services and practices

Students generally walk, take public transportation, or are driven to and from school. Transportation to and from the school is provided by the district only to students in homeless situations who are living outside the district and to special education students who have transportation services required in their Individual Educational Plan.

Transportation services for homeless students is provided by small van or cab, and arranged by the District Homeless Liaison. Large yellow school buses are chartered for athletic events and field trips throughout the year. In addition, Next Wave and Full Circle share a van which is used for day or evening events.

B. Proposed changes and why, or statement that no changes are proposed

While no changes to the current transportation policies are proposed, it’s important to note that the proposed Green Line extension will have some impact particularly on foot traffic in the area. The Green Line extension does include plans for a station at Gilman Square that would likely result in increased foot traffic coming up the hill from Medford Street, an important consideration in foot and auto traffic flow design around the building.

2.17 FUNCTIONAL AND SPATIAL RELATIONSHIPS

A. List and describe desired educational adjacencies and why

The new building should be designed in such a way that the designation of most academic classrooms, offices, and other spaces can be changed over time to accommodate important programmatic changes that may be needed, and to ensure the most efficient utilization of learning spaces.

While Next Wave (and Full Circle) students require a substantially separate educational environment (including a separate building entrance), these students would benefit from proximity to CTE programs, College and Career Readiness/Guidance and common spaces.

B. List and describe desired site adjacencies and why

Common areas should allow for independent and separate access by Next Wave (grades 6-8) and Full Circle (grades 9-12) to facilitate transitions by both programs during the school day and to provide equitable access opportunities.

As noted under desired educational adjacencies, interdisciplinary and project learning opportunities can be greatly enhanced through site adjacencies of academic and CTE programs that support STEM or STEAM or other programming.

2.18 SECURITY AND VISUAL ACCESS REQUIREMENTS

A. Describe the local process for the collaboration, coordination, and review required to update emergency response plans for the proposed school and to establish physical and operational requirements regarding security and access for the proposed project.

The process for coordinating, reviewing and updating district emergency response plans and to establish physical and operational requirements regarding security and access involves working collaboratively throughout the year with the following City and community partner agencies:

- Somerville Police Department (SPD): Superior Officers, Emergency Preparedness Consultant & Cyber Forensics
- Somerville Fire Department (SFD)
- Be Safe Consultants
- Somerville Health & Human Services
- Riverside Health
- Cambridge Health Alliance

Our District Emergency Response Plan (Manual) is reviewed annually by SPD and SFD. The process also includes multiple district reviews by SPD, SFD, and Somerville Public Schools (SPS), coordinated by the district's Student Services Department.

SPS will work with the building project Safety Consultant throughout the project, and will consult with both SPD and SFD via a security analysis in regards to camera surveillance, and security entrances and exits to establish physical and operational requirements for the proposed project. SPD, SFD and the City's Department of Public Works responsible for building maintenance meet as needed to assess building safety concerns.

B. Indicate the date of the most recent medical emergency response plan that was submitted to these

The Next Wave Medical Emergency Response Plan was submitted January 2016.

C. Describe the physical and operational requirements (e.g. main entrance design and how it is to function/be managed, classroom and hardware features, visibility, alternative entries, surveillance and lines of sight etc.)

With respect to physical and operational requirements, the new Somerville High School design must address both the educational mission of the school as well as the safety and security needs for an intensively–used, public building situated in a very dense urban environment. A separate building entrance to the Next Wave and Full Circle substantially separate section of the building is required.

Regarding interior security, best practice in design to make visible and easily monitored spaces, including the strategic use of glass walls, is desired. Student meeting spaces, sited adjacent to staffed office space, is one example of this approach.

Exterior considerations and the perimeter of the building must consider the urban environment of Somerville. Entry doorways should be kept to a minimum, keeping in mind the need for a separate and exclusive entrance to the Next Wave/Full Circle secured area of the building. The main entry space should allow for good sight lines and supervision from the Main Office or some similar space that is staffed throughout the day. Video monitoring is also needed, to be accessed by appropriate staff inside. Physical obstructions should be avoided in areas adjacent to the school perimeter in order to provide best monitoring.

Additional physical and operation requirements include:

- Separate external building entrance for Next Wave/Full Circle that contains the same security/access features as the school's primary main entrance.
- Bus and car drop-off areas with safe pedestrian walkways and minimal crossings on-site. Emergency vehicle access must be considered. Consideration should be given to access to public transportation access (bus and/or light rail).
- State of the art access control utilizing a security access fob device by authorized staff.
- Safe pathways for pedestrians and bicyclists coming from multiple directions. Bicycle parking adjacent to school's main entrance.
- Safe staff and visitor parking (visible, lighted and monitored).
- Safe access for kitchen, facility and shipping/receiving separate from school traffic to the main entrance.
- Safe and appropriate access to the perimeter of the building and to adjacent buildings and other public spaces near the High School.
- Separate external building entrance proposed for therapeutic classroom.

Chapter 74 Programming

LOCAL AUTHORIZATIONS

A. Provide a certified copy of the school committee meeting minutes, which includes the specific language of the vote and the number of votes in favor, opposed and abstained regarding continuation of the existing Chapter 74 programming and proposed Chapter 74 adjustments (additions, expansions, contractions and discontinuations). If multiple meetings are conducted provide certified copies of all applicable meeting and votes.

The Educational Programs School Sub-Committee will be meeting on March 9th, 2016 to review these topics, and the full School Committee will meet and vote on the topic on March 21st, 2016. Minutes for both meetings will be forwarded to the MSBA for reference following the full Committee meeting.

B. Provide a description of the status of communications with the DESE regarding Chapter 74 Programming, including relevant information that informs the District's intentions and potentially the proposed Somerville High School school project.

Somerville High School CTE staff have been in direct and recent contact with DESE regarding this project, and its intentions to both maintain the existing Chapter 74 programs and add four new programs as detailed below. Communication regarding the project has occurred with DESE as recently as February 12th, 2016. In support of the proposed additional programs, attached please find a letter issued by the Metro North Regional Employment Board [REB] on January 9th, 2016, confirming the industry benefits of the new programs.

EDUCATIONAL VISION FOR CHAPTER 74 PROGRAMMING

C. Provide a description of the District's vision for its education delivery methodology for Chapter 74 Programming.

Refer to the Educational Program narratives located in Section 2 for a description of the education delivery methodology for Chapter 74 Programming.

PROGRAMS TO CONTINUE UNCHANGED

Program	**Current Enrollment**	**Approved Capacity**
Automotive Technology	56	50
Architectural Design/Drafting	24	30
Carpentry	48	50
Cosmetology	52	50
Culinary Arts	45	50
Dental	28	30
Early Education and Care	32	30
Electrical	49	50
Graphic Communications	38	40
Health Careers	48	40
ISSN – Information Support Services and Networking	37	30
Machine Technology	25	30
Metal Fabrication and Welding	39	30
Total	521*	510*

* Enrollments noted above are inclusive of exploratory program participants

D. Confirm the following for all of the unchanged programs listed in the table above:

- A Program Advisory Committee is in place
- The decision to continue with these programs was planned in consultation with its advisory committee based on adequate and timely information regarding student, workforce, and job development demands or job market trends
- A planned budget for the existing programs are in place

All of the above are confirmed for the unchanged programs listed in the table above.

E. Description of deficiencies in the existing programs:

All Existing Programs: The remote geographic location of the existing Chapter 74 programs within the school precludes opportunities for ready collaboration with the academic disciplines, missing out on an intrinsic potential of a comprehensive high school. From a logistical standpoint, the existing Chapter 74 programs all lack sufficient access to student toilet facilities, a reality that compromises instruction time.

Automotive Technology: Vehicular access to the existing shop is compromised due to the existing access ramp and the tight turning radius that vehicles are required to make in order to gain entry into the shop. This compromised vehicular path also precludes certain sizes of vehicles from being worked on in the shop, limiting educational opportunities. The shop lacks proper changing facilities for students, including a lack of dedicated boys & girls changing areas that would promote greater inclusion in the program. This program has no publicly-accessible “retail” front that would allow for business curriculum to be more closely integrated. Shop windows are in poor condition, are thermally inefficient and do not lock. The HVAC system is in poor operating condition and lighting is dim within the shop.

Architectural Design/Drafting: Overall shop space is below what is required by current DESE space requirements. The HVAC system in the shop is in poor operating condition.

Carpentry: HVAC and dust collection systems are in need of constant repair and operate at varying degrees of efficiency. The dust collector hopper located within the access tunnel leading up to the shop make access and service challenging. The shop lacks proper changing facilities for students, including a lack of dedicated boys & girls changing areas that would promote greater inclusion in the program.

Cosmetology: This program has no publicly-accessible “retail” front that would allow for business curriculum to be more closely integrated. The shop’s current location on the second floor creates security concerns for members of the public who choose to visit the shop for services.

Culinary Arts: The program lacks a dedicated classroom environment for instructional purposes beyond either the kitchen or restaurant environments. The restaurant, while located in proximity to one of the building’s main entrances, does not provide a dedicated secure access point for the public, creating a security concern. Furthermore, dedicated toilet facilities for public use are not in place near the restaurant, creating further security concerns for public use of the restaurant. The kitchen lacks sufficiently sized changing and personal items storage facilities for the students.

Dental: Enrollment in the program is currently constrained by an under-sized shop space as compared to current DESE requirements. While all equipment located within the shop is new, the existing space that is occupied by the shop has compromised finishes that are not ideal for replicating a hygienic dental environment. The shop lacks proper changing facilities for students, including a lack of dedicated boys & girls changing areas that would promote greater inclusion in the program.

Early Education and Care: Shop space lacks critical functionality for curriculum, including a sink with water service.

Electrical: Enrollment in the program is currently constrained by an under-sized shop space as compared to ideal DESE requirements. Access to this shop for heavy materials such as long conduit runs is compromised due to its position on the second floor. The shop lacks proper changing facilities for students, including a lack of dedicated boys & girls changing areas that would promote greater inclusion in the program.

Graphic Communications: This program has no publicly-accessible “retail” front that would allow for business curriculum to be more closely integrated. The shop’s current location on the second floor creates security concerns for members of the public who choose to visit the shop for services. The HVAC systems for the shop are insufficient to accommodate the increased heating load associated with the reproduction equipment.

Health Careers: The shop lacks proper changing facilities for students, including a lack of dedicated boys & girls changing areas that would promote greater inclusion in the program.

ISSN – Information Support Services and Networking: No major deficiencies with the infrastructure of the existing program are noted.

Machine Technology: The dedicated classroom for this program lacks proper ventilation. Deliveries of large metal stock pieces are compromised due to the lack of a true loading dock and the absence of an over-sized door into the shop itself. The overall size of the shop is compromised due to the size and quantity of equipment and its proximity to the Metal Fabrication Shop. There is no physical partition separating the Machine Technology shop from the Metal Fabrication shop, resulting in both acoustic and operational challenges when students and instructors are occupying both spaces. The shop lacks proper changing facilities for students, including a lack of dedicated boys & girls changing areas that would promote greater inclusion in the program.

Metal Fabrication: The dedicated classroom is undersized, operating out of what was originally designed to be a tool storage room. Storage for gases is presently located within the shop due to a lack of a secure adjacent location on the exterior of the building. Deliveries of large metal stock pieces are compromised due to the lack of a true loading dock and the absence of an over-sized door into the shop itself. The overall size of the shop is compromised due to the size and quantity of equipment and its proximity to the Machine Technology shop. There is no physical partition separating the Machine Technology shop from the Metal Fabrication Shop, resulting in both acoustic and operational challenges when students and instructors are occupying both spaces. The shop lacks proper changing facilities for students, including a lack of dedicated boys & girls changing areas that would promote greater inclusion in the program.

F. Description of how deficiencies will be addressed:

The method of addressing the deficiencies noted above will be identified as part of the Preferred Schematic Report [PSR] submission.

PROGRAMS TO BE ADDED, EXPANDED, CONTRACTED OR DISCONTINUED

Program	Current Enrollment	Approved Capacity	Proposed Capacity
Barbering	na	tbd	30
Medical Occupations	na	tbd	40
HVAC	na	tbd	30
Plumbing	na	tbd	30
Total			130*

* Enrollments noted above are inclusive of exploratory program participants

Note: Barbering, Medical Occupations, HVAC and Plumbing have been blanketed under the General Advisory Committee discussion. Meetings with minutes and data are attached to validate the need for these expanded career areas in the new building. This includes support from the Metro North Regional Employment Board.

G. Confirm that the District understands that this submittal documents the District's desire to investigate potential changes to existing Chapter 74 programming as part of its Feasibility Study only, does not commit the District or the MSBA to any particular Chapter 74 Program offerings at the Somerville High School school project, all local decisions and approvals regarding Chapter 74 programming offerings are to be finalized prior to the District submitting its Preferred Schematic Report to the MSBA, and that DESE review and acknowledgement of the District's proposed additions, expansions, contractions, and/or discontinuations to its current Chapter 74 program offerings must be provided with the District Preferred Schematic Report.

The District confirms this understanding.

H. Confirm that the District further understands that, among other things, program area associated with Chapter 74 programming and total square footage of the Somerville High School school project shall be subject to the approval of the MSBA's Board and that the final approval of a Proposed Project at the Somerville High School school project shall be within the sole discretion of the MSBA's Board.

The District confirms this understanding.

REB

Metro North Regional Employment Board

January 9, 2016

Mr. Leo DeSimone Jr.
Assistant Principal, Director of Career & Technical Education
Somerville High School
81 Highland Ave.
Somerville, MA 02143

Dear Mr. DeSimone:

It is with great pleasure that I write this letter on behalf of the Metro North Regional Employment Board in support of Somerville High School's new career and technical programs.

There is an ongoing need for medical; heating, ventilating, and air conditioning (HVAC); plumbing; and barbering workers in our region. For medical occupations there is an expected growth rate of 22 percent; for HVAC there is an expected growth rate of 3 to 7 percent; for plumbing there is an expected growth rate of 15 to 21 percent; and for barbering there is an expected growth rate of 8 to 14 percent.

It is our understanding that these programs will provide a strong foundation for students to enter post-secondary education that will prepare them for careers in these industries. Based on these ongoing opportunities, we are glad to support the Chapter 74 certification of your programs.

If you require additional information, please do not hesitate to contact me at lbass@mnreb.org.

Sincerely,

Linda J Bass

Linda J. Bass
Executive Director

Somerville Public Schools
Education • Inspiration • Excellence

Career and Technical Education – Advisory Committee Minutes

Program Advisory Committee: General Advisory Committee

The first meeting of the 2015-16 school year was held on Tuesday October 27th 2015 from 5:00-8:30 p.m. at Somerville High School.

The following were in attendance:

1. Chair – Tom Bent	12. Emanuel Silva
2. Assistant Chair: Ron Bonney	13. Chris Foley
3.Barbara Maglio	14. Laura Denison
4. Connie Filosi	15. John Oteri
5. Lodi Petriv	16.Mary Skipper
6. Lisa Brucolaccio	17. Lesther Perez
7.Joe Gaspar	18. Dave Morrow
8. Katie Talmo	17. Lindsey Clemenson
9.Tony Ciccariello	
10. Dr. Dana Gordon	
11. Barbara Rubel	

Agenda Item	Action
Welcome – Leo/Tom Bent/John Oteri/Mary Skipper	Tom Bent welcomed the committee and spoke about the success of the spring 2015 CPR. Tom also stated that although he was impressed with the results as opposed to 2009, we as a team are happy to be in compliance, but have higher goals and benchmarks for CTE. Tom would like to see our program as a state model. Tom discussed his piece as a member of the new building committee and how CTE is high priority for the district. Tom cited the recent data from the REB that states our current 13 programs are viable and have growth opportunities for the next 10-15 years. Tom also cited the recent data that determines the need for 4-more programs within the planning sessions for the new building project. These programs are; HVAC, Plumbing, Medical Occupations and Barbering. The CTE staff has visited several schools where these programs currently exist. Somerville has over 30 companies in the HVAC and Plumbing field. Barbering has done a large comeback and students are leaving SHS and paying high training fees to become a licensed barber. John Oteri welcomed the group and thanked them for their participation and support for our staff, students, school and community. Mary thanked the group for their support and elaborated on her experience with CTE in Boston.
Dave Morrow – Callahan Construction	Industry Partnership: Dave showed a slide show on assembly row. block six. Dave elaborated on how Callahan construction would like to reach out to the community. Dave spoke about a potential construction partnership that would entail two units being worked on by students here at SHS. This upcoming project could take place in the spring or next fall.

Barbara Maglio – The careerplace	Barbara spoke about the career place partnership and how she replaced Laura Denison who ran a successful program. Barbara will be working once a week on Wednesdays to meet with students throughout SHS on part-time and full-time jobs and preparation relating to these jobs.
Lindsey Clemenson	Lindsey is a volunteer at Strongwater Farm in Tewksbury. Lindsey spoke about the actual PTSD program through the use of horses. Lindsey had a power-point presentation that encased the Strongwater program. Our students in Early Education and Health Careers attend Strongwater on Mondays and Thursdays.
Local 22 Partnership	Leo spoke about the meeting at local 22, laborers union this past September. We have an agreement with local 22 to take up to 20 students next July for training and a potential internship.
Katie Talmo – Tufts University Partnership	Katie spoke about the upcoming partnership on Fridays for our dental assistant students at Tufts school of dentistry in Boston. Katie elaborated that our students will be working directly with Tufts dental students as assistants. She spoke about how great of an opportunity this is for our students. Leo mentioned that the seniors in dental will also be interning at a local dental office.
Leo – New equipment purchased over $5,000.00	Leo spoke about the new equipment purchases in 2015 that were over $5k. A new alignment machine in automotive, a roll bender and digital welding mock-up for welding, two pizza ovens and a convection steam oven for culinary. Many other equipment purchases were made under $5k.
Tom: a series of small General Advisory Committee meetings – beginning in January.	Tom spoke to the group about having a series of smaller general chair-people only, meetings leading up-to the January school committee meeting. Several items will be discussed, such as; new building, new programs, FAB-LAB, Manufacturing grant, possibility of expanding the adult training program. Dates will follow
The Vocational Fair will be March 22nd this year Meeting adjourned at 6:00	

Special Notes:

Name of recorder: Leo DeSimone Date: 10/28/15

Somerville Public Schools
Education • Inspiration • Excellence

Career and Technical Education – Advisory Committee Minutes

Program Advisory Committee: General Advisory Committee

The second meeting of the 2015-16 school year was held on Wednesday January 27th from 5:45-8:00 p.m. at Somerville High School.

The following were in attendance:

1. Thomas Bent - Chair/Electrical	9. Lisa Brukilacchio – Health Careers
2. Ron Bonney - Assistant Chair/Automotive	10. Joe Coviello - ISSN
3.Grace Torino - Cosmetology	11.
4. Chris Foley – Architectural Design	12.
5. Laurie Shea – Early Education	13.
6. John Healey – Metal Fabrication	14.
7. Rich Machado – Machine Technology	15.
8. Emanuel Silva - Carpentry	16.

Agenda Item	Action
Welcome – each of the 10 departments present had a chance to speak about individual departments. Discussion on the thirteen current CTE Programs.	Discussion/report from each chair on their program, what's going well, what is not, a suggestion etc… Not in attendance: Culinary Arts, Dental, Design & Visual, The committee discussed the relevance of each of the thirteen CTE programs. According to the data provided by the Regional Employment Board, shared at the October 27th meeting, each of the current thirteen programs are valid, relevant and have growth potential for the next ten to fifteen years. The REB also shared relevant growth data on starting four new programs when the new school opens. HVAC, Plumbing, Barbering and Medical Occupations.
Ron Bonney - Automotive	Ron appreciated the new equipment purchased over the past five years for the automotive program. He emphasized the new alignment machine. Ron also expressed the potential need for a third instructor. Concern: Placement of students Action: A third instructor would be optimum and could be budgeted down the road should student numbers increase and the program accepts adult learners.
Grace Torino - Cosmetology	Grace spoke about spending time on Mondays with the students. Grace was impressed with the focus and attention each student gave to customers and staff. Grace mentioned that the program has received needed equipment, but may need some work on the sink counters. Action: I will have carpentry look at the counters. The planning for the

	new school will incorporate new counters and sinks.
Chris Foley - Architecture	Chris mentioned that the committee was happy with the new computers, 3-D printer and the support. Chris mentioned the need for additional space and the 32bit system to be configured to a 64 bit system. Action: As of today, all machines have been updated to 64 bit. I've asked Dan to get me quotes on new desks.
Laurie Shea – Early Education	Laurie mentioned the updated lessons she has observed. Laura visited Cambridge and Weymouth and looked at their programs regarding EEC. She stated that our current program is in need of a sink. This will be looked at over the summer, and a temporary solution is in place. Action: A plan for use of a sink is in place. A definitive plan will be in place for the new building.
John Healey – Metal Fabrication	John spoke about how impressed he is with the quality of students coming out of the Metal Fabrication Program. John mentioned that he is affiliated with several schools and the students at SHS always standout at local 17. John mentioned the need for additional staff. Action: A plan for a welding aid is in place for March 2016
Rich Machado - Machine	Rich mentioned that the full-time instructor is out on leave and was concerned about the day students. Leo spoke about several recent candidates and that Rich was assisting with the interviews. We hope to have someone here by next Monday 2/1/16. The committee elaborated about the future of the program and that a move must take place soon due to students not being serviced. Action: Discussions are ongoing for a solution to staffing and equipment
Emanuel Silva - Carpentry	Manny spoke about the new way of instructing in carpentry. He has observed workstations that closely align to real-life and the state frameworks. He would like to see the teachers reach-out for donations. Action: Tom Bent, Ron Bonney and I are following up with the Housing Authority on some authentic projects. Tom will also be working with Suffolk on a potential partnership. Mario is working with a copy to secure donated materials.
Lisa B. – Health Careers	Lisa spoke about the success of health careers measured by student placement Action: The health careers committee will be meeting in April to discuss further actions regarding internships. Tom Bent will be meeting with Partners regarding a partnership.
Joe Coviello - ISSN	Joe spoke about the need for additional equipment, updates for the server, furniture and another teacher in the future. Action: Joe will work with Chris Foley on some potential donations. Joe will also work with Ron Bonney on some donations from the city yard. Joe will also be discussing with Yuri the need for desks, and cleaning of the room.
Grant for additional Machine Technology equipment	As of January 28th a grant for $350k worth of machine technology equipment was set forth. More information will be available by our April meeting.

FAB/LAB	Tom Bent and Leo briefly discussed the 16-module FAB/LAB concept and will share more with the committee at the April meeting once they meet with the FAB/LAB team. A $200k grant has been secured to move the LAB forward.

Special Notes:

Name of recorder: ______________________________________ Date: ___________________

INITIAL SPACE SUMMARY

3.1 SUMMARY

The Initial Space Summaries were developed to address the goals and vision of the Educational Program through a series of interviews with the District administration and the High School administration, teachers, staff, and students. Since the alternatives under review include a new facility as well as a renovation/addition option, two Initial Space Summaries are included with this Section.

PROGRAMMING

There were 17 initial programming meetings conducted between September 18 and September 30, 2015 that included 37 individual participants. The meeting reports, located in Appendix 8.4 of this report are a record of those discussions. They do not represent a promise of inclusion in the project but rather participants' desires as well as attitudes towards organization and pedagogy for teaching and learning.

VISIONING

On both October 20, 2015 and November 9, 2015, intensive Visioning Sessions were conducted which included: teachers, administrators, civic leaders, higher education partners and members of the community including business representatives. The days included presentations and workshops that focused on 21st Century Teaching and Learning and how that can impact the schools' built environment. The Visioning Session Reports are included in Appendix 8.5.

Visioning Sessions conducted focused on:

- 21st Century Schools - What is relevant / not relevant to Somerville HS
- Modern Comprehensive High School
- Learning Modalities
- School Organizational Structures

The following is a summary of the educational space deficiencies associated with converting the existing Somerville High School into a 21st Century Comprehensive High School.

- 56% of spaces are sized at least 20% less than either the MSBA or DESE Chapter 74 Guidelines indicate
- Science labs lack sufficient space to allow for an easy change of teaching and learning modalities required in contemporary science education.
- The building lacks sufficient teacher planning areas to allow for development of inter- and intra- disciplinary lesson plans.
- The building lacks sufficient variety and flexibility in the teaching/learning environments to allow for differentiated learning.

- The building is not fully accessible and will require substantial physical work to create a building that serves all students and staff equally.
- Building organization does not support the educational model of both school programs and the 21st Century methodologies incorporated by many of the teachers at the school.

The Initial Summary of Spaces addresses the needs of the Educational Program, the Curriculum, and reflects the aspirations identified through the Visioning process.

SIZING OF THE COMPREHENSIVE HIGH SCHOOL

A comprehensive high school includes two major categories of spaces that must be accurately accounted for in the Summary of Spaces – academic and vocational. The MSBA Guideline Space Summary outlines the sizing of academic spaces; as well as the various shared, core and support spaces that are associated with the academic curriculum. Chapter 74 program spaces are not addressed by the standard MSBA Guideline Space Summary, and are instead sized according to requirements provided by the Department of Elementary and Secondary Education [DESE]. DESE regulations dictate the sizing of vocational shop spaces as well as dedicated support spaces for those shops.

The process of sizing the vocational spaces is straightforward, with each Chapter 74 program allowed a certain size based on the projected number of students enrolled in that program. The MSBA Guideline Space Summary then provides quantities and sizes for academic spaces based on a total student population. However, for a comprehensive high school the total student population must be calibrated to represent the actual utilization of those academic spaces. This calibration reflects the fact that vocational students can only spend a certain percentage of their time in the academic spaces, as there is a fixed quantity of time that they spend in the vocational shops.

The calibration process uses a secondary total student population that is referred to as a Full Time Equivalent [FTE] academic student population. The FTE population represents the sum of the academic-track students plus the sum of the vocational-track students, after that student population is adjusted to represent their ability to utilize academic spaces.

An analysis of the credit hours needed for an academic-track and vocational-track student to graduate was conducted to determine the academic space utilization for a vocational student. From this analysis (shown in the chart on the next page), it was determined that a vocational student at Somerville High School represents a 75% utilization rate of the academic spaces:

Program	General Academic Track Required Credits	Vocational Track Required Credits
English/ELL	20	20
Math	15	10
Science	15	10
Social Studies	15	15
World Language	10	0
Physical Education	5	5
Health	5	5
Fine Arts (Music, Visual Arts, Drama)	5	5
Electives	10	5
Academic Credit Sub-Total	**100**	**75**
CTE Credits (average including exploratory)	5	40
Total Credits Required for Graduation	105	105
Typical Credits Upon Graduation	140	140

= 75% Academic Space Utilization for Vocational Track Students

The FTE academic student population was then determined as follows, and is used to generate the quantity and size of the academic spaces in the Initial Summary of Spaces for both the all new construction and addition renovation scenarios.

A = B + C	**Projected Total Enrollment**	**1,515**
B	Projected Academic Students:	1,096
C	Projected Vocational Students:	419
D	Projected Vocational Students Adjusted for Academic Space Utilization:	314
E = B+D	**Projected Full Time Equivalent [FTE] Academic Student Population:**	**1,410**

In addition to the two Initial Space Summaries (all new and addition/renovation) that are included with this Section, a third Space Summary is provided as a comparative benchmark. The MSBA Comparative Benchmark Space Summary represents the sizing of an academic-only high school that is in full conformance with the MSBA Guidelines, and is agnostic of the Chapter 74 vocational programs. This MSBA Comparative Benchmark Space Summary is provided for reference purposes only.

3.2 NARRATIVE DESCRIPTION OF THE VARIANCES BETWEEN PROPOSED PROGRAM AND MSBA GUIDELINES

The following is a summary of the variances found in the proposed space summaries as compared to the standard collection and quantities of spaces as laid out per the MSBA Guidelines:

Core Academic Spaces:

- The quantity of general classrooms proposed is 45 vs. 47 per the MSBA Guidelines. The difference of two classrooms would be accommodated for in the Large Group Instruction space that is proposed as part of the core academic spaces – which would accommodate the scheduling of two classes concurrently – improving the opportunity for inter-disciplinary curriculum delivery.

- The area allocated to Teacher Planning is 450 SF less than what the MSBA Guidelines allow for, and it is proposed that the total area is distributed into 5 larger spaces versus the 47 individual spaces that the MSBA Guidelines call for. The larger spaces in smaller quantities are intended to provide collaborative work areas for multiple faculty members. The larger Teacher Planning spaces are proposed to be a similar size to the typical classrooms for modular planning purposes, resulting in the 450 SF delta between the proposed and the MSBA Guidelines.

- The Small Group Seminar spaces are planned to be 425 SF each versus the 500 SF allocated in the MSBA Guidelines. This difference results from the typical classroom size being proposed (850 SF), and the desire to have the Small Group Seminar spaces integrate into that module (at half the size) for planning purposes.

- A Lecture Hall/Mini-Theater is proposed to provide additional variety in terms of learning environments, accommodating a different size group (200) than can be ideally taught to in the remainder of the school. This space would also serve as an educational environment that parallels what is commonly found in colleges and universities, acclimating students to an aspirational type of learning space.

- The quantity of science classrooms proposed is 12 vs. 13 per the MSBA Guidelines. The STEM/Fab Lab that is identified in the Technology grouping of spaces would function as the 13th science classroom from a scheduling perspective.

- The quantity of individual Science Prep Rooms is half of what the MSBA Guidelines indicate, however the size of each room is double the MSBA Guideline allotment. This difference represents the approach of using shared Prep Rooms that would be located between two science classrooms. Sharing the Prep Rooms is viable from a utilization perspective, and the larger size results in a safer environment for students.

- A Language Lab is proposed for inclusion as one of the Core Academic Spaces, as this resource exists in the existing school and has critical functionality for the World Language program.

Special Education:

- The collection of proposed primary Special Education spaces has been coordinated with the existing programs on site at the high school, and those that are proposed in the Educational Program.

- Spaces for the Full Circle and Next Wave alternative school programs have been listed within the Special Education grouping of spaces. While these programs are specialized types of education that incorporate a special education component, they fall under the purview of DESE and as such are being accommodated for as part of Special Education.

Art & Music:

- The proposed art classrooms incorporate one 2D room, one 3D room, one computer lab and one photography lab – for a total of 4 rooms vs. 3 rooms per the MSBA guidelines. The proposed programs each reflect an existing curriculum element that is flourishing and is desired to be maintained.

- The proposed music classrooms incorporate a dedicated Orchestra room in addition to Band and Choral rooms. The need for a dedicated Orchestra space is present within the existing facility, and was confirmed by way of a curriculum-capacity analysis with the projected increase in enrollment – resulting from a robust music curriculum that is well enrolled. The size of the Orchestra room is driven by enrollment. Presently, the Orchestra program has an enrollment that exceeds 50 students, and they are targeting an enrollment of 75 which would match the size of the All City Middle School orchestra who would also be making use of the room. Acoustic design recommendations suggest an allotment of 30 SF per orchestral performer for proper room functionality and acoustics, leading to the proposed Orchestra room size of 2,250 SF.

- The music storage room functionality is proposed to be incorporated within the collection of music spaces, through the use of wire-front instrument lockers. These lockers, with their acoustically absorptive back walls, would be utilized to help meet the acoustic performance requirements of the music spaces.

Vocations & Technology:

- Chapter 74 vocational programs, which are regulated with respect to size by DESE, are included in this grouping of spaces. The standard MSBA Guidelines do not address these vocational spaces.

- The proposed collection of academic technology spaces that are distinct from the vocational spaces total to approximately half of the type of these spaces as what the MSBA guidelines allow. The reason for this difference lies in the resource that is afforded by having the Chapter 74 program spaces within the school, and the role that the vocational exploratory courses play in the curriculum variety and schedule.

Health & Physical Education:

- For the space summary that represents an addition/renovation model, the potential of renovating the existing gymnasium would result in a 26,000 SF space, as compared to a 12,000 SF space as prescribed by the MSBA Guidelines. In an all new construction scenario, a gymnasium of 18,000 SF is proposed to sufficiently accommodate a three-station gymnasium layout. Three gymnasium stations are required for sufficient PE and athletic activity functionality given the projected total student population.

- The proposed size of the locker rooms is approximately 2,400 SF less than prescribed by the MSBA Guidelines. The proposed 6,000 SF locker room space has proved to be sufficient for high school needs in previous project experience.

- Two PE Alternative spaces are proposed with a total area of 5,000 SF, as compared to the 3,000 SF prescribed by the MSBA Guidelines. The 5,000 SF of space is intended to provide safe functionality for both a multi-purpose and fitness room.

Media Center:

- The media center is proposed at a size of 7,500 SF, vs. 8,714 SF in the MSBA Guidelines. The proposed size would match that of the dining commons, allowing for the potential of organizing these two central spaces in proximity to each other, potentially one directly above the other.

Auditorium / Drama:

- The proposed size of the stage is 2,000 SF vs. the 1,600 SF noted the in the MSBA Guidelines. The proposed additional area would allow the school the potential to utilize the stage as a black box theater space, a desired curriculum element noted in the Educational Program. This utilization of the stage as a secondary performance and teaching space would increase the utilization of this typically unused program area.

Administration & Guidance:

- The proposed total area for administration and guidance is approximately double the amount of space indicated for this grouping of spaces in the MSBA Guidelines. The reason for the proposed increase in spatial allocation is the continuation of existing administrative and support programs that are seen as critical to the successful improvement of student life and experience. Unique programs include Chapter 74 program/CTE administrative staff; a student mediation program; a Welcome Center which is a component of the ELL program and acts as a critical resource for the large population of immigrant students & families; and a suite of administrative offices for four House Masters, whose combined services serve to reduce the size of the effective student cohort within the school – creating a more personalized support mechanism.

Other:

- A school store has been included as part of the proposed program. The existing school store is an integral part of the CTE program at the high school, offering students business experience in a retail environment.

- A small storage room for the PTO programs is proposed. This storage space replicates an existing storage space in the high school, and must be kept separate from the general building storage due to access and security considerations.

3.3 SCALED FLOOR PLANS OF THE EXISTING FACILITY

Plans of the existing facility are attached for reference at the end of this Section.

Proposed Space Summary - Somerville High School - All New Construction

2/25/2016: PDP

Somerville High School	Existing Conditions			PROPOSED											MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
				Existing to Remain/Renovated			New			Total								
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Ch. 74 Requirements	ROOM NFA[1]	# OF RMS	area totals	Comments
CORE ACADEMIC SPACES			**59,494**			**0**			**69,580**			**69,580**				**68,170**	# of RMS based on FTE Students w/o NWFC
Classroom - General	varies	54	34,794				850	42	35,700	850	42	35,700		850	47	39,950	825 SF min - 950 SF max
Classroom - ESL	varies	5	4,286				850	3	2,550	850	3	2,550					
Teacher Planning	varies	12	3,389				850	5	4,250	850	5	4,250		100	47	4,700	
Small Group Seminar (20-30 seats)							425	4	1,700	425	4	1,700		500	4	2,000	
Large Group Instruction (80-100 seats)							1,800	1	1,800	1,800	1	1,800					
Lecture Hall/Mini-Theater (200 seats)							2,600	1	2,600	2,600	1	2,600					
Science Classroom / Lab	varies	13	12,339				1,440	12	17,280	1,440	12	17,280		1,440	13	18,720	3 x85% ut=20 Seats-1 per /day/student
Prep Room	varies	8	1,633				400	6	2,400	400	6	2,400		200	13	2,600	
Central Chemical Storage Rm	105	1	105				200	1	200	200	1	200		200	1	200	
Computer Labs	varies	3	1,998														
Language Lab	950	1	950				1,100	1	1,100	1,100	1	1,100					
SPECIAL EDUCATION			**5,282**			**0**			**19,959**			**19,959**				**16,110**	# of RMS based on Total Student Population w/ NWFC
Self-Contained SPED	*see below*													950	11	10,450	assumed 8% of pop. in self-contained SPED
Self-Contained SPED Toilet							60	2	120	60	2	120		60	11	660	
Life Skills Classroom	981	1	981				1,500	1	1,500	1,500	1	1,500					
Shared Kitchenette							200	1	200	200	1	200					
"SHIP" Medically Fragile Student Classroom	1,175	1	1,175				1,500	1	1,500	1,500	1	1,500					
ASD Classroom w/ Breakout - Moderate							850	1	850	850	1	850					
Quiet Room							150	1	150	150	1	150					
ASD Classroom w/ Breakout - Moderate							850	1	850	850	1	850					
Study Skills Classroom							425	1	425	425	1	425					
Therapeutic Classroom							425	1	425	425	1	425					
PT/OT/Speech Sensory Room							425	1	425	425	1	425					
Transition Skills Classroom *(for 18-22 year old students)*	297	1	297				425	1	425	425	1	425					
Resource Room	varies	3	1,835				425	4	1,700	425	4	1,700		500	5	2,500	1/2 size Genl. Clrm.
Small Group Room	150	1	150				425	4	1,700	425	4	1,700		500	5	2,500	1/2 size Genl. Clrm.
SPED Office - Adj Counselor	varies	3	358				200	3	600	200	3	600					
SPED Office - Department Head							150	1	150	150	1	150					
SPED Office - Workroom	486	1	486				425	1	425	425	1	425					
Next Wave/Full Circle Program																	
FC Classrooms							425	8	3,400	425	8	3,400					
NW Classrooms							425	4	1,700	425	4	1,700					
NWFC Reception							400	1	400	400	1	400					
NWFC Clinical Counselor Office							120	2	240	120	2	240					
NWFC Director Office							150	1	150	150	1	150					
NWFC Aide Workstation							54	1	54	54	1	54					
NWFC Crisis Counselor Office							120	2	240	120	2	240					
NWFC Nurse Station							200	1	200	200	1	200					
NWFC Conference Room (20 seats)							425	1	425	425	1	425					
NWFC Student Shop							600	1	600	600	1	600					
NWFC Kitchenette							200	1	200	200	1	200					
NWFC Commons							425	1	425	425	1	425					
Self-Contained SPED Toilet							60	8	480	60	8	480					
											NWFC Subtotal:	8,034					

Proposed Space Summary - Somerville High School - All New Construction

2/25/2016: PDP

Somerville High School	Existing Conditions			PROPOSED: Existing to Remain/Renovated			PROPOSED: New			PROPOSED: Total			Ch. 74 Requirements		MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
ROOM TYPE	ROOM NFA^1	# OF RMS	area totals	ROOM NFA^1	# OF RMS	area totals	ROOM NFA^1	# OF RMS	area totals	ROOM NFA^1	# OF RMS	area totals			ROOM NFA^1	# OF RMS	area totals	Comments
ART & MUSIC			**9,335**			**0**			**11,120**			**11,120**					**8,275**	# of RMS based on FTE Students w/o NWFC
Art Classroom - 25 seats	varies	3	2,769				1,440	2	2,880	1,440	2	2,880			1,200	3	3,600	Assumed use - 25% Population - 5 times/week
Art Workroom w/ Storage & kiln	varies	2	345				100	2	200	100	2	200			150	3	450	
Art Computer Lab	varies	2	1,712				1,440	1	1,440	1,440	1	1,440						
Photography / Dark Room	491	1	491				1,000	1	1,000	1,000	1	1,000						
Band - 50 - 100 seats	1,163	1	1,163				1,500	1	1,500	1,500	1	1,500			1,500	1	1,500	Assumed use - 25% Population - 5 times/week
Orchestra - 75 seats	883	1	883				2,250	1	2,250	2,250	1	2,250						
Chorus - 50 - 100 seats	918	1	918				1,350	1	1,350	1,350	1	1,350			1,500	1	1,500	
Ensemble							200	1	200	200	1	200			200	1	200	
Music Practice	varies	2	150				75	4	300	75	4	300			75	7	525	
Music Storage	varies	9	904				425	0	-	425	0	-			500	1	500	within music spaces
VOCATIONS & TECHNOLOGY			**51,100**			**0**			**63,190**			**63,190**	**No. Students**	**Ch.74 sf /Student**			**70,600**	# of non-Ch.74 RMS based on FTE Students w/o NWFC
Chapter 74 Vocational Spaces																		
Automotive Technology	6,398	1	6,398				5,000	1	5,000	5,000	1	5,000	50	275	6,875	1	6,875	4,125 DESE Shop Min. Area
Barbering							1,875	1	1,875	1,875	1	1,875	30	150	1,875	1	1,875	1,875 DESE Shop Min. Area
Carpentry	4,765	1	4,765				5,000	1	5,000	5,000	1	5,000	50	225	5,625	1	5,625	3,375 DESE Shop Min. Area
Cosmetology	2,346	1	2,346				2,500	1	2,500	2,500	1	2,500	50	150	3,750	1	3,750	1,875 DESE Shop Min. Area
Culinary Arts	6,076	1	6,076				6,250	1	6,250	6,250	1	6,250	50	125	3,125	1	3,125	1,875 DESE Shop Min. Area
Dental Assisting	1,671	1	1,671				1,875	1	1,875	1,875	1	1,875	30	125	1,875	1	1,875	1,875 DESE Shop Min. Area
Drafting	724	1	724				2,000	1	2,000	2,000	1	2,000	30	110	2,200	1	2,200	2,200 DESE Shop Min. Area
Early Education and Care	832	1	832				1,500	1	1,500	1,500	1	1,500	30	75	1,500	1	1,500	1,500 DESE Shop Min. Area
Electricity	2,412	1	2,412				4,540	1	4,540	4,540	1	4,540	50	225	5,625	1	5,625	3,375 DESE Shop Min. Area
Graphic Communications	4,849	1	4,849				3,000	1	3,000	3,000	1	3,000	40	150	3,000	1	3,000	2,250 DESE Shop Min. Area
Health Assisting	2,364	1	2,364				2,400	1	2,400	2,400	1	2,400	40	125	2,500	1	2,500	1,875 DESE Shop Min. Area
HVAC							4,500	1	4,500	4,500	1	4,500	30	200	4,000	1	4,000	4,000 DESE Shop Min. Area
Information Support Services & Networking	2,189	1	2,189				2,200	1	2,200	2,200	1	2,200	30	110	2,200	1	2,200	2,200 DESE Shop Min. Area
Machine Tool Technology	3,398	1	3,398				3,400	1	3,400	3,400	1	3,400	30	200	3,000	1	3,000	3,000 DESE Shop Min. Area
Medical Laboratory Technology							2,400	1	2,400	2,400	1	2,400	40	110	2,200	1	2,200	2,200 DESE Shop Min. Area
Metal Fabrication & Joining Technologies	4,027	1	4,027				4,000	1	4,000	4,000	1	4,000	30	200	3,000	1	3,000	3,000 DESE Shop Min. Area
Plumbing							2,500	1	2,500	2,500	1	2,500	30	150	2,250	1	2,250	2,250 DESE Shop Min. Area
Auto Body *(non-active program)*	1,517	1	1,517															
Vocational Classrooms (incl above)																		
Vocational Offices (incl above)																		
Vocational Storage (incl above)																		
												54,940	**640**				**54,600**	Chapter 74 sub-totals
Academic Technology Spaces																		
Tech Clrm. - (E.G. Drafting, Business)															1,200	5	6,000	Assumed use - 50% Population - 5 times/week
Tech Shop - (E.G. Consumer, Wood)															2,000	5	10,000	Assumed use - 50% Population - 5 times/week
TV/Media Computer Lab	957	1	957				1,200	1	1,200	1,200	1	1,200						
Business Computer Lab	903	1	903				1,000	1	1,000	1,000	1	1,000						
Broadcast Room	354	1	354				1,200	1	1,200	1,200	1	1,200						
TV Studio Control Booth							200	1	200	200	1	200						
Family & Consumer Science Lab	884	1	884				1,600	1	1,600	1,600	1	1,600						
Fabrication Lab/Engineering & STEAM/Robotics Lab	3,659	1	3,659				1,800	1	1,800	1,800	1	1,800						
Technical Career Resource Center	775	1	775				850	1	850	850	1	850						
Storage							400	1	400	400	1	400						
			7,532									**8,250**					**16,000**	non-Chapter 74 sub-totals

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Proposed Space Summary - Somerville High School - All New Construction

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Somerville High School

	Existing Conditions			PROPOSED: Existing to Remain/Renovated			PROPOSED: New			PROPOSED: Total				MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Ch. 74 Requirements	ROOM NFA[1]	# OF RMS	area totals	Comments
HEALTH & PHYSICAL EDUCATION			**37,772**			**0**			**32,050**			**32,050**				**24,684**	Locker Rooms based on Total Student Population w/o NWFC
Gymnasium	25,779	1	25,779				18,000	1	18,000	18,000	1	18,000		12,000	1	12,000	
Elevated Walking Track							5,000	0	-	5,000	0	-					
PE Alternatives	varies	2	2,439											3,000	1	3,000	
Fitness Room							2,500	1	2,500	2,500	1	2,500					
Multi-Purpose Studio (dance, wrestling, aerobics, etc)							2,500	1	2,500	2,500	1	2,500					
Gym Storeroom	varies	6	1,698				800	1	800	800	1	800		300	1	300	
Locker Rooms - Boys / Girls w/ Toilets	varies	3	4,199				3,000	2	6,000	3,000	2	6,000		8,484	1	8,484	5.6 sf/student total
Phys. Ed. Storage	varies	4	1,676				500	1	500	500	1	500		500	1	500	
Athletic Director's Office	300	1	300				150	1	150	150	1	150		150	1	150	
Athletic Storage	899	1	899				800	1	800	800	1	800					
Health Instructor's Office w/ Shower & Toilet	varies	4	472				250	2	500	250	2	500		250	1	250	
Trainer's Office	310	1	310				300	1	300	300	1	300					
MEDIA CENTER			**9,792**			**0**			**7,500**			**7,500**				**8,714**	Media Center size based on FTE Students w/o NWFC
Media Center / Reading Room	varies	8	8,865				7,500	1	7,500	7,500	1	7,500		8,714	1	8,714	
Computer Lab	927	1	927														
AUDITORIUM / DRAMA			**13,805**			**0**			**10,800**			**10,800**				**10,400**	Auditorium size based on Total Student Population w/o NWFC
Auditorium	11,304	1	11,304				7,500	1	7,500	7,500	1	7,500		7,500	1	7,500	2/3 Enrollment @ 10 SF/Seat - 750 seats MAX
Stage	984	1	984				2,000	1	2,000	2,000	1	2,000		1,600	1	1,600	
Auditorium Storage	1,046	1	1,046				500	1	500	500	1	500		500	1	500	
Make-up / Dressing Rooms	369	1	369				300	2	600	300	2	600		300	2	600	
Controls / Lighting / Projection	102	1	102				200	1	200	200	1	200		200	1	200	
Mini Theater (seats 200)							2,400	0	-	2,400	0	-					
Black Box Theater (seats 200)							2,400	0	-	2,400	0	-					
DINING & FOOD SERVICE			**12,821**			**0**			**12,138**			**12,138**				**12,148**	Cafeteria/Kitchen size based on Total Student Pop. w/o NWFC
Cafeteria / Student Lounge / Break-out	8,491	1	8,491				7,500	1	7,500	7,500	1	7,500		7,575	1	7,575	3 seatings - 15SF per seat
Chair / Table Storage							500	1	500	500	1	500		529	1	529	
Scramble Serving Area							600	1	600	600	1	600		600	1	600	
Kitchen	3,639	1	3,639				2,890	1	2,890	2,890	1	2,890		2,815	1	2,815	1600 SF for first 300 + 1 SF/student Add'l
Staff Lunch Room	691	1	691				648	1	648	648	1	648		629	1	629	20 SF/Occupant
MEDICAL			**597**			**0**			**1,310**			**1,310**				**1,310**	Sizes based on Total Student Population w/o NWFC
Medical Suite Toilet	46	1	46				60	1	60	60	1	60		60	1	60	
Nurses' Office / Waiting Room	427	1	427				350	1	350	350	1	350		250	1	250	
Interview Room	39	1	39				150	2	300	150	2	300		100	3	300	
Examination Room / Resting	43	2	85				100	6	600	100	6	600		100	7	700	

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Proposed Space Summary - Somerville High School - All New Construction

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Somerville High School	Existing Conditions			PROPOSED											MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
				Existing to Remain/Renovated			New			Total							
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Ch. 74 Requirements	ROOM NFA[1]	# OF RMS	area totals	Comments
ADMINISTRATION & GUIDANCE			**12,253**			**0**			**11,652**			**11,652**				**5,678**	Sizes based on Total Student Population w/o NWFC
General Office / Waiting Room / Toilet	varies	3	1,351				795	1	795	795	1	795		758	1	758	
Teachers' Mail and Time Room							100	1	100	100	1	100		100	1	100	
Duplicating Room							200	1	200	200	1	200		200	1	200	
Records Room	168	1	168				200	1	200	200	1	200		200	1	200	
Principal's Office w/ Conference Area	262	1	262				375	1	375	375	1	375		375	1	375	
Principal's Secretary / Waiting							125	1	125	125	1	125		125	1	125	
House Master's Suite - HM1 (Beacon House)	221	4	883				varies	5	800	varies	5	800		150	1	150	
House Master's Suite - HM2 (Elm House)	209	3	628				varies	5	800	varies	5	800		150	2	300	
House Master's Suite - HM3 (Highland House)	191	3	574				varies	5	800	varies	5	800					
House Master's Suite - HM4 (Broadway House)	204	3	612				varies	5	800	varies	5	800					
CTE Director Office Suite	varies	5	1,309				varies	5	800	varies	5	800					
Supervisory / Spare Office	varies	10	1,373				varies	10	1,300	varies	10	1,300		120	1	120	
Conference Room	varies	2	650				450	1	450	450	1	450		450	1	450	
Guidance Office	varies	2	463				150	2	300	150	2	300		150	8	1,200	
Guidance Waiting Room	527	1	527				100	1	100	100	1	100		100	1	100	
Guidance Storeroom	35	1	35				100	1	100	100	1	100		100	1	100	
Career Center	775	1	775				550	1	550	550	1	550		529	1	529	
Records Room							225	1	225	225	1	225		214	1	214	
Teachers' Work Room	715	1	715				850	1	850	850	1	850		758	1	758	
Mediation Waiting Room	180	1	180				180	1	180	180	1	180					
Mediation Room	380	1	380				380	1	380	380	1	380					
Mediation Office	222	1	222				222	1	222	222	1	222					
Welcome Center (ELL)	varies	4	1,146				1,200	1	1,200	1,200	1	1,200					
CUSTODIAL & MAINTENANCE			**13,338**			**0**			**3,061**			**3,061**				**2,818**	Sizes based on Total Student Population w/ NWFC
Custodian's Office	49	1	49				150	1	150	150	1	150		150	1	150	
Custodian's Workshop							250	1	250	250	1	250		250	1	250	
Custodian's Storage	2,466	1	2,466				375	1	375	375	1	375		375	1	375	
Recycling Room / Trash							400	1	400	400	1	400		400	1	400	
Receiving and General Supply	421	1	421				529	1	529	529	1	529		548	1	548	
Storeroom	varies	45	8,771				858	1	858	858	1	858		895	1	895	
Network / Telecom Room	varies	3	1,631				500	1	500	varies	1	500		200	1	200	
OTHER			**872**			**-**			**500**			**500**				**-**	
School Store	varies	2	706				400	1	400	400	1	400					
PTO Storage	166	1	166				100	1	100	100	1	100					
Sub-Total School Use Net Floor Area (NFA)			**226,461**			**0**			**242,860**			**242,860**				**228,906**	

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Proposed Space Summary - Somerville High School - All New Construction

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				PROPOSED													
Somerville High School	Existing Conditions			Existing to Remain/Renovated			New			Total				MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Ch. 74 Requirements	ROOM NFA[1]	# OF RMS	area totals	Comments
DPW Office & Storage			**3,993**						-			-					
Office Suite	1,783	1	1,783														
General Storage	2,210	1	2,210														
Somerville Child Care Center			**805**						-			-					
Classroom	640	1	640														
Education Lab																	
Office																	
Toilet Rooms	varies	2	165														
Somerville City Cable			**2,565**						-			-					
TV Studio	1,475	1	1,475														
Control Room	470	1	470														
Editing Room	210	1	210														
Repair Workroom	210	1	210														
Storage	100	2	200														
Cambridge Health Alliance (Teen Health Center)			**1,056**						-			-					
Waiting																	
Reception																	
Exam Room	120	2	240														
Office	85	6	510														
Break Room	90	1	90														
Storage	varies	3	216														
Sub-Total On-Site Auxiliary Net Floor Area (NFA)			**8,419**				**No New Net Floor Area for Existing On-Site Auxiliary is Included**										
Total Building Net Floor Area (NFA)			**234,880**									**242,860**				**228,906**	
Proposed Student Capacity / Enrollment			**1,237**									**1,515**			Total:	**1,515**	226
Academic Students			*893*									*1,096*			FTE:	**1,410**	FTE = Academic + Adjusted CTE/Academic
CTE Students (not including exploratory)			*344*									*419*					
CTE Students (including exploratory)			*521*									*640*			w/ NWFC Total:	**1,590**	includes 75 NWFC Students
Exploratory Students			*177*									*221*					
Adjusted CTE Students w/ Academic Space Usage			*258*									*314*					
Total Building Gross Floor Area (GFA)[2]			**360,150**									**364,290**				**342,390**	
Grossing factor (GFA/NFA)			**1.53**									**1.50**				**1.50**	

[1] **Individual Room Net Floor Area (NFA)** Includes the net square footage measured from the inside face of the perimeter walls and includes all specific spaces assigned to a particular program area including such spaces as non-communal toilets and storage rooms.

[2] **Total Building Gross Floor Area (GFA)** Includes the entire building gross square footage measured from the outside face of exterior walls

Architect Certification

I hereby certify that all of the information provided in this "Proposed Space Summary" is true, complete and accurate and, except as agreed to in writing by the Massachusetts School Building Authority, in accordance with the guidelines, rules, regulations and policies of the Massachusetts School Building Authority to the best of my knowledge and belief. A true statement, made under the penalties of perjury.

Name of Architect Firm: Symmes, Maini & McKee Associates (SMMA)

Name of Principal Architect: Alex Pitkin, AIA

Signature of Principal Architect:

Date: 2/25/16

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Proposed Space Summary - Somerville High School - Addition / Renovation

2/22/2016: PDP

Somerville High School	Existing Conditions			PROPOSED										MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
				Existing to Remain/Renovated			New			Total							
ROOM TYPE	ROOM NFA^1	# OF RMS	area totals	ROOM NFA^1	# OF RMS	area totals	ROOM NFA^1	# OF RMS	area totals	ROOM NFA^1	# OF RMS	area totals	Ch. 74 Requirements	ROOM NFA^1	# OF RMS	area totals	Comments
CORE ACADEMIC SPACES			**59,494**			**28,900**			**40,680**			**69,580**				**68,170**	# of RMS based on FTE Students w/o NWFC
Classroom - General	varies	54	34,794	850	24	20,400	850	18	15,300	850	42	35,700		850	47	39,950	825 SF min - 950 SF max
Classroom - ESL	varies	5	4,286	850	3	2,550	0	0	-	850	3	2,550					
Teacher Planning	varies	12	3,389	850	5	4,250	0	0	-	850	5	4,250		100	47	4,700	
Small Group Seminar (20-30 seats)				425	4	1,700	0	0	-	425	4	1,700		500	4	2,000	
Large Group Instruction (80-100 seats)							1,800	1	1,800	1,800	1	1,800					
Lecture Hall/Mini-Theater (200 seats)							2,600	1	2,600	2,600	1	2,600					
Science Classroom / Lab	varies	13	12,339	1,440	0	-	1,440	12	17,280	2,880	12	17,280		1,440	13	18,720	3 x85% ut=20 Seats-1 per /day/student
Prep Room	varies	8	1,633	200	0	-	200	12	2,400	400	6	2,400		200	13	2,600	
Central Chemical Storage Rm	105	1	105				200	1	200	200	1	200		200	1	200	
Computer Labs	varies	3	1,998														
Language Lab	950	1	950				1,100	1	1,100	1,100	1	1,100					
SPECIAL EDUCATION			**5,282**			**3,409**			**16,550**			**19,959**				**16,110**	# of RMS based on Total Student Population w/ NWFC
Self-Contained SPED	*see below*													950	11	10,450	assumed 8% of pop. in self-contained SPED
Self-Contained SPED Toilet							60	2	120	60	2	120		60	11	660	
Life Skills Classroom	981	1	981				1,500	1	1,500	1,500	1	1,500					
Shared Kitchenette							200	1	200	200	1	200					
"SHIP" Medically Fragile Student Classroom	1,175	1	1,175				1,500	1	1,500	1,500	1	1,500					
ASD Classroom w/ Breakout - Severe							850	1	850	850	1	850					
Quiet Room							150	1	150	150	1	150					
ASD Classroom w/ Breakout - Moderate							850	1	850	850	1	850					
Study Skills Classroom							425	1	425	425	1	425					
Therapeutic Classroom							425	1	425	425	1	425					
PT/OT/Speech Sensory Room							425	1	425	425	1	425					
Transition Skills Classroom *(for 18-22 year old students)*	297	1	297				425	1	425	425	1	425					
Resource Room	varies	3	1,835				425	4	1,700	425	4	1,700		500	5	2,500	1/2 size Genl. Clrm.
Small Group Room	150	1	150				425	4	1,700	425	4	1,700		500	5	2,500	1/2 size Genl. Clrm.
SPED Office - Adj Counselor	varies	3	358				200	3	600	200	3	600					
SPED Office - Department Head							150	1	150	150	1	150					
SPED Office - Workroom	486	1	486				425	1	425	425	1	425					
Next Wave/Full Circle Program																	
FC Classrooms				425	4	1,700	425	4	1,700	425	8	3,400					
NW Classrooms							425	4	1,700	425	4	1,700					
NWFC Reception				400	1	400				400	1	400					
NWFC Clinical Counselor Office				120	2	240	0	0	-	120	2	240					
NWFC Director Office				150	1	150	0	0	-	150	1	150					
NWFC Aide Workstation				54	1	54	0	0	-	54	1	54					
NWFC Crisis Counselor Office				120	2	240	0	0	-	120	2	240					
NWFC Nurse Station				200	1	200				200	1	200					
NWFC Conference Room (20 seats)				425	1	425				425	1	425					
NWFC Student Shop							600	1	600	600	1	600					
NWFC Kitchenette				0	0	-	200	1	200	200	1	200					
NWFC Commons				0	0	-	425	1	425	425	1	425					
Self-Contained SPED Toilet							60	8	480	60	8	480		60	0	-	
											NWFC Subtotal:	8,034					

Proposed Space Summary - Somerville High School - Addition / Renovation

2/22/2016: PDP

Somerville High School	Existing Conditions			PROPOSED Existing to Remain/Renovated			New			Total					MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Ch. 74 Requirements		ROOM NFA[1]	# OF RMS	area totals	Comments
ART & MUSIC			**9,335**			**0**			**11,120**			**11,120**					**8,275**	# of RMS based on FTE Students w/o NWFC
Art Classroom - 25 seats	varies	3	2,769				1,440	2	2,880	1,440	2	2,880			1,200	3	3,600	Assumed use - 25% Population - 5 times/week
Art Workroom w/ Storage & kiln	varies	2	345				100	2	200	100	2	200			150	3	450	
Art Computer Lab	varies	2	1,712				1,440	1	1,440	1,440	1	1,440						
Photography / Dark Room	491	1	491				1,000	1	1,000	1,000	1	1,000						
Band - 50 - 100 seats	1,163	1	1,163				1,500	1	1,500	1,500	1	1,500			1,500	1	1,500	Assumed use - 25% Population - 5 times/week
Orchestra - 75 seats	883	1	883				2,250	1	2,250	2,250	1	2,250						
Chorus - 50 - 100 seats	918	1	918				1,350	1	1,350	1,350	1	1,350			1,500	1	1,500	
Ensemble							200	1	200	200	1	200			200	1	200	
Music Practice	varies	2	150				75	4	300	75	4	300			75	7	525	
Music Storage	varies	9	904				425	0	-	425	0	-			500	1	500	
VOCATIONS & TECHNOLOGY			**51,100**			**39,075**			**23,265**			**63,190**	**No. Students**	**Ch.74 sf /Student**			**70,600**	# of non-Ch 74 RMS based on FTE Students w/o NWFC
Chapter 74 Vocational Spaces																		
Automotive Technology	6,398	1	6,398	0	0	-	5,000	1	5,000	5,000	1	5,000	50	275	6,875	1	6,875	4,125 DESE Shop Min. Area
Barbering				1,875	1	1,875	0	0	-	1,875	1	1,875	30	150	1,875	1	1,875	1,875 DESE Shop Min. Area
Carpentry	4,765	1	4,765	5,000	1	5,000	0	0	-	5,000	1	5,000	50	225	5,625	1	5,625	3,375 DESE Shop Min. Area
Cosmetology	2,346	1	2,346	2,500	1	2,500	0	0	-	2,500	1	2,500	50	150	3,750	1	3,750	1,875 DESE Shop Min. Area
Culinary Arts (new restaurant space)	6,076	1	6,076	4,785	1	4,785	1,465	1	1,465	6,250	2	6,250	50	125	3,125	1	3,125	1,875 DESE Shop Min. Area
Dental Assisting	1,671	1	1,671	1,875	1	1,875	0	0	-	1,875	1	1,875	30	125	1,875	1	1,875	1,875 DESE Shop Min. Area
Drafting	724	1	724				2,000	1	2,000	2,000	1	2,000	30	110	2,200	1	2,200	2,200 DESE Shop Min. Area
Early Education and Care	832	1	832	1,500	1	1,500	0	0	-	1,500	1	1,500	30	75	1,500	1	1,500	1,500 DESE Shop Min. Area
Electricity	2,412	1	2,412	4,540	1	4,540	0	0	-	4,540	1	4,540	50	225	5,625	1	5,625	3,375 DESE Shop Min. Area
Graphic Communications	4,849	1	4,849	0	0	-	3,000	1	3,000	3,000	1	3,000	40	150	3,000	1	3,000	2,250 DESE Shop Min. Area
Health Assisting	2,364	1	2,364	0	0	-	2,400	1	2,400	2,400	1	2,400	40	125	2,500	1	2,500	1,875 DESE Shop Min. Area
HVAC				4,500	1	4,500				4,500	1	4,500	30	200	4,000	1	4,000	4,000 DESE Shop Min. Area
Information Support Services & Networking	2,189	1	2,189	2,200	1	2,200	0	0	-	2,200	1	2,200	30	110	2,200	1	2,200	2,200 DESE Shop Min. Area
Machine Tool Technology	3,398	1	3,398	3,400	1	3,400				3,400	1	3,400	30	200	3,000	1	3,000	3,000 DESE Shop Min. Area
Medical Laboratory Technology				0	0	-	2,400	1	2,400	2,400	1	2,400	40	110	2,200	1	2,200	2,200 DESE Shop Min. Area
Metal Fabrication & Joining Technologies	4,027	1	4,027	4,000	1	4,000				4,000	1	4,000	30	200	3,000	1	3,000	3,000 DESE Shop Min. Area
Plumbing				2,500	1	2,500				2,500	1	2,500	30	150	2,250	1	2,250	2,250 DESE Shop Min. Area
Auto Body *(non-active program)*	1,517	1	1,517															
Vocational Classrooms (incl above)																		
Vocational Offices (incl above)																		
Vocational Storage (incl above)																		
												54,940	**640**				**54,600**	Chapter 74 sub-totals
Academic Technology Spaces																		
Tech Clrm. - (E.G. Drafting, Business)															1,200	5	6,000	Assumed use - 50% Population - 5 times/week
Tech Shop - (E.G. Consumer, Wood)															2,000	5	10,000	Assumed use - 50% Population - 5 times/week
TV/Media Computer Lab	957	1	957				1,200	1	1,200	1,200	1	1,200						
Business Computer Lab	903	1	903				1,000	1	1,000	1,000	1	1,000						
Broadcast Room	354	1	354				1,200	1	1,200	1,200	1	1,200						
TV Studio Control Booth							200	1	200	200	1	200						
Family & Consumer Science Lab	884	1	884				1,600	1	1,600	1,600	1	1,600						
Fabrication Lab/Engineering & STEAM/Robotics Lab	3,659	1	3,659				1,800	1	1,800	1,800	1	1,800						
Technical Career Resource Center	775	1	775				850	1	850	850	1	850						
Storage				400	1	400	0	0	-	400	1	400						
			7,532									**8,250**					**16,000**	non-Chapter 74 sub-totals

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2/22/2016: PDP

				PROPOSED													
Somerville High School	Existing Conditions			Existing to Remain/Renovated			New			Total				MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Ch. 74 Requirements	ROOM NFA[1]	# OF RMS	area totals	Comments
HEALTH & PHYSICAL EDUCATION			**37,772**			**37,479**			**2,500**			**39,979**				**24,684**	Locker Rooms based on Total Student Population w/o NWFC
Gymnasium	25,779	1	25,779	25,779	1	25,779				25,779	1	25,779		12,000	1	12,000	
Elevated Walking Track																	
PE Alternatives	varies	2	2,439	2,500	1	2,500	2,500	1	2,500	varies	2	5,000		3,000	1	3,000	
Fitness Room																	
Multi-Purpose Studio (dance, wrestling, aerobics, etc)																	
Gym Storeroom	varies	6	1,698	varies	1	800				varies	1	800		300	1	300	
Locker Rooms - Boys / Girls w/ Toilets	varies	3	4,199	3,000	2	6,000	0	0	-	varies	2	6,000		8,484	1	8,484	5.6 sf/student total
Phys. Ed. Storage	varies	4	1,676	varies	1	500				varies	1	500		500	1	500	
Athletic Director's Office	300	1	300	300	1	300				300	1	300		150	1	150	
Athletic Storage	899	1	899	800	1	800				800	1	800					
Health Instructor's Office w/ Shower & Toilet	varies	4	472	250	2	500				varies	2	500		250	1	250	
Trainer's Office	310	1	310	300	1	300				300	1	300					
MEDIA CENTER			**9,792**			**0**			**7,500**			**7,500**				**8,714**	Media Center size based on FTE Students w/o NWFC
Media Center / Reading Room	varies	8	8,865				7,500	1	7,500	7,500	1	7,500		8,714	1	8,714	
Computer Lab	927	1	927														
AUDITORIUM / DRAMA			**13,805**			**10,800**			**-**			**10,800**				**10,400**	Auditorium size based on Total Student Population w/o NWFC
Auditorium	11,304	1	11,304	7,500	1	7,500				7,500	1	7,500		7,500	1	7,500	2/3 Enrollment @ 10 SF/Seat - 750 seats MAX
Stage	984	1	984	2,000	1	2,000	0	0	-	2,000	1	2,000		1,600	1	1,600	
Auditorium Storage	1,046	1	1,046	500	1	500				500	1	500		500	1	500	
Make-up / Dressing Rooms	369	1	369	300	2	600				300	2	600		300	2	600	
Controls / Lighting / Projection	102	1	102	200	1	200				200	1	200		200	1	200	
Mini Theater(seats 200)							2,400	0	-	2,400	0	-					
Black Box Theater (seats 200)							2,400	0	-	2,400	0	-					
DINING & FOOD SERVICE			**12,821**			**4,638**			**7,500**			**12,138**				**12,148**	Cafeteria/Kitchen size based on Total Student Pop. w/o NWFC
Cafeteria / Student Lounge / Break-out	8,491	1	8,491				7,500	1	7,500	7,500	1	7,500		7,575	1	7,575	3 seatings - 15SF per seat
Chair / Table Storage				500	1	500	0	0	-	500	1	500		529	1	529	
Scramble Serving Area				600	1	600	0	0	-	600	1	600		600	1	600	
Kitchen	3,639	1	3,639	2,890	1	2,890	0	0	-	2,890	1	2,890		2,815	1	2,815	1600 SF for first 300 + 1 SF/student Add'l
Staff Lunch Room	691	1	691	648	1	648	0	0	-	648	1	648		629	1	629	20 SF/Occupant
MEDICAL			**597**			**1,310**			**-**			**1,310**				**1,310**	Sizes based on Total Student Population w/o NWFC
Medical Suite Toilet	46	1	46	60	1	60	0	0	-	60	1	60		60	1	60	
Nurses' Office / Waiting Room	427	1	427	350	1	350	0	0	-	350	1	350		250	1	250	
Interview Room	39	1	39	150	2	300	0	0	-	150	2	300		100	3	300	
Examination Room / Resting	43	2	85	100	6	600	0	0	-	100	6	600		100	7	700	

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				PROPOSED													
Somerville High School	Existing Conditions			Existing to Remain/Renovated			New			Total				MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Ch. 74 Requirements	ROOM NFA[1]	# OF RMS	area totals	Comments
ADMINISTRATION & GUIDANCE			**12,253**			**7,720**			**3,200**			**11,720**				**5,678**	Sizes based on Total Student Population w/o NWFC
General Office / Waiting Room / Toilet	varies	3	1,351	varies	3	1,000				varies	3	1,000		758	1	758	
Teachers' Mail and Time Room				100	1	100	0	0	-	100	1	100		100	1	100	
Duplicating Room				200	1	200	0	0	-	200	1	200		200	1	200	
Records Room	168	1	168	168	1	168				168	1	168		200	1	200	
Principal's Office w/ Conference Area	262	1	262	262	1	262				262	1	262		375	1	375	
Principal's Secretary / Waiting				125	1	125				125	1	125		125	1	125	
House Master's Suite - HM1 (Beacon House)	221	4	883		0	-	varies	5	800	varies	5	800		150	1	150	
House Master's Suite - HM2 (Elm House)	209	3	628		0	-	varies	5	800	varies	5	800		150	2	300	
House Master's Suite - HM3 (Highland House)	191	3	574		0	-	varies	5	800	varies	5	800					
House Master's Suite - HM4 (Broadway House)	204	3	612		0	-	varies	5	800	varies	5	800					
Supervisory / Spare Office	varies	10	1,373	varies	10	1,300				varies	10	1,300		120	1	120	
CTE Director Office Suite	varies	5	1,309							varies	5	800					
Conference Room	varies	2	650	450	1	450				450	1	450		450	1	450	
Guidance Office In HM Suite - (TBD)	varies	2	463							varies	0	-		150	8	1,200	
Guidance Waiting Room	527	1	527	527	1	527				527	1	527		100	1	100	
Guidance Storeroom	35	1	35	35	1	35				35	1	35		100	1	100	
Career Center	775	1	775	550	1	550				550	1	550		529	1	529	
Records Room				225	1	225				225	1	225		214	1	214	
Teachers' Work Room	715	1	715	850	1	850				850	1	850		758	1	758	
Mediation Waiting Room	180	1	180	180	1	180				180	1	180					
Mediation Room	380	1	380	380	1	380				380	1	380					
Mediation Office	222	1	222	222	1	222				222	1	222					
Welcome Center (ELL)	varies	4	1,146	varies	4	1,146				varies	4	1,146					
CUSTODIAL & MAINTENANCE			**13,338**			**2,561**			**500**			**3,061**				**2,818**	Sizes based on Total Student Population w/ NWFC
Custodian's Office	49	1	49	150	1	150	0	0	-	150	1	150		150	1	150	
Custodian's Workshop				250	1	250	0	0	-	250	1	250		250	1	250	
Custodian's Storage	2,466	1	2,466	375	1	375	0	0	-	375	1	375		375	1	375	
Recycling Room / Trash				400	1	400	0	0	-	400	1	400		400	1	400	
Receiving and General Supply	421	1	421	529	1	529	0	0	-	529	1	529		548	1	548	
Storeroom	varies	45	8,771	858	1	858	0	0	-	858	1	858		895	1	895	
Network / Telecom Room	varies	3	1,631				500	1	500	varies	1	500		200	1	200	
OTHER			**872**			**500**			**-**			**500**				**-**	
School Store	varies	2	706	400	1	400				400	1	400					
PTO Storage	166	1	166	100	1	100				100	1	100					
Sub-Total School Use Net Floor Area (NFA)			**226,461**			**136,392**			**112,815**			**250,857**				**228,906**	

Proposed Space Summary - Somerville High School - Addition / Renovation

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	Existing Conditions			PROPOSED										MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
Somerville High School				Existing to Remain/Renovated			New			Total							
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Ch. 74 Requirements	ROOM NFA[1]	# OF RMS	area totals	Comments
DPW Office & Storage			3,993						-			-					
Office Suite	1,783	1	1,783														
General Storage	2,210	1	2,210														
Somerville Child Care Center			805						-			-					
Classroom	640	1	640														
Education Lab																	
Office																	
Toilet Rooms	varies	2	165														
Somerville City Cable			2,565						-			-					
TV Studio	1,475	1	1,475														
Control Room	470	1	470														
Editing Room	210	1	210														
Repair Workroom	210	1	210														
Storage	100	2	200														
Cambridge Health Alliance (Teen Health Center)			1,056						-			-					
Waiting																	
Reception																	
Exam Room	120	2	240														
Office	85	6	510														
Break Room	90	1	90														
Storage	varies	3	216														
Sub-Total <u>On-Site Auxiliary</u> Net Floor Area (NFA)			8,419				**No New Net Floor Area for Existing On-Site Auxiliary is Included**										
Total Building Net Floor Area (NFA)			234,880			136,392			112,815			250,857				228,906	
Proposed Student Capacity / Enrollment			1,237									1,515			Total:	1,515	226
Academic Students			*893*									*1,096*			FTE:	1,410	FTE = Academic + Adjusted CTE/Academic
CTE Students (not including exploratory)			*344*									*419*					
CTE Students (including exploratory)			*521*									*640*			w/ NWFC Total:	1,590	includes 75 NWFC Students
Exploratory Students			*177*									*221*					
Adjusted CTE Students w/ Academic Space Usage			*258*									*314*					
Total Building Gross Floor Area (GFA)[2]			360,150									376,285				342,390	
Grossing factor (GFA/NFA)			1.53									1.50				1.50	

[1] **Individual Room Net Floor Area (NFA)** Includes the net square footage measured from the inside face of the perimeter walls and includes all specific spaces assigned to a particular program area including such spaces as non-communal toilets and storage rooms.

[2] **Total Building Gross Floor Area (GFA)** Includes the entire building gross square footage measured from the outside face of exterior walls

Architect Certification

I hereby certify that all of the information provided in this "Proposed Space Summary" is true, complete and accurate and, except as agreed to in writing by the Massachusetts School Building Authority, in accordance with the guidelines, rules, regulations and policies of the Massachusetts School Building Authority to the best of my knowledge and belief. A true statement, made under the penalties of perjury.

Name of Architect Firm: Symmes, Maini & McKee Associates (SMMA)

Name of Principal Architect: Alex Pitkin, AIA

Signature of Principal Architect:

Date: 2/25/16

MSBA Comparative Benchmark Space Summary - High Schools

2/25/2016: PDP

Somerville High School	Existing Conditions			PROPOSED									MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
				Existing to Remain/Renovated			New			Total						
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CORE ACADEMIC SPACES			**59,494**			**0**			**0**			**0**			**77,410**	
Classroom - General	varies	54	34,794										850	55	46,750	825 SF min - 950 SF max
Teacher Planning	varies	12	3,389										100	55	5,500	
Small Group Seminar (20-30 seats)													500	4	2,000	
Science Classroom / Lab	varies	13	12,339										1,440	14	20,160	3 x85% ut=20 Seats-1 per /day/student
Prep Room	varies	8	1,633										200	14	2,800	
Central Chemical Storage Rm	105	1	105										200	1	200	
Classroom - ESL	varies	5	4,286													
Computer Labs	varies	3	1,998													
Language Lab	950	1	950													
SPECIAL EDUCATION			**5,282**			**0**			**0**			**0**			**16,110**	
Self-Contained SPED													950	11	10,450	assumed 8% of pop. in self-contained SPED
Self-Contained SPED Toilet													60	11	660	
Resource Room	varies	3	1,835										500	5	2,500	1/2 size Genl. Clrm.
Small Group Room	150	1	150										500	5	2,500	1/2 size Genl. Clrm.
Life Skills Classroom	981	1	981													
"SHIP" Medically Fragile Student Classroom	1,175	1	1,175													
Transition Skills Classroom *(for 18-22 year old students)*	297	1	297													
SPED Office - Adj Counselor	varies	3	358													
SPED Office - Workroom	486	1	486													
ART & MUSIC			**9,335**			**0**			**0**			**0**			**8,275**	
Art Classroom - 25 seats	varies	3	2,769										1,200	3	3,600	Assumed use - 25% Population - 5 times/week
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Ensemble													200	1	200	
Music Practice	varies	2	150										75	7	525	
Music Storage	varies	9	904										500	1	500	
Art Computer Lab	varies	2	1,712													
Photography / Dark Room	491	1	491													
Orchestra	883	1	883													

Version
11.24.2010

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Electricity	2,412	1	2,412													
Graphic Communications	4,849	1	4,849													
Health Assisting	2,364	1	2,364													
Information Support Services & Networking	2,189	1	2,189													
Machine Tool Technology	3,398	1	3,398													
Metal Fabrication & Joining Technologies	4,027	1	4,027													
Auto Body *(non-active program)*	1,517	1	1,517													
HEALTH & PHYSICAL EDUCATION			37,772			0			0			0			25,104	
Gymnasium	25,779	1	25,779										12,000	1	12,000	
PE Alternatives	varies	2	2,439										3,000	1	3,000	
Gym Storeroom	varies	6	1,698										300	1	300	
Locker Rooms - Boys / Girls w/ Toilets	varies	3	4,199										8,904	1	8,904	5.6 sf/student total
Phys. Ed. Storage	varies	4	1,676										500	1	500	
Athletic Director's Office	300	1	300										150	1	150	
Health Instructor's Office w/ Shower & Toilet	varies	4	472										250	1	250	
Athletic Storage	899	1	899													
Trainer's Office	310	1	310													
MEDIA CENTER			9,792			0			0			0			9,838	
Media Center / Reading Room	varies	8	8,865										9,838	1	9,838	
Computer Lab	927	1	927													
AUDITORIUM / DRAMA			13,805			0			0			0			10,400	
Auditorium	11,304	1	11,304										7,500	1	7,500	2/3 Enrollment @ 10 SF/Seat - 750 seats MAX
Stage	984	1	984										1,600	1	1,600	
Auditorium Storage	1,046	1	1,046										500	1	500	
Make-up / Dressing Rooms	369	1	369										300	2	600	
Controls / Lighting / Projection	102	1	102										200	1	200	

Version
11.24.2010

MSBA Comparative Benchmark Space Summary - High Schools

2/25/2016: PDP

Somerville High School	Existing Conditions			PROPOSED: Existing to Remain/Renovated			PROPOSED: New			PROPOSED: Total			MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
DINING & FOOD SERVICE			**12,821**			**0**			**0**			**0**			**12,636**	
Cafeteria / Student Lounge / Break-out	8,491	1	8,491										7,950	1	7,950	3 seatings - 15SF per seat
Chair / Table Storage													548	1	548	
Scramble Serving Area													600	1	600	
Kitchen	3,639	1	3,639										2,890	1	2,890	1600 SF for first 300 + 1 SF/student Add'l
Staff Lunch Room	691	1	691										648	1	648	20 SF/Occupant
MEDICAL			**597**			**0**			**0**			**0**			**1,310**	
Medical Suite Toilet	46	1	46										60	1	60	
Nurses' Office / Waiting Room	427	1	427										250	1	250	
Interview Room	39	1	39										100	3	300	
Examination Room / Resting	43	2	85										100	7	700	
ADMINISTRATION & GUIDANCE			**12,253**			**0**			**0**			**0**			**5,781**	
General Office / Waiting Room / Toilet	varies	3	1,351										795	1	795	
Teachers' Mail and Time Room													100	1	100	
Duplicating Room													200	1	200	
Records Room	168	1	168										200	1	200	
Principal's Office w/ Conference Area	262	1	262										375	1	375	
Principal's Secretary / Waiting													125	1	125	
Assistant Principal's Office - AP1													150	1	150	
Assistant Principal's Office - AP2													150	2	300	
Supervisory / Spare Office	varies	10	1,373										120	1	120	
Conference Room	varies	2	650										450	1	450	
Guidance Office	varies	2	463										150	8	1,200	
Guidance Waiting Room	527	1	527										100	1	100	
Guidance Storeroom	35	1	35										100	1	100	
Career Center	775	1	775										548	1	548	
Records Room													224	1	224	
Teachers' Work Room	715	1	715										795	1	795	
House Master's Suite - HM1 (Beacon House)	221	4	883													
House Master's Suite - HM2 (Elm House)	209	3	628													
House Master's Suite - HM3 (Highland House)	191	3	574													
House Master's Suite - HM4 (Broadway House)	204	3	612													
CTE Director Office Suite	varies	5	1,309													
Mediation Waiting Room	180	1	180													
Mediation Room	380	1	380													
Mediation Office	222	1	222													
Welcome Center (ELL)	varies	4	1,146													
CUSTODIAL & MAINTENANCE			**13,338**			**0**			**0**			**0**			**2,818**	
Custodian's Office	49	1	49										150	1	150	
Custodian's Workshop													250	1	250	
Custodian's Storage	2,466	1	2,466										375	1	375	
Recycling Room / Trash													400	1	400	
Receiving and General Supply	421	1	421										548	1	548	
Storeroom	varies	45	8,771										895	1	895	
Network / Telecom Room	varies	3	1,631										200	1	200	
OTHER			**872**			**0**			**0**			**0**			**0**	
School Store	varies	2	706													
PTO Storage	166	1	166													
Sub-Total School Use Net Floor Area (NFA)			**226,461**													

Version
11.24.2010

MSBA Comparative Benchmark Space Summary - High Schools

2/25/2016: PDP

Somerville High School	Existing Conditions			PROPOSED									MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
				Existing to Remain/Renovated			New			Total						
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
DPW Office & Storage			**3,993**													
Office Suite	1,783	1	1,783													
General Storage	2,210	1	2,210													
Somerville Child Care Center			**805**													
Classroom	640	1	640													
Education Lab																
Office																
Toilet Rooms	varies	2	165													
Somerville City Cable			**2,565**													
TV Studio	1,475	1	1,475													
Control Room	470	1	470													
Editing Room	210	1	210													
Repair Workroom	210	1	210													
Storage	100	2	200													
Cambridge Health Alliance (Teen Health Center)			**1,056**													
Waiting																
Reception																
Exam Room	120	2	240													
Office	85	6	510													
Break Room	90	1	90													
Storage	varies	3	216													
Sub-Total On-Site Auxiliary Net Floor Area (NFA)			**8,419**													
Total Building Net Floor Area (NFA)			**234,880**												**185,681**	
Proposed Student Capacity / Enrollment			**1,237**												**1,590**	175
Total Building Gross Floor Area (GFA)[2]			**360,150**												**278,521**	
Grossing factor (GFA/NFA)			**1.53**												**1.50**	

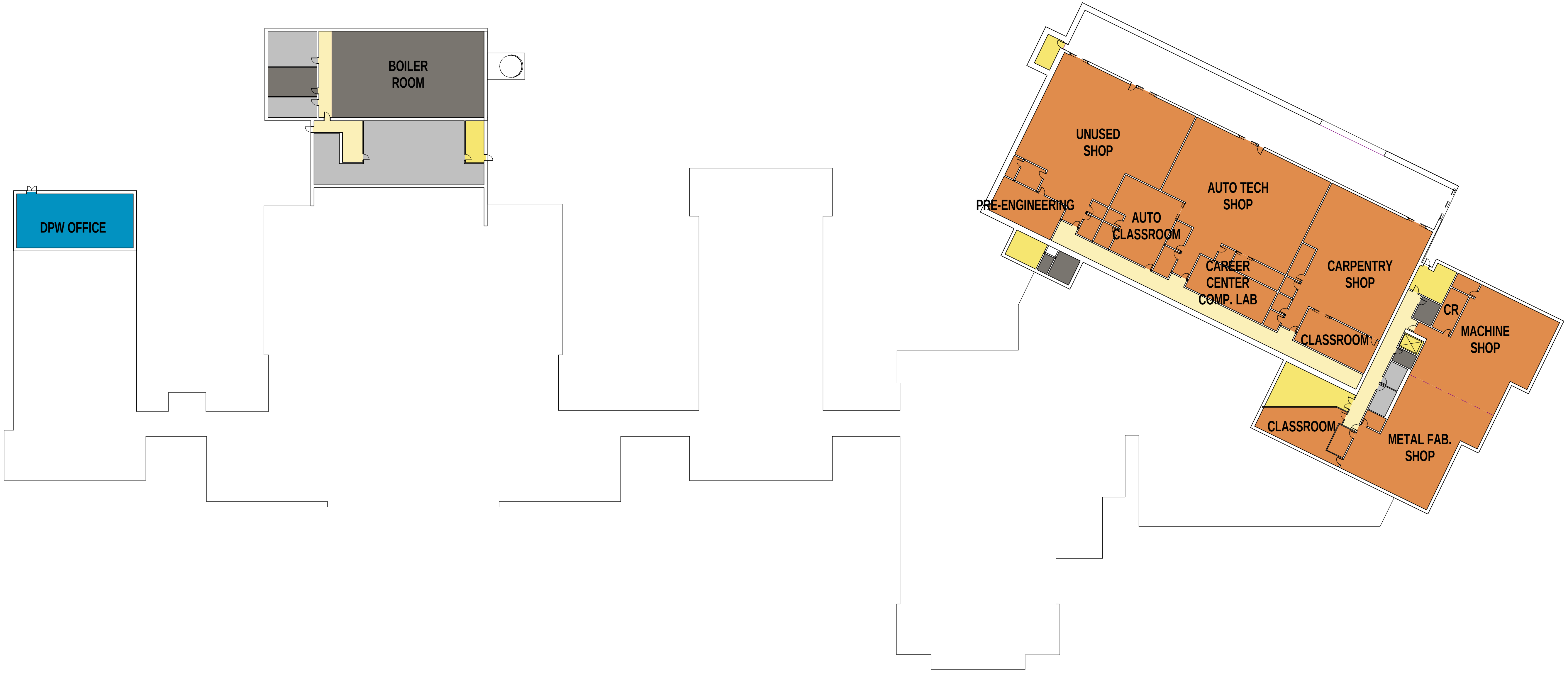
[1] **Individual Room Net Floor Area (NFA)** Includes the net square footage measured from the inside face of the perimeter walls and includes all specific spaces assigned to a particular program area including such spaces as non-communal toilets and storage rooms.

[2] **Total Building Gross Floor Area (GFA)** Includes the entire building gross square footage measured from the outside face of exterior walls

Architect Certification

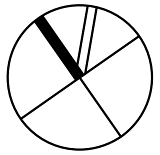
I hereby certify that all of the information provided in this "Proposed Space Summary" is true, complete and accurate and, except as agreed to in writing by the Massachusetts School Building Authority, in accordance with the guidelines, rules, regulations and policies of the Massachusetts School Building Authority to the best of my knowledge and belief. A true statement, made under the penalties of perjury.

Name of Architect Firm: Symmes, Maini & McKee Associates (SMMA)
Name of Principal Architect: Alex Pitkin, AIA
Signature of Principal Architect:
Date: 2/26/16



PROGRAM PLAN LEGEND

- ■ BUILDING EQUIPMENT
- 🟨 CAFETERIA & CIRCULATION
- 🟧 CHAPTER 74
- 🟦 COMMUNITY USE
- ⬜ CUSTODIAL / MAINTENANCE / STORAGE
- 🟨 VERTICAL CIRCULATION



Somerville High School GSF

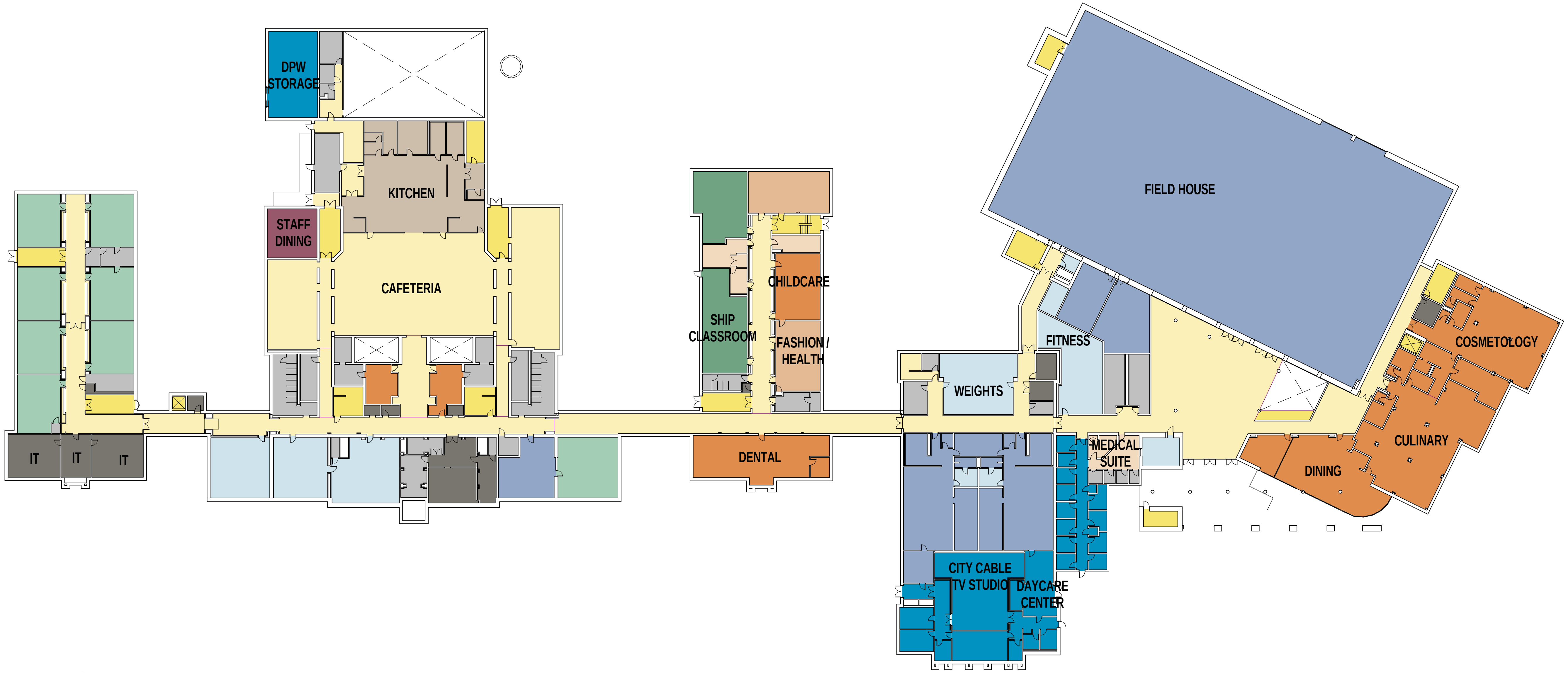
LEVEL	AREA
SHOP LEVEL	45900 SF
1ST FLOOR	125420 SF
2ND FLOOR	89950 SF
3RD FLOOR	54080 SF
4TH FLOOR	44220 SF
TOTAL GSF:	359570 SF

SHOP LEVEL PROGRAM PLAN

1" = 60'-0"

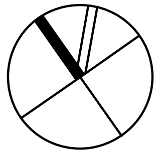
Somerville High School

SMMA



PROGRAM PLAN LEGEND

- 🟫 ADMINISTRATION / GUIDANCE / STUDENT SERVICES / NURSE
- ⬛ BUILDING EQUIPMENT
- 🟨 CAFETERIA & CIRCULATION
- 🟧 CHAPTER 74
- 🟩 CLASSROOM & GENERAL EDUCATION SUPPORT
- 🟦 COMMUNITY USE
- ⬜ CUSTODIAL / MAINTENANCE / STORAGE
- 🟦 HEALTH & FITNESS
- 🟫 KITCHEN / SERVERY
- 🟦 PHYSICAL EDUCATION & SPORT SUPPORT
- 🟩 SPECIAL EDUCATION
- 🟥 TEACHER PLANNING & SUPPORT
- 🟨 VERTICAL CIRCULATION
- 🟧 VOCATIONAL & TECHNOLOGY



Somerville High School GSF

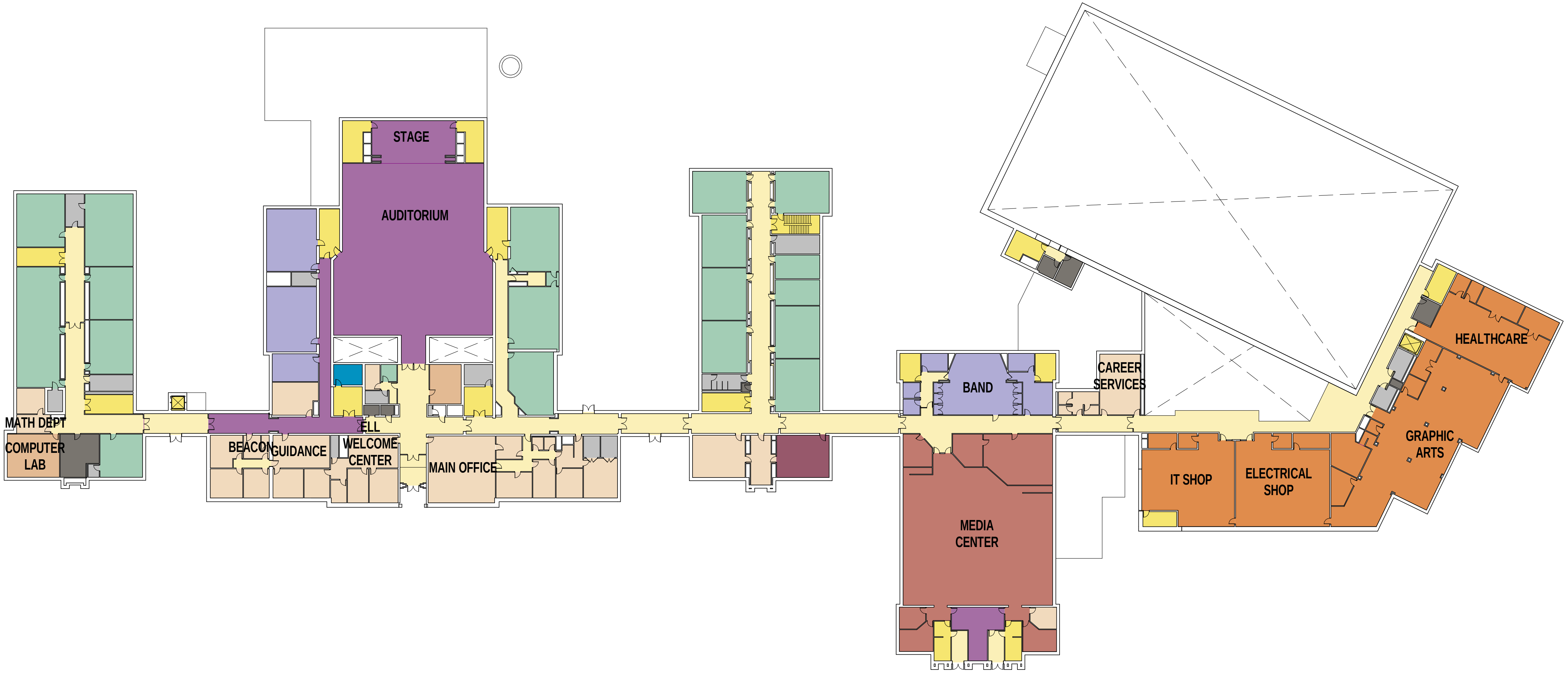
LEVEL	AREA
SHOP LEVEL	45900 SF
1ST FLOOR	125420 SF
2ND FLOOR	89950 SF
3RD FLOOR	54080 SF
4TH FLOOR	44220 SF
TOTAL GSF:	359570 SF

FIRST FLOOR PROGRAM PLAN

1" = 60'-0"

Somerville High School

SMMA



PROGRAM PLAN LEGEND

- ⬜ ADMINISTRATION / GUIDANCE / STUDENT SERVICES / NURSE
- 🟪 ART & MUSIC
- 🟪 AUDITORIUM / PERFORMING ARTS & DRAMA
- ⬛ BUILDING EQUIPMENT
- 🟨 CAFETERIA & CIRCULATION
- 🟧 CHAPTER 74
- 🟩 CLASSROOM & GENERAL EDUCATION SUPPORT
- 🟦 COMMUNITY USE
- ⬜ CUSTODIAL / MAINTENANCE / STORAGE
- 🟥 MEDIA CENTER
- 🟥 TEACHER PLANNING & SUPPORT
- 🟨 VERTICAL CIRCULATION
- 🟫 VOCATIONAL & TECHNOLOGY

Somerville High School GSF

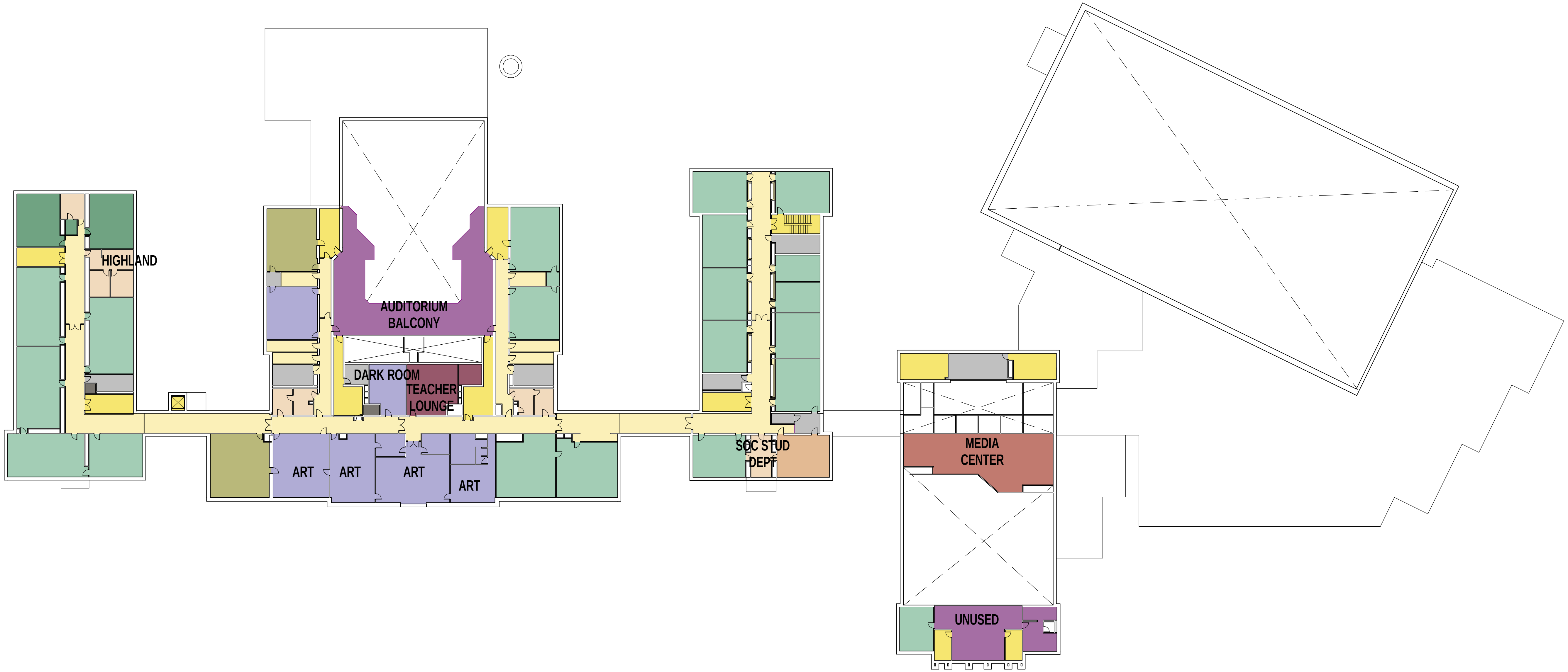
LEVEL	AREA
SHOP LEVEL	45900 SF
1ST FLOOR	125420 SF
2ND FLOOR	89950 SF
3RD FLOOR	54080 SF
4TH FLOOR	44220 SF
TOTAL GSF:	359570 SF

SECOND FLOOR PROGRAM PLAN

1" = 60'-0"

Somerville High School

SMMA



PROGRAM PLAN LEGEND

- ■ ADMINISTRATION / GUIDANCE / STUDENT SERVICES / NURSE
- ■ ART & MUSIC
- ■ AUDITORIUM / PERFORMING ARTS & DRAMA
- ■ BUILDING EQUIPMENT
- ■ CAFETERIA & CIRCULATION
- ■ CLASSROOM & GENERAL EDUCATION SUPPORT
- ■ CUSTODIAL / MAINTENANCE / STORAGE
- ■ MEDIA CENTER
- ■ SCIENCE CLASSROOMS & SUPPORT
- ■ SPECIAL EDUCATION
- ■ TEACHER PLANNING & SUPPORT
- ■ VERTICAL CIRCULATION
- ■ VOCATIONAL & TECHNOLOGY

Somerville High School GSF

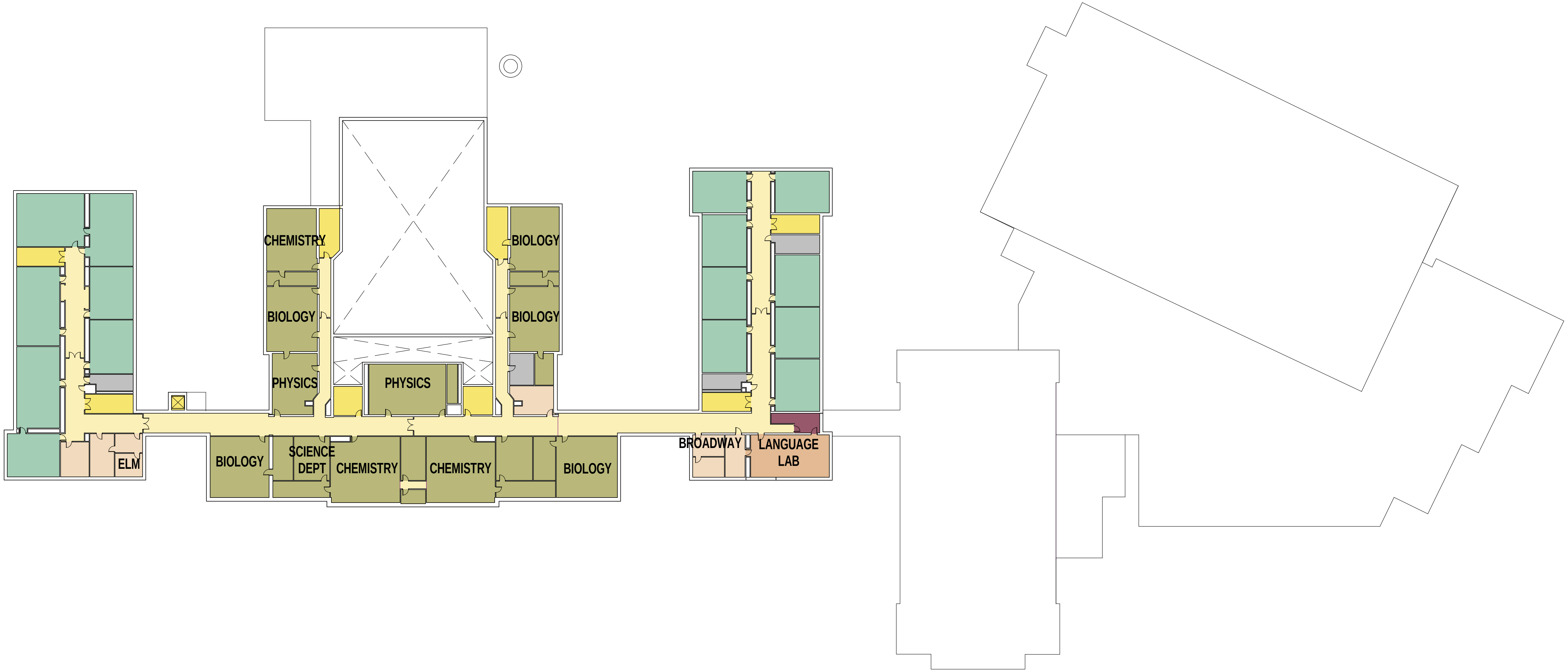
LEVEL	AREA
SHOP LEVEL	45900 SF
1ST FLOOR	125420 SF
2ND FLOOR	89950 SF
3RD FLOOR	54080 SF
4TH FLOOR	44220 SF
TOTAL GSF:	359570 SF

THIRD FLOOR PROGRAM PLAN

1" = 60'-0"

Somerville High School

SMMA



PROGRAM PLAN LEGEND

- 🟧 ADMINISTRATION / GUIDANCE / STUDENT SERVICES / NURSE
- 🟨 CAFETERIA & CIRCULATION
- 🟩 CLASSROOM & GENERAL EDUCATION SUPPORT
- ⬜ CUSTODIAL / MAINTENANCE / STORAGE
- 🟫 SCIENCE CLASSROOMS & SUPPORT
- 🟥 TEACHER PLANNING & SUPPORT
- 🟨 VERTICAL CIRCULATION
- 🟧 VOCATIONAL & TECHNOLOGY

Somerville High School GSF

LEVEL	AREA
SHOP LEVEL	45900 SF
1ST FLOOR	125420 SF
2ND FLOOR	89950 SF
3RD FLOOR	54080 SF
4TH FLOOR	44220 SF
TOTAL GSF:	359570 SF

FOURTH FLOOR PROGRAM PLAN

1" = 60'-0"

Somerville High School

SMMA

EVALUATION OF EXISTING CONDITIONS

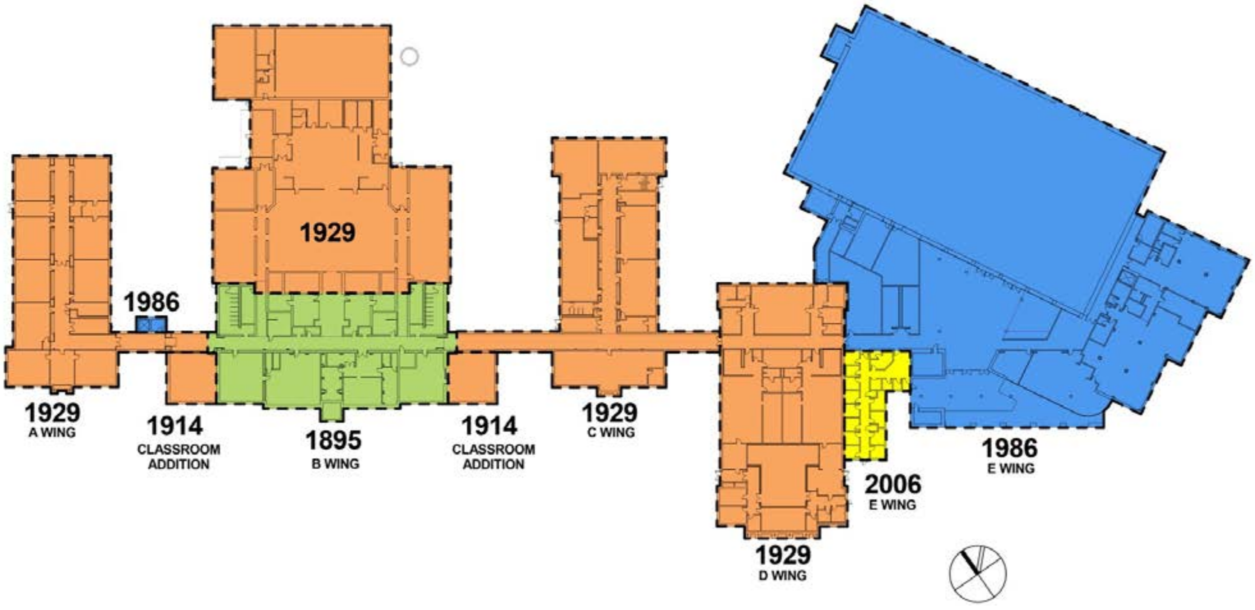
Summary

The following information is based on building walk-throughs performed during August and September of 2015 and record drawings of previous construction on site. The building was built over the course of 120 years, with the oldest remaining construction dating back to 1895. The building and systems have been maintained as well as feasible and the building is clean, but systems and finishes are beyond their useful life expectancies in many cases and are in need of upgrade.

For consistency this report will refer to the Wings of the building as A, B, C, D and E; refer to the diagram below for the location and original construction date for each of the Wings.

The following available record documents were reviewed:

- Hartwell and Richardson Architects; 1893 partial construction documents of the original portion of the B Wing.
- Edward Sears Read & Associates; 1956 partial post-fire renovation documents of the central building (B Wing).
- Arthur Wenebaum Associates Architects; 1970 renovation construction documents of the auditorium (B Wing).
- HMFH Architects & Peirce Pierce & Kramer, Inc.; 1984 construction documents of the E Wing addition and renovations to the A, B, C and D Wings.
- CDR Maguire Architects, Engineers, Planners; 2014 construction documents of the Auditorium, Kitchen, and Cafeteria renovations (B Wing)



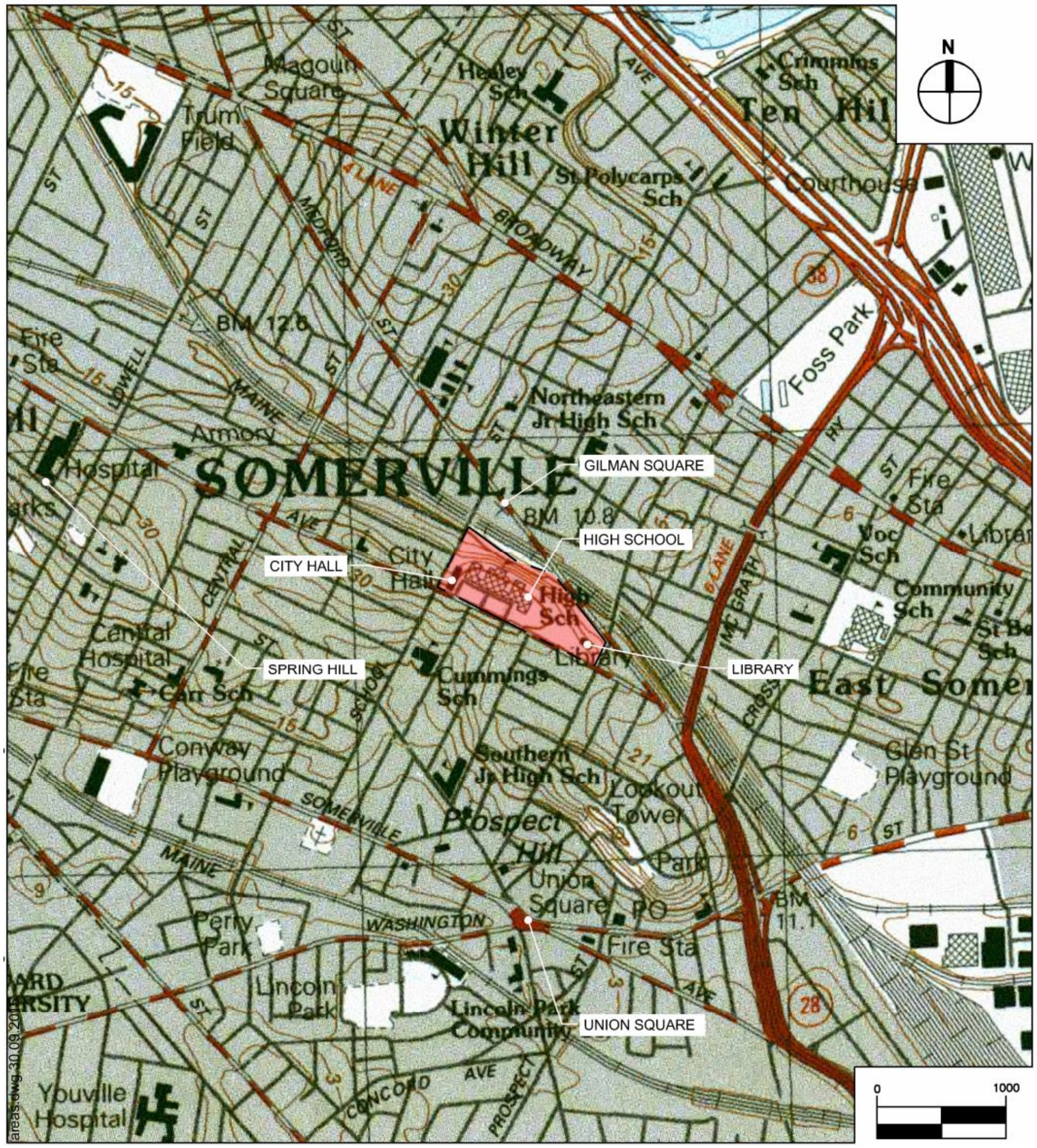
Building History Plan

Aerial Site Photograph

4.1 EXISTING SITE CONDITION

General Site Information

The existing Somerville High School is located at 81 Highland Avenue in Somerville, Massachusetts. It is shown as Assessor's Map 61 Block F Lot 2. It is bounded by School Street to the west; railroad tracks and Medford Street to the north; and Walnut Street to the east. The site includes the High School, City Hall, Somerville Central Public Library, Central Hill Playground and multiple memorials. The High School is centrally located on the site. City Hall is to the west, adjacent to School Street and Highland Avenue. Central Library is on the east side of the site adjacent to Walnut Street and Highland Avenue. Central Hill Playground is on the southeast portion of the site adjacent to Highland Avenue, between Central Library and the High School. Multiple memorials, primarily war memorials, are located throughout the site, primarily along the south edge of the site, fronting Highland Avenue.



Locus Plan

The site measure approximately 13.05 acres and is fully developed including roadways, parking lots, walkways, loading areas, lawn and landscaped areas, and several city monuments and memorials. Vehicular access to the school is from Highland Avenue, School Street and Medford Street. There are several plaza and lawn areas on the south side of the site along Highland Avenue. These plazas connect the city facilities as well as serve the city memorials on the south portion of the site. There are three courtyards on the north side of the school building. The northwest courtyard provides an outdoor space leading to an open stair access down to the loading dock area and parking lot. The north, central courtyard provides stair access to a fenced in area with benches and trees. The northeast courtyard provides an outdoor area between the original school buildings and the vocational E Wing addition.

The High School is located at the top of Central Hill in Somerville and the topography slopes away from the school toward the adjacent streets. Several retaining walls and stairways provide access to the parking areas and adjacent streets. Beyond the building and retaining walls on the north side of the school, there is a steep slope down to the MBTA commuter railroad tracks and Medford Street.

Environmental Resources

Located atop Central Hill and far from the nearest natural water courses, the school site is well outside of the FEMA 100-year and 500-year flood zones (FEMA Map # 25017C0438E 6-4-2010). The FEMA zone for the school site is designated as Zone X Area of Minimal Flooding.

Based on site observations and discussions with school staff, there have not been any recent incidents of localized flooding on the site. Drainage system, connections and slopes are sufficient to drain the site adequately.

As a result of the hilltop location and surrounded by urban development, the school site is not located within or near any wetland, habitat or riparian resource areas. A review of the Massachusetts Natural Heritage Atlas (online viewer) indicates that no Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife are located on the site.

Historical Resources

Central Hill has been the civic center for most of the City's history. The adjacent City Hall was built on the west end of the site in 1852, ten years after Somerville separated from Charlestown and was the original high school. The oldest portions of the existing high school building was constructed four decades later in 1895. The Central Library, on the east end of the site, was built in 1914. The site also includes many historical war memorials. Following is a list of all the historical structures recorded by the Massachusetts Historical Commission (MHC):

- 1852 – City Hall – National and State Registry of Historical Places
- 1895 – High School – MHC Historical Inventory
- 1908 – Civil War Memorial – MHC Historical Inventory
- 1914 – Central Library – National and State Registry of Historical Places
- 1929 – Spanish War Monument – MHC Historical Inventory
- 1930 – George Dilboy Bust – MHC Historical Inventory
- 19th Century – Central Hill Area (Highland Avenue from Walnut to Central Streets) – MHC Historical Inventory

Site Accessibility

There is partial compliance with current Americans with Disabilities Act (ADA) and Massachusetts Architectural Access Boards (MAAB) accessibility requirements throughout the site. There are currently nine accessible parking spaces; three located in the main parking lot to the west in front of city hall, three in the main parking lot to the east in front of the high school; two located to the east near the gymnasium; one located to the far-east serving the Public Library. Accessible routes from these spaces to code compliant building entrances are provided in most cases.

The majority of the building entrances do not have code compliant access. The main entrances to the High School on the south side of the site have steps to the main door and steps inside the building to the second level. There are two accessible ramps that serve the High School. One ramp is located to the east of the main entry; the second provides access to the gymnasium. All egress to the north of the site is through internal and external stairways. Access is typically gained via multiple tread stairs or landings.

C Wing Ramp

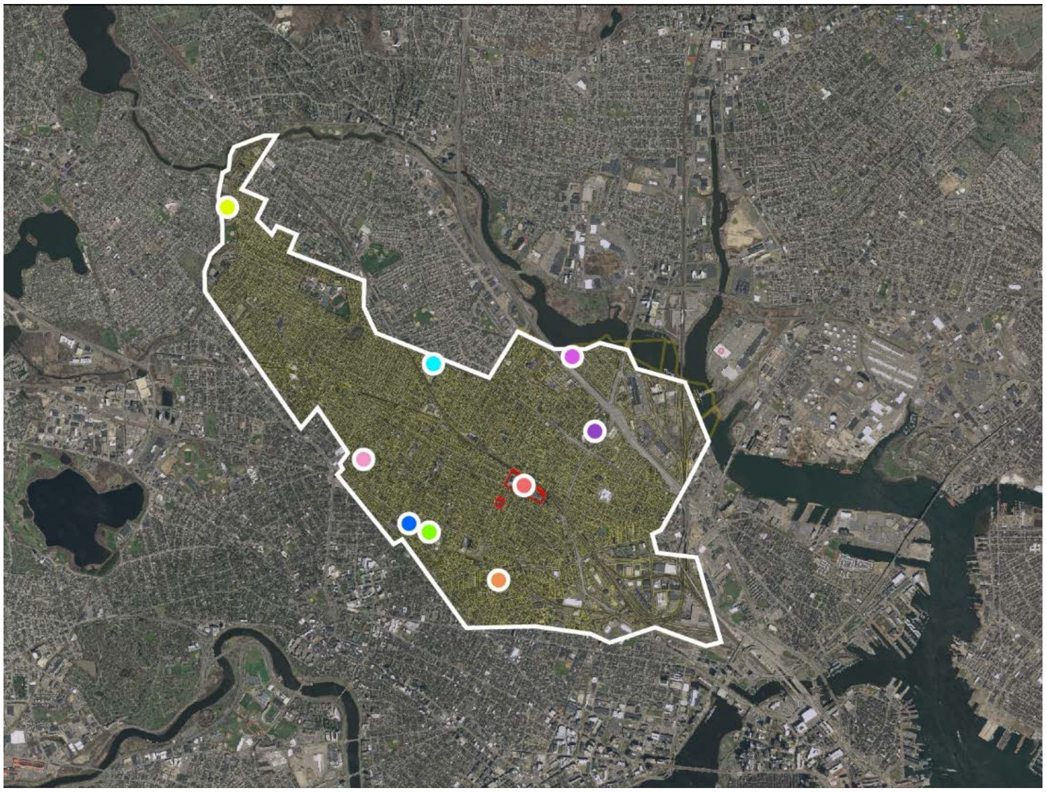
E Wing Ramp

Athletic Facilities

The Somerville High School Field House hosts JV/V Volleyball, F/JV/V Basketball, V Indoor Track, and Cheerleading practices and games. Refer to the description of the Field House located in Section 4.2 Existing Building Condition below.

There are no existing exterior athletic facilities on the site. It appears that the sloped grass area to the south along Highland Avenue is used for run-throughs and practices for the marching band, or passive school and city hall use. High School athletic teams travel to Conway Ice Rink, Conway Park, Dilboy Stadium, Trum Field, Foss Park, Blessing of the Bay Boathouse, Kennedy School and Indian Ridge Golf Course for practice and meets. The athletics hosted at these facilities are:

- Conway Ice Rink: JV/V Ice Hockey, Hockey Cheerleading
- Conway Park: JV/V Soccer, JV Softball
- Dilboy Stadium: F/JV/V Football, JV/V Soccer, Outdoor Track, Cheerleading
- Trum Field: V Baseball, V Softball; Foss Park Practice Field, JV Baseball
- Blessing of the Bay Boathouse: Cross Country, Crew
- Kennedy School: Swimming
- Indian Ridge: Golf



City of Somerville fields used by SHS

Transportation and Parking

Currently, transportation to and from the high school is via walking, MBTA buses, parent car, student car, school buses, or bicycling. The MBTA bus routes that serve the high school are the 80, 88 and 90. The 80 bus picks up and drop off students at the Medford Street and School Street stop. The 88 and 90 buses run along Highland Avenue and the majority of students get picked up or dropped off at the Highland Avenue and School Street stop.

	Morning Drop Off	Afternoon Pick Up
MBTA	25%	35%
Walking	40%	50%
Parent Car	30%	10%
Bicycle/School Bus/Student Car	5%	5%

Table - Percentage of Student Transportation

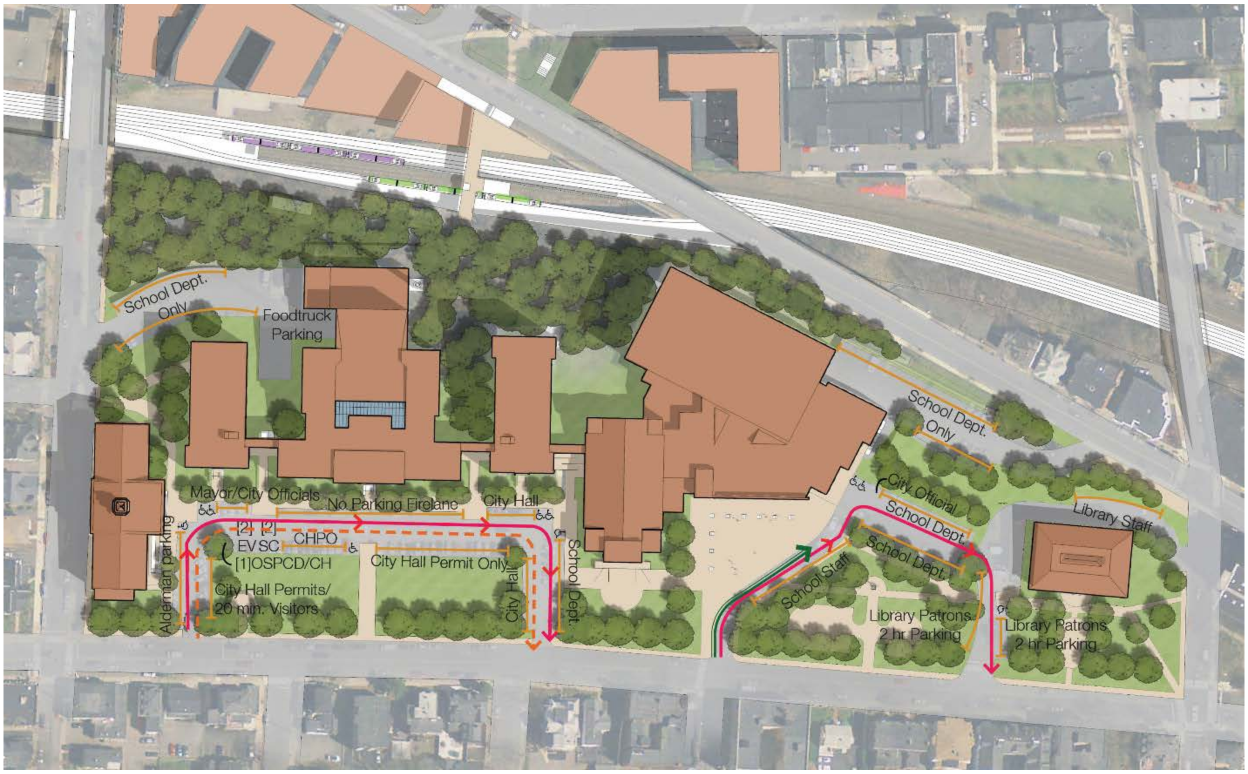
In the morning between 7:00 a.m. and 7:35 a.m. there is a steady stream of students arriving to school. The majority of these students arrive by walking, parent drop off by car, or the MBTA (see Table). From 7:35 a.m.to 7:50 a.m. there is an increase in the volume of students arriving to the school. From 7:50 on there is a rapid decline in student arrivals until and beyond the 7:55 start of the school day. The busiest MBTA routes for morning drop off are the eastbound 80 and 88 buses and the westbound 90 bus.

For afternoon pickup, the majority of students take either the MBTA or walk home. There are significantly fewer parents picking students up by car in the afternoon (see Table). The MBTA provides three westbound 88 buses at 2:40 p.m. on Highland Avenue for the end of the school day. These buses start their routes at the Highland Avenue and School Street stop. There is an initial rush of students after the end of the school day to get to the MBTA buses. From then on there is a steady stream of students walking home or waiting for the remaining MBTA buses.

The total number of bicycles observed in front of the school was 18. This is a low number relative to the school population and its urban location. This may be caused by a low number of bicycle racks, as evidence of some bicycles locked to trees; and may also be due to the school's locations on the top of a hill.

As noted above, most athletic facilities are located off-campus. Student access to these facilities is primarily by walking. Students with a car may drive teammates and friends. Access to Dilboy Stadium and Trum Field may be complimented by the MBTA bus routes 88 and 80, which pass nearby.

The driveway in front of the high school building adjacent to the city hall has parking available to city hall workers, city hall visitors and the school department. There are two smaller parking areas for library patrons adjacent to the city library. There are 3 total school department parking lots throughout the site. A lot to the northwest of the school off of School Street provides 45 parking spaces. A lot off of Highland Avenue to the east of the field house provides 29 parking spaces. To the northeast off of Medford Street a parking lot provides 34 parking spaces. There are 10 accessible parking spaces distributed throughout the site.



Existing Site Circulation

Site Utilities and Drainage

The site is currently served by the municipal water and sewer systems. Storm drainage collected on-site discharges to the City's storm drainage system in Highland Avenue, School Street, and Medford Street.

Water service for the school is served by two water mains. An 8-inch service from the 12-inch Highland Avenue water main and a 4-inch from the 8-inch school street service. The 8-inch service enters the C Wing and it appears this service provides both fire and domestic water. The 4-inch service enters the A Wing. A 12-inch fire loop from the 12-inch Highland Avenue water main services the four hydrants along the south side of the school building. A separate 8-inch fire loop connects the 12-inch water mains on Highland Avenue and Medford Street. This 8-inch fire loop services three hydrants to the south and east of the E Wing.

Multiple sewer services from the School building discharge to the city sewer systems in Highland Avenue and Medford Street. A 5-inch sewer service from the south side of the B Wing discharges to the 10-inch Highland Avenue sewer main. There are several sewer services leaving the northeast section of the E Wing including a grease trap, kitchen waste, acid waste, and sanitary sewer line. These lines all combine onsite and discharge to the 8-inch sewer main in Medford Street. The sanitary and grease trap services from the northwest section of the B Wing near the loading dock area combine with the sanitary service from the north side of the A Wing. This sewer then discharges into a municipal sewer in the vicinity of the railroad tracks.

Gas for the high school is served by two separate 4-inch lines, both stemming from a 6-inch main in Highland Avenue. The main service enters the building along the south face of the B Wing, and a secondary (currently unused and originally installed for the automotive shops) service enters along the north-western face of the E Wing.

Surface runoff generally flows away from the school building. There are three main drainage networks that connect with city drainage systems on Highland Avenue, Medford Street and School Street. Runoff from the south side of the building is primarily collected by catch basins within the parking areas the plazas. A west-to-east, 8-inch, on-site drain line collects these catch basins and discharges to the 18-inch storm drain in Highland Avenue just west of Walnut Street.

Northeast of the E Wing a storm water system composed of foundation drains, area drains, and catch basins discharge to the 12-inch storm drain in Medford Street. This 12-inch drain then flows north along Medford Street and discharges to a storm drain in the railroad track right-of-way. A catch basin between Wings C and E connect to the same storm drain via an 8-inch clay pipe.

The northern section of the A Wing has a 12-foot deep catch basin in the grass courtyard which connects to a catch basin in the parking lot. There are several catch basins in this parking area. This system collects and discharges to a storm drain in the railroad track right-of-way via a 10-inch drain line.

Site Lighting

The exterior site lighting is comprised of cobra-head fixtures mounted on concrete poles located in the front of the original building lighting the parking area. On the back of the poles are also flood lights that consist of HID lamps that light the front of the building. The poles are generally 20 to 25-feet tall. Although the fixture style is dated, the cobra-head fixtures seem to have been updated with LED type fixtures. The Vocational Building (1986 E Wing) driveway and parking area are lit with LED shoebox style fixtures mounted on round tapered aluminum poles with concrete bases. Some of the fixtures do not adhere to the “dark sky” standards of full cut-off distribution which is required for current LEED compliance. There are also LED type building mounted wall packs that light the egress paths on the north, east and west sides of the building. The fixtures are in fair condition however the lumen output seems low for the intended use. Two wall mounted flood lights are used to illuminate the building-mounted sign located above the front entry. All of the trees that are located in front of the school are arrayed with holiday lighting; much of which is fed from the school via ground mounted junction boxes and service cable with oil resistant jacket (SO) cable mounted to the tree.

Decorative Tree Lighting Power Supply

Decorative Tree Lighting Receptacle

Building Sign Lighting

Cobrahead Fixture with Flood Light

Building Mounted LED Wall Pack

Building Mounted LED Egress Light

Soils and Geotechnical Investigation

According to the USDA Soil Survey of Middlesex County, the majority of on-site soils consist of Newport Urban Land and is rated in Hydrologic Soil Group D. The adjacent soil types of the project site include Urban Land to the north and Newport Urban Land to the west, south and east.

4.2 EXISTING BUILDING CONDITION

Building Description

- 360,000 GSF constructed between 1895 and 2014.
- Use Groups: Combined E Education (with accessory Assembly occupancies A-1 Auditorium; A-2 Cafeteria; A-3 Library/Media Center and A-4 Gymnasium) and F-1 Factory for the heavy vocational shops.

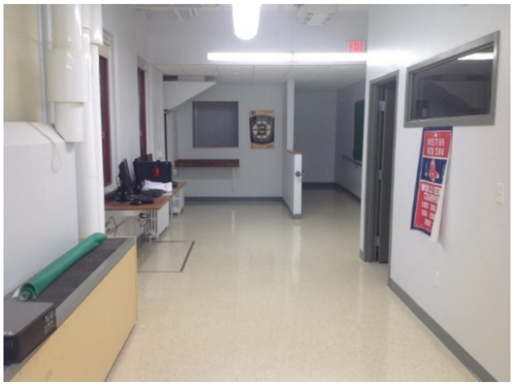
Types of Construction

- B Wing 1895 Construction: Type IIIA – Timber roof and floor framing supported by masonry bearing walls and piers, supporting wood framed floors.
- A,B,C Wings 1929 Construction: Type IIIA – Timber roof framing with concrete deck and metal framed floor construction supported by perimeter masonry bearing walls and interior steel beams and columns.
- D Wing 1929 Construction: Type IIA – Exposed metal truss roof with concrete deck and metal framed floor construction supported by perimeter masonry bearing walls and interior steel columns. Includes portions of 1986 metal framing and composite metal deck floor construction at mezzanine of library.
- E Wing 1986 Construction: Type IB – Concrete and steel framed structure with a combination of composite metal deck and precast concrete plank floor construction. Roof is metal deck on steel framing.
- In order to verify the underlying construction in the earlier portions of the building some exploratory demolition and repair will be required.
- General building use:
- A Wing: Academic spaces with sprinkler riser room / Department of Public Works (DPW) office at partial level below first level.
- B Wing: Academic spaces with cafeteria, kitchen, boiler room and loading/receiving on first level; and central administration and auditorium on the second level.
- C Wing: Academic spaces with Career and Technical Education (CTE) programs on the first level
- D Wing: Locker rooms, Physical education (PE) and athletic spaces, and community use (including city TV studio and daycare) on the first level; music spaces and media center on the second level, and mezzanine space on the third level.
- E Wing: Gymnasium, PE Spaces and vocational spaces on the first level; vocational spaces on the lower level with nursing and community use health care spaces on the first level.

Included below are some photographs of the major spaces within the school:

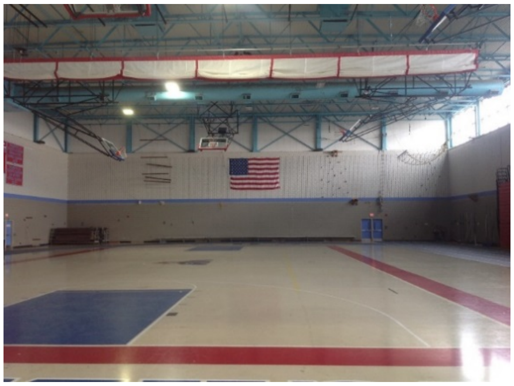
Typical Classrooms

Science Classrooms



Special Education

Computer Lab



Gymnasium

Locker Rooms

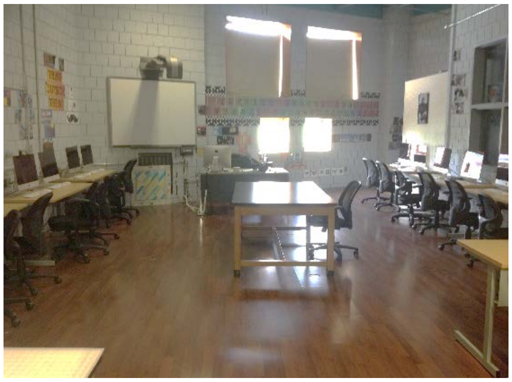
Cafeteria

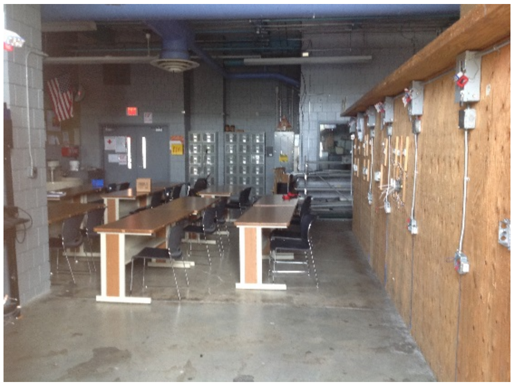
Media Center

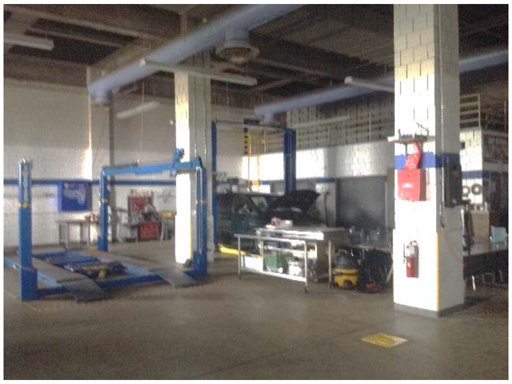

Art Room


Music Room


CTE cosmetology


CTE graphics


CTE electrical


CTE auto repair

Nurse/Cambridge Health Alliance

Exterior Walls

The exterior walls of the original 1895 through 1929 construction (A, B, C, & D Wings) along with many of the façade fenestrations are in poor condition and need repair or replacement. The structural walls are constructed primarily of multi-wythe unreinforced brick. The walls are not seismically braced in compliance with the current building code, nor are they insulated to meet current energy code. These mass masonry walls are thermally inefficient; and at various times during the year, variant temperatures cause condensation resulting in moisture that provides a collection medium for environmental dirt, potential for microbial growth and efflorescence.

Masonry Walls

Of particular note, are the southern elevations of the A, B and C Wings which front a large formal lawn and contain significant detail. Surrounding the formal lawn; the combined presence of City Hall, the southern elevation of the high school and various monuments create a civic urban space with significant cultural importance for the City as a whole. Given that significance of the southern high school elevation, some form of partial preservation and/or restoration should be considered as part of the design process. Details of note include the main school entrance portal with ornate surround, a pair of former entry portals with cast stone sculptures at the centers of the A and C Wings, as well as a series of arched window openings at the fourth level of the B Wing. While the high school is not listed on any local or state historic register, care will need to be exercised to ensure that repair work maintains the character of the southern elevations and leaves a durable condition.

It was noted that the interior wythes are joined together at intervals by bond courses and that the outer brick wythe is mortared adjacent to the interior wythes. This does not leave a separating air space both for wall width expansion and for drainage typical of brick masonry cavity walls of this period. Without exploratory demolition there is no way to know for certain if damp-proofing or any type of air barrier is in place. If there is, it is likely to contain asbestos or other hazardous material, given the age of the construction.

Masonry Details

The exterior masonry veneer walls of the 1986 E Wing of the school are in very good condition, with very few defects. The only exception noted was some amount of water penetration at the exposed concrete foundation and brick connections at the northeast facing façade. This might be caused by water penetrating the area between the covered shop ramp and masonry wall or hydrostatic forces flowing at the lowest point of that building.

Exposed Concrete Foundation and Brick Connections

Combined effects of water penetration and its freezing and thawing, movement or settlement of the foundation or thermal expansion may increase cracking and spalling in a brick structure or brick veneer structure.

Diagonal or stair-stepped cracks, wall-corner cracks and loose bricks in walls are typically due to water penetration aggravated by leaks near the top of the building wall at about the location of the roof surface behind the parapet wall, or just below that point (describing where water is entering the structure).

Thermal cracking in the same brick wall will generate stair-step cracks or vertical cracks near the wall ends (or building corners) and will be independent of high-on-wall horizontal cracks that telegraph the surface of any roof structure beyond.

Any movement in a structural brick wall which risks having broken the bond courses in the wall, and any movement in a brick veneer wall which has broken or loosened the connections between the veneer to the underlying structure are potentially dangerous as they bulge and separate causing the risk of collapsing masonry. The potential for this failure can be seen through vertical cracks in brick surfaces that appear to have very little bonded connection to the substrate.

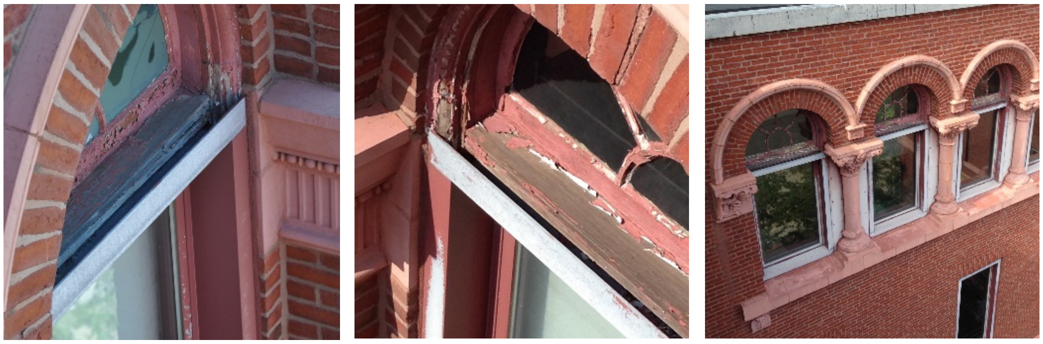
Window Sills and Lintels

The window sills and lintels are mostly in good condition except at rusted lintel angles that have swollen with rust and caused collateral damage to surrounding construction. During the 1895 and 1929 periods of construction when the majority of the facility was built, the concrete would be made solely in concrete-mixers on site. Proper care was not always given to the selection of the concrete mix components. Consequently, the strength and durability of the concrete elements varied greatly. This applies to the concrete in the existing cornice and frieze which seem to be porous, quite damp and weak, plus, the iron reinforcement is partially exposed and corroded. The cause of this damage is due to the exposure to moisture from atmospheric precipitation that soaks into the concretes pores and or cracks, expands as it freezes and bursts the concrete components.

Cornice and Frieze

Exterior Windows/Louvers

The round top windows on the top level of the B Wing and the connector corridors between the B Wing to the A and C Wings appear to be original wood framed, interior opening hopper windows with single-paned glazing. The original windows are poorly weather-stripped and provide insufficient thermal or acoustic protection. During one of the renovations it appears there were aluminum enclosures installed to protect them. The installation was incomplete, leaving a gap at all of the intersections between the tops of the fixed windows and the architectural head windows.



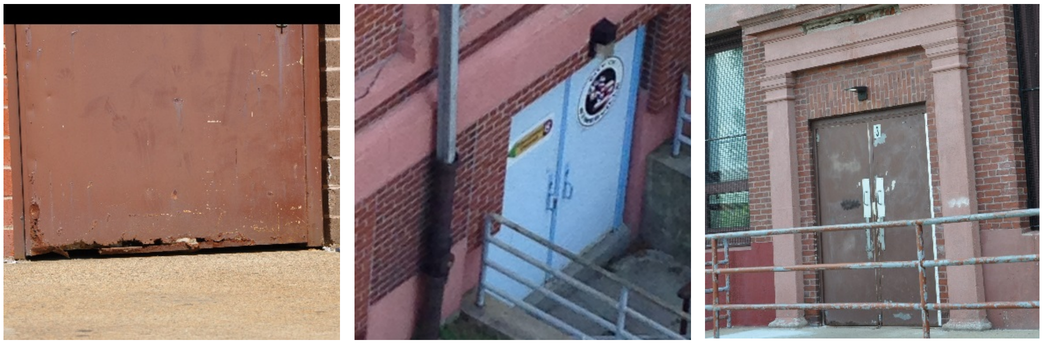
Round Top Windows

The remaining windows, excluding the steel ribbon windows in the field house (E Wing), were replaced in 1986 with thermally glazed aluminum units. These windows do not meet the current energy code standards, however they are still functional. The exterior anodized finish of the aluminum is wearing and fading and is exposing its substrate. The caulking or sealant between the window frame and the exterior wall is failing, allowing water to permeate the window components, the interior portion of the exterior walls and the building interior finishes.

Fading Anodized Aluminum Finish

Exterior Doors

Doors and frames from the 1986 renovations are in poor condition and in need of replacement. The doors sit within metal frames and show signs of rust and deterioration in many locations. Most of these entries are missing some or all of the associated perimeter caulking. This creates a thermal issue at these entries, specifically at locations without interior vestibules. Additionally, the thresholds at most doors are damaged, and signs of water infiltration and condensation are evident at all entries.



Exterior Doors

Roofing

Roof construction types and coverings vary across the school according to the ages of original construction and various re-roofing efforts that resulted from fires and severe weather. Black EPDM membranes cover low slope roofs over the A Wing and portions of the B Wing. These EPDM membranes are in poor condition with numerous cracks exposing tapered insulation, badly adhered repair patches and billowing areas with no adherence to the substrates below.

EPDM Roof Membranes

White PVC membranes cover portions of the B Wing, the entirety of the C Wing and a portion of the E Wing. These membranes cover low-slope roof structures. The white PVC roof over the auditorium was recently installed to repair damage that occurred during hurricane Sandy. It was observed to be in good condition except for limited ponding in select areas.

White PVC Roof Membranes

Asphalt shingles cover a moderate-sloped roof over the D Wing, which is in poor condition. The asphalt shingles have been applied directly over wood shakes that were installed as part of the 1986 renovations, and were observed in several exposed areas to have severe deterioration. There are multiple areas of missing shingles and observed deterioration below the overhanging drip edges.

Stone Gravel Roof Ballast

Stone gravel roof ballast covers the gymnasium roof in the E Wing. The original 1986 EPDM roof membrane is present below the stone ballast. While it is assumed to be in good condition due to a lack of observed leaks, this membrane is at the end of its usable life due to the age of the membrane itself.

Smokestack

Brick smokestacks have moisture entering through heat expansion cracks where erosion begins to take place. Rain and snow are drawn through these cracks by capillary action, and begin to combine the chloride & carbonation emission residue causing the mortar to erode resulting in cracking and spalling. Over time, this defect will appear on the chimney exterior as rust-colored staining. This masonry movement will also make the steel retaining bands deficient if not maintained. Note: the structural materials are unknown except for its brick façade. It is also unknown whether or not this chimney has an internal acid-resistant lining.

Brick Smokestacks

As with any aging building enclosure, any augmentation of insulation and moisture barriers must be carefully evaluated to assure the longevity of any proposed solution.

Interior Partitions

The interior partitions are generally painted gypsum board or plaster over metal lathe for the academic wings and painted concrete masonry units (CMU) for the E Wing. Some corridors within the 1929 additions have glazed brick wainscoting with plaster above. Most of the interior partitions have poor acoustic quality and allow sound transmission between spaces, which is a detriment to the learning environment as well as a confidentiality concern in administrative spaces.

The condition of the classroom walls is generally poor and is characterized by chipping and peeling paint; as well as exposed, surface-mounted electrical and data wiring which have been added over the decades; giving the walls a cluttered appearance. The E Wing houses most of the school's Career and Technical Education (CTE) programs and the interior partitions are primarily exposed painted CMU. Some portions of the B Wing from the 1895 construction have painted exposed brick interior wall surfaces in classroom spaces.

A few classrooms in the 1929 additions have operable walls as dividing partitions which are in poor condition. Not only are they compromised acoustically, but they also do not operate. Consequently these walls remain open or closed, but do not provide the educational flexibility that was their original intent.

The partitions of the gymnasium and locker rooms are painted CMU construction. Generally, all CMU walls are in good condition and don't show any cracks or signs of structural movement. Several hairline cracks in the interior CMU partitions in the E Wing were noted on the second level hallway adjacent to the main lobby.

The Auditorium walls are stained wood veneer, and although they are articulated to modulate sound, they currently result in a poor acoustic environment for music and speech intelligibility. The large windows adjacent to the stage provide access to natural light however they are frequently covered with window treatments to limit glare and control daylight into the space.

Photos: KAJ/classroom walls, classroom, CR, CR brick wood, corridor walls, CTE walls, surface mounted, operable partition, operable partition 2

Flooring

Corridor 12"x12" vinyl composition tile (VCT) floor tile is worn and has an uneven surface. Over time, areas have been replaced with new but mismatched VCT tile. Corridor rubber flooring is in fair condition in the B Wing at the main entry area. Stairways have rubber flooring and treads that are in good condition with safety contrasting striping at the top and bottom risers at each level. Raised round slip resistant dots hold dirt and are unevenly worn out.

Classrooms in the original 1895 construction and the 1929 additions have finished wood flooring. Although the wood is in good condition, it is creaky which results in a distracting acoustic environment. Metal access panels on the first level provide access to steam piping trenches in hallways and classrooms; however they are warped, gapped, and rusted in most cases and create a tripping hazard and accessibility issues in many locations.

Prep rooms and teacher offices have sheet vinyl flooring which is in very poor condition having many missing pieces and showing significant signs of wear.

Exposed concrete flooring in CTE wing is in generally fair condition. Finish has been worn and bare concrete is exposed in many locations. Cracking and spalling is evident in some locations. Additionally, signs of general use including stains are apparent throughout shop areas.

Flooring Corridors


Linoleum


Concrete Floors

Ceilings

Most classrooms in the A and C Wings have acoustical plaster ceilings which is highly reflective, with a small area of 12" x12" concealed spline acoustical ceiling tiles (ACT). Other classrooms in the B Wing have 2'x4' ACT ceilings. Most of the ACT ceiling tiles are dirty and stained throughout the building, and are functional yet dated. Light fixtures in the classroom spaces are linear-types with fluorescent lamps; surface mounted where ACT tile and grid are located, and pendants where plaster ceilings are present.

Most of the large spaces in the E Wing including the shops and gymnasium have exposed painted structure. In many of the shops, the paint on the ductwork and structure is peeling and needs to be patched or completely reapplied.

Corridors in the A, B, C and D Wings have floating 2'x4' ACT “clouds” running lengthwise down the middle of the corridor. To either side of the ceiling clouds there are exposed plaster ceilings as well as piping, ductwork, and equipment. Surface mounted 4"x4' fixtures light the corridor. At the first level, corridors have painted piping and ductwork exposed to hard ceiling above.

The media center ceiling has significant water infiltration issues. Buckets connected to hoses have been located beneath damaged areas as a semi-permanent solution. Ceiling tiles throughout the D Wing show evidence of water damage and are in poor condition.

Ceiling Corridors

Ceiling Classroom

Ceiling Hard Classroom

Ceiling Media

Ceiling Office

Signage/Wayfinding

Signage is inconsistent and obsolete; and should be replaced to comply with current ADA/MAAB accessibility standards and requirements. Most classrooms have small name plates above the door but some employ pencil on the wall to indicate room number where the label has been removed.

Wayfinding in the building would be challenging to a visitor. House offices, which provide student support and guidance services, are located in four different locations throughout the school. There is little to indicate their location without a school map and identifying signage at each space is not clear. It has been noted that parents encounter trouble finding these spaces.

The Career and Technical Education program (CTE) has several programs that rely on the outside community for a customer base, including the cosmetology, printing/graphic arts, and culinary arts programs. The cosmetology suite of spaces in particular is far removed from the entry to the building which complicates access for the public and creates inherent security risks.

Lockers

Student lockers are in poor condition and include built-in combination locks. Padlock hasps often provide much easier maintenance and administration of combinations for students. Although there was no indication of accessible lockers, the wider stacked units can typically be provided with compliant shelves to make them fully accessible.

Some lockers are built into the wall and others are surface bolted into the existing interior wall. Some locker areas are in very narrow corridors which are poorly lit. This not only makes these locker areas inaccessible from an ADA/MAAB perspective, but also presents a safety concern by preventing easy faculty/staff observation.

Additionally, lockers are too narrow to function effectively for students and as a result are underused. Color and finish of lockers is not consistent throughout the building. CTE students are required to change into uniforms, safety clothing, and work boots as part of some programs. In order to accommodate this, lockers of varying sizes and shapes have are scattered throughout corridors for student use. These lockers, although appropriately wide for their needs, are mismatched and some do not have lockable doors for protection of student items.

Corridor Lockers and Built-Ins and Lockers CTE

Narrow Lockers

Casework

Science room casework is in poor condition and meets neither current accessibility nor safety standards. The general classroom casework is also in poor condition. All casework is recommended for replacement.

Science Room Casework

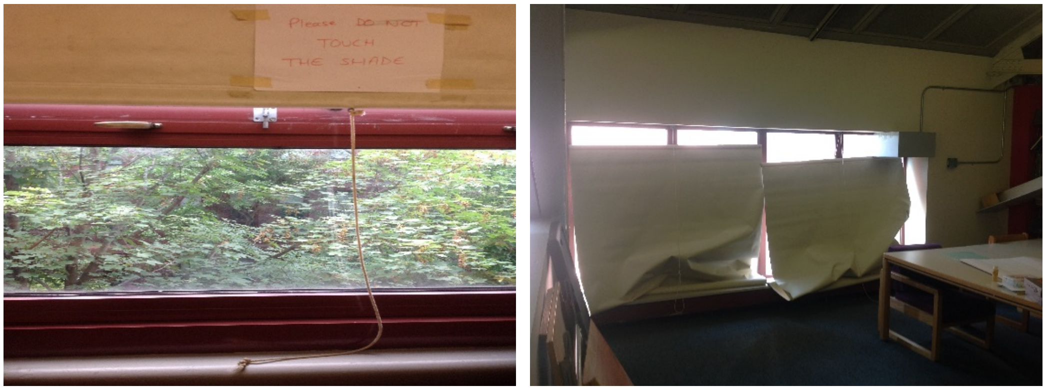
Science Room Casework

Window Treatments

A combination of roll up window shades and vertical blinds are included in classroom spaces with exterior windows throughout the building. These window treatments are in poor condition and in many cases inoperable. Due to their fragile state, many classrooms are forced to leave the shades in place and cannot adjust them for different exterior lighting conditions.

Classrooms on the south side of the building in the 1895 portion of the building have architectural head windows which have been painted on the interior surface of the glass to prevent light infiltration. The painted surface is streaky and poorly done.

Painted Windows



Window Shades

Means of Egress and Doors

The configuration of the corridor egress system and capacity of the egress doors appears to meet egress code requirements to allow the required occupancies of the various building wings to safely exit the building. The doors and hardware are deficient in several aspects of operation including compliance, operation, and glazing types. Excessive force is required to open many of the doors with closers, and once the doors are released, most do not latch. Most of the doors incorporate wired vision glass which is no longer allowed by the code.

Many of the corridor doors lack magnetic hold open devices that are integrated with the fire alarm system and would allow for automatic closing upon alert from the fire alarm system. Consequently, staff/faculty employ wooden door stops to hold these doors open, creating a potential smoke and fire migration issue during an emergency event.

Doors and Door to Stairs

Hallways and Corridors

The width of the hallways and corridors seems adequate to allow the population of the building to exit the building. Corridor lighting is dim in places but generally adequate. Corridor walls, ceilings and flooring are in poor condition.

Several intermediate centered hall doors may serve as smoke doors however the doors and frames narrow the corridor width.

Corridors

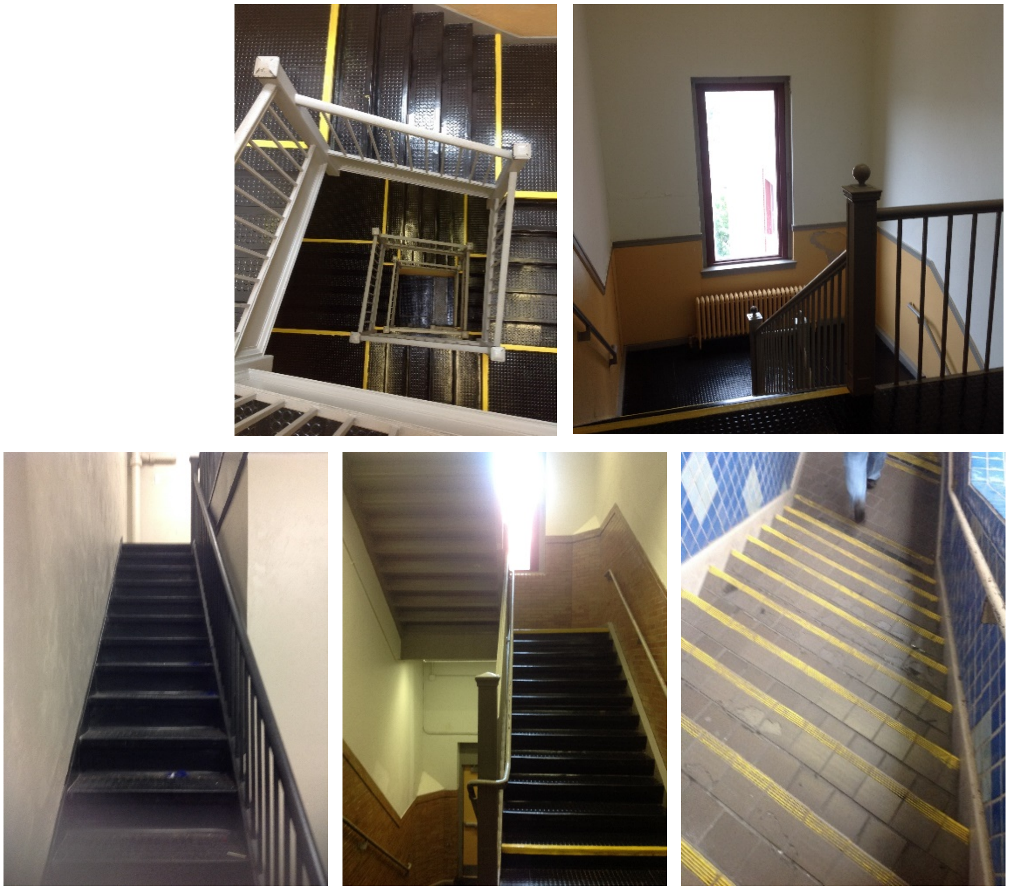
Stairs

The riser and tread dimensions of all the stairs appear to comply with egress code and allowed variance. These stairs have been modified to provide the required safety nosing on the top and bottom riser of each flight of stairs. The width of the present stairs seems to be large enough to meet the required egress capacity. Smoke vents are located at top level of the stairwells in the A, B and C Wings.

The handrails and guard rails do not comply with the current code requirements for each. In most cases, there is at least one guardrail section or component that does not appear to meet the code requirements for height. The handrails do not comply with the extension requirements at the bottom or top of each run of stairs.

There are also secondary sets of stairs which do not appear to meet the code requirements for egress width including the stairs leading to the exterior from the auditorium and the media center mezzanine.

Stairs in the E Wing are in very poor condition. Tile flooring material is chipping, treads are worn, and safety striping is in poor condition.



Stairs

Smoke Hatch

Elevators and Lifts

The existing passenger elevator provides access to all four levels of the A, B and C Wings. A freight elevator is also located in the E Wing adjacent to the CTE shop spaces and located adjacent to the loading dock. The existing passenger elevator between the A and B Wings does not meet the current requirements for gurney access to allow paramedics to access all levels during an emergency.

The auditorium stage is made accessible by means of a lift at the front of the stage area. The second level of the media center was initially accessible by way of a lift off the main corridor; however this lift has been deemed non-compliant by the Department of Public Safety and is no longer usable until it is repaired.

Elevators and Lifts

Ramps

There are few interior ramps required as most adjacent spaces are located on the same levels. The building entrances are made accessible by way of a ramp between the B and C Wings and a ramp at the entrance to the E Wing. The ramp that provides access between the B and C Wing is not compliant with the equivalent and common path of travel requirements that are prescribed by MAAB/ADA regulations.

Accessibility

In general the building is accessible in practice with a number of accessible provisions like handicapped ramps added. The existing elevators serve most levels of the building but some exits and secondary entrances are not accessible. The main entrance is non-compliant due to the absence of an immediately adjacent ramp option in lieu of the entry steps. Most of the secondary compliance issues like handrail extensions and push and pull-side clearances at doors predate ADA and MAAB requirements and remain non-compliant as originally constructed.

No handicapped door operators are installed with the exception of the new life skills classroom on the first level. The force required to open the entrance doors is of questionable compliance due to the weights of the doors and condition of closers. When subjected to any additional wind loads, these exterior doors would not be operable with less than fifteen pounds of force as required.

The mezzanine level of the media center which was used for drama and music is not accessible. It was noted in the 1986 renovation that it is not accessible and is not currently used as an academic space as a result.

There are no accessible workstations or fume hoods in the science rooms. Most of the classroom entrance doors lack the necessary latch side maneuvering clearances required to meet accessibility code. Few of the school's drinking fountains provide the required clearances and mounting heights.

There are a number of projections in rooms and corridors that do not meet the 4-inch maximum projection rules under the MAAB. These conditions pose a hazard to vision-impaired occupants and for general egress or circulation.

Non-Accessible Doors

Non-Accessible Fountain

Toilet Rooms

The toilet facilities do not completely meet code requirements for fixture count and accessibility. There is only one toilet room core per gender per level for faculty and only one per gender per level for students. Level one has an additional boys' and girls' core adjacent to the cafeteria which is likely adequate to serve the assembly uses of the cafeteria. These toilet rooms serve both the auditorium and cafeteria for non-simultaneous occupancies; and although code travel distances are met for both, the accessible path from the auditorium requires a circuitous route and the use of an elevator. Additionally, these particular toilet rooms alone do not meet the minimum required count for number of fixtures based on 100% occupancy of the auditorium, necessitating the use of additional fixture capacity via toilet rooms located on the second level in the A and C Wings.

In the E Wing, only one set of girls and boys restrooms are provided for students and must serve all three levels. The other three sets of men's and women's restrooms in the E Wing have all been designated for faculty use only. Additionally, the general toilet cores do not meet accessibility standards for push/pull at handicap toilet stall doors.

Students who must change clothing as part of their CTE program coursework must travel long distances to the only restroom in the E Wing in order to change into their uniforms. The long travel distances take away from valuable teaching time. In CTE classrooms, a restroom with changing area should be provided for each gender in order to reduce travel time.

Toilet rooms are also in poor condition throughout the building. They have, in most cases, been painted dark colors, and glazing has been obscured which creates a dark, poorly lit environment. With the exception of the level one B Wing core bathrooms, the piping and ductwork has peeling and chipping paint. Toilet partitions and fixtures have been replaced since the 1986 renovation and are in good condition.

Typical Toilet Rooms

Fire Separation

The building has one fire rated building separation between the D and E Wings. Per the current building code an unprotected building (with no sprinklers) would be limited to 29,375 square feet based on the most limiting Construction Type of IIIA from the 1895 construction, and approximately 50% of the building perimeter fronting on a public way. If equipped with an automatic sprinkler system the maximum area would increase to 58,750 square feet, but the A, B, C and D Wings of the school would still require an additional building separation and protective ratings for unprotected structural elements like the wood framed roofs on portions of that construction.

Auditorium

The Auditorium was renovated in 2014 after hurricane Sandy damaged it significantly. The seating and finishes are new. While the space is functional, the house floor has a minimal rake which results in poor sight lines for the audience. The auditorium ceiling was replaced as part of the 2014 renovations, however it is comprised entirely of absorptive ceiling panels, lacking any reflectivity which is necessary for proper sound propagation within a performance environment. A second level balcony supported by narrow round columns creates zones with compromised visibility to the stage and the low ceiling below the balcony above creates a poor acoustic environment.

The general arrangement of the space functions effectively as a meeting space however it is not ideal as a performance space. Adjacent and connected changing areas, control rooms, storage, and backstage areas do not exist which make theater productions functionally challenging. Stairs at the far north side of the auditorium were not renovated after the hurricane damage and stored items and debris block functional access to and use of the area.

The second level balcony access is difficult to find and the doors to access the space are in inappropriate locations. Two single doors off of the second level classroom wings access the balcony directly next to doors that access the central core stairs. In event of an emergency, the proximity of these doors would create a challenging and potentially dangerous egress condition. The only other doors into this space exit directly to the north stairs adjacent to the classroom wings.

The stage is relatively shallow and does not include a fly loft or removable stage extension. The stage is not level and is sloped enough where stationary objects can roll off of the front. Additionally, there are no designated areas for sound equipment, storage, dressing areas, or musical theater needs. The auditorium is not currently served by an HVAC system that is capable of air-conditioning, a functionality that is typical for large performance spaces such as this one.

Auditorium

Gymnasium/Field House

The gymnasium in the E Wing was built as part of the 1986 renovation/addition project. The walls are concrete masonry units that are in good condition. The large volume and lack of sufficient sound absorbing material results in a space that is loud, reflective and a generally poor acoustic environment. The resilient athletic flooring is in fair to poor condition, and consists of only a single thin layer of resilient material. This type of flooring lacks sufficient resiliency for athletics and can result in physical injuries for athletes competing on the surface.

The ceiling equipment, including fans to circulate air, is damaged in most cases. A single electrically-operated overhead divider curtain is functional, however it does not provide sufficient compartmentalization of the gymnasium play area to allow for maximum use of the space. The striping of the basketball practice courts and the perimeter running track overlap, preventing one activity from occurring while the other is ongoing. Given the lack of available exterior athletic resources on-site, the inability to realize full utilization of the gymnasium creates severe scheduling compromises for both physical education classes and athletics programs.

Over time, the exterior glazing has been covered with plexi-glass for durability, however this material obscures views into and out of the field house. The interior hollow metal frames connecting to the main E Wing are dented and damaged from use over time, and their finish is in poor condition. Door openings into the gymnasium are insufficient in width to allow access for maintenance equipment and scissor lifts, and lack removable center mullions that would make access viable. Consequently, permanent center mullions have been cut and re-attached over time, resulting in compromised locking and functionality of the gymnasium doors.

4.3 Existing Structural System

Structural Systems

The following structural system information is based on a walk-through of the Somerville High School on August 25-27, 2015, and from review of the structural construction documents provided by the City of Somerville. The only structural drawings available were the Drawings representing the original construction of the CTE addition to the High School in 1986. These construction documents, were dated May 14, 1984 were prepared by Crimp, the Engineers Design Group, Inc. Cambridge, Massachusetts. We do not have any original structural drawings for the 1895, 1929, or 2006 wings of the building.

The structure of original high school, Wing B, constructed in 1895 consists of concrete foundation walls supporting three floor levels and a wood framed roof. The floors appear to be framed with 2x wood joists supported or wood girders or steel beams, supported on wood bearings at the interior of the building and masonry bearing walls at the exterior. Some of the larger interior spaces are constructed of woof joists supported on steel beams and columns. Lateral load resistance is assumed to be provided by the limited lateral load resistance offered by the existing unreinforced brick masonry walls

The two main additions to the east and west of the 1895 wing are constructed of concrete foundation walls supporting three levels and a roof of wood framed construction. The floor framing system appears to be closely spaced open web steel bar joists, supported on masonry bearing walls and steel beams, which, in turn, are supported on steel or wrought iron columns and masonry walls. The roof is constructed of wood joists supported on steel or wrought iron beams. Lateral load resistance is assumed to be provided by the limited lateral load resisting capacity of the existing unreinforced brick masonry walls.

The auditorium and original gym building, Wing D, was also constructed during the 1929 addition renovation. The roof of the auditorium is comprised of wood decking boards supported on wood joists and steel beams over the stage, and on wood joist spanning over steel open web bar joists or trusses clear-spanning the auditorium space.

The roof of the Wing D is comprised of customized steel trusses spanning the full width of the original gym space and supported on steel wide flange columns. Steel beams and girders span between roof trusses to provide the support for the “Tectum” roof panels.

The balcony spaces appear to be wood framed floor construction framed onto steel or wrought iron columns.

The 1986 CTE expansion, noted as Wings E and F, are primarily a steel framed structure utilizing a reinforced concrete foundation walls at the exterior of the building and interior isolated spread footings supporting the interior columns. The lowest level or partial basement of Wing E is a 5" reinforced slab on grade.

The first framed level of both Wings E and F, (the field house floor), are framed with steel beams and girders supported of wide flange steel columns. The floor deck is composed of an 8" hollow core precast plank system supported on the steel beams.

The second floor of Wing E is framed with composite steel beams and girders supported on wide flange steel columns. The floor deck is constructed of a 2" composite metal deck with a 3" lightweight concrete topping slab.

The roof of Wing E is framed with steel beams and girders decked with a 3" x 20 gage acoustical metal roof deck.

The long-span roof over the field house is framed with 68" deep, DLH Series, steel open web joists spaced at 10'-0" on center and supported on perimeter steel girders. The roof deck over the field house is a 3" x 20 gage acoustical metal roof deck.

Lateral load resistance for the E and F Wing additions is provided by concentric diagonal steel bracing located throughout the buildings.

There is an expansion/seismic joint separating these two wings from all of the previous adjacent wings of the school, mainly, Wings C and D.

The design or allowable Live Load Capacity of the older 1885 1nd 1929 wings of the school is unknown.

According to the 1984 construction documents for Wings E and F.

30 psf roof snow load	
Classrooms:	50 psf
Corridors:	100 psf
Stairways:	100 psf
Fieldhouse:	100 psf
Dinning:	100 psf

These live loads are consistent with current design live load requirements for such spaces in school buildings in Massachusetts.

The boiler room wing to the north of the auditorium is framed with steel beams, girders and columns. There have been modification to the exterior wall and additional steel has been added to support revised openings and relocated columns.

There are several abandoned rooms to the west of this wing where there was an apparent oil spill. As part of the abatement process the concrete floor slab was removed along with 4 to 5 feet of soil beneath the slab. The area around the column footings has been excavated, leaving the bearing material beneath the footing in a precarious condition.

The internal structural condition of the Somerville High School appears to be in fairly good condition with no visual signs of structural distress anywhere inside the building. The exterior masonry walls of the building along with many of the fenestrations are in fair to poor condition and need replacement.

Seismic and Code Implications

The original Somerville High School structures was designed and constructed before 1975 when the modern Massachusetts State Building Code (780 CMR MSBC) went into effect. The state building codes prior to 1975 did not require that the structure be designed or detailed with deliberate seismic or other lateral force resisting systems. In order for the proposed renovations to comply with the current MSBC, new seismic and lateral force resisting systems must be introduced to be evaluated and analyzed into the existing structural systems of the buildings. The pertains to 60% of the entire school including all of wings A,B,C, and D. Wings E and F do have lateral braced frame systems; however in level 3 work is triggered for these areas the frames will need to be reviewed for code prescribed lateral loading per the “International Existing Building Code”, or IEBC.

The renovation work proposed at Somerville High School would qualify under the current MSBC and the International Existing Building Code (IEBC 2009), which is referenced in the MSBC, as Alteration – Level 3. Level 3 Alterations are required to comply with the provisions of IEBC Chapter 8. Provisions for lateral load –carrying systems and elements of the building include: “Where more than 30% of the total floor area and roof areas of the building or structure ... are proposed to be involved in a structural alteration..., the evaluation and analysis shall demonstrate that the altered building or structure complies with IBC 2009 for wind loading and with reduced IBC 2009 level seismic forces...” (as superseded by MSBC 101.5.4).

Since the existing Somerville High School Structure has no deliberate seismic force resisting system to evaluate and analyze, the IEBC 2009 and MSBC 8th Edition provisions require that the existing structure be strengthened with an added seismic force resisting systems. These systems are allowed to comply with reduced seismic forces in accordance with MSBC Massachusetts Amendments 101.5.4.

Structural Related Conditions

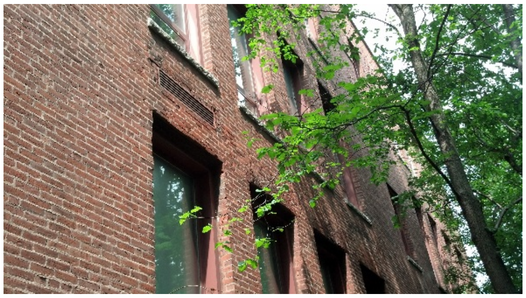
Exterior Walls

The exterior walls of the Wings A, B, C, and D are constructed primarily of mutli-wythe brick masonry with precast concrete lintels and features. The thickness of the walls varies from 12" to 16". The structural integrity of the walls is generally fair. There is a fair amount of spalling and cracking in the precast concrete features and in the brick masonry field as well.

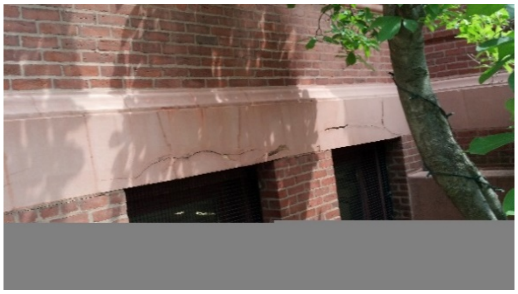
The exterior walls of the newer 1989 additions are primarily brick veneer walls with metal stud back-up construction. Except for some cracking in the masonry arches in the front of the building, all of the exterior brick masonry walls in Wings E and F appear to be in good condition. The caulking in the control joints and around the windows is spent and needs to be replaced.

The precast medallions in the west wing are cracking and spalling as well.

There is a mixture of original and replaced steel lintels in the east and west wings. It appears that some but not all steel lintels were replaced when the windows were last replaced. Some of the steel lintels have a fair amount of rust. As the deterioration continues, the masonry under the lintel and at the bearing point is cracking and moving out of the plane of the walls. In most cases there are several steel lintels over the windows and only the outermost lintel was replaced.



In the front of the building, south elevation, the precast lintels above the ground floor windows are all cracked horizontally. This is most likely due to internal rust of the reinforcing steel inside of the precast and, as well as, the results of the ongoing corrosion of the steel lintels under the precast. The precast lintels at the east and west wing were originally architecturally detailed to match the original 1895 structure. However, the precast lintels in Wings A and B have a redundant steel lintel supporting them. This may be because the lintels are not reinforced as were the ones in the 1895 building. The original 1895 windows do not have a steel lintel supporting the precast at the ground floor level. These lintels consequently are still in relatively good shape compared to the ones on the east and west wings. Also, the upper fenestrations in the 1895 wing have brick masonry soldier course lintels with a keystone or arched lintels, and thus have no steel lintel and are in relatively better condition.



On the south or front elevation of the building, the keystone soldier courses above the second floor windows on the east and west wings are cracking and pulling away from the plane of the wall.

The precast stone arches and brick keystones above the windows at the roof level of the south elevation are cracking and spalling, along with the precast band running the full length of the building.

The large open arched parapet at the front of the 1989 addition has a fair amount of cracking on the underside of the arch. This is most like due to differential thermal extremes on the parapet, and the absence of control joints. The concurrent arches are experiencing many expansion and contraction cycles each year, were the monolithic parapet above the arches is expanding and contracting a greater volumetric rate than the arches below.

At the original gym building, much of the masonry and stone features are cracked and spalled. This brick masonry in this wing of the school appears to be deteriorating faster than the rest of the individual wings of the school.

The exterior of 1989 CTE wing of the school is in very good condition throughout, with very few defects observed in the exterior masonry walls. The caulking around the windows and in the vertical control joint of the masonry is dried out and cracked and need to be replaced.

4.4 Existing Fire Protection Systems

A Wing: There is no fire protection system in this wing with the exception of Janitor's Closets. Upright sprinklers were installed in the Janitor's Closets only. There are existing 4" standpipes at stairwells with 2-1/2" and 1-1/2" Fire Department Valves (see photo 1). There is access to the roof but roof manifolds were not installed.

Photo 1: Existing Standpipes with FDV's at Stairwells (Typical for A, B & C Wings)

B Wing: This wing is partially sprinklered. The existing fire service in this wing is a 6-inch main entering Classroom 129. The existing fire service includes a 6-inch riser with 6-inch alarm valve. Flow switch is not installed on the fire protection main and on the riser (see photo 2). The existing fire service, alarm valves, fire protection risers, sprinkler heads and piping are in fair condition. There are existing 4" standpipes at stairwells with 2-1/2" and 1-1/2" Fire Department Valves.

The existing fire service does not include a double check valve assembly.

There are pendent sprinklers installed outside of the Cafeteria that are covered with grease that are in poor condition (see photo 3). Upright sprinklers were installed above pipes in the corridors. The spray pattern of these sprinklers is obstructed by the pipes below (see photo 4). Some HVAC equipment/ducts, which appear to be more than 4 ft. wide, are not protected with sprinkler below them. Some are protected under them but with too few sprinklers installed. Sprinkler guards are not installed (see photo 5). Standpipe, fire department valve and sprinklers are not installed under Stair 1274, wood construction. These sprinklers are not in compliance with NFPA 13 installation requirements. Some sprinklers have no escutcheon plates (see photo 6). There are sprinklers installed in the kitchen and inside and above the walk-in cooler (see Photo 7). Sprinklers are not installed in some soffits. A tamper switch installed in the room, on the lowest level, next to the boiler room, is covered with duct tape. The fire protection valve in the same room is in poor condition and it is deteriorating (see Photo 8). Science laboratories with chemical storage on the fourth level are not protected with sprinklers. There is access to the roof but roof manifolds were not installed.

Photo 2: Existing Fire Service

Photo 3: Sprinklers outside of the Cafeteria

Photo 4: Upright Sprinklers above pipes in Corridors

Photo 5: Examples of HVAC equipment that are not protected

Photo 6: Sprinklers without escutcheon plates

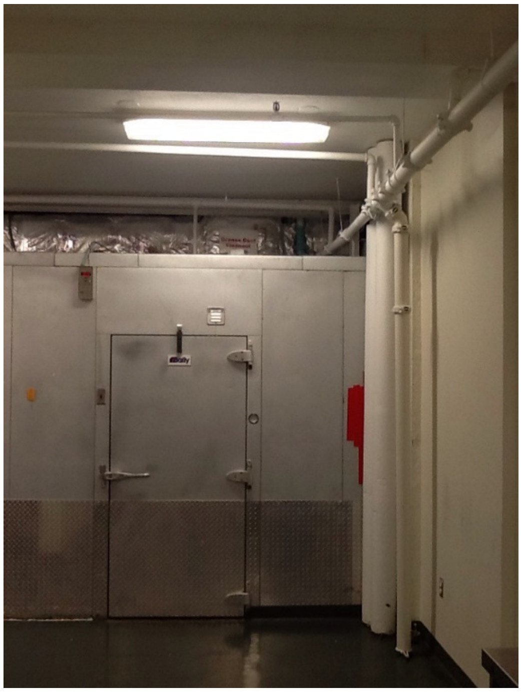


Photo 7: Sprinklers in Walk-In Cooler

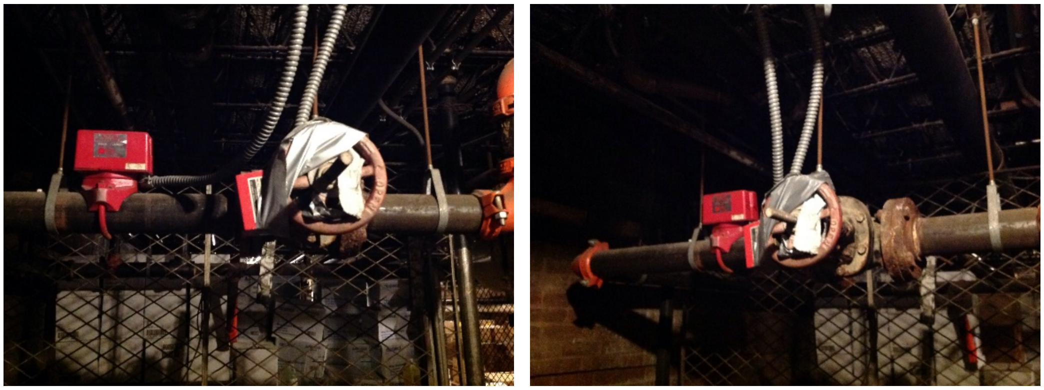


Photo 8: Tamper Switch and Valve in poor condition

C Wing: There is no fire protection system in this wing with the exception of Janitor’s Closets. Upright sprinklers were installed in the Janitor’s Closets only. There are existing 4" standpipes at stairwells with 2-1/2" and 1-1/2" Fire Department Valves. There is access to roof but roof manifolds were not installed.

D Wing: There is no fire protection system in this wing with the exception of Janitor’s Closets. Upright sprinklers were installed in the Janitor’s Closets only. There are existing 4" standpipes at stairwells with 2-1/2" and 1-1/2" Fire Department Valves.

There are existing standpipes with 1-1/2" fire department valves but the fire hoses were removed (see photo 9). There is access to roof but roof manifolds were not installed.

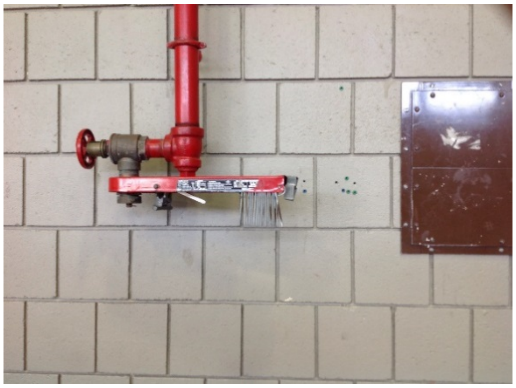


Photo 9: Fire Department Valve

E Wing (Vocational/CTE Building): There is a fire protection system in this wing. The existing fire service is a 6-inch main entering the building in the storage room located in the shop level. The existing fire service includes a 4-inch riser with wet alarm valve for this wing and a 6-inch riser with dry alarm valve, with compressor in fair condition, for the automotive shop. There is no fire pump in this wing (see photo 10). The existing fire service, alarm valves, fire protection risers, sprinkler heads and piping are in fair condition. There are existing 4-inch standpipes at stairwells with 2-1/2" and 1-1/2" Fire Department Valves.

The existing fire service does not include a double check valve assembly.

There is a wall that divides Classroom 095 into a classroom with offices. The sprinklers installed in these rooms are not in compliance with NFPA 13 regarding minimum distances from sprinkler’s deflector to perpendicular walls (see photo 11). Upright sprinklers near the painting area are covered with tape. There is access to the roof but roof manifolds were not installed.

Photo 10: Fire Service and Alarm Valves

Photo 11: Sprinklers not code compliant

4.5 Existing Plumbing Systems

Most piping is not visible and some system conditions noted herein are presumed due to age and the condition of piping which was visible.

A, B, C, D, and E Wings

Domestic Cold Water

Domestic cold water for the facility is fed from two water services; a 4-inch main enters A Wing and another 4-inch main enters B Wing in Classroom 129. The existing domestic water service in B Wing includes a water meter and shut-off valve (see photo 1). Existing domestic cold water piping appears to be original and in poor condition, has outlived/exceeded its useful life and is not expected to last more than a few years without exhibiting widespread problems and possible failure. Pipe insulation and valves appear to be original and in poor condition. Pipe labels, flow arrows and valve tags were not installed.

The existing domestic water services in A and B Wing do not include backflow preventer assemblies.

Separate backflow preventer for non-potable cold water, for the laboratory faucets, is not installed. There is a possibility of cross contamination.

Some non-potable cold water piping installed at lab sinks are not insulated.

In janitor’s closets there are no separate backflow preventers for detergent at mop receptor (see photo 2). Typical for all janitor’s closets.

There are existing cold water piping that are capped and exposed in walls of some classrooms.

Photo 1: Existing Domestic Water Service

Photo 2: No backflow preventer for detergent at mop receptor

Domestic Hot Water

Domestic hot water for the facility is supplied from a single source; two steam-fired storage tanks, with a capacity of 1,600 gallons each.

The steam-fired storage tanks are located in the B Wing boiler room. They were replaced in 1984 and have exceeded their useful life and warranty. They are anticipated to last only a few more years without ongoing maintenance problems and possible failure (see photo 3).

Existing domestic hot water piping appears to be original and in poor condition, has outlived/exceeded its useful life and is not expected to last more than a few years without exhibiting widespread problems and possible failure. Pipe insulation and valves appear to be original and in poor condition. Pipe labels, flow arrows and valve tags were not installed.

Separate backflow preventer for non-potable hot water, for the laboratory faucets, is not installed. There is a possibility of cross contamination.

Some non-potable hot water piping installed at lab sinks are not insulated.

There are existing hot water pipes that are capped and exposed in walls of some classrooms.

There is no tempered water at emergency showers/eyewash stations.

Photo 3: Steam-Fired Storage tanks

Natural Gas

The existing natural gas system enters B Wing in the custodian's room, located at the first level via a 4-inch gas main. The existing gas piping includes a gas meter, valves, gas boosters and gas regulator (see photo 4). Gas is distributed throughout for the kitchen equipment and laboratory classroom gas turrets. Piping that is visible appears to be original and in poor condition, has outlived/exceeded its useful life. It is not expected to last a few more years without problems and possible failure.

A second gas service was added in 1994 for the automotive vocational programs on the lower level in the E Wing. This gas service was intended to service the automotive paint spray booths that are located in this area, but neither of these spray booths have been in use in many years, and this second gas service is currently not in use.

Emergency gas shut-off valves in laboratories are not readily accessible (see photo 5).

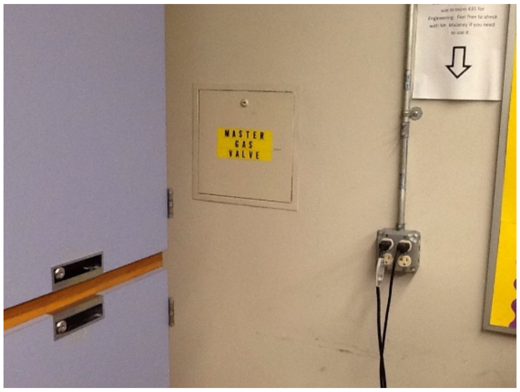


Photo 4: Gas Service, Gas Meter and Piping

Photo 5: Not accessible emergency gas shut-off valve

Sanitary Waste and Vent

Sanitary waste and vent system is collected below the slab and is therefore not visible. It exits the facility in multiple locations. The above slab piping in the building was at times visible, and is expected to be in poor condition due to its age. Sanitary drainage and vent piping is original, and has outlived/exceeded its useful life. It is not expected to last more than a few years without exhibiting widespread problems and possible failure.

There are existing waste pipes that are capped and exposed in walls at some classrooms (see photo 6).

Some vents through roof are rusted, deteriorating and in poor condition (see photo 7).

Piping at some classroom sinks are in poor condition and uninsulated. Some pipe insulation are in poor condition (see photo 8).

The existing floor drains have no trap primer connections (see photo 9).

The kitchen waste system exits the facility in two locations. One exits in the B Wing and discharges into a 1,000 gallon concrete exterior grease trap, and the other one exits in E Wing and discharges into a 1,000 gallon precast concrete exterior grease trap. Per existing drawings, vent piping is not installed from the exterior grease traps back into the building and to the roof independently.

Point-of-use grease traps are not installed to receive the waste discharge at the triple pot sink, dishwasher, tilting kettle and other grease producing kitchen equipment and floor drains.

Piping installation at triple pot sink is not code compliant. The piping at disposer is cut and capped (see photo 10).

Per existing drawings, a gasoline/oil interceptor and all associated piping, including vent piping from the interceptor back into the building and to the roof independently, in the auto shop are not installed to receive waste discharge from floor drains.

Photo 6: Exposed Pipes

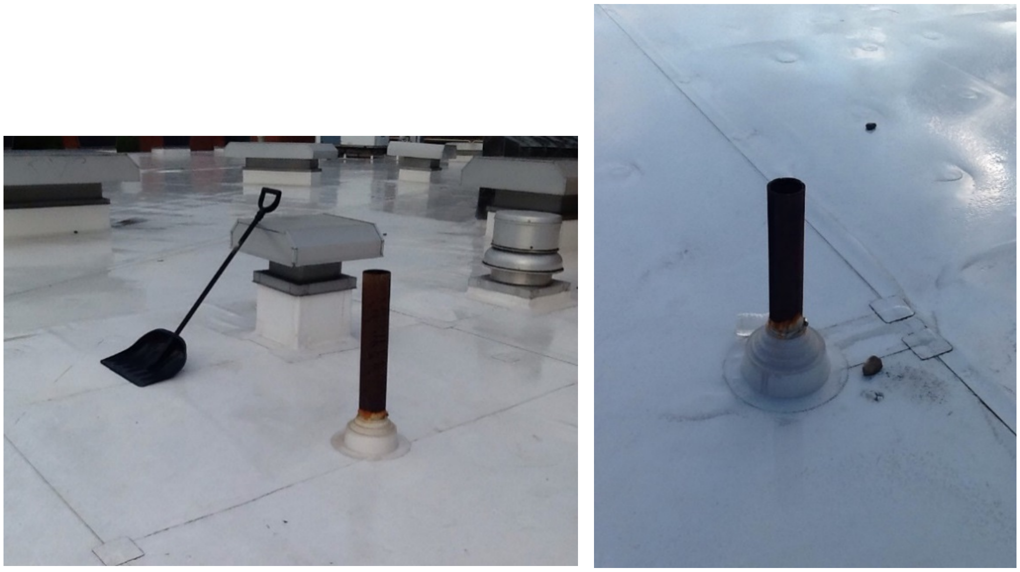


Photo 7: Vents through roof in poor condition

Photo 8: Piping at Classroom Sinks

Photo 9: Floor Drains without trap primer piping connection

Photo 10: Waste Piping Installation at Triple Pot Sink

Acid Waste and Vent

The laboratory classrooms include a laboratory (acid) waste and vent system. It is collected below the slab and is therefore not visible, and is expected to be in poor condition due to its age. A 6-inch laboratory (acid) waste exits B Wing and a 4-inch laboratory (acid) waste exits E Wing. A limestone chip tank, in fair condition, is installed to collect laboratory (acid) waste. The tank is maintained/cleaned once a year (see photo 11). Visible laboratory (acid) waste and vent piping is in fair condition.

Lab vent through roof is deteriorating and in poor condition (see photo 12).

Emergency shower/eyewash stations installed in the science labs area are non-ADA compliant (see photo 13).

Bow venting at lab sinks is not installed correctly per plumbing code. Gas turrets and lab faucets are in good to fair condition. Emergency shower/eyewash stations installed in the auto shop area non-ADA compliant (see photo 14).

There is no emergency shower/eyewash station installed in Biology Lab 420. There is no emergency shower/eyewash station installed in the boiler room. The existing fume hood in Chemistry Lab 423 is not operational.

Existing gas and water piping are abandoned in place in computer classrooms (formerly Science Labs) (see photo 15).

A non-ADA emergency eyewash station is installed at lab faucet (see photo 16).

Photo 11: Existing Limestone Chip Tank

Photo 12: Lab Vent through roof in poor condition

Photo 13: Non-ADA compliant Emergency Shower/Eyewash at Science Labs

Photo 14: Non-ADA compliant Emergency Shower/Eyewash at Auto Shop

Photo 15: Gas and water piping abandoned in place in Computer Rooms

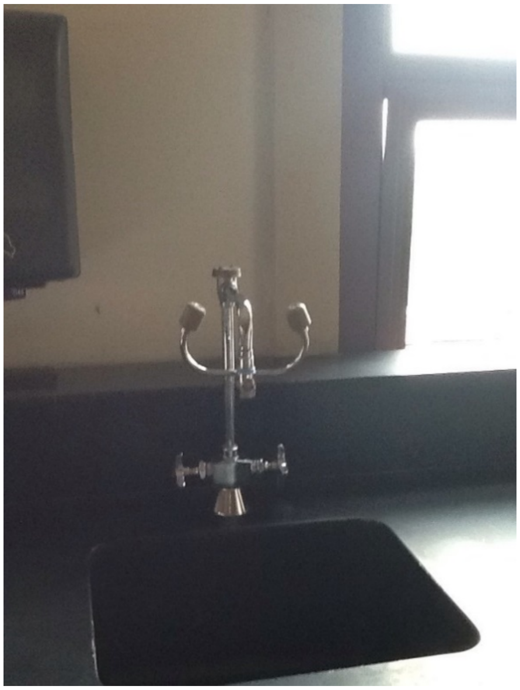


Photo 16: Non-ADA Emergency Eyewash

Storm Drainage

Storm drainage system is collected below the slab and is therefore not visible. It exits the facility in multiple locations. The above slab piping in the building was at times visible, and is expected to be in poor condition due to its age. Storm drainage piping is original, and has outlived/exceeded its useful life. It is not expected to last more than a few years without exhibiting widespread problems and possible failure.

There are parapets installed on the roof. Overflow (secondary) drains or scuppers are not installed as required by current code (see photo 17). Roof drains and domes are original and in poor condition (see photo 18). There are some ponding issues on the roof.

Photo 17: No Overflow Drains installed.

Photo 18: Roof Drains and Domes in poor condition

Plumbing Fixtures

The total number of plumbing fixtures and toilet rooms in A, B, C, D and E Wings is not in compliance with plumbing code and building code. Toilet plumbing fixtures were replaced and are ADA compliant in some locations.

Water closets are primarily wall mounted with manual flush valves, generally in fair condition (see photo 19). Urinals are wall mounted with manual flush valves, generally in fair condition (see photo 20).

Lavatories are wall hung with self-closing push-down faucets or lever handles, generally in fair condition. Some of the lavatories are non-ADA compliant and pipe insulation is not installed (see photo 21).

Drinking fountains are installed in the entire facility. However, some of them are dented, broken, or missing parts and generally in poor condition. There are different types of drinking fountains installed; some are stainless steel and some are vitreous china. Some have chillers and others have no chillers. Some are surface mounted and others are recessed type (see photo 22).

Existing mop receptors are in poor condition. Many classroom sinks are non-ADA compliant but in fair condition (see photo 23).

Photo 19: Existing water closets

Photo 20: Existing urinals

Photo 21: Existing lavatories

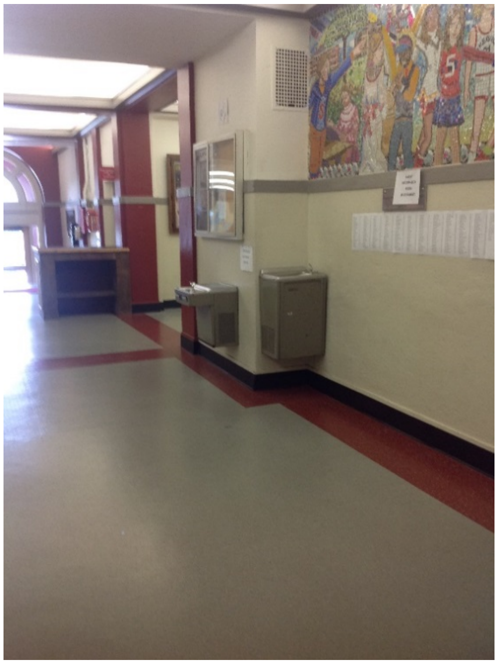


Photo 22: Existing drinking fountains

Photo 23: Non-ADA compliant sinks

4.6 Mechanical Systems

HVAC Systems

B Wing

Boiler Room

The school heat generation plant consists of four Cleaver Brooks fire-tube, oil-fired, steam boilers: two, model CB-600-150 (installed in 1981), plus, one, model CB-600-50, and one, model CB-600-150 (installed in 1984). Boiler controls were installed at the time of the respective boiler installations. The steam system feed water tank and pumps were also replaced in 1984.

The boilers use #4 oil, which is stored in two 15,000 gallon underground tanks, located below the parking area outside of the boiler room. The current fuel system, including tanks, oil transfer pumps, piping and associated controls were replaced in 1986. The duplex fuel oil pump set and associated controls are installed in the room adjacent to Boiler Room; the components do not appear to be fully operational. Currently, the school is using only one of the two underground fuel oil tanks; when the other fuel oil tank is used, the fuel oil system is said to lose pressure. The unused tank is reportedly full of oil.

There was a large oil leak (circa 2005) when the fuel oil spilled in the room/area surrounding fuel oil pumps. The spill was remediated by removing the floor slab and the contaminated soils beneath. The space has not been restored since the remediation was performed.

Some of the original oil piping and pumping equipment, replaced with the 1986 project, still exists in another room adjacent to Boiler room, abandoned in place. The 1986 project drawings indicate the original underground oil tank was to be removed as part of that project but this should be verified.

The boiler plant supports the heating and domestic hot water needs of the school, as well as the heating needs of the adjacent City Hall building. The school domestic hot water heat exchangers are located in the boiler room. School A, B and C Wings and Somerville City Hall are served directly with low pressure steam. Steam is distributed to the D Wing mechanical room to two steam-to-hot water heat exchangers and the associated pumping system to provide hydronic heating via terminal heating units serving that wing. The D Wings systems were installed in 1986.

The Somerville City Hall steam distribution automatic control valve is located in the school boiler room.

All four boilers are operational during the heating season. During summer three larger boilers are off and one smaller boiler (model CB-600-50) remains operational to provide steam for the domestic hot water heat exchangers.

The boilers are vented through breeching in Boiler room that was installed in 1986, which connects to the original masonry chimney.

Steam piping insulation is damaged in many areas and requires replacement. The steam valves appear antiquated and should be annually serviced to ensure they operate as intended. Any faulty valves should be replaced.

The boilers, boiler feed system, piping and associated controls are beyond their useful service life, are showing corrosion and, in some cases, equipment failure. The fuel oil system is also in disrepair and requires service and/or upgrade to maintain reliable service.






D Wing

Mechanical Rooms

Mechanical rooms house two steam-to-hot water heat exchangers, two hot water pumps and other associated appurtenances - all installed in 1986. The hydronic components appear to be in fair condition. The pumps were rebuilt in 2011 and the motor on one pump was replaced in 2014. The pumps distribute hot water to heating and ventilating units and to terminal units in D and E Wings. The heat exchangers appear to be in fair condition. Piping and heat exchanger insulation are damaged and require replacement.

A, B, and C Wings

Classrooms and Other Teaching and Support Spaces

The Classrooms in A, B, and C Wings are served by unit ventilators (vertical and horizontal, with steam heating coils) and steam cast iron radiators. Some unit ventilators were replaced in 1986, but the majority of the original unit ventilators (installed prior to 1986) remained and were retrofitted with new motors. The majority of the unit ventilators are in poor condition. The unit ventilator cabinets and interior components show corrosion, the air grilles also corroded and are full of debris, the ventilation air dampers may not be operational, therefore the amount of fresh air being introduced to the classrooms may not be in accordance with the current codes. The newer unit ventilators installed in 1986 are outdated by now as well. All unit ventilators are beyond their useful life and require replacement. Steam piping, associated valves and appurtenances appear antiquated and show signs of corrosion. Piping insulation is damaged in many areas and also require replacement. Temperature controls were installed in 1986, appear antiquated and may not be all operational – all require replacement as well. Currently, the selected local temperature controls for HVAC systems are being replaced by the City with Honeywell temperature controls.

Many of the science rooms are missing fume hoods. On several fume hoods the exhaust duct was not connected to the hood. In some rooms the fume hoods are used for storage, where it is assumed the fume hoods are not operational. The science preparation and storage rooms lack proper ventilation, exhaust air systems are mostly missing and, if existing, are completely inadequate and are not in compliance with current codes.

The computer labs lack any type of air conditioning, presenting operational concerns due to potential overheating of expensive technology equipment.

All data racks are located in the classrooms they serve. There is no cooling provided for these spaces; typically data equipment must be maintained in a controlled environment to ensure reliable operation.

The SPED “SHIP” classroom suite in C Wing is provided with air conditioning split systems, installed in 2013. The split systems are in good condition.

At the northern end of the C Wing there is a clothes-dryer exhaust that is ducted directly through the window to the outside.

Janitor rooms at some locations are not being exhausted. Current mechanical code dictates that they must be exhausted to be in compliance.

The classrooms diffusers and registers are generally dusty and dirty.

The steam cast iron radiators and steam piping system are showing signs of corrosion and steam piping insulation is damaged in many locations or missing.

The bathrooms are exhausted, however the make-up air transfer path in the door grilles is completely obstructed by dirt and debris, and some transfer grilles are damaged. The exhaust ductwork and associated registers are dirty.

All other spaces in A, B, and C Wings have heating and ventilation systems that are similar to the classrooms. The distribution systems are beyond their useful lives and are not performing as intended in many cases.

Temperature controls are not present in every room; the rooms may be zoned in groups. Grouping similar rooms in common zones can be acceptable provided the usage and occupancy of those rooms are similar.

A Wing

IT office

The IT Office provides services to Somerville High School and Somerville School District. The office consists of three rooms that share two unit ventilators. The indoor air quality is poor. The outside air damper in unit ventilators may not be operational. There is insufficient cooling for each space.

B Wing

Kitchen/Cafeteria

Kitchen unit ventilator, make-up air unit, kitchen hoods exhaust fan, associated controls and ductwork were replaced in 2014. The system appears to be in good condition.

The main and small cafeteria air distribution systems were installed in 1986. The cafeteria air distribution equipment appears outdated, some diffusers/registers are damaged and all are dirty with free area reduced/blocked by debris. Temperature controls are original to the systems. The air distribution systems serving these rooms should be repaired or replaced.

Auditorium

Auditorium air distribution system (units, ductwork, diffusers/registers, and controls), steam cabinet convectors and associated controls were replaced in 2014. The heating and ventilating units have steam heating coils, are hung from the building structure and installed without any vibration isolation. A vibration produced by the auditorium heating and ventilation units travels towards the auditorium and could be easily detected anywhere in the front portion of the house. The air distribution configuration is inconsistent, leaving large areas with insufficient air movement. The auditorium is not air conditioned.

Administration

Administration is served by unit ventilators. Some spaces do not receive any mechanical ventilation air. The second level main reception is also served by an air conditioning split system (for which the installation date is not known). The air conditioning split system is in fair condition. The indoor air quality in most of the spaces appears to be inadequate.

D Wing

Locker rooms, TV Studio, Library, Weight Room

The locker rooms, TV Studio, library and weight room air distribution systems were installed in 1986. Some diffusers/registers are damaged or corroded, and others are blocked by dirt or debris. The air quality in these spaces appears to be inadequate. The weight room is provided with an air conditioning split system (for which the installation date is not known), which appears to be in good condition.

Health Center

The Cambridge Health Alliance teen health center addition from 2006 is served by a single zone roof-top packaged air conditioning unit controlled by one space thermostat. The unit appears to be in good condition, and is assumed to be original to the 2006 addition.

E Wing

Gym

Gym air distribution systems were installed in 1986. The heating and ventilating units show signs of rust and do not have proper vibration isolation; ductwork paint is peeling; some diffusers are damaged and return registers are partially blocked by the dirt/debris; piping insulation is partially damaged. There is a strong vibration produced by these units, which could indicate an imbalance with the fan assemblies. The finned tube radiation shows signs of abuse.

CTE Programs

Specialty shops and Culinary Arts CTE program air distribution systems were installed in 1986. The heating is not adequate to serve these spaces, as it was reported that heating temperature control is poor. The specialty exhaust systems are either not operational or missing. Spray booth doors in the auto shop are missing filters (doors have big openings and the paint and its vapors could spread out into the surrounding space during the painting process). Some of the shop spaces were repurposed over the years, but sufficient modifications to the ventilation and exhaust air systems were not provided. Some of the ductwork over the years was partially reconfigured, some duct branches disconnected but the duct openings were never capped and sealed. Much of the ductwork shows signs of corrosion in some locations, unsealed openings at duct connections. The indoor air quality in these specialty shops is poor.

Roof

Rooftop exhaust fans serving classrooms and other spaces vary in age and condition, though the majority appear to be beyond their useful life, showing signs of wear and disrepair. The fan roof curb heights are significantly lower than the average snowfall depth for this region, reducing performance and making the fans vulnerable to water damage and moisture accumulation inside the fan and associated ductwork. Some of the exhaust fans did not appear to be operational, as parts were missing. The fans on B Wing roof installed in 2014 appear to be in good condition, however the kitchen grease exhaust fan is missing a grease trap. Some of the operating exhaust fans produce noticeable vibration.

There is a make-up air unit on roof that appears to be abandoned.

The cooling tower was installed in 1986.

The air cooled condenser on the roof of A Wing (installed in 1986) appears completely corroded and was making a squeaking noise at the time of the site visit, indicating service and/or repair/replacement are required.

There are roof-mounted fresh air intakes serving the school; some of these intakes are blocked by debris or birds’ nests.

Automatic Temperature Controls (ATC)

The school building automatic temperature control system is part of a City-wide automatic temperature controls system (Honeywell) with its server located at the Argenziano School. The high school automatic temperature control system was installed between 1975 and 1980. Many controls are either missing or not operational. Currently, a portion of the controls is being replaced with Honeywell EBI (Enterprise Building Integration) temperature controls.

Summary

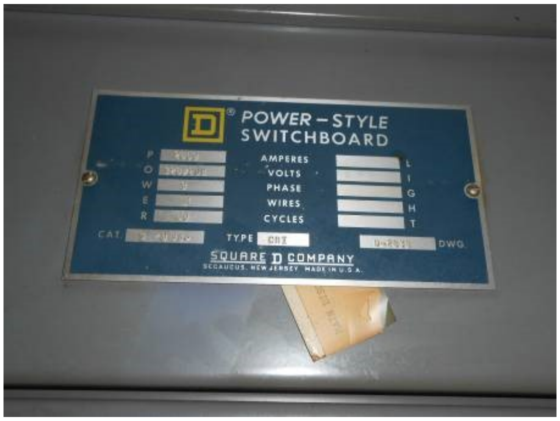
The HVAC systems serving the high school are generally functional, but in many cases do not appear to be in good operating condition. A number of systems or portions of systems require either substantial repairs or replacement to restore proper (and code required) operation and reliable service to the school. The condition of the school's HVAC systems is generally related to the fact that they are beyond their useful life. The result is that many spaces in the school appear to have compromised ventilation and temperature control.

The operational impact is that the systems are prone to unpredictable failure, causing losses in service and necessitating costly emergency repairs or replacement.

With the exception of some recently replaced equipment or systems, the majority of the HVAC systems serving the school should be replaced as part of a major renovation/addition project. Newer systems and equipment may have salvage value, though they may not be useful for the needs of the renovated school.

4.7 Existing Electrical Systems

The Somerville High School is currently fed with two separate services. A, B, and C Wings are fed from via an underground vault at the front of the building. A large pull box is mounted on the exterior foundation wall where the secondary conductors transition to 2000A buss duct which then feeds the Square D 2000 Ampere 120/208V, 3 phase, 4 wire Switch board. The switchboard is beyond its serviceable life and has had multiple retrofitted circuit breakers installed within it over the years. The Main is protected with AMP-TRAP Form 480 Type 55 fuses. There are six available spaces for circuit breakers up to 200Amperes currently in the distribution section of the board. The utility company meter is located within the room Meter# 5105137.



Main Switchboard Nameplate for Wing A, B, C

Main Switchboard for Wing A, B, C

Wing A, B, C Meter

D and E Wings are served by a second service fed via underground secondary's that originate at a utility owned pad mounted transformer on the high school property off of Highland Ave. The Switchboard is located on the first level of D Wing and is rated at 4000 Amperes 120/208V, 3phase, 4 wire. The main breaker contains GFI protection. The utility meter is located within the electric room. Meter # 5105394. The switch gear is in fair condition. There is a section that contains a 1600Amp circuit breaker that serves a 1,600 Amp distribution switchboard on the shop level of the vocational building. This switchboard labelled DPB serves the vocational shops. The switchgear is in fair condition.

Main Switchboard for Wing D & E

Meter and C.T. for Wing D & E

Meter for Service to Wing D & E

The electrical service to a building of this size should be rated at 277/480V to efficiently distribute power, both services are rated at 120/208V.

The doors to the main electric rooms currently open into the room. This is a code violation as “NEC” National Electric Code requires service equipment rated over 1,200 Amperes or over 6' long require panic hardware and doors that swing out of the electric room.

Branch circuit panel boards are generally mounted in corridors either surface or flush mounted. Many panels were not locked and could be accessed by students. Panels seemed to be near their capacity with very little space for expansion. Most panels in A, B, and C Wings are beyond their serviceable life. In D and E Wings, the panels were of a more recent vintage. Below are photos that provide an example of the range of panel types and conditions.

Upgraded Surface Mounted Panel

Corridor Mounted Panel

Recessed Upgraded Kitchen Panel

Recessed Vintage Corridor Mounted Panel

The emergency generator that serves emergency lighting and other optional stand-by loads for the building. It is an outdoor diesel150KW 187.5KVA 120/208V, 3 phase, 4 wire MTU Onsite Energy generator Model #150D8T1, with two circuit breakers, (1) 225A/3P, and (1) 400A/3P. The generator is mounted within a custom weather proof/ sound attenuated enclosure and is located on the roof. A Pryco diesel day tank is located within the roof mounted enclosure. The generator is undersized for the building and is in poor condition. The enclosure floor is deteriorating which may lead to infiltration of weather and rodents which may cause premature failure.

Roof Mounted Generator

The existing emergency power does not comply with current electrical and life safety codes as emergency lighting and optional stand-by loads are required to be separated and isolated in 2-hour rated closets.

A roof mounted photovoltaic system has been installed on the roof of A Wing. The array is self-ballasted and rated at 13KW. The Inverter is located on the roof. The inverter is a Solectria PVI13KW, serial# 080303-01. The meter is located in the roof access stairwell.

Photovoltaic System

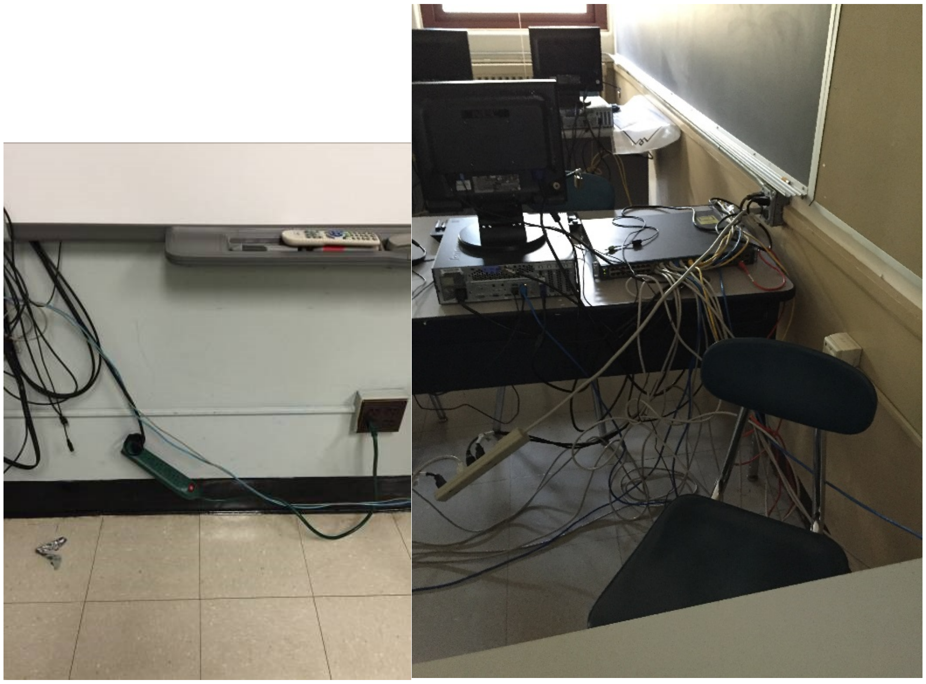
SOLECTRIA RENEWABLES
Rain Proof Grid-Tied Photovoltaic Inverter
Model: PVI 13KW Serial No: 080303-01
Input: 300$V_{Nom.}$ 475$VDC_{Max.}$ OCV
225-380VDC MPT 60A DC
225-380VDC CEC max power
Output: 208VAC ± 10%, 3Ph., 13.2kW
60Hz 37A AC (75 A Short Circuit Max)
Massachusetts, USA www.solren.com

Inverter Nameplate

Inverter Photovoltaic System Meter

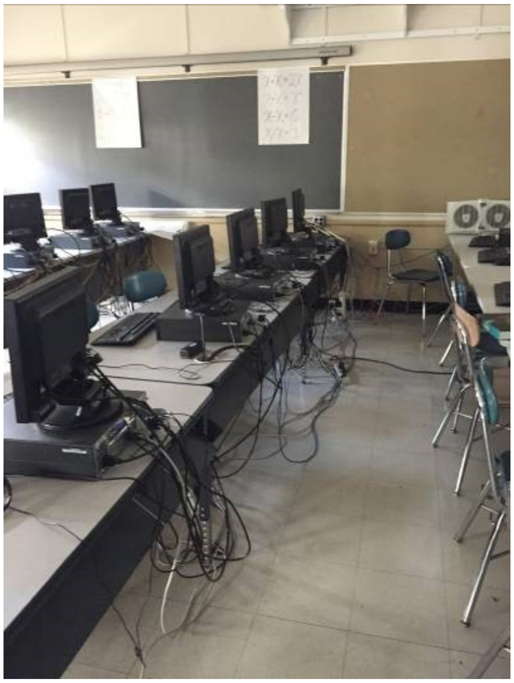
Power

In general the quantity of convenience receptacles is not adequate and receptacles for technology equipment is lacking resulting in the use of extension cords or supplemental surface mounted devices. Surface metal raceway have been added to accommodate the technology equipment that has been added over time. The majority of the branch circuits and receptacles are in fair condition, based on appearance, however have exceeded their expected useful life. Most existing receptacles are not in ideal locations for today's teaching methods.



Example of Extension Cord Use

Lack of Receptacles Where Needed



Lack of Receptacles Where Needed

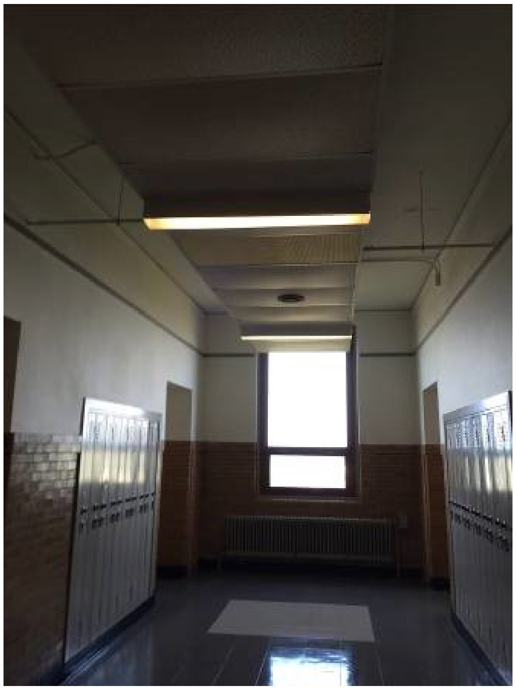
Lighting

In general the building utilizes recessed fluorescent 2x4 troffers in multiple configurations depending on the space and light requirements. Many classrooms are also lit with pendant mounted or surface mounted fluorescent acrylic lensed fixtures. The light fixtures have been upgraded to T8 fluorescent lamps with electronic ballasts. There is no automated lighting control system. Control for interior spaces is generally by local line voltage switches. Exterior building mounted lighting is controlled via time clock and photocell. Corridor lighting consists of either surface mounted linear fixtures or cove mounted lighting. Control is via line voltage switches. With exception to the auditorium and the gymnasium the lighting is generally in poor condition. Light quality and glare are poor.

The corridor light levels are barely adequate and the light fixtures' conditions varies from fair to poor. Exit signs are in fair condition.

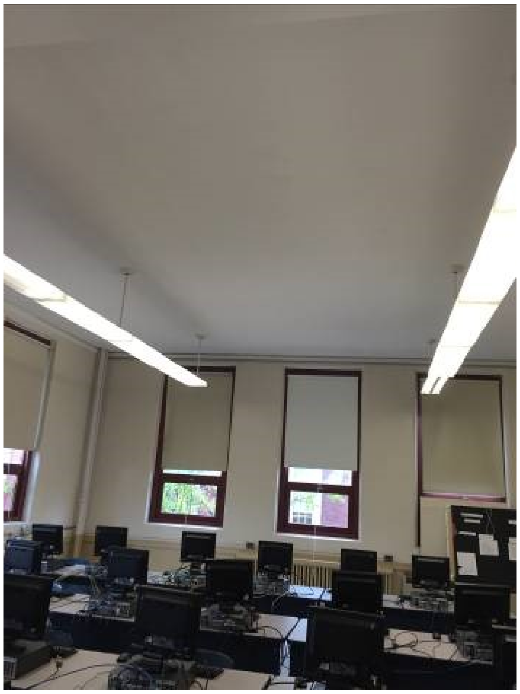
Corridor Lighting

Exit Sign

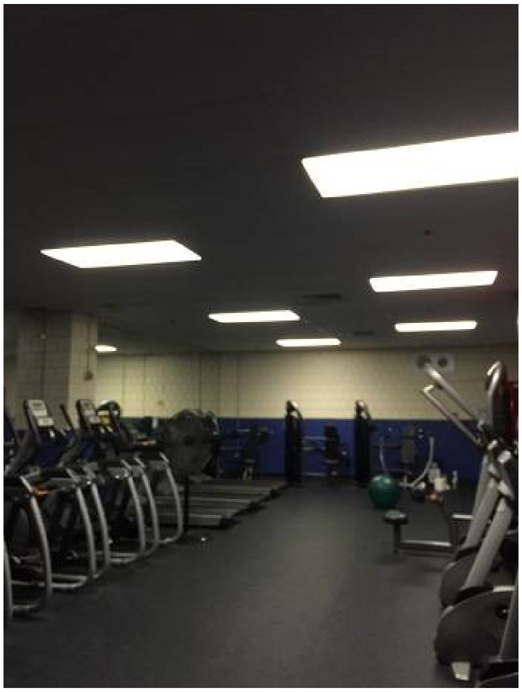


Corridor Lighting

The classroom lighting varies from recessed 2X4 troffers to pendant acrylic wraparounds. Control is via local switches with two levels of light. Some classrooms were equipped with an occupancy sensor. Lighting levels are fair, however the fixtures are in poor condition.



Classroom Lighting



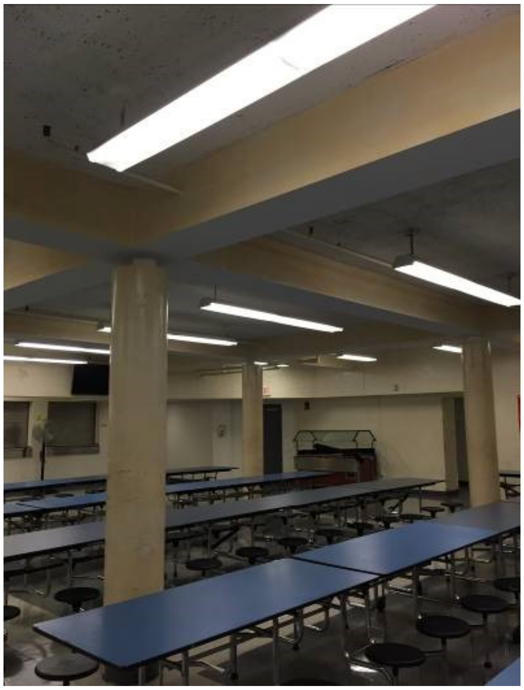
Fitness Room Lighting

The auditorium underwent a renovation in 2014 the lighting consists of LED recessed down lighting, aisle floor strip lighting and recessed LED step lights. The lighting is connected to the auditorium theatrical house light dimming rack. The lighting is adequate and in excellent condition. The auditorium house lighting should be re-used if possible.

Auditorium Lighting

The lighting in the gymnasium and fitness center have been upgraded to energy efficient LED high bay fixtures with integral occupancy sensors. The light levels seem adequate and the fixtures are in excellent condition. Exit signs are protected with wire guards and are in good condition.

Gymnasium Lighting

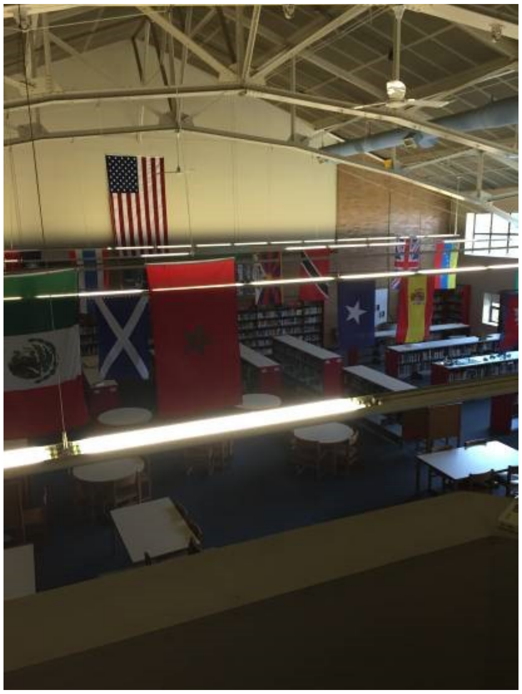


Cafeteria Lighting

Lighting in the cafeteria consists of fluorescent surface mounted acrylic wraparounds. The light fixtures are in good conditions and provide adequate light levels but quality is poor.

Media center lighting utilizes pendant mounted direct/indirect fluorescent fixtures. The light levels are inadequate. From the mezzanine level in the media center you can look down into the fixtures where the lamps are exposed.

Library Lighting



Library Lighting from Mezzanine Level

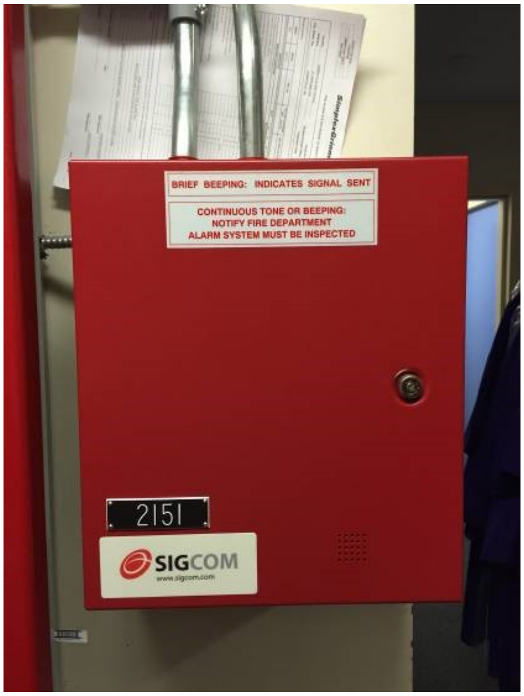
Fire Alarm System

The Fire alarm system in general is in poor condition. The coverage of detection devices is not compliant with today's codes. The notification appliances are horn strobes also not compliant with current code. Educational use groups require voice evacuation systems with speaker strobes. The existing fire alarm control panel has been replaced with an Edwards EST 3 Fire alarm control panel and the existing building wiring was re-used as well as the devices. The existing fire alarm control panel was used as a pull box to extend the existing wiring over to the upgraded EST3 panel. An annunciator was located at the main entry. Also at the main entry was a Gamewell masterbox #2151. A Sigcom box was located adjacent to the Upgraded FACP Box#2151. The FACP was in trouble at the time of the site visit. The E Wing is equipped with a Simplex Fire alarm system. There is an annunciator at the gym entrance and a Gamewell masterbox #2161. The auditorium is equipped with a voice evacuation system.

Typical Notification Appliance

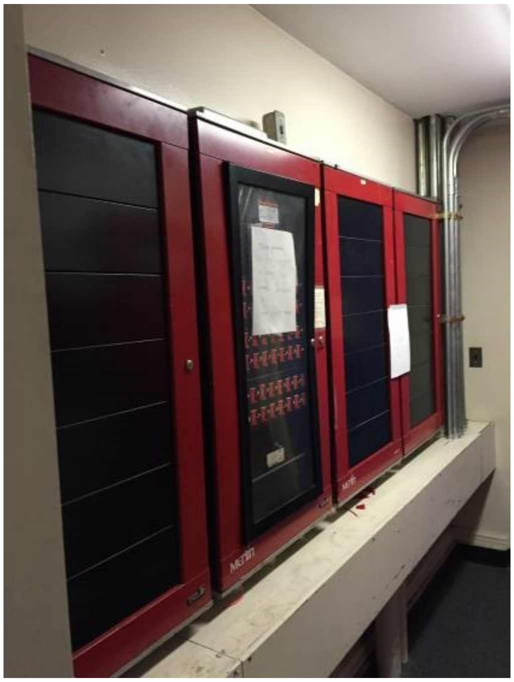
Master Box for Wing A, B, C

Annunciator for Wing A, B, C



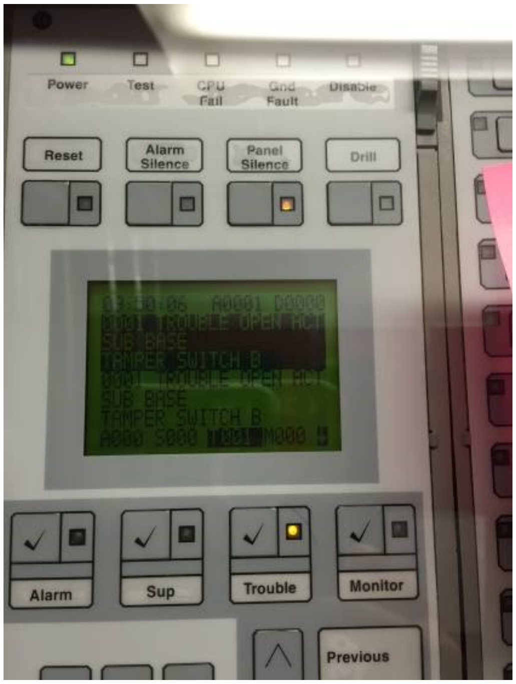
Radio for Wing A, B, C

Fire Alarm Control Panel



Old Fire Alarm Control Panel

Master Box for Wing D & E



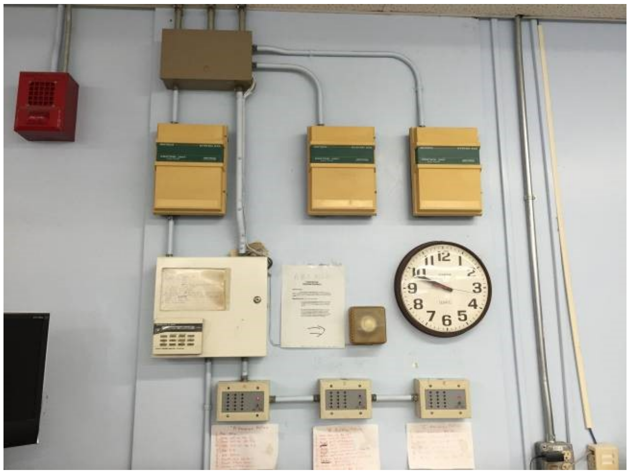
Trouble in Panel

Annunciator for Wing D and E

There is no distributed antennae system for fire dept. radio communications. This is code requirement if there are areas that public safety radios cannot communicate. An analysis should be performed to determine if this system is required.

Security

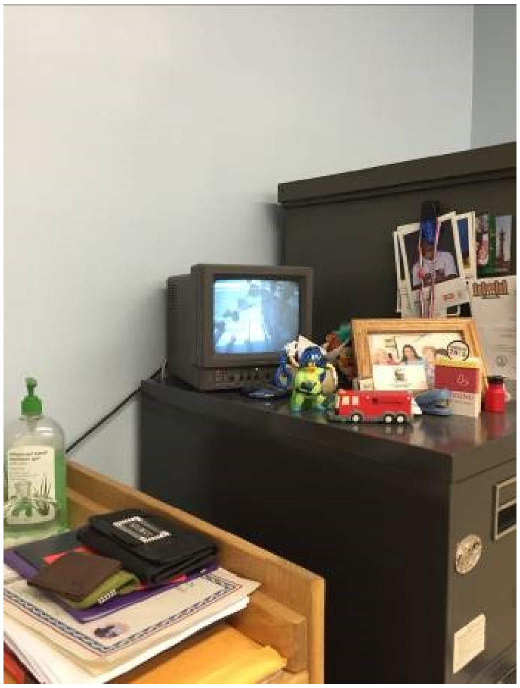
The school is currently equipped with a basic intrusion system comprised of motion sensors and door contacts throughout the building. Keypads are located at key entry points. The system is operational however it is antiquated.



Intrusion Control Panel/Keypad

There is an Aiphone Intercom System at the main entrance and handicap ramp. The system is functional. There is a camera at each of these entrances that is monitored at the main office. The monitor is obsolete and difficult to view.

Aiphone Intercom



Monitor for Two Entrances

The access control system is part of the building management Honeywell system. There are currently 13 existing CCTV cameras located in the school the DVR is located in a closet with a single monitor. The system is obsolete.

Communications

The exiting standard program time controller 1402 is an obsolete system and beyond its expected useful life, however seems to be operational.

Clock System Headend

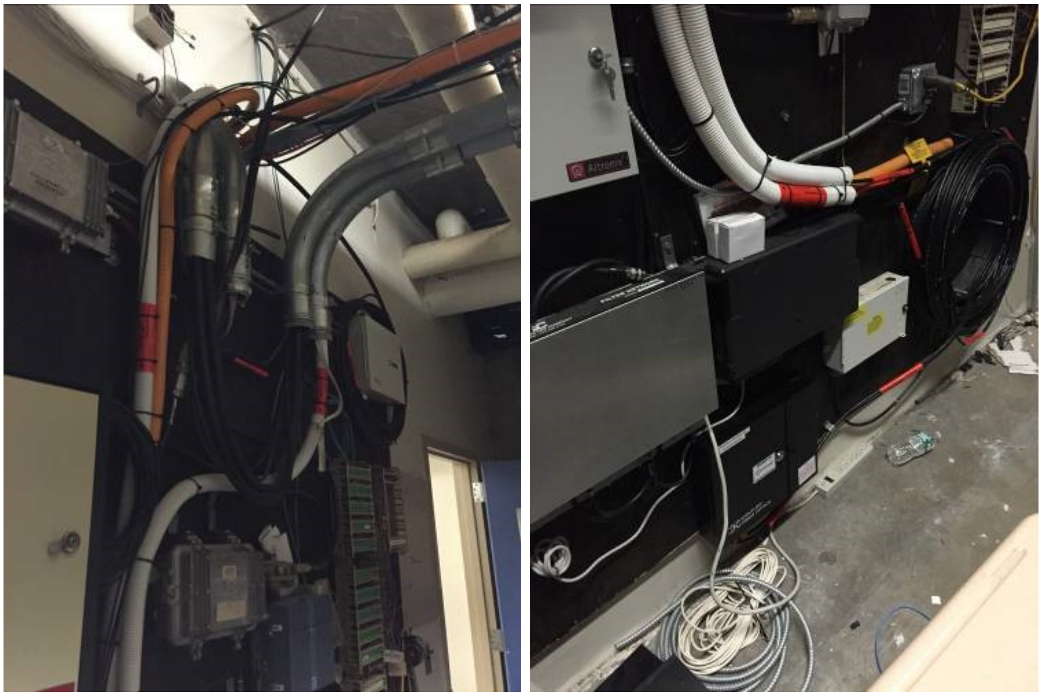
Paging System Headend

The classroom intercom system is a Rauland Telecenter located in the main office. There are paging speakers throughout the building and in each classroom located within a combination clock speaker combination box. There is a wall phone outlet for a Rauland intercom hand set that is no longer used. The phone system is used to communicate back to the main office via a desk mounted telephone.

Paging System Handset

Clock/Speaker Box

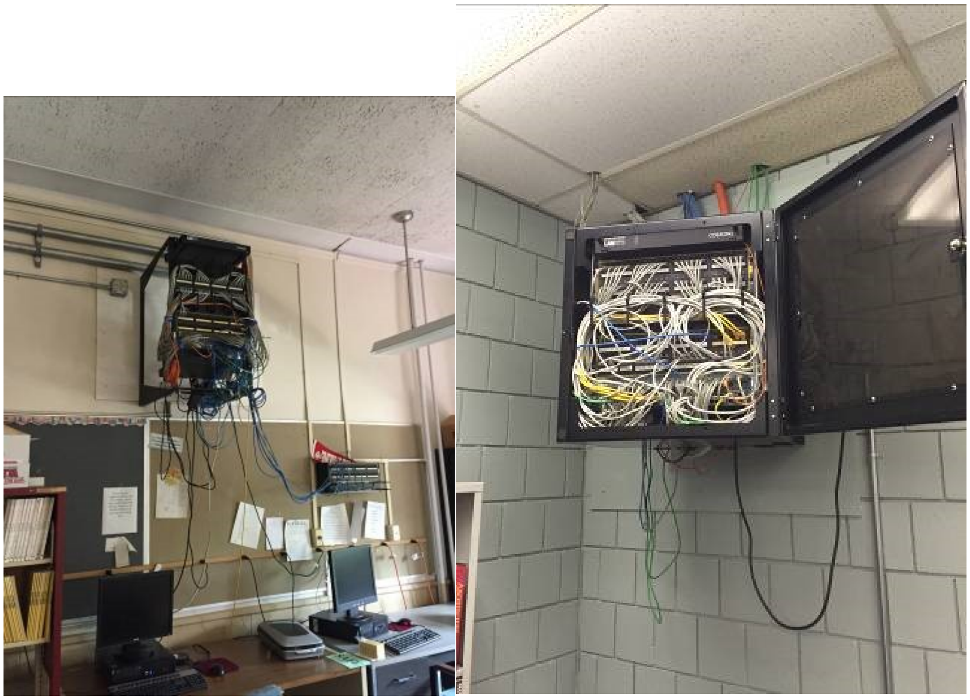
The school's RCN telephone and CATV demarcation is in the lower level of A Wing adjacent to the I.T. work room. Telephone station wiring and paging system wiring is in poor condition and seems to be poorly labeled and not a clean installation. There is also an IDF located in the main demarcation room.



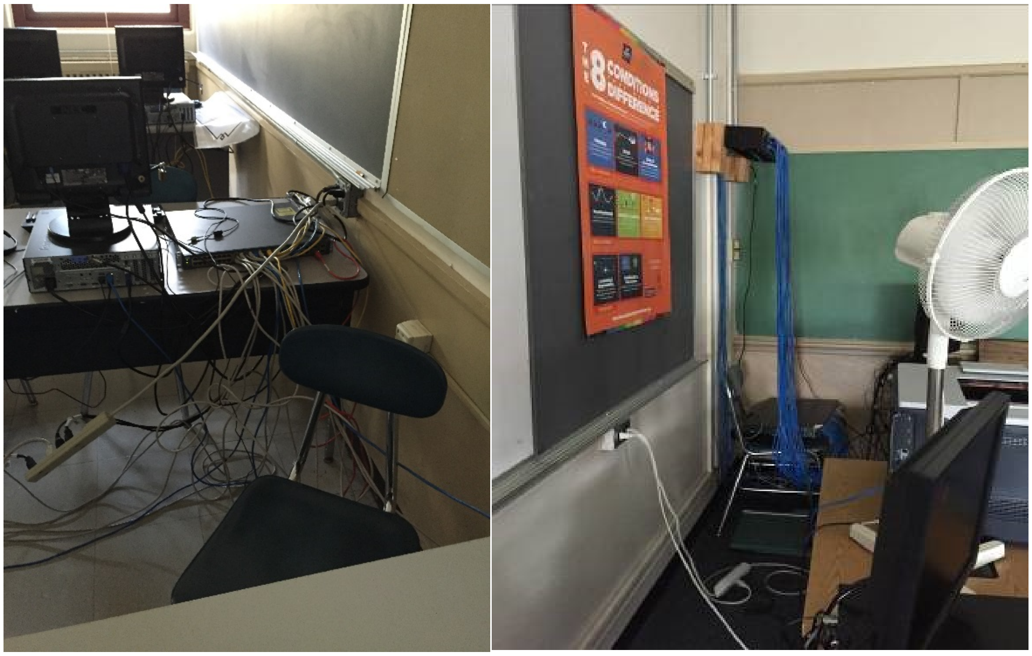
Communication Demarc

The school contains (16) IDF locations all of which are not within dedicated closets. Most IDF locations are mounted high up in classrooms. The IDFs are fed via 62.5

micron vintage multimode cable computer labs typically contain their own local patch panel fed via CAT 5e uplinks.



Typical IDF



Typical Computer Switch

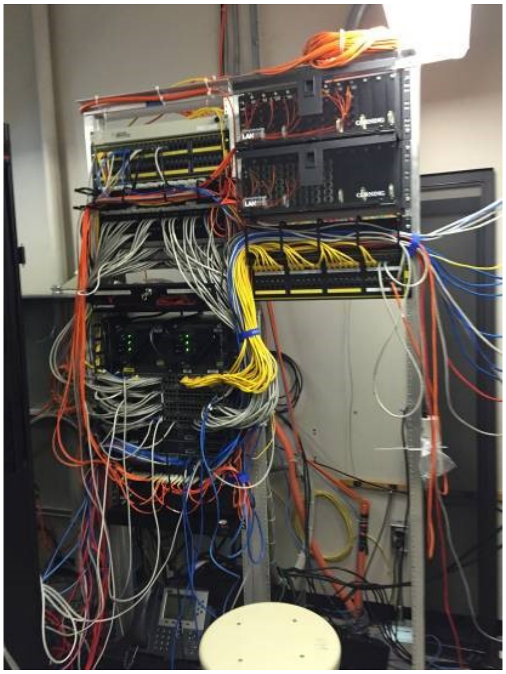
The head end room contains servers and patch panels as well as the main fiber distribution. The room has undergone upgrades for power and dedicated cooling. The room is equipped with a raised floor however it is not utilized. The equipment is not installed in a neat and organized fashion making it difficult to maximize space and provide the appropriate infrastructure.

There is fiber that terminates in the head end room that connects to the City Hall via four strands of single mode fiber. The telephone system is VOIP and managed off site. The district phone system is Cisco call manager.

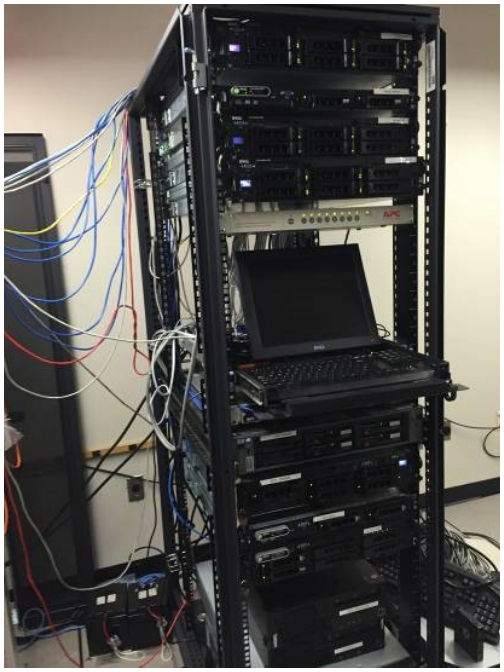
Building Fiber Distribution

City Hall Fiber Distribution

Teen Center Fiber Disturbing



Headend Server Rack



Headend Fiber/Copper Pant

Data wiring varies from CAT 5 to CAT 5e. The quantity of data in the majority of the classrooms where upgrades have not taken place is not sufficient for current classroom technology, there have been data and AV for projectors added. The quality of the installation varies. There are multiple wireless access points throughout the building. A majority of the building seems to be covered by wireless signal.

4.8 EXISTING FOOD SERVICE CONDITIONS

See attached document from Tavares Design Associates, dated November 18, 2015

4.9 HAZARDOUS MATERIALS REPORT

See attached document from CDW Consultants Inc., dated November 2015. Additional test reports are included in the electronic file.

4.10 TRAFFIC REPORT

See attached document from Design Consultants Inc., dated January 2016. Additional data collection information is included in the electronic file.

4.11 GEO-ENVIRONMENTAL REPORT (PHASE 1)

Phase I Initial Site Investigation in Accordance with 310 CMR

See attached document from CDW Consultants Inc., dated November 30, 2015. Additional data collection information is included in the electronic file.

4.12 PRELIMINARY GEOTECHNICAL REPORT

See attached document from LGCI Consulting dated November 19, 2015.

4.13 SITE ENVIRONMENTAL NOISE ANALYSIS

See attached document from Acentech dated November 24, 2015.

4.14 CODE COMPLIANCE CONSIDERATION REPORT

See attached document from Building Fire and Access Inc. dated January 29, 2016.

Overview of Existing- Based on 11/5/15 Meeting

The existing kitchen space is 3,640 net square foot plus an additional 690 net square feet for the Teacher Servery. The current configuration of the kitchen is traditional with a straight line configuration with students entering from one end and exiting from the other. The amount of space creates congestion with too many students trying to get through the line. A separate Salad Bar is away from the main servery. The limited space restricts the menu options and any expansion.

The storage is spread out between multiple areas, including the receiving area and general storage area. The Cooler and Freezer storage areas are deep in the kitchen. The shipments must be carried through the prep spaces to get into the Storage.

There are two snack bar areas, one off of the teacher's server and one at the opposite end of the serving line. This latter one includes a dishwasher and the 3 bay sink.

Currently there is no recycling/cardboard space. This needs to be accommodated.

Current Kitchen Equipment

3 Double Convection Ovens

1 Two Compartment Streamer

1 40 Gallon Tilting Kettle

1 Tilting Kettle

1 Six Burner Range

1 Flat Top

Future Equipment

1 Blast Chiller

3 Double Convection Oven

1 Two Compartment Steamer

1 Tilting Skillet

1 Tilting Kettle

1 Pass Thru refrigeration and hot boxes

Below are our observations based upon site visit on November 18, 2015.

The kitchen is a large space but with a tight servery and not much counter space for circulation. The equipment is older and several pieces are broken including several refrigeration cabinets.

Teacher Servery:

Description/Assessment:

- Exposed electrical panels and pipes in servery area. See picture #1.
- Passthru counter above ADA height. See picture #2.

Loading Dock Area:

Description/Assessment:

- Broken hinge covers on refrigeration. See picture #3.
- One of three two door refrigerators is broken.

Vegetable Prep:

Description/Assessment:

- Unused disposer, very old and dirty. See picture #4.

Prep Area 1 (near vegetable prep):

Description/Assessment:

- Stainless Steel table missing drawer. See picture #5.
- Rusted casters on prep tables. See picture #6.

Cooking Battery:

Description/Assessment:

- Exposed ductwork which collects dirt and dust. See picture #7.
- No trench drain for Tilting Kettle. See picture #8.
- Old, rusted Equipment. See picture #9.

Walk-in Boxes:

Description/Assessment:

- Boxes not sealed to walls. See picture #10.
- Damaged front panel. See picture #11.

Warewashing:

Description/Assessment:

- 3 Bay sink missing disposer. See picture #12.

Picture #1

Picture #2

Picture #3

Picture #4

Picture #5

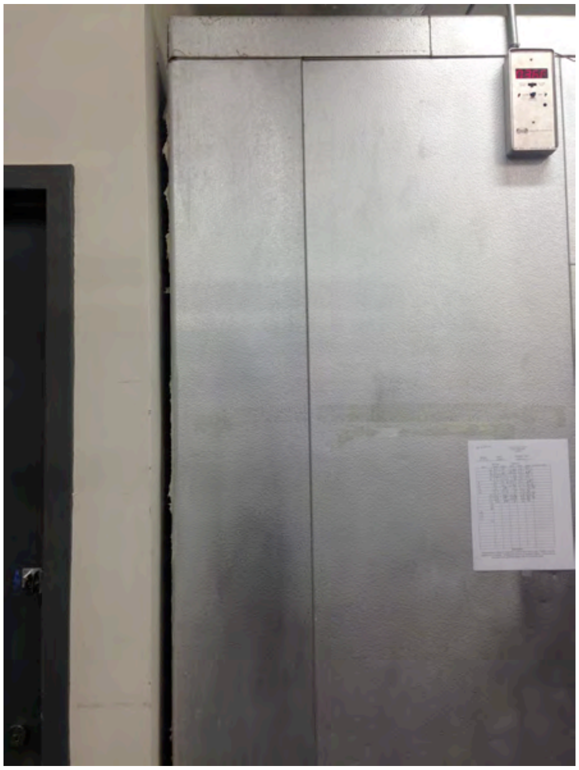
Picture #6

Picture #7

Picture #8

Picture #9

Picture #10



Picture #11

Picture #12

CDW CONSULTANTS, INC.
CIVIL & ENVIRONMENTAL ENGINEERS

HAZARDOUS MATERIALS SUMMARY REPORT

Somerville High School
81 Highland Avenue
Somerville, Massachusetts

Prepared for

Symmes Maini & Mckee
1000 Massachusetts Avenue
Cambridge, MA 02138

November 2015

CDW Project # 1491.0

40 Speen Street Suite 301, Framingham, MA 01701 508-875-2657
www.cdwconsultants.com

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FIGURES

APPENDICES

1.0 INTRODUCTION

CDW Consultants, Inc. (CDW) is pleased to present this letter report summarizing the findings of the suspect asbestos-containing materials (ACM), lead-based paint (LBP), polychlorinated biphenyls (PCBs) and hazardous materials inspection of the Somerville High School ("Site") located in Somerville, Massachusetts. The scope of work was to conduct a non-destructive feasibility inspection to identify and quantify suspect ACM and hazardous materials located in the building.

In November 2015, Ms. Susan Cahalan (Massachusetts DOS Asbestos Inspector #AI60784) and Mr. Ted Sherry (Massachusetts DOS Asbestos Inspector #AI325702) conducted an interior and exterior building inspection for suspect materials. An inspection is required by the United States Environmental Protection Agency (USEPA) National Emission Standards for Hazardous Air Pollutants (NESHAPs), prior to scheduled building demolition. Samples of suspect materials were collected to confirm the presence or absence of ACM, LBP, & PCBs. Suspect materials were grouped into homogenous areas. By definition a homogenous area is an area that is similar in color, texture and date of application. Hand tools were used to collect bulk samples which were promptly placed in sealed plastic bags using a unique numbering system. Samples were not collected of non-suspect materials, including wood, fiberglass, plastic/vinyl, ceramic, concrete, neoprene/rubber, glass, and carpeting.

2.0 GENERAL SITE CONDITIONS

- A Wing was constructed in 1929, and contains offices and administrative space. The walls are painted gypsum board or plaster. Flooring consists of vinyl composition floor tile (VCT), wood flooring and rubber flooring. Refrigerants associated with water fountains and mercury thermostats were noted. Cleaning agents are located in the custodial closets in original containers.

- B Wing was constructed in 1895 and contains offices and administrative space. There are four floors. The walls are painted gypsum board or plaster. Flooring consists of VCT, wood flooring and rubber flooring near the main entrance. Many of the floor surfaces are uneven, suggesting multiple layers exist. Refrigerants associated with water fountains and mercury thermostats were noted. Cleaning agents are located in the custodial closets in original containers. There is one elevator.

- B Wing addition, was constructed in 1917 and the auditorium in 1929, and contains classrooms, cafeteria, kitchen, boiler room and auditorium. The classrooms are world language, social studies, English and science subjects. The hallways consist of VCT flooring and the classrooms hardwood flooring. Ceilings consist of spline set ceiling tiles and the walls are plaster or sheetrock. There are two fume hoods for mixing chemicals. Both fume hoods are constructed of transite with metal exhausts. The hallways in the lower levels have covered trenches with fiberglass insulated steam pipes. The boiler room contains a custodial office, four oil fired boilers, pumps, hot water tanks, expansion tanks, boiler breeching exhaust and fiberglass insulated piping. C wing was constructed in 1929, and consist of classrooms, band rooms, career and technical education located on the first level of C wing. The hallways have VCT floors and the classrooms hardwood floors. The walls are sheetrock or plaster. One of the classrooms is a dental tech training center. Chemical and powders for mold impressions are stored in original containers in cabinets. The dental tech classroom also contains a x-ray machine.

- D Wing was constructed in 1929, and consists of the library, locker rooms, TV studio and daycare. The library is the largest portion of this wing, and contains books, media and computers in an open floor plan with steel beams near the ceiling. The ceilings consist of 1’ x 1’ or 2’ x 4’ spline set suspended ceiling tiles, painted CMU or plaster walls and 1’ x 1’ floor tile.

- E Wing was constructed in 1988, consists of the gym and vocational classrooms. The vocational classrooms are the restaurant with kitchen, nursing, cosmetology, graphic design, electrical, auto repair and carpentry. The ceilings consist of 1’ x 1’ or 2’ x 4’ spline set suspended ceiling tiles, painted CMU walls and 1’ x 1’ floor tile.

3.0 ASBESTOS SURVEY

3.1 Methods

The investigative work for the asbestos survey included conducting a limited visual inspection of physically accessible areas of the structure followed by limited destructive testing to allow access to inaccessible locations. Destructive testing included: installing test holes into roof, exterior vapor barrier, opening access panels and opening of drop ceiling systems.

Once the visual inspection was completed, the building components were categorized into homogeneous areas. These homogeneous areas included: surfacing materials, thermal system insulation, and miscellaneous materials.

CDW collected bulk samples of different homogeneous suspect materials for asbestos analysis. The bulk samples were delivered under chain of custody to Asbestos Identification Laboratory, Inc. (AIL) located in Woburn, Massachusetts. AIL is a state licensed (#AA000208) and NVLAP-accredited laboratory (lab code #200919-0) for asbestos analysis. Bulk samples were analyzed for asbestos content by polarized light microscopy (PLM) using EPA Method 600/R-93/116. A positive stop method was used – if one sample in a homogeneous group is positive then additional samples of the same material are not analyzed. The asbestos analytical results are provided in Attachment A. Samples analyzed to contain greater than 1% asbestos are to be treated as ACMs as defined by the USEPA and Commonwealth of Massachusetts Department of Environmental Protection (MassDEP).

3.2 Findings

In summary, CDW identified the following ACMs within the Site building:

- Window caulk, old under new at the A, B, C and D wing windows;
- 12” x 12” and 9” x 9” floor tiles and Black Mastic (various types);
- Black vapor barrier on CMU block behind brick façade of the 1988 wing;
- Exterior door caulk;
- Exterior black tar at coping of 1929 D wing;
- Exterior caulk at roof penthouse on B wing;
- White pipe fitting insulation and fittings, behind wet walls, pipe chases, various diameters;
- Black sink coating;
- Coating on roof curbing A wing and B wing;
- Interior Boiler Components;
- Flex connectors located throughout the school’s mechanical rooms;
- Transite fume hoods;
- Mastic under rubber gym floor;
- Blackboard glue daubs;

- Coating behind classroom univents;
- Chimney lining;
- Foundation coating;
- Remnant roofing materials; and,
- Subsurface transite

The asbestos laboratory results are summarized in Table 1. The laboratory analytical results are provided in Attachment A.

3.3 Recommendations

Prior to disturbance, the ACM identified must be abated by a Commonwealth of Massachusetts-licensed asbestos abatement contractor following all federal, state & local regulations governing asbestos abatement. A copy of the asbestos Waste Shipment record must be received within 45 days of removal from the Site. Asbestos air quality sampling must be conducted under USEPA regulations following asbestos abatement and prior to re-occupancy of the spaces. If additional materials are discovered that have not been sampled, those materials should be considered ACMs until laboratory analysis determines otherwise.

4.0 LEAD-BASED PAINT

4.1 Methods

CDW performed a visual inspection of painted surfaces. CDW collected samples from different color paints on various types of building component substrates. Samples were submitted to EMSL Laboratories in Cinnaminson, New Jersey for analysis via Atomic Absorption Spectrometry (AAS).

4.2 Findings

The results of the testing revealed that seven of the nine samples analyzed had detectable concentrations of lead. The Environmental Protection Agency (EPA) defines LBP as any paint or surface coating that contains lead equal to exceeding one milligram per square centimeter (1.0 mg/cm2) or 0.5% by weight. OSHA has not set numerical threshold limits for lead and the OSHA lead-in-construction standard defines lead containing paint (LCP) as a paint or coating containing any detectable level of lead.

Based on the EPA and OSHA criteria listed above, the results of 7 samples revealed building components coated with LBP. These components finished with LBP included: exterior red paint on A wing, classroom wall paint, door frames, brick walls, and radiators. The lead paint analytical results are provided in Table 2. The laboratory analytical report is included in Attachment B.

4.3 Recommendations

Based on the conclusions of this testing, the following recommendations are offered:

- Removal of the LBP is not required. However, in accordance with the EPA Lead Renovation, Repair, and Painting (RRP) Rule 40 CFR 745, workers, students, visitors and the general public must be protected from lead dust generated during the demolition of LBP or LCP coated surfaces.
- Components identified to contain the presence of lead should not be disturbed in an uncontrolled manner. Disturbance of these materials should only be done by properly trained personnel in a controlled and documented manner to allow for the safety of the workers, bystanders and disposal of waste materials.
- Specifications for the proper work practices, controls and disposal should be developed to document compliance with all applicable regulations.
- Those components/colors not tested, or in locations not inventoried in this report, should be tested for lead content prior to disturbance that may cause airborne release of lead.

5.0 PCB AND OTHER HAZARDOUS MATERIALS SURVEY

5.1 Methods

PCB Sample Collection and Analysis

CDW conducted a visual inspection for suspect PCB containing building materials. CDW collected including exterior window caulk and expansion joint. Samples were submitted to Phoenix Environmental Laboratories in Manchester, Connecticut for analysis via EPA Method 8082 with Soxhlet extraction 3540C.

Mercury Sample Collection and Analysis

CDW conducted a visual inspection of rubber flooring suspected to contain mercury. Two samples of the rubber gymnasium floor and two samples of the rubber stair tread were collected. The samples were submitted to ESML Analytical of Cinnaminson, New Jersey for analysis. The samples were analyzed for mercury using EPA SW-846 Method 7471B.

OHM Visual Inspection

CDW visually inspected the Site building for universal, special and hazardous wastes associated with building materials. These included but were not limited to the following:

- Mercury-containing devices (fluorescent light tubes, thermostats, gauges, etc.);
- Polychlorinated bi-phenyl (PCB)-containing articles, equipment and devices (light ballasts, electrical switches, etc.);
- Chlorofluorocarbon (CFC)-containing equipment (refrigerants, air conditioners/HVAC equipment, water bubblers, etc.)
- Tritium-containing devices (Exit signs);
- Lead-Acid batteries (emergency lights, etc.); and
- Pressurized-cylinders (fire extinguishers, etc.).

5.2 Findings

PCBs

The analytical results are compared to the USEPA standard of 50 parts per million (ppm), which is the threshold for bulk product waste, as defined by USEPA 40 CFR § 761.3, and regulated under the Toxic Substances Control Act. None of the samples collected had detectable concentrations of PCBs.

The PCB analytical results are summarized in Table 3. A copy of the PCB laboratory report is provided in Attachment C.

Mercury

The analytical results are compared to the total concentration results and divided by 20 and compared to the regulatory concentrations on the TCLP list. The result is less than the TCLP regulatory limit of 0.2, therefore then materials sampled are not a “toxicity characteristic” hazardous waste.

The mercury analytical results are summarized in Table 4. A copy of the mercury laboratory report is provided in Attachment D.

OHM

The visual survey for hazardous materials identified mercury-containing light tubes, PCB-containing light ballasts, mercury containing thermostats and switches, lead and tritium batteries, refrigerants and other hazardous materials. No hazardous materials sampling or analysis was conducted as part of this preliminary survey. A list of OHMs identified are included in Table 5.

5.3 Recommendations

Prior to removal, light tubes, ballasts, compact florescent bulbs, lead and tritium batteries, thermostats and switches will require proper handling, removal, transportation and off-site recycling/reclamation. Hydraulic oil from the automobile lift and refrigerants will require handling and disposal in accordance with regulations. Any sludge in the science sink traps will need to be sampled for laboratory analysis of lead and mercury via TCLP to determine proper disposal requirements. Laboratory chemicals should be properly stored, in their original containers, and are recommended for re-use.

Limitations

The conclusions are limited to the information available at the time of the field survey and the scope of services, as defined. No subsurface soil or groundwater testing was performed. Where access to portions of the Site or to structures on the site was unavailable or limited, CDW renders no opinion as to the presence of hazardous material or the presence of indirect evidence related to hazardous material in that portion of the site or structure. This report cannot be solely relied upon for demolition. The testing performed forms the basis for conclusions expressed and areas inaccessible for testing limits those conclusions. No other conclusions, interpretations or recommendations are contained or implied in this report other than those expressed. No other use of this report is warranted without the written consent of CDW Consultants, Inc.

CDW appreciates the opportunity to provide our services to you on this project.

Very truly yours,

CDW CONSULTANTS, INC.

Susan Cahalan

Susan Cahalan, PG
Project Manager

TABLES

Table 1
Asbestos Analytical Results
Somerville High School
Somerville Massachusettes

HA No.	Material Description	Laboratory Sample No.	NESHAP Cat.	Location	Est. Quantity	Units	Comments
1	Exterior Tan Expansion Joint Caulk 1988 E Wing	1A, 1B, 1C, 1D, 1E, 1F, 1G	Non-ACM, Sampled	1988 E Wing	NA	NA	
2	Exterior Gray Caulk	2A, 2B, 2C	Non-ACM, Sampled	At Base of Building Between Brick and Sidewalk	NA	NA	
3	Exterior Door Caulk	3A, 3B	Cat. 2 Non-friable ACM	Gym Door	500	LF	Also Assumed Others
4	Exterior Black Tar	4A, 4B, 4C	Cat. 2 Non-friable ACM	Exterior Coping 1929 D Wing Exterior Walls	5,000	SF	
5	Exterior Door Caulk	5A, 5B	Non-ACM, Sampled	Exterior Door #37	NA	NA	
6	Exterior Gray Window Caulk	6A, 6B, 6C	Non-ACM, Sampled	1929 C Wing	NA	NA	
7	Exterior Red Window Caulk	7A, 7B, 7C, 7D, 7E	Non-ACM, Sampled	1929 C Wing	NA	NA	The same caulk is located on A Wing, B Wing, C Wing and D wing
8	Exterior Window Glaze	8A, 8B	Non-ACM, Sampled	1929 C Wing	NA	NA	Silicone-Rubber
9	Exterior Red Louver Caulk	9A, 9B, 9C	Non-ACM, Sampled	1929 C Wing	NA	NA	
10	Exterior Red Window Caulk	10A, 10B, 10C, 10D, 10E, 10F, 10G	Non-ACM, Sampled	1895 B Wing	NA	NA	
11	Exterior White Window Caulk	11A, 11B, 11C, 11D, 11E, 11F, 11G	Non-ACM, Sampled	Under Red Caulk 1895 B Wing	NA	NA	
12	Red Exterior Louver Caulk	12A, 12B, 12C	Non-ACM, Sampled	1895 B Wing	NA	NA	
13	Exterior Door Caulk	13A, 13B, 13C	Non-ACM, Sampled	Door #2	NA	NA	
14	Exterior Door Glaze	14A, 14B	Non-ACM, Sampled	Door #2	NA	NA	
15	Exterior White Caulk Under New Caulk	15A, 15B, 15C	Cat. 2 Non-friable ACM	1929 A Wing	20,000	LF	A Wing, B Wing, C Wing and D Wing

Table 1
Asbestos Analytical Results
Somerville High School
Somerville Massachusettes

HA No.	Material Description	Laboratory Sample No.	NESHAP Cat.	Location	Est. Quantity	Units	Comments
16	Exterior Black Caulk	16A, 16B	Non-ACM, Sampled	At Front Decorative Roof Design at 1929 A Wing	NA	NA	
17	White Cemetitios Stand Pipe	17A, 17B	Non-ACM, Sampled	Roof of 1895 B Wing	NA	NA	
18	Exterior White Caulk	18A, 18B	Cat. 2 Non-friable ACM	1895 B Wing Auditorium Brick to Roof	250	LF	
19	Black Tar	19A, 19B	Non-ACM, Sampled	On Stand Pipes on Roof	NA	NA	
20	Exterior Gray Caulk	20A, 20B	Non-ACM, Sampled	Intersection of 1929A to 1895B Wing	NA	NA	
21	Black Vapor Barrier	Brick-1, Brick-2	Cat. 2 Non-friable ACM	Behind Brick Facde 1988 Wing	75,000	SF	Black Tar on Fiberboard Attracted to CMU Behind Brick Façade
22	2' x 4' Suspended Ceiling tile	21A, 21B, 21C	Non-ACM, Sampled	A Wing Halls	NA	NA	
23	Felt	22A, 22B, 22C	Non-ACM, Sampled	Lining to HVAC Access Hatches A Wing	NA	NA	
24	1' x 1' Spline Set Ceiling Tile	23A, 23B, 23C, 23D, 23E	Non-ACM, Sampled	A Wing Classrooms	NA	NA	
25	Wall Plaster	24A, 24B, 24C	Non-ACM, Sampled	Room 409 A Wing	NA	NA	
26	Hard Ceiling Plaster	25A, 25B, 25C	Non-ACM, Sampled	Room 409 A Wing	NA	NA	
27	Tan Glue	26A, 26B, 26C	Non-ACM, Sampled	Under Cove Base 4th Floor A Wing	NA	NA	
28	Door Glaze	27A, 27B	Non-ACM, Sampled	Door 4A - A Wing	NA	NA	
29	Door Side Light Glaze	28A, 28B	Non-ACM, Sampled	Door Assembly A Wing	NA	NA	
30	White Skim Coat	29A, 29B, 29C	Non-ACM, Sampled	Ceiling 4th Floor Hall A Wing	NA	NA	

Table 1
Asbestos Analytical Results
Somerville High School
Somerville Massachusettes

HA No.	Material Description	Laboratory Sample No.	NESHAP Cat.	Location	Est. Quantity	Units	Comments
31	Brown Plaster	30A, 30B, 30C	Non-ACM, Sampled	Under White Skim Coat Ceiling 4th Floor Hall A Wing	NA	NA	
32	Glue	31	Non-ACM, Sampled	Under Rubber Floor in Stairwell A Wing	NA	NA	
33	Glue on Paper	32A, 32B, 32C	Non-ACM, Sampled	Behind Ceramic Tile B Wing	NA	NA	
34	Grout	33A, 33B	Non-ACM, Sampled	Behind Ceramic Tile B Wing	NA	NA	
35	Brown Paper	34A, 34B	Non-ACM, Sampled	Behind Ceramic Tile B Wing	NA	NA	
36	Levelastic	35A, 35B	Non-ACM, Sampled	Janitor Closet B Wing	NA	NA	
37	1' x 1' Gray Floor Tile	36A, 36B	Non-ACM, Sampled	B Wing Hall	NA	NA	
38	Black Mastic	37A, 37B	Non-ACM, Sampled	Under Gray Floor Tile B Wing Hall	NA	NA	
39	Hard Plaster	38	Non-ACM, Sampled	Ceiling Janitor Storage	NA	NA	
40	Black Sink Coating	39	Cat. 2 Non-friable ACM	Janitor Room B Wing	150	EA	Quantity Includes Sinks Throughout including Science
41	Insulation	40	Non-ACM, Sampled	Inside Blodgett Stove Cafeteria Kitchen	NA	NA	
42	1' x 1' Spline Set Ceiling Tile	41A, 41B	Non-ACM, Sampled	Cafeteria	NA	NA	
43	Wall Plaster	42A, 42B	Non-ACM, Sampled	Cafeteria	NA	NA	
44	Glue	43A, 43B	Non-ACM, Sampled	Under Covebase in Cafeteria	NA	NA	

Table 1
Asbestos Analytical Results
Somerville High School
Somerville Massachusettes

HA No.	Material Description	Laboratory Sample No.	NESHAP Cat.	Location	Est. Quantity	Units	Comments
45	1' x 1' Gray/Blue Floor tile	44A, 44B	Non-ACM, Sampled	Cafeteria	NA	NA	
46	Mastic/Levelastic Mix	45A, 45B	Non-ACM, Sampled	Cafeteria Under floor Tile	NA	NA	
47	Interior Window Glaze	46	Non-ACM, Sampled	Door to Trachers Lounge	NA	NA	
48	Wall Plaster	47A, 47B	Non-ACM, Sampled	Lower Level A Wing	NA	NA	
49	Glue	48A, 48B	Non-ACM, Sampled	Under Sheet Flooring A Wing	NA	NA	
50	Levelastic	49A, 49B	Non-ACM, Sampled	Under Sheet Flooring A Wing	NA	NA	
51	Yellow Mastic	51	Non-ACM, Sampled	Under Tan 1'x1' Floor Tile Room 140	NA	NA	
52	Pink Rosin Paper	52	Non-ACM, Sampled	Under Wood Floor Room 140	NA	NA	
53	Wall Plaster	53A, 53B	Non-ACM, Sampled	B Wing 4th Floor Hall	NA	NA	
54	Black Science Table Top	54	Non-ACM, Sampled	Science 429	NA	NA	
55	Black Glue	55	Non-ACM, Sampled	Under Cove Base at Science Table	NA	NA	
56	Brown Paper with Wire Lathe	56	Non-ACM, Sampled	Behind White Plaster Room 429	NA	NA	

Table 1
Asbestos Analytical Results
Somerville High School
Somerville Massachusettes

HA No.	Material Description	Laboratory Sample No.	NESHAP Cat.	Location	Est. Quantity	Units	Comments
57	White Wall Plaster	57	Non-ACM, Sampled	Room 429	NA	NA	
58	Multi Colored Sheet Flooring	58, 59A, 59B	Cat. 2 Non-friable ACM	Chemistry Storage	150	SF	
59	Black Skim on Foundation	69	Non-ACM, Sampled	B Wing	NA	NA	
60	Tan Glue	61A, 61B	Non-ACM, Sampled	Under Cove Base 1988 Wing	NA	NA	
61	Interior Window Glaze	62	Non-ACM, Sampled	Door to Auto Repair	NA	NA	
62	1' x 1' Gray Floor Tile	63A, 65A	Cat. 2 Non-friable ACM	Lower and Main Level 1988 Wing	10,000	SF	
63	Black Mastic Under 1' x 1' Gray Floor Tile	63B, 65B	Cat. 2 Non-friable ACM	Lower and Main Level 1988 Wing	Inc. in Above Qty	NA	
64	Interior Window Glaze	64	Non-ACM, Sampled	Weight Room Door	NA	NA	
65	Wall Plaster	66	Non-ACM, Sampled	D Wing Hall	NA	NA	
66	Door Glaze	67	Non-ACM, Sampled	Door 3G Assembly D Wing	NA	NA	
67	Glue Under Rubber Stair Mat	68	Non-ACM, Sampled	D Wing Stairs	NA	NA	
68	Black Science Table Top	69	Non-ACM, Sampled	Chemistry	NA	NA	
70	Exterior Window Caulk - Old Under New	70A, 70B	Cat. 2 Non-friable ACM	C Wing	Inc. in Quantity for #15	NA	
71	Foundation Skim	71	Non-ACM, Sampled	1988 Wing	NA	NA	
72	Wall Plaster	72	Non-ACM, Sampled	B wing Hall	NA	NA	

Table 1
Asbestos Analytical Results
Somerville High School
Somerville Massachusettes

HA No.	Material Description	Laboratory Sample No.	NESHAP Cat.	Location	Est. Quantity	Units	Comments
73	1' x 1' Spine Set Ceiling Tile	73A, 73B	Non-ACM, Sampled	1988 Wing	NA	NA	
74	2' x 4' Ceiling Tile	74A, 74B	Non-ACM, Sampled	1988 Wing	NA	NA	
75	2' x 4' Suspended Ceiling Tile	75A, 75B	Non-ACM, Sampled	C Wing Hall	NA	NA	
76	2' x 4' Suspended Ceiling Tile	76A, 76B	Non-ACM, Sampled	B Wing Hall	NA	NA	
77	Green/Gray Floor Tile	77A, 77B	Cat. 2 Non-friable ACM	B Wing Hall	240,000	SF	Multiple layer Floor Tile System Old wood flooring under green/gray floor tile, tan floor tile over green/gray floor tile, levelastic over tan floor tile, and 1' x 1' gray floor tile on top
78	Black Mastic Under # 77	78A, 78B	Non-ACM, Sampled	B Wing Hall	Inc. in Qty for # 77	NA	
79	1' x 1' Light Tan Floor Tile	79A, 79B	Cat. 2 Non-friable ACM	B Wing Hall	Inc. in Qty for # 77	NA	
80	Brown Mastic	80A, 80B	Cat. 2 Non-friable ACM	B Wing Hall	Inc. in Qty for # 77	NA	
81	Levelastic	81	Non-ACM, Sampled	Biology	Inc. in Qty for # 77	NA	Contaminated
82	1' x 1' Gray Floor Tile	82	Cat. 2 Non-friable ACM	B Wing Hall	Inc. in Qty for # 77	NA	
83	Black Mastic	83	Cat. 2 Non-friable ACM	Black Mastic Under #82	Inc. in Qty for # 77	NA	
84	Boiler Breeching	01A, 01B, 01C	Non-ACM, Sampled	Boiler Room	NA	NA	
85	Boiler Gasket	02A, 02B	Non-ACM, Sampled	Boiler Room	NA	NA	
86	Boiler Door Material	03A, 03B, 03C	Non-ACM, Sampled	Boiler Room	NA	NA	
87	Hot Water Tank Insulation	04A, 04B, 04C	Non-ACM, Sampled	Boiler Room	NA	NA	

Table 1
Asbestos Analytical Results
Somerville High School
Somerville Massachusettes

HA No.	Material Description	Laboratory Sample No.	NESHAP Cat.	Location	Est. Quantity	Units	Comments
88	Interior Window Glaze	90	Non-ACM, Sampled	Boiler Room	NA	NA	
89	Rubber Stair Tread mastic	91	Non-ACM, Sampled	A Wing 4th Floor	NA	NA	
90	Floor Leveler	92A, 92B	Non-ACM, Sampled	A Wing	NA	NA	
91	Mastic	93	Non-ACM, Sampled	Under Stage 1st Layer	NA	NA	
92	Glue under rubber, Gray paper on top of Foam, Fiberboard, White Deck	1929 Roof-1A, 1B, 1C. 1929 Roof-2A, 2B. 1929 Roof 3A, 3B, 3C.	Non-ACM, Sampled	1929 A Wing Roof	NA	NA	Each Layer Analyzed Separateley. Roof Consists of Rubber, Gray Paper, Foam, Fiberboard and White Board Deck.
93	Glue under rubber, Gray paper on top of Foam, Tar Above Deck, White Deck	1895-1A, 1B, 1C, 1D. 1895-2A, 2B, 2C, 2D. 1895-4A, 4B, 4C, 4D, 4E. 1895-5A, 5B, 5C. 1895-6A, 6B, 6C, 6D, 6E. 1985-13A, 13B, 13C.	Non-ACM, Sampled	1895 B Wing Roof	NA	NA	Each Layer Analyzed Separateley. Roof Consists of Rubber, Gray Paper, Foam, Tar on Deck, and White Board Deck.
94	Gray paper Top of Foam, Gray Paper Bottom of Foam	1929C-7A, 7B. 1929C-8A, 8B, 1929C-9A, 9B	Non-ACM, Sampled	1929 C Roof	NA	NA	Each Layer Analyzed Separateley. Roof Consists of Rubber, Gray Paper, Foam.
95	Roof Shingle	1929D-10, 11, 12.	Non-ACM, Sampled	1929 D Wing Roof	NA	NA	Shingles over Wood Frame Roof
96	Coating on Roof Curbing	Curb-1, Curb-2	Cat. 1 Non Friable ACM	A Wing and B Wing Roof	5,500	SF	
97	Gray Paper on Bottom Of Foam	1988-1A, 1B, 1C	Non-ACM, Sampled	1988 Wing Roof	NA	NA	Roof Consists of Rubber, Foam, Gray Paper, Gyspsum and Steel Deck
98	White Gypsum Deck	1988-2A, 2B, 2C	Non-ACM, Sampled	1988 Wing Roof	NA	NA	
99	Interior Boiler Components	NA	Suspect ACM, Not Sampled	Interior of Older Boilers	4	EA	
100	Black Mastic/Insulation	NA	Suspect ACM, Not Sampled	Walk in Refridgerator and Freezer Coating	6	EA	

Table 1
Asbestos Analytical Results
Somerville High School
Somerville Massachusettes

HA No.	Material Description	Laboratory Sample No.	NESHAP Cat.	Location	Est. Quantity	Units	Comments
101	Transite Fume Hoods	NA	Suspect ACM, Not Sampled	Biology and Chemistry - Visual	120	SF	
102	Other Hidden Transite Panels	NA	Suspect ACM, Not Sampled	Other	5,000	SF	Not Seen, Contingency
103	Flex Conncetors on HVAC Behind Walls	NA	Suspect ACM, Not Sampled	Mechanical Equipment Throughout	1,000	SF	
104	Pipe Insulation and Fittings	NA	Suspect ACM, Not Sampled	Hidden Behind Wet Walls, Unknown Trenches etc.	18,000	LF	Note All Visible Piping in Boiler Room and Some Trenches are Fiberglass Insulated.
105	Glue or Mastic Under Rubber Gym Floor	NA	Suspect ACM, Not Sampled	Not Seen - Contingency	25,300	SF	
106	Blackboard Glue Daubs	NA	Suspect ACM, Not Sampled	Not Seen - Contingency	600	EA	
107	Coating Behing Classroom Univents	NA	Suspect ACM, Not Sampled	Not Seen - Contingency	5,000	SF	
107	Hidden/Buried Walls With Plaster	NA	Suspect ACM, Not Sampled	Not Seen - Contingency	20,000	SF	
108	Foundation Coating	NA	Suspect ACM, Not Sampled	Not Seen, Down Hear Footings - Contingency	5,000	SF	
109	Subsurface Transite	NA	Suspect ACM, Not Sampled	Not Seen - Contingency	5,000	LF	
110	Chimney - Firebrick or Lining	NA	Suspect ACM, Not Sampled	Not Seen - Contingency	1	EA	
111	Hidden Roofing Materials	NA	Suspect ACM, Not Sampled	Not Seen - Contingency	10,000	SF	
NA = Not Applicable							
HA = Homegenous Area							

Table 2
Lead Based Paint Analytical Results
Somerville High School
Somerville, MA

Sample ID	Location	Substrate	Result
LP-1	Red Paint	On Concrete Exterior of A Wing	0.00093
LP-2	White Paint	Classroom Wall Room A09	0.00084
LP-3	Tan Paint	On Metal Radiator	0.45%
LP-4	Tan Paint	Door Frame B Wing	0.09%
LP-5	White Paint	On Brick B Wing	0.02%
LP-6	White Paint	A Wing Hall	<0.013%
LP-7	White Paint	On Radiator B Wing	0.71%
LP-8	Red Paint	On Concrete Exterior D Wing	0.02%
LP-9	White Paint	On Concrete Hall D Wing	<0.011%

TABLE 3
PCB Analytical Results
Somerville High School
Somerville, Massachusetts

Sample #	Description	Result	Concentration (mg/kg)
PCB-1	Dark Tan Expansion Joint Exterior 1988 Wing	ND	NA
PCB-2	Gray Caulk at Bottom of Building and Stairs Exterior	ND	NA
PCB-3	Exterior Door Caulk	ND	NA
PCB-4	Gray Exterior Window Caulk 1929 C Wing	ND	NA
PCB-5	Exterior Red Window Caulk C Wing	ND	NA
PCB-6	Exterior Red Window Caulk B Wing	ND	NA

Mg/kg = Milligrams per kilograms = parts per million

TABLE 4
Rubber Floor Mercury Analytical Results
Somerville High School
Somerville, Massachusetts

Sample ID	Location	Mercury (mg/kg)
Merc-1	Top Tan Layer Gym Floor	0.33
Merc-2	Bottom Dark Brown Layer Gym Floor	ND
Merc-3	Black Rubber Stair Tread A Wing	0.056
Merc-4	Black Rubber Stair Tread B Wing	0.05

Mg/kg = milligrams per kilograms (parts per million)

TABLE 5
OHM LIST
Somerville High School
Somerville, MA

Material Description	Location	Est. Quantity	Units
Compact Flourescent Bulbs	Throughout	500	EA
Fluorescent Bulbs (Mercury)	Throughout	18000	Tubes
Thermostats and Switches (Mercury)	Throughout	300	Ampules
Emergency Light Batteries (Lead)	Throughout	100	EA
Refrigerants Associated With HVAC	Throughout	10000	Gallons
Fire Extinguishers (Compressed Gas)	Throughout	100	EA
Lead-Based Paint	Metal	NA	NA
Refrigerants Associated with Water Bubblers	Throughout	30	Gallons
Exit Signs (Tritium)	Throughout	110	EA
Chemicals (Mercury and Lead)	Science Sink Traps	Assumed	NA
Laboratory Chemicals	Science Labs	NA	NA
X-Ray Machine	Dental Tech	NA	NA
Ash from Chimney	Chimney	--	--
Waste Oil, Used Antifreeze and Used Filters	Auto Shop	--	--
Welding Supplies, Gases	Welding	--	--
Underground Storage Tank Removal	(2) 15,000 Gallon Fuel Oil (1) 1,000 Gallon Diesel	--	--
Hydraulic Fluid	Old Hydraulic Lift in Auto Shop and Elevators	2000	Gallons

PHOTOGRAPHS

Boiler Room with Fiberglass Pipe Insulation

ACM Tar on Coping 1929 D Wing

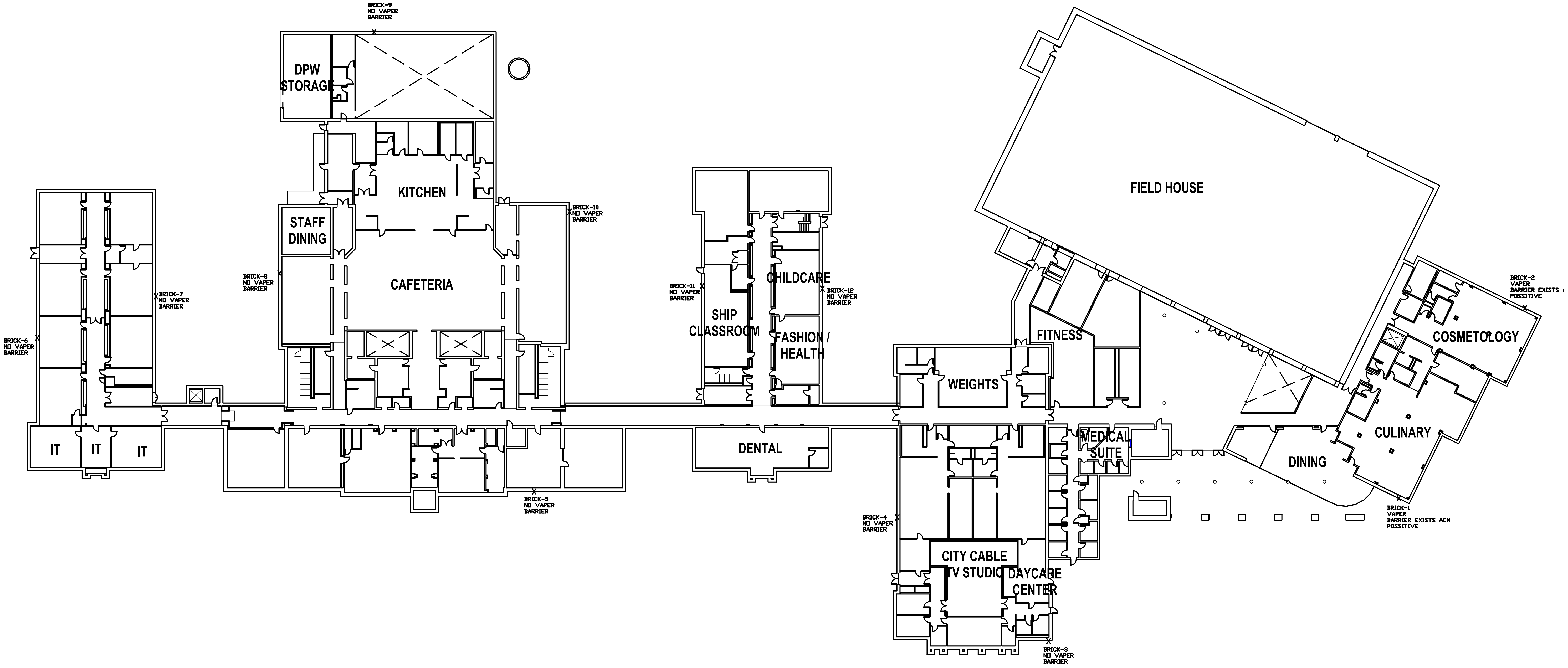
ACM Caulk on B Wing Roof Auditorium

Older Chimney With Possible ACM

ACM Floor Tile in 1988 Wing

Multiple Layers ACM Flooring B Wing

FIGURES



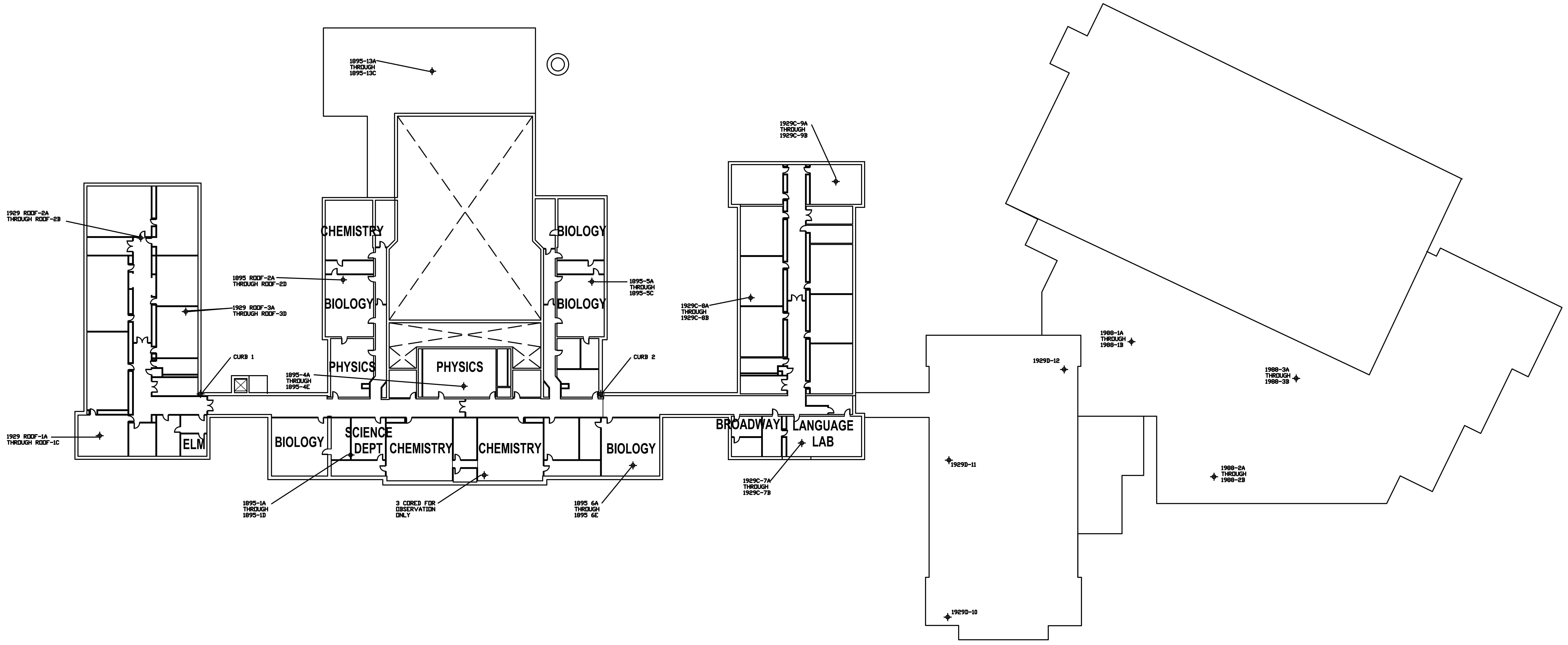
Somerville High School GSF

LEVEL	AREA
SHOP LEVEL	45900 SF
1ST FLOOR	125420 SF
2ND FLOOR	20690 SF
3RD FLOOR	54080 SF
4TH FLOOR	44220 SF
TOTAL GSF:	290310 SF

FIRST FLOOR PROGRAM PLAN – BRICK EXPLORE LOCATIONS

N.T.S.

Somerville High School



SCIENCE CLASSROOMS & SUPPORT

Somerville High School GSF

LEVEL	AREA
SHOP LEVEL	45900 SF
1ST FLOOR	125420 SF
2ND FLOOR	20690 SF
3RD FLOOR	54080 SF
4TH FLOOR	44220 SF
TOTAL GSF:	290310 SF

FOURTH FLOOR PROGRAM PLAN – ROOFING SAMPLE LOCATIONS

Somerville High School

N.T.S.

P:\2015\15070\06-CONSULT\06.7 Hazmat - CDW\Out\151112_existingcondplans\15070_Central_A_mrice-CAD-smma_slate_RGB_150-4150903.tif

ATTACHMENT A

Asbestos Identification Laboratory

165 New Boston St., Ste 271
Woburn, MA 01801
781-932-9600
Web: www.asbestosidentificationlab.com
Email: mikemanning@asbestosidentificationlab.com

Batch: 9527

Lab Code: 200919-0

November 02, 2015

Susan Cahalan
CDW Consultants, Inc.
40 Speen St.
Suite 301
Framingham, MA 01701

Project Number:
Project Name: Somerville High School

Date Sampled: 2015-10-22
Work Received: 2015-10-28

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

Dear Susan Cahalan,

Asbestos Identification Laboratory has completed the analysys of the samples from your office for the above referenced project .

The information and analysis contained in this report have been generated using the EPA /600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials. Materials or products that contain more than 1% of any kind or combination of asbestos are considered an asbestos containing building material as determined by the EPA. This Polarized Light Microscope (PLM) technique may be performed either by visual estimation or point counting. Point counting provides a determination of the area percentage of asbestos in a sample. If the asbestos is estimated to be less than 10% by visual estimation of friable material, the determination may be repeated using the point counting technique. The results of the point counting supersede visual PLM results. Results in this report only relate to the items tested. This report may not be used by the customer to claim product endorsement by NVLAP or any other U.S. Government Agency.

Laboratory results represent the analysis of samples as submitted by the customer. Information regarding sample location, description, area, volume, etc., was provided by the customer. Asbestos Identification Laboratory is not responsible for sample collection activities or analytical method limitations. Unless notified in writing to return samples, Asbestos Identification Laboratory discards customer samples after 30 days. This report shall not be reproduced, except in full, without the written consent of Asbestos Identification Laboratory.

- NVLAP Lab Code: 200919-0
- Massachusetts Certification License: AA000208
- State of Connecticut, Department of Public Health Approved Environmental Laboratory Registration Number: PH-0142
- State of Maine, Department of Environmental Protection Asbestos Analytical Laboratory License Number: LB-0078(Bulk) LA-0087(Air)
- State of Rhode Island and Providence Plantations Department of Health Certification: AAL-121

Thank you Susan Cahalan for your business.

Michael Manning

Michael Manning
Owner/Director

November 02, 2015

Susan Cahalan
CDW Consultants, Inc.
40 Speen St.
Suite 301
Framingham, MA 01701

Project Number:
Project Name: Somerville High School

Date Sampled: 2015-10-22
Work Received: 2015-10-28

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

FieldID LabID	Material	Location	Color	Non-Asbestos %		Asbestos %
1A 102660	Tan Expansion Joint Caulk 1980's Wing		tan	Non-Fibrous	100	None Detected
1B 102661	Tan Expansion Joint Caulk 1980's Wing		tan	Non-Fibrous	100	None Detected
1C 102662	Tan Expansion Joint Caulk 1980's Wing		tan	Non-Fibrous	100	None Detected
1D 102663	Tan Expansion Joint Caulk 1980's Wing		tan	Non-Fibrous	100	None Detected
1E 102664	Tan Expansion Joint Caulk 1980's Wing		tan	Non-Fibrous	100	None Detected
1F 102665	Tan Expansion Joint Caulk 1980's Wing		tan	Non-Fibrous	100	None Detected
1G 102666	Tan Expansion Joint Caulk 1980's Wing		tan	Non-Fibrous	100	None Detected
2A 102667	Grey Caulk	@ Bottom Building 1980's Wing	gray	Non-Fibrous	100	None Detected
2B 102668	Grey Caulk	@ Bottom Building 1980's Wing	gray	Non-Fibrous	100	None Detected
2C 102669	Grey Caulk	@ Bottom Building 1980's Wing	gray	Non-Fibrous	100	None Detected
3A 102670	DK Brown Caulk	Ext Door to Gym	tan	Non-Fibrous	98	**Detected** **Chrysotile 2**
3B 102671	DK Brown Caulk	Ext Door to Gym	null			Not Analyzed
4A 102672	Black Tar	On Ext Coping 1929 Wing	black	Non-Fibrous	80	**Detected** **Chrysotile 20**
4B 102673	Black Tar	On Ext Coping 1929 Wing	null			Not Analyzed

FieldID	LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
4C	102674	Black Tar	On Ext Coping 1929 Wing	null		Not Analyzed
5A	102675	Ext Door Caulk	Door 37	gray	Non-Fibrous 100	None Detected
5B	102676	Ext Door Caulk	Door 37	gray	Non-Fibrous 100	None Detected
6A	102677	Exterior Gray Window Caulk	1929 Wing	gray	Non-Fibrous 100	None Detected
6B	102678	Exterior Gray Window Caulk	1929 Wing	gray	Non-Fibrous 100	None Detected
6C	102679	Exterior Gray Window Caulk	1929 Wing	gray	Non-Fibrous 100	None Detected
7A	102680	Ext Red Window Caulk	1929 "C" Wing	red	Non-Fibrous 100	None Detected
7B	102681	Ext Red Window Caulk	1929 "C" Wing	red	Non-Fibrous 100	None Detected
7C	102682	Ext Red Window Caulk	1929 "C" Wing	red	Non-Fibrous 100	None Detected
7D	102683	Ext Red Window Caulk	1929 "C" Wing	red	Non-Fibrous 100	None Detected
7E	102684	Ext Red Window Caulk	1929 "C" Wing	red	Non-Fibrous 100	None Detected
8A	102685	Ext Window Glaze	1929 "C" Wing	gray	Non-Fibrous 100	None Detected
8B	102686	Ext Window Glaze	1929 "C" Wing	gray	Non-Fibrous 100	None Detected
9A	102687	Ext Lower Caulk	1929 "C" Wing	red	Non-Fibrous 100	None Detected
9B	102688	Ext Lower Caulk	1929 "C" Wing	red	Non-Fibrous 100	None Detected
9C	102689	Ext Lower Caulk	1929 "C" Wing	red	Non-Fibrous 100	None Detected
10A	102690	Ext Window Caulk	1895 B Wing	red	Non-Fibrous 100	None Detected
10B	102691	Ext Window Caulk	1895 B Wing	red	Non-Fibrous 100	None Detected

FieldID	LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
10C	102692	Ext Window Caulk	1895 B Wing	red	Non-Fibrous 100	None Detected
10D	102693	Ext Window Caulk	1895 B Wing	red	Non-Fibrous 100	None Detected
10E	102694	Ext Window Caulk	1895 B Wing	red	Non-Fibrous 100	None Detected
10F	102695	Ext Window Caulk	1895 B Wing	red	Non-Fibrous 100	None Detected
10G	102696	Ext Window Caulk	1895 B Wing	red	Non-Fibrous 100	None Detected
11A	102697	Ext White Window Caulk	Under New 1895 B Wing	white	Non-Fibrous 100	None Detected
11B	102698	Ext White Window Caulk	Under New 1895 B Wing	white	Non-Fibrous 100	None Detected
11C	102699	Ext White Window Caulk	Under New 1895 B Wing	white	Non-Fibrous 100	None Detected
11D	102700	Ext White Window Caulk	Under New 1895 B Wing	white	Non-Fibrous 100	None Detected
11E	102701	Ext White Window Caulk	Under New 1895 B Wing	white	Non-Fibrous 100	None Detected
11F	102702	Ext White Window Caulk	Under New 1895 B Wing	white	Non-Fibrous 100	None Detected
11G	102703	Ext White Window Caulk	Under New 1895 B Wing	white	Non-Fibrous 100	None Detected
12A	102704	Ext Louver Caulk	1895 B Wing	gray	Non-Fibrous 100	None Detected
12B	102705	Ext Louver Caulk	1895 B Wing	gray	Non-Fibrous 100	None Detected
12C	102706	Ext Louver Caulk	1895 B Wing	gray	Non-Fibrous 100	None Detected
13A	102707	Ext Door Caulk	Door #2	red	Non-Fibrous 100	None Detected
13B	102708	Ext Door Caulk	Door #2	red	Non-Fibrous 100	None Detected
14A	102709	Ext Door Glaze	Door #2	black	Non-Fibrous 100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
14B 102710	Ext Door Glaze	Door #2	black	Non-Fibrous 100	None Detected
15A 102711	White w/ Grey Ext Window Caulk	1929 A Wing	gray	Non-Fibrous 97	Detected Chrysotile 3
15B 102712	White w/ Grey Ext Window Caulk	1929 A Wing	null		Not Analyzed
15C 102713	White w/ Grey Ext Window Caulk	1929 A Wing	null		Not Analyzed
16A 102714	Ext Caulk	@ Roof Decoration	brown	Non-Fibrous 100	None Detected
16B 102715	Ext Caulk	@ Roof Decoration	brown	Non-Fibrous 100	None Detected
17A 102716	White Cementitious Stand Pipe	Roof 1895 B Wing	gray	Non-Fibrous 100	None Detected
17B 102717	White Cementitious Stand Pipe	Roof 1895 B Wing	gray	Non-Fibrous 100	None Detected
18A 102718	White Caulk	Penthouse 1895 B Wing	gray	Non-Fibrous 98	Detected Chrysotile 2
18B 102719	White Caulk	Penthouse 1895 B Wing	null		Not Analyzed
19A 102720	Black Tar	On Stand Pipe Roof	black	Non-Fibrous 100	None Detected
19B 102721	Black Tar	On Stand Pipe Roof	black	Non-Fibrous 100	None Detected
20A 102722	Caulk	Roof Interior	gray	Non-Fibrous 100	None Detected
20B 102723	Caulk	Roof Interior	gray	Non-Fibrous 100	None Detected
Brick-1 102724	Black Vapor Barrier	1988 Wing	black	Non-Fibrous 75	Detected Chrysotile 25
Brick-2 102725	Black Vapor Barrier	1988 Wing	null		Not Analyzed

Monday 02 November

Analyzed by: Michael

End of Report

Batch: 9527

Batch #9527

Client: CDW Consultants
Address: 40 Speen st Suite 301 Framingham MA
Project Site & #: Somerville High School
Phone / FAX#: 508 875-2657
Contact: Susan Cahalan
Relinquish by/date: 10/27/15
Received by/date: 10/28/15
# of Samples Received: ~~65~~ 66

CHAIN OF CUSTODY

EPA/600/R-93/116

Asbestos Identification Lab

165-U New Boston St.
Suite 271
Woburn, MA 01801
(781)932-9600
www.asbestosidentificationlab.com

Date Sampled: 10/22/15

Method for the determination of asbestos in bulk building materials.

Turnaround Time

☐ Rush
☐ Same Day
☐ Next Day
☒ Two Day 4 day

Sample Method

☒ Bulk
☐ Soil
☐ Wipe
☐ Point Count

Stop on 1st Positive? [✓ Yes]/No
Notify Method: Mail/E-Mail/Verbal
Anayzed By:
Date: 10/2/15

Lab ID# (Lab Use Only)	Field ID/Sample Date (Client Reference)	Temp in Celcius = 21 Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI ∥	⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wood	Cellouse	Hair	Synthetic	Other	Non-Fibrous
102660	1A	Material: Tan Expansion Joint Caulk Location: 1980s Wing	0	T	N	EG	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
61	1B	Material: " " Location: " "	0	T	N	EG	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
62	1C	Material: " " Location: " "	0	T	N	EG	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															

SHS

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope					Asbestos Minerals	Optical Properties						RI		Non-Asbestos Percentage (%)						
			% of Asbestos	Color	Homogeneity	Texture	Friable		Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	‖	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
63	1D	**Material** " **Location** "	0	T	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
64	1E	**Material** " **Location** "	0	T	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
65	1F	**Material** " **Location** "	0	T	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
66	1G	**Material** " **Location** "	0	T	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
67	2A	**Material** Gray Caulk **Location** @ Bottoms building 1980s wing	0	GY	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI ∥	RI ⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
68	2B	**Material** 〃 **Location** 〃	0	GY	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
69	2C	**Material** 〃 **Location** 〃	0	GY	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
70	3A	**Material** Dk brown Caulk **Location** Ext. Door to gym	0	T	N	GN	N	Chrysotile	2	W	P	+	L	N	1.55	1.549							98
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
71	3B	**Material** 〃 **Location** 〃						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
72	4A	**Material** Black Tar **Location** on Ext. coping 1929 wing	0	BK	N	GN	N	Chrysotile	20	W	P	+	L	N	1.55	1.549							80
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

DNA

SHS

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope					Asbestos Minerals	Optical Properties						RI		Non-Asbestos Percentage (%)							
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable		Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	‖	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous	
73	4B	Material " Location "						Chrysotile																DNA
								Amosite																
								Crocidolite																
								Tremolite																
								Anthophylite																
								Actinolite																
74	4C	Material " Location "						Chrysotile																DNA
								Amosite																
								Crocidolite																
								Tremolite																
								Anthophylite																
								Actinolite																
75	5A	Material Ext. Door Caulk Location Door 37	0	GY	N	GN	N	Chrysotile															100	
								Amosite																
								Crocidolite																
								Tremolite																
								Anthophylite																
								Actinolite																
76	5B	Material " Location "	0	GY	N	GN	N	Chrysotile															100	
								Amosite																
								Crocidolite																
								Tremolite																
								Anthophylite																
								Actinolite																
77	6A	Material Exterior gray window caulk Location 1929 wing	0	GY	N	GN	N	Chrysotile															100	
								Amosite																
								Crocidolite																
								Tremolite																
								Anthophylite																
								Actinolite																

8TS

Page 5 of 14

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	‖	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
78	6B	**Material** " **Location** "	0	GY	N	GRN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
79	6C	**Material** " **Location** "	0	GY	N	GRN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
80	7A	**Material** ~~Ext~~ ifed window caulk **Location** 1929 "C" wing	0	RD	N	GRN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
81	7B	**Material** " **Location** "	0	RD	N	GRN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
82	7C	**Material** " **Location** "	0	RD	N	GRN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

SHS

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
83	7D	**Material** " **Location** "	0	RD	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
84	7E	**Material** " **Location** "	0	RD	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
85	8A	**Material** Ext. Window glaze **Location** 1929 C wing	0	GY	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
86	8B	**Material** " **Location** "	0	GY	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
87	9A	**Material** ~~Ext~~ Lower caulk **Location** 1929 C wing	0	RD	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

SITS

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	‖	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
88	9B	**Material** " **Location** "	0	RD	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
89	9C	**Material** " **Location** "	0	RD	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
90	10A	**Material** ~~Ext.~~ window cawlk **Location** 1895 B wing	0	RD	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
91	10B	**Material** " **Location** "	0	RD	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
92	10C	**Material** " **Location** "	0	RD	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
03	10D	**Material** " **Location** "	0	RD	N	GN	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
04	10E	**Material** " **Location** "	0	RD	N	GN	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
05	10F	**Material** " **Location** "	0	RD	N	GN	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
06	10G	**Material** " **Location** "	0	RD	N	GN	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
08	11A	**Material** ~~Ext~~ White window Caulk **Location** under new 1895 B wing	0	W	N	GN	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100

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Temp in Celcius = ____

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
98	11B	Material 11 Location 11	0	W	N	Gran	N	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite															100
99	11C	Material 11 Location 11	0	W	N	Gran	N	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite															100
100	11D	Material 11 Location 11	0	W	N	Gran	N	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite															100
01	11E	Material 11 Location 11	0	W	N	Gran	N	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite															100
02	11F	Material 11 Location 11	0	W	N	Gran	N	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite															100

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI ∥	⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
03	11G	Material '' Location ''	0	W	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
04	12A	Material Ext. Lower Caulk Location 1895 B wing	0	GY	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
06	12B	Material '' Location ''	0	GY	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
08	12C	Material '' Location ''	0	GY	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
5	BA	Material Ext. Door Caulk Location Door #2	0	RD	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
8	13B	'' ''	0	RD	N	GN	N N																100

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		Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
09	14A	**Material** Ext. Door Glaze **Location** Door #2	0	BK	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
10	14B	**Material** " **Location** "	0	BK	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
11	15A	**Material** Whit/grey Ext window caulk **Location** 1929 A wing	0	GY	N	GN	N	Chrysotile	3	W	P	+	L	N	1.557	1.549							97
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
12	15B	**Material** " **Location** "						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
13	15C	**Material** " **Location** "						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	‖	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
14	16A	**Material** Ext. Caulk **Location** @ Roof decoration	0	BR	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
15	16B	**Material** " **Location** "	0	BR	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
16	17A	**Material** White Cementitous Stand pipe **Location** Roof 1895 Bldg	0	GY	N	GN	Y	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
17	17B	**Material** " **Location** "	0	GY	N	GN	Y	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
18	18A	**Material** White Caulk **Location** Penthouse 1895 Bldg	0	GY	N	GN	N	Chrysotile	2	W	P	+	L	N	1.55	1.55							98
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	=	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
19	18B	**Material** " **Location** "						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
20	19A	**Material** Black Tar **Location** on standpipe feet	0	BK	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
21	19B	**Material** " **Location** "	0	BK	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
22	20A	**Material** Caulk **Location** Roof Intersect	0	GY	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
23	20B	**Material** " **Location** "	0	GY	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

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		Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
24	Brick-1	Material Black Vapor Barrier	0	BK	N	brn	N	Chrysotile	25	W	P	+	L	N	1.55	1.549							75
								Amosite															
								Crocidolite															
		Location 1988 Whg						Tremolite															
								Anthophylite															
								Actinolite															
102725	Brick-2	Material ″						Chrysotile															
								Amosite															
								Crocidolite															
		Location ″						Tremolite															
								Anthophylite															
								Actinolite															
		Material						Chrysotile															
								Amosite															
								Crocidolite															
		Location						Tremolite															
								Anthophylite															
								Actinolite															
		Material						Chrysotile															
								Amosite															
								Crocidolite															
		Location						Tremolite															
								Anthophylite															
								Actinolite															
		Material						Chrysotile															
								Amosite															
								Crocidolite															
		Location						Tremolite															
								Anthophylite															
								Actinolite															

DNA

Asbestos Identification Laboratory
165 New Boston St., Ste 271
Woburn, MA 01801
781-932-9600
Web: www.asbestosidentificationlab.com
Email: mikemanning@asbestosidentificationlab.com

Batch: 9854

Lab Code: 200919-0

November 18, 2015

Susan Cahalan
CDW Consultants, Inc.
40 Speen St.
Suite 301
Framingham, MA 01701

Project Number:
Project Name: Somerville High School

Date Sampled: 2015-11-03
Work Received: 2015-11-10

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

Dear Susan Cahalan,

Asbestos Identification Laboratory has completed the analysys of the samples from your office for the above referenced project .

The information and analysis contained in this report have been generated using the EPA /600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials. Materials or products that contain more than 1% of any kind or combination of asbestos are considered an asbestos containing building material as determined by the EPA. This Polarized Light Microscope (PLM) technique may be performed either by visual estimation or point counting. Point counting provides a determination of the area percentage of asbestos in a sample. If the asbestos is estimated to be less than 10% by visual estimation of friable material, the determination may be repeated using the point counting technique. The results of the point counting supersede visual PLM results. Results in this report only relate to the items tested. This report may not be used by the customer to claim product endorsement by NVLAP or any other U.S. Government Agency.

Laboratory results represent the analysis of samples as submitted by the customer. Information regarding sample location, description, area, volume, etc., was provided by the customer. Asbestos Identification Laboratory is not responsible for sample collection activities or analytical method limitations. Unless notified in writing to return samples, Asbestos Identification Laboratory discards customer samples after 30 days. This report shall not be reproduced, except in full, without the written consent of Asbestos Identification Laboratory.

- NVLAP Lab Code: 200919-0
- Massachusetts Certification License: AA000208
- State of Connecticut, Department of Public Health Approved Environmental Laboratory Registration Number: PH-0142
- State of Maine, Department of Environmental Protection Asbestos Analytical Laboratory License Number: LB-0078(Bulk) LA-0087(Air)
- State of Rhode Island and Providence Plantations Department of Health Certification: AAL-121

Thank you Susan Cahalan for your business.

Michael Manning

Michael Manning
Owner/Director

November 18, 2015

Susan Cahalan
CDW Consultants, Inc.
40 Speen St.
Suite 301
Framingham, MA 01701

Project Number:
Project Name: Somerville High School

Date Sampled: 2015-11-03
Work Received: 2015-11-10

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

FieldID	LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
21A	106304	2x4 Ceiling Tile	Halls A Wing	multi	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected
21B	106305	2x4 Ceiling Tile	Halls A Wing	multi	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected
21C	106306	2x4 Ceiling Tile	Halls A Wing	multi	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected
22A	106307	Felt	Living to HVAC Hatches	black	Non-Fibrous 100	None Detected
22B	106308	Felt	Living to HVAC Hatches	black	Non-Fibrous 100	None Detected
22C	106309	Felt	Living to HVAC Hatches	black	Non-Fibrous 100	None Detected
23A	106310	1x1 Spine Set Ceiling Tile	A Wing Classrooms	white	Fiberglass 75 Non-Fibrous 25	None Detected
23B	106311	1x1 Spine Set Ceiling Tile	A Wing Classrooms	white	Fiberglass 75 Non-Fibrous 25	None Detected
23C	106312	1x1 Spine Set Ceiling Tile	A Wing Classrooms	white	Mineral Wool 75 Non-Fibrous 25	None Detected
23D	106313	1x1 Spine Set Ceiling Tile	A Wing Classrooms	white	Mineral Wool 75 Non-Fibrous 25	None Detected
23E	106314	1x1 Spine Set Ceiling Tile	A Wing Classrooms	white	Mineral Wool 75 Non-Fibrous 25	None Detected
24A	106315	Wall Plaster	Room 409 A Wing	multi	Non-Fibrous 100	None Detected
24B	106316	Wall Plaster	Room 409 A Wing	white	Non-Fibrous 100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
24C 106317	Wall Plaster	Room 409 A Wing	multi	Non-Fibrous 100	None Detected
25A 106318	Hard Ceiling Plaster	Room 409	white	Non-Fibrous 100	None Detected
25B 106319	Hard Ceiling Plaster	Room 409	white	Non-Fibrous 100	None Detected
25C 106320	Hard Ceiling Plaster	Room 409	multi	Non-Fibrous 100	None Detected
26A 106321	Tan Glue	Under Cove Base 4th Floor Hall A Wing	tan	Non-Fibrous 100	None Detected
26B 106322	Tan Glue	Under Cove Base 4th Floor Hall A Wing	tan	Non-Fibrous 100	None Detected
26C 106323	Tan Glue	Under Cove Base 4th Floor Hall A Wing	tan	Non-Fibrous 100	None Detected
27A 106324	Door Glaze	Door 4A A Wing	black	Non-Fibrous 100	None Detected
27B 106325	Door Glaze	Door 4A A Wing	black	Non-Fibrous 100	None Detected
28A 106326	Side Light Glaze	Door Assembly A Wing	black	Non-Fibrous 100	None Detected
28B 106327	Side Light Glaze	Door Assembly A Wing	black	Non-Fibrous 100	None Detected
29A 106328	White Skim Coat	Ceiling 4th Floor A Wing	white	Non-Fibrous 100	None Detected
29B 106329	White Skim Coat	Ceiling 4th Floor A Wing	white	Non-Fibrous 100	None Detected
29C 106330	White Skim Coat	Ceiling 4th Floor A Wing	white	Non-Fibrous 100	None Detected
30A 106331	Brown Skim	Under White Skim #29A	brown	Cellulose 2 Hair < 1 Non-Fibrous 98	None Detected
30B 106332	Brown Skim	Under White Skim #29B	brown	Cellulose < 1 Hair < 1 Non-Fibrous 100	None Detected
30C 106333	Brown Skim	Under White Skim #29C	brown	Cellulose 2 Hair < 1 Non-Fibrous 98	None Detected
31 106334	Glue	Under Rubber in Stairwell A Wing	brown	Non-Fibrous 100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %

Wednesday 18

End of Report

Analyzed by: Michael

Batch: 9854

Client: CDW Consultants
Address: 40 Speen ST, Suite 301, Framingham MA
Project Site & #: Somerville High School SHS
Phone / email address:
scahalan@cdwconsultants.com
Contact: Susan Cabrera
Relinquish by/date: 11/9/15
Received by/date: Austin 11/10/15
# of Samples Received: 31

CHAIN OF CUSTODY

EPA/600/R-93/116

Asbestos Identification Lab
165-U New Boston St.
Suite 271
Woburn, MA 01801
(781)932-9600
www.asbestosidentificationlab.com

Date Sampled: 11/3/15

BATCH# 9854

Rev. 6/12

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Turnaround Time	Sample Method
☐ Rush	☐ Bulk
☐ Same Day	☐ Soil
☐ Next Day	☐ Wipe
☒ Two Day 4 or 5 day	☐ Point Count

Stop on 1st Positive? [✓ Yes]/No
Notify Method: Mail/E-Mail/Verbal
Anayzed By: Dan Line
Date: 11/17/15

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = 23 Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ‖	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
100304	21A	**Material** 2x4' Ceiling Tile **Location** Halls A wing	0	me	N	F	Y	Chrysotile															
								Amosite															
								Crocidolite										IW					
								Tremolite															
								Anthophylite															
								Actinolite										40	40				20
05	21B	**Material** " **Location** "	0	me	N	F	Y	Chrysotile															
								Amosite															
								Crocidolite										IW					
								Tremolite															
								Anthophylite															
								Actinolite										40	40				20
06	21C	**Material** " **Location** "	0	me	N	F	Y	Chrysotile															
								Amosite															
								Crocidolite										IW					
								Tremolite															
								Anthophylite															
								Actinolite										40	40				20

SHS

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp In Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
5	22A	**Material** Felt **Location** Lining to HVAC Hatches						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
			0	BK	Y	R	N	Actinolite															100
08	22B	**Material** " **Location** "						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
			0	BK	Y	R	N	Actinolite															100
09	22C	**Material** " **Location** "						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
			0	BK	Y	R	N	Actinolite															100
10	23A	**Material** 1'x1' Spline SCT Ceiling Tile **Location** A Wing Classrooms						Chrysotile															
								Amosite															
								Crocidolite										I					
								Tremolite															
								Anthophylite															
			0	WH	N	F	Y	Actinolite										75					25
11	23B	**Material** " **Location** "						Chrysotile															
								Amosite															
								Crocidolite										I					
								Tremolite															
								Anthophylite															
			0	WH	N	F	Y	Actinolite										75					25

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI ∥	⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
12	23C	Material " Location "	0	WH	N	F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite										I 75					25
13	23D	Material " Location "	0	WH	N	F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite										I 75					25
14	23E	Material " Location "	0	WH	N	F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite										I 75					25
15	24A	Material Wall Plaster Location Room 409 A wing	0	ME	N	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
16	24B	Material " Location "	0	WH	Y	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	=	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
17	24C	**Material** " **Location** "	0	MC	N	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
18	25A	**Material** Hard Ceiling Plast **Location** Room A09	0	WH	Y	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
19	25B	**Material** " **Location** "	0	WH	Y	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
20	25C	**Material** " **Location** "	0	MC	N	GN	Y.	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
21	26A	**Material** Tan Glue **Location** under covebase 4th floor Hall A wing	0	T	Y	R	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
22	26B	**Material** " **Location** "	0	T	Y	R	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
23	26C	**Material** " **Location** "	0	T	Y	R	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
24	27A	**Material** Door Glaze **Location** Door 4A A wing	0	BK	Y	R	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
25	27B	**Material** " **Location** "	0	BK	Y	R	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
26	28A	**Material** Sidelight glaze **Location** Door Assembly A wing	0	BK	Y	R	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100

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Page 6 of 7

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ‖	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
27	28B	**Material** " **Location** "	0	BK	Y	R	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
28	29A	**Material** White Skim Coat **Location** Ceiling 4th floor A wing	0	WH	Y	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
29	29B	**Material** " **Location** "	0	WH	Y	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
30	29C	**Material** " **Location** "	0	WH	Y	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
31	30A	**Material** Brown Skim **Location** under white Skim #29A	0	BR	N	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite											W 2	SC R.			98

SHS

Page 7 of 7

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope					Asbestos Minerals	Optical Properties						RI		Non-Asbestos Percentage (%)						
			% of Asbestos	Color	Homogeneity	Texture	Friable		Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	‖	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
32	30B	**Material** " **Location** "	0	BR	N	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite											W TR	Sc TR			100
33	30C	**Material** " **Location** "	0	BR	N	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite											W 2	Sc TR			98
106834	31	**Material** Glue **Location** under rubber in Stairwell Awning	0	BR	Y	H	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
		Material **Location**						Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															
		Material **Location**						Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															

Asbestos Identification Laboratory
165 New Boston St., Ste 271
Woburn, MA 01801
781-932-9600
Web: www.asbestosidentificationlab.com
Email: mikemanning@asbestosidentificationlab.com

Batch: 9937

NVLAP
Lab Code: 200919-0

November 20, 2015

Susan Cahalan
CDW Consultants, Inc.
40 Speen St.
Suite 301
Framingham, MA 01701

Project Number:
Project Name: Somerville High School

Date Sampled: 2015-11-12
Work Received: 2015-11-17

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

Dear Susan Cahalan,

Asbestos Identification Laboratory has completed the analysys of the samples from your office for the above referenced project .

The information and analysis contained in this report have been generated using the EPA /600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials. Materials or products that contain more than 1% of any kind or combination of asbestos are considered an asbestos containing building material as determined by the EPA. This Polarized Light Microscope (PLM) technique may be performed either by visual estimation or point counting. Point counting provides a determination of the area percentage of asbestos in a sample. If the asbestos is estimated to be less than 10% by visual estimation of friable material, the determination may be repeated using the point counting technique. The results of the point counting supersede visual PLM results. Results in this report only relate to the items tested. This report may not be used by the customer to claim product endorsement by NVLAP or any other U.S. Government Agency.

Laboratory results represent the analysis of samples as submitted by the customer. Information regarding sample location, description, area, volume, etc., was provided by the customer. Asbestos Identification Laboratory is not responsible for sample collection activities or analytical method limitations. Unless notified in writing to return samples, Asbestos Identification Laboratory discards customer samples after 30 days. This report shall not be reproduced, except in full, without the written consent of Asbestos Identification Laboratory.

- NVLAP Lab Code: 200919-0
- Massachusetts Certification License: AA000208
- State of Connecticut, Department of Public Health Approved Environmental Laboratory Registration Number: PH-0142
- State of Maine, Department of Environmental Protection Asbestos Analytical Laboratory License Number: LB-0078(Bulk) LA-0087(Air)
- State of Rhode Island and Providence Plantations Department of Health Certification: AAL-121

Thank you Susan Cahalan for your business.

Michael Manning

Michael Manning
Owner/Director

November 20, 2015

Susan Cahalan
CDW Consultants, Inc.
40 Speen St.
Suite 301
Framingham, MA 01701

Project Number:
Project Name: Somerville High School

Date Sampled: 2015-11-12
Work Received: 2015-11-17

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

FieldID LabID	Material	Location	Color	Non-Asbestos %		Asbestos %
32A 107512	Glue on Paper	Behind Ceramic Tile B Wing	tan	Non-Fibrous	100	None Detected
32B 107513	Glue on Paper	Behind Ceramic Tile B Wing	tan	Non-Fibrous	100	None Detected
32C 107514	Glue on Paper	Behind Ceramic Tile B Wing	tan	Non-Fibrous	100	None Detected
33A 107515	Grout	Ceramic Tile Hall B Wing	gray	Non-Fibrous	100	None Detected
33B 107516	Grout	Ceramic Tile Hall B Wing	gray	Non-Fibrous	100	None Detected
34A 107517	Brown Paper	Behind Tile B Wing Hall	brown	Cellulose Non-Fibrous	95 5	None Detected
34B 107518	Brown Paper	Behind Tile B Wing Hall	brown	Cellulose Non-Fibrous	95 5	None Detected
35A 107519	Levelastic	Janitor Closet B Wing	gray	Non-Fibrous	100	None Detected
35B 107520	Levelastic	Janitor Closet B Wing	gray	Non-Fibrous	100	None Detected
36A 107521	1x1 Gray Floor Tile	B Wing Hall	gray	Non-Fibrous	100	None Detected
36B 107522	1x1 Gray Floor Tile	B Wing Hall	gray	Non-Fibrous	100	None Detected
37A 107523	Black Mastic	Under B Wing Hall	multi	Non-Fibrous	100	None Detected
37B 107524	Black Mastic	Under B Wing Hall	multi	Non-Fibrous	100	None Detected
38 107525	Hard Plaster	Ceiling Storage Janitor Room	gray	Non-Fibrous	100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
39 107526	Black Sink Coating	Janitor Room	black	Non-Fibrous 90	**Detected Chrysotile 10**
40 107527	Insulation	Inside B. Stove	gray	Mineral Wool 85 Non-Fibrous 15	None Detected
41A 107528	1x1 Spline Set Ceiling Tile	Cafeteria	gray	Fiberglass 90 Non-Fibrous 10	None Detected
41B 107529	1x1 Spline Set Ceiling Tile	Cafeteria	gray	Fiberglass 90 Non-Fibrous 10	None Detected
42A 107530	Wall Plaster	Cafe	white	Non-Fibrous 100	None Detected
42B 107531	Wall Plaster	Cafe	white	Non-Fibrous 100	None Detected
43A 107532	Glue	Under Cove Base Cafeteria	yellow	Non-Fibrous 100	None Detected
43B 107533	Glue	Under Cove Base Cafeteria	yellow	Non-Fibrous 100	None Detected
44A 107534	1x1 FT Gray Blue	Cafeteria	gray	Non-Fibrous 100	None Detected
44B 107535	1x1 FT Gray Blue	Cafeteria	gray	Non-Fibrous 100	None Detected
45A 107536	Mastic/Levelastic Mix	Under 1x1 Gray Blue Floor Tile	multi	Non-Fibrous 100	None Detected
45B 107537	Mastic/Levelastic Mix	Under 1x1 Gray Blue Floor Tile	multi	Non-Fibrous 100	None Detected
46 107538	Interior Window Glaze	Door to Teachers Lounge	multi	Non-Fibrous 100	None Detected
47A 107539	Wall Plaster	Lower Level A Wing	white	Non-Fibrous 100	None Detected
47B 107540	Wall Plaster	Lower Level A Wing	white	Non-Fibrous 100	None Detected
48A 107541	Glue	Under Sheet Flooring A Wing	yellow	Cellulose 5 Non-Fibrous 95	None Detected
48B 107542	Glue	Under Sheet Flooring A Wing	yellow	Cellulose 10 Non-Fibrous 90	None Detected
49A 107543	Levelastic	Under Sheet Flooring A Wing	gray	Non-Fibrous 100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
49B 107544	Levelastic	Under Sheet Flooring A Wing	gray	Non-Fibrous 100	None Detected
50 107545	Tan 1x1 Floor Tile	Room 140	gray	Cellulose 3 Non-Fibrous 97	None Detected
51 107546	Yellow Mastic	Under Tan 1x1 FT Room 140	yellow	Non-Fibrous 100	None Detected
52 107547	Pink Rosin Paper	Under Wood Floor Room 140	pink	Cellulose 98 Non-Fibrous 2	None Detected
53A 107548	Wall Plaster	B Wing 4th Floor Hall	gray	Non-Fibrous 100	None Detected
53B 107549	Wall Plaster	B Wing 4th Floor Hall	gray	Non-Fibrous 100	None Detected
54 107550	Black Science Table Top	Room 429	black	Non-Fibrous 100	None Detected
55 107551	Black Glue	Under Cove Base @ Science Table	brown	Non-Fibrous 100	None Detected
56 107552	Brown Paper with Wire Lathe	Behind White Plaster Room 429	multi	Non-Fibrous 100	None Detected
57 107553	White Wall Plaster	Room 429	white	Non-Fibrous 100	None Detected
58 107554	Sheet Flooring	Science Storage	multi	Cellulose 50 Non-Fibrous 50	None Detected
59A 107555			gray	Non-Fibrous 98	**Detected** **Chrysotile 2**
59B 107556			null		Not Analyzed
60 107557	Skim (Black) Coating	B Wing Foundation	black	Non-Fibrous 100	None Detected
61A 107558	Tan Glue	Under Cove Base 1988 Wing	tan	Non-Fibrous 100	None Detected
61B 107559	Tan Glue	Under Cove Base 1988 Wing	tan	Non-Fibrous 100	None Detected
62 107560	Interior Window Glaze	Auto Repair	black	Non-Fibrous 100	None Detected
63A 107561	1x1 Gray FT	Lower Level 1988 Wing	gray	Non-Fibrous 100	**Detected** **Chrysotile < 1**

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
63B 107562	Black Mastic	Under 1x1 FT	black	Non-Fibrous 90	Detected Chrysotile 10
64 107563	Interior Window Glaze	Weight Room	black	Non-Fibrous 100	None Detected
65A 107564	1x1 Floor Tile Grey	Main Level 88 Wing	gray	Non-Fibrous 100	Detected Chrysotile < 1
65B 107565	Black Mastic Under 1x1 Floor Tile	Main Level 88 Wing	black	Non-Fibrous 90	Detected Chrysotile 10
66 107566	Wall Plaster	D Wing Hall	gray	Non-Fibrous 100	None Detected
67 107567	Door Glaze	3G Assembly D Wing	gray	Non-Fibrous 100	None Detected
68 107568	Glue Under Rubber Mat	D Wing	multi	Non-Fibrous 100	None Detected
69 107569	Science Table	Chemistry	black	Non-Fibrous 100	None Detected
70A 107570	Ext Window Caulk	Old Under New C Wing	gray	Non-Fibrous 97	Detected Chrysotile 3
70B 107571	Ext Window Caulk	Old Under New C Wing	null		Not Analyzed
71 107572	Foundation Skim	1988 Wing	black	Non-Fibrous 100	None Detected
72 107573	Hall Wall Plaster	B Wing Hall	white	Non-Fibrous 100	None Detected
73A 107574	1x1 Spline Set Ceiling Tile	1988 Wing	gray	Mineral Wool 30 Cellulose 60 Non-Fibrous 10	None Detected
73B 107575	1x1 Spline Set Ceiling Tile	1988 Wing	gray	Mineral Wool 30 Cellulose 60 Non-Fibrous 10	None Detected
74A 107576	2x4 Ceiling Tile	1988 Wing	gray	Mineral Wool 20 Cellulose 70 Non-Fibrous 10	None Detected
74B 107577	2x4 Ceiling Tile	1988 Wing	gray	Mineral Wool 20 Cellulose 70 Non-Fibrous 10	None Detected
75A 107578	2x4 Suspended Ceiling Tile	C Wing Hall	gray	Mineral Wool 20 Cellulose 70 Non-Fibrous 10	None Detected
75B 107579	2x4 Suspended Ceiling Tile	C Wing Hall	gray	Mineral Wool 20 Cellulose 70 Non-Fibrous 10	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
76A 107580	2x4 Suspended Ceiling Tile	B Wing Hall	gray	Mineral Wool 30 Cellulose 60 Non-Fibrous 10	None Detected
76B 107581	2x4 Suspended Ceiling Tile	B Wing Hall	gray	Mineral Wool 30 Cellulose 60 Non-Fibrous 10	None Detected
77A 107582	Green/Slate Old Floor Tile Over Wood	B Wing Hall	green	Non-Fibrous 98	Detected Chrysotile 2
77B 107583	Green/Slate Old Floor Tile Over Wood	B Wing Hall	null		Not Analyzed
78A 107584	Black Mastic	Under Old Floor Tile Over Wood	black	Non-Fibrous 100	None Detected
78B 107585	Black Mastic	Under Old Floor Tile Over Wood	black	Non-Fibrous 100	None Detected
79A 107586	1x1 Tan Floor Tile Light	Over Old Grey Green FT	tan	Non-Fibrous 98	Detected Chrysotile 2
79B 107587	1x1 Tan Floor Tile Light	Over Old Grey Green FT	null		Not Analyzed
80A 107588	Brown Mastic	Under Tan 1x1 Floor Tile	black	Non-Fibrous 90	Detected Chrysotile 10
80B 107589	Brown Mastic		null		Not Analyzed
81 107590	Levelastic	Over Tan + Gray Green FT	gray	Non-Fibrous 100	None Detected
82 107591	1x1 Gray FT	Over Levelastic B Wing	gray	Non-Fibrous 100	Detected Chrysotile < 1
83 107592	Black Mastic	Under 1x1 Gray FT	black	Non-Fibrous 90	Detected Chrysotile 10

Friday 20 November

Analyzed by: Michael

End of Report

Batch: 9937

Client: CDW Consultants
Address: 40 Speen St Suite 301 Framingham MA
Project Site & #: Somerville High School
Phone / email address:
508 875 2657 - Scahalan @ cdwconsultants.com
Contact: Susan Cahalan
Relinquish by/date: 11/16/15
Received by/date: 11/17/15
# of Samples Received: 79

CHAIN OF CUSTODY

EPA/600/R-93/116

Asbestos Identification Lab
165-U New Boston St.
Suite 271
Woburn, MA 01801
(781)932-9600
www.asbestosidentificationlab.com

Date Sampled: 11/12 + 11/13/15

BATCH# 9937

Rev. 6/12

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Turnaround Time	Sample Method
☐ Rush	☐ Bulk
☐ Same Day	☐ Soil
☐ Next Day	☐ Wipe
☒ ~~Two Day~~ — 3day	☐ Point Count

Stop on 1st Positive? [✓ Yes]/No
Notify Method: Mail/E-Mail/Verbal
Anayzed By: Michael
Date: 11/19/15

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = 21	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	‖	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
107512	32A	Material Glue on paper Location Behind ceramic tile bung &	0	T	N	an	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
13	32B	Material " Location "	0	T	N	an	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
14	32C	Material " Location "	0	T	N	an	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
15	33A	**Material** Grout **Location** Ceramic Tile Hall B wing	0	GY	N	an	w	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															100
								Actinolite															
16	33B	**Material** " **Location** "	0	GY	N	an	w	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															100
								Actinolite															
17	34A	**Material** Brown Paper **Location** Behind Tile B wing Hall	0	BRN		F	Y	Chrysotile															
								Amosite															
								Crocidolite											H				
								Tremolite															
								Anthophylite											95				5
								Actinolite															
18	34B	**Material** " **Location** "	0	BRN		FB	Y	Chrysotile															
								Amosite															
								Crocidolite											H				
								Tremolite															
								Anthophylite											95				5
								Actinolite															
19	35A	**Material** Levelastic **Location** Janitor Closet B wing	0	GY	N	GN	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															100
								Actinolite															

SHS

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
20	35B	**Material** " **Location** "	0	GY	N	an	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
21	36A	**Material** 1'x1' Gray floor Tile **Location** B wing hall	0	GY	N	an	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
22	36B	**Material** " **Location** "	0	GY	N	an	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
23	37A	**Material** Black Mastic **Location** under B wing hall	0	ML	N	an	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
24	37B	**Material** " **Location** "	0	ML	N	an	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

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Temp in Celcius = 21

			Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
25	38	**Material** Hard Plaster **Location** Ceiling storage Janitor room	0	GY	N	GW	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															100
								Actinolite															
26	39	**Material** Black Sink Coating **Location** Janitor Room	0	BK	N	GW	N	Chrysotile	10	W	P	+	L	N	1556	1550							
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															90
								Actinolite															
27	40	**Material** Insulation **Location** Inside Blodgett Stove	0	GY	N	GW/F	Y	Chrysotile															
								Amosite										F					
								Crocidolite															
								Tremolite															
								Anthophylite										85					15
								Actinolite															
28	41A	**Material** 1x1' Spline Set Ceiling Tile **Location** Cafeteria	0	GY	N	GW/F	Y	Chrysotile															
								Amosite															
								Crocidolite									I						
								Tremolite															
								Anthophylite									90						10
								Actinolite															
29	41B	**Material** " **Location** "	0	GY	N	GW/F	Y	Chrysotile															
								Amosite															
								Crocidolite									I						
								Tremolite															
								Anthophylite									90						10
								Actinolite															

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	‖	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
30	42A	**Material** Wall plaster **Location** Cafe	0	W	N	am	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
31	42B	**Material** " **Location** "	0	W	N	am	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
32	43A	**Material** ~~B~~ Glue **Location** under Cove base cafeteria	0	Y	N	am	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
33	43B	**Material** " **Location** "	0	Y	N	am	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
34	44A	**Material** 1'x1' FT gray Blue **Location** Cafteria	0	GY	N	am	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100

Page 6 of 17

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI =	⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
35	44B	**Material** " **Location** "	0	GY	N	GAW	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
36	A5A	**Material** Mastic|levalastic mix **Location** under 1'x1' Gray blue floor Tile	0	MC	N	AW	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
37	45B	**Material** " **Location** "	0	MC	N	AW	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
38	46	**Material** Interior window glaze **Location** DOOR TO Teachers Lang	0	MC	N	AW	Y	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
39	47A	**Material** Wall plaster **Location** lower level Awning	0	W	N	AW	Y	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = 21	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
40	47B	Material " Location "	0	W	N	aw	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															100
								Anthophylite															
								Actinolite															
41	48A	Material Glue Location under sheet flooring A wing	0	Y	N	aw		Chrysotile											H				
								Amosite															
								Crocidolite															
								Tremolite											5				95
								Anthophylite															
								Actinolite															
42	48B	Material " Location "	0	Y	N	aw		Chrysotile											H				
								Amosite															
								Crocidolite															
								Tremolite											10				90
								Anthophylite															
								Actinolite															
43	49A	Material Levelaniz Location under sheet flooring A wing	0	GY	N	aw	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															100
								Anthophylite															
								Actinolite															
44	49B	Material " Location "	0	GY	N	GN	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															100
								Anthophylite															
								Actinolite															

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI ∥	⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
45	50	**Material** Tan 1'x1' floor Tile **Location** Room 140	0	GY	N	an	N	Chrysotile											H				
								Amosite															
								Crocidolite															
								Tremolite											3				97
								Anthophylite															
								Actinolite															
46	51	**Material** Yellow Mastic **Location** Under Tan 1'x1' ft room 140	0	Y	N	an	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															100
								Anthophylite															
								Actinolite															
47	52	**Material** Pink Rosin Paper **Location** Under Wood floor room 140	0	PK	N	an/F	N	Chrysotile											H				
								Amosite															
								Crocidolite															
								Tremolite											98				2
								Anthophylite															
								Actinolite															
48	53A	**Material** Wall Plaster **Location** B wing 4th floor Hall	0	GY	N	an	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															100
								Anthophylite															
								Actinolite															
49	53B	**Material** " **Location** "	0	GY	N	an	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															100
								Anthophylite															
								Actinolite															

SHS

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = 21 Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI ∥	⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
50	54	**Material** Black Science Table Top **Location** Room 429	0	Bk	N	an	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
51	55	**Material** Black Glue **Location** under covebase @ science Table	0	Br	N	an	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
52	56	**Material** Brown plaster with wire lathe **Location** Behind White plaster Room 429	0	ML	N	an	Y	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
53	57	**Material** White Wall plaster **Location** Room 429	0	W	N	an	Y	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
54	58	**Material** Sheet flooring **Location** Science Storage	0	ML	N	an F	N	Chrysotile											11 50				50
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
55	59A		0	GY	N	an	Y	Chrysotile	2	W	P	+	C	N	1555	1550							98
56	59B																						

SPS

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = 21 Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI =	⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
57	60	**Material** Skim (Black) coating **Location** B wing foundation	0	BK	N	am	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
58	61A	**Material** Tan Glue **Location** under casebase 1988 wing	0	T	N	am	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
54	61B	**Material** " **Location** "	0	T	N	am	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
60	62	**Material** Interior window glaze **Location** Auto Repair	0	BK	N	am	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
61	63A	**Material** 1x1' gray FT **Location** Lower level 1988 wing	0	GY	N	am	N	Chrysotile	TR	W	P	+	L	N	1.556	1.551							100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

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Temp in Celcius = 21

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ∥	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
62	63B	**Material** Black mastic **Location** under 1x1' FT	0	BK	N	GR	N	Chrysotile	10	W	P	+	L	N	1557	1550							90
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
63	6A	**Material** Interior window glaze **Location** Weight room	0	BK	N	GR	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
64	65A	**Material** 1x1' floor tile gray **Location** main level 88 wing	0	GY	N	GR	N	Chrysotile	TR	W	P	+	L	N	1556	1550							100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
65	65B	**Material** Black mastic under 1x1' floor tile **Location** Main level 88 wing	0	BK	N	GR	N	Chrysotile	10	W	P	+	L	N	1556	1550							90
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
66	66	**Material** Wall plaster **Location** Dining hall	0	GY	N	GR	Y	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = 21 Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI ∥	⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
67	67	**Material** Doorglaze **Location** 3G Assembly D wing	0	GY	N	aw		Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
68	68	**Material** Glue under rubber mat **Location** D wing	0	ML	N	aw		Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
69	69	**Material** Science table **Location** Chemistry	0	BK	N	aw		Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
70	70A	**Material** Ext. Window Caulk **Location** old under new C wing	0	GY	N	aw		Chrysotile	3	W	P	+	LW		1.556	1.550							97
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
71	70B	**Material** " **Location** "						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

DUWA

SHS

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI ∥	⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
72	71	**Material** Fundation Skim **Location** 1988 wing	0	BK	N	aw	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
73	72	**Material** Hall wall plaster **Location** B winghall	0	W	N	aw	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
74	73A	**Material** 1'x1' spline set Ceiling Tile **Location** 1988 wing	0	GY	N	NON/F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite										I 30	H 60				10
75	73B	**Material** 11 **Location** 11	0	GY	N	NON/F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite										I 30	H 60				10
76	74A	**Material** 2'x4' ceiling Tile **Location** 1988 wing	0	GY	N	NON/F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite										I 20	H 70				10

8HJ

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI ||	⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
77	74B	**Material** " **Location** "	0	GY	N	ow/F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite										I 20	H 70				10
78	75A	**Material** 2'x4' Suspended Ceiling Tile **Location** C wing Hall	0	GY	N	ow/F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite										I 20	H 70				10
74	75B	**Material** " **Location** "	0	GY	N	ow/F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite										I 20	H 70				10
80	76A	**Material** 2'x4' Suspended Ceiling Tile **Location** B wing Hall	0	GY	N	ow/F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite										I 30	H 60				10
81	76B	**Material** " **Location** "	0	GY	N	ow/F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite										I 30	H 60				10

8AS

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI ∥	⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
82	77A	**Material** green/slate Old floor tile over wood **Location** B wing	0	Gr	N	Gr	N	Chrysotile	2	W	P	+	L	N	1.556	1.550							98
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
83	77B	**Material** " **Location** "						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
84	78A	**Material** Black Mastic **Location** Under old floor Tile over wood	0	Bk	N	Gr	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
85	78B	**Material** " **Location** "	0	Bk	N	Gr	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
86	79A	**Material** 1x1' Tan floor Tile Light **Location** over old grey Green ft	0	T	N	Gr	N	Chrysotile	2	W	P	+	L	N	1.556	1.550							98
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

DM4

8H5

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp In Celcius = ____ Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI ∥	⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
87	79B	Material " Location "						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
88	80A	Material Brown Mastic Location Under Tan 1'x1' Floor Tile	0	BK	N	a	N	Chrysotile	10	W	P	+	L	N	1.556	1.550							90
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
89	80B	Material " Location "						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
90	81	Material Levelastic Location Over Tan + Gray Green FT.	0	GY	N	a	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
91	82	Material 1'x1' Gray FT Location Over Levelastic B wing	0	GY	N	a	N	Chrysotile	TR	W	P	+	L	N	1.556	1.550							100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

DNA

DNA

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = 21	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
107592	83	**Material** Black Mastic **Location** under 1x1' gray FT.	0	BK	N	GN	N	Chrysotile	10	W	P	+	L	N	1557	1551							
								Amosite															
								Crocidolite															
								Tremolite															90
								Anthophylite															
								Actinolite															
		Material **Location**						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
		Material **Location**						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
		Material **Location**						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
		Material **Location**						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

Asbestos Identification Laboratory
165 New Boston St., Ste 271
Woburn, MA 01801
781-932-9600
Web: www.asbestosidentificationlab.com
Email: mikemanning@asbestosidentificationlab.com

Batch: 9905

Lab Code: 200919-0

November 19, 2015

Susan Cahalan
CDW Consultants, Inc.
40 Speen St.
Suite 301
Framingham, MA 01701

Project Number:
Project Name: Somerville HS

Date Sampled: 2015-11-12
Work Received: 2015-11-18

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

Dear Susan Cahalan,

Asbestos Identification Laboratory has completed the analysys of the samples from your office for the above referenced project .

The information and analysis contained in this report have been generated using the EPA /600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials. Materials or products that contain more than 1% of any kind or combination of asbestos are considered an asbestos containing building material as determined by the EPA. This Polarized Light Microscope (PLM) technique may be performed either by visual estimation or point counting. Point counting provides a determination of the area percentage of asbestos in a sample. If the asbestos is estimated to be less than 10% by visual estimation of friable material, the determination may be repeated using the point counting technique. The results of the point counting supersede visual PLM results. Results in this report only relate to the items tested. This report may not be used by the customer to claim product endorsement by NVLAP or any other U.S. Government Agency.

Laboratory results represent the analysis of samples as submitted by the customer. Information regarding sample location, description, area, volume, etc., was provided by the customer. Asbestos Identification Laboratory is not responsible for sample collection activities or analytical method limitations. Unless notified in writing to return samples, Asbestos Identification Laboratory discards customer samples after 30 days. This report shall not be reproduced, except in full, without the written consent of Asbestos Identification Laboratory.

- NVLAP Lab Code: 200919-0
- Massachusetts Certification License: AA000208
- State of Connecticut, Department of Public Health Approved Environmental Laboratory Registration Number: PH-0142
- State of Maine, Department of Environmental Protection Asbestos Analytical Laboratory License Number: LB-0078(Bulk) LA-0087(Air)
- State of Rhode Island and Providence Plantations Department of Health Certification: AAL-121

Thank you Susan Cahalan for your business.

Michael Manning

Michael Manning
Owner/Director

November 19, 2015

Susan Cahalan
CDW Consultants, Inc.
40 Speen St.
Suite 301
Framingham, MA 01701

Project Number:
Project Name: Somerville HS

Date Sampled: 2015-11-12
Work Received: 2015-11-18

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

FieldID LabID	Material	Location	Color	Non-Asbestos %		Asbestos %
01A 107108	Boiler Breeching	Boiler Room	white	Synthetic Non-Fibrous	2 98	None Detected
01B 107109	Boiler Breeching	Boiler Room	white	Synthetic Non-Fibrous	3 97	None Detected
01C 107110	Boiler Breeching	Boiler Room	white	Synthetic Non-Fibrous	2 98	None Detected
02A 107111	Boiler Gasket	Boiler Room	gray	Fiberglass Non-Fibrous	5 95	None Detected
02B 107112	Boiler Gasket	Boiler Room	gray	Fiberglass Non-Fibrous	5 95	None Detected
03A 107113	Boiler Door Material	Boiler Room	gray	Non-Fibrous	100	None Detected
03B 107114	Boiler Door Material	Boiler Room	gray	Non-Fibrous	100	None Detected
03C 107115	Boiler Door Material	Boiler Room	gray	Non-Fibrous	100	None Detected
04A 107116	Hot Water Tank Insulation	Boiler Room	tan	Cellulose Non-Fibrous	2 98	None Detected
04B 107117	Hot Water Tank Insulation	Boiler Room	tan	Cellulose Non-Fibrous	2 98	None Detected
04C 107118	Hot Water Tank Insulation	Boiler Room	tan	Cellulose Non-Fibrous	2 98	None Detected
90 107119	Interior Window Glaze	Boiler Room	tan	Non-Fibrous	100	None Detected
91 107120	Stair Tread Mastic	A Wing 4th Floor	black	Non-Fibrous	100	None Detected
92A 107121	Floor Leveler	A Wing	gray	Non-Fibrous	100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
92B 107122	Floor Leveler	A Wing	gray	Non-Fibrous 100	None Detected
93 107123	Mastic	Under Stage 1st Layer	tan	Non-Fibrous 100	None Detected
94 107124	Black Mastic on Wood	Under Stage 2nd Layer	brown	Non-Fibrous 100	None Detected

Thursday 19

Analyzed by: Michael

End of Report

Batch: 9905

Client: CDW consultants
Address: 40 Speen St, Suite 301 Framingham MA
Project Site & #: Somerville HS
Phone / email address:
508 875 2657 / Scahalan@cdwconsultants.com
Contact: Susan Cahalan
Relinquish by/date: 11/17/15
Received by/date: 11/18/15
# of Samples Received: 17

CHAIN OF CUSTODY

EPA/600/R-93/116

Asbestos Identification Lab

165-U New Boston St.
Suite 271
Woburn, MA 01801
(781)932-9600
www.asbestosidentificationlab.com

Date Sampled: 11/12/15

BATCH# 9905 Rev. 6/12

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Turnaround Time
☐ Rush
☐ Same Day
☒ Next Day
☐ Two Day

Sample Method
☒ Bulk
☐ Soil
☐ Wipe
☐ Point Count

Stop on 1st Positive? [✓ Yes]/No
Notify Method: Mail/E-Mail/Verbal
Anayzed By:
Date: 11/19/15

Temp in Celcius = 21

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ∥	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
107108	01A	Material Boiler Breeching Location Boiler Room	0	W	N	E GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite													C 2		98
09	01B	Material " Location "	0	W	N	E GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite													C 3		97
10	01C	Material " Location "	0	W	N	E GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite													C 2		98

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Lab ID# (Lab Use Only)	11	12	13	14	15
Field ID/ (Client Reference)	02A	02B	03A	03B	03C
Temp in Celcius = ___ Material / Location	**Material** Boiler Gasket **Location** Boiler Room	**Material** " **Location** "	**Material** Boiler Door Material **Location** Boiler Room	**Material** " **Location** "	**Material** " **Location** "
Stereo Scope % of Asbestos	0	0	0	0	0
Color	brn	brn	brn	brn	brn
Homogeneity	N	N	N	N	N
Texture	F brn	F brn	brn	brn	brn
Friable	N	N	Y	Y	Y
Asbestos Minerals	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite
Optical Properties Asbestos %					
Morphology					
Extinction					
Sign of Elongation					
Birefringence					
Pleochroism					
RI =					
⊥					
Non-Asbestos Percentage (%) Fiberglass	T 5	T 5			
Mineral Wool					
Cellulose					
Hair					
Synthetic					
Other					
Non-Fibrous	95	95	100	100	100

Page 3 of ____

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	‖	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
16	04A	**Material** Hot Water Tank Insulation **Location** Boiler room	0	T	N	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite											R 2				98
17	04B	**Material** " **Location** "	0	T	N	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite											R 2				98
18	04C	**Material** " **Location** "	0	T	N	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite											R 2				98
19	90	**Material** Interior window glaze **Location** Boiler room	0	T	N	GN	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
20	91	**Material** Stair tread mastic **Location** A wing 4th floor	0	BR	N	GN	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI =	⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
21	92A	**Material** Floor leveler **Location** A wing	0	GY	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
22	92B	**Material** 〃 **Location** 〃	0	GY	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
23	93	**Material** Mastic **Location** under stage 1st Layer	0	T	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
1071124	94	**Material** Black-Mastic on wood **Location** under stage 2nd layer	0	BK	N	GN	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
		Material **Location**						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

Asbestos Identification Laboratory

165 New Boston St., Ste 271
Woburn, MA 01801
781-932-9600
Web: www.asbestosidentificationlab.com
Email: mikemanning@asbestosidentificationlab.com

Batch: 9780

Lab Code: 200919-0

November 16, 2015

Susan Cahalan
CDW Consultants, Inc.
40 Speen St.
Suite 301
Framingham, MA 01701

Project Number:
Project Name: Somerville High School (SHS)

Date Sampled: 2015-11-03
Work Received: 2015-11-10

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

Dear Susan Cahalan,

Asbestos Identification Laboratory has completed the analysys of the samples from your office for the above referenced project .

The information and analysis contained in this report have been generated using the EPA /600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials. Materials or products that contain more than 1% of any kind or combination of asbestos are considered an asbestos containing building material as determined by the EPA. This Polarized Light Microscope (PLM) technique may be performed either by visual estimation or point counting. Point counting provides a determination of the area percentage of asbestos in a sample. If the asbestos is estimated to be less than 10% by visual estimation of friable material, the determination may be repeated using the point counting technique. The results of the point counting supersede visual PLM results. Results in this report only relate to the items tested. This report may not be used by the customer to claim product endorsement by NVLAP or any other U.S. Government Agency.

Laboratory results represent the analysis of samples as submitted by the customer. Information regarding sample location, description, area, volume, etc., was provided by the customer. Asbestos Identification Laboratory is not responsible for sample collection activities or analytical method limitations. Unless notified in writing to return samples, Asbestos Identification Laboratory discards customer samples after 30 days. This report shall not be reproduced, except in full, without the written consent of Asbestos Identification Laboratory.

- NVLAP Lab Code: 200919-0
- Massachusetts Certification License: AA000208
- State of Connecticut, Department of Public Health Approved Environmental Laboratory Registration Number: PH-0142
- State of Maine, Department of Environmental Protection Asbestos Analytical Laboratory License Number: LB-0078(Bulk) LA-0087(Air)
- State of Rhode Island and Providence Plantations Department of Health Certification: AAL-121

Thank you Susan Cahalan for your business.

Michael Manning

Michael Manning
Owner/Director

November 16, 2015

Susan Cahalan
CDW Consultants, Inc.
40 Speen St.
Suite 301
Framingham, MA 01701

Project Number:
Project Name: Somerville High School (SHS)

Date Sampled: 2015-11-03
Work Received: 2015-11-10

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

FieldID	LabID	Material	Location	Color	Non-Asbestos %		Asbestos %
1895-5A	105457	Glue	Under Rubber Roof 1895 Wing	yellow	Non-Fibrous	100	None Detected
1895-5B	105458	Gray Paper	Under Foam 1895 Roof	gray	Fiberglass Cellulose Non-Fibrous	10 75 15	None Detected
1895-5C	105459	White Board	Bottom Layer Roof 1895 Wing	white	Cellulose Non-Fibrous	5 95	None Detected
1929 Roof-1A	105460	Flue Under Rubber	1929 A Wing Roof	black	Cellulose Non-Fibrous	75 25	None Detected
1929 Roof-1B	105461	Black Paper Top of Foam	1929 A Wing Roof	black	Fiberglass Cellulose Non-Fibrous	5 25 70	None Detected
1929 Roof-1C	105462	Fiberboard	1929 A Wing Roof	brown	Cellulose Non-Fibrous	70 30	None Detected
1929 Roof-2A	105463	Glue Under Rubber	1929 A Roof	yellow	Non-Fibrous	100	None Detected
1929 Roof-2B	105464	Glue Under Foam on Wood Deck	1929 A Roof	yellow	Non-Fibrous	100	None Detected
1929-3A	105465	Glue Under Rubber	1929 A Wing Roof	yellow	Non-Fibrous	100	None Detected
1929-3B	105466	Paper Top of Foam	1929 A Wing Roof	black	Fiberglass Cellulose Non-Fibrous	5 10 85	None Detected
1929-3C	105467	Paper Bottom of Foam	1929 A Wing Roof	black	Fiberglass Cellulose Non-Fibrous	5 15 80	None Detected
1929-3D	105468	White Top of Deck	1929 A Wing Roof	white	Non-Fibrous	100	None Detected
1895-1A	105469	Glue Under Rubber	1895 B Wing Roof	yellow	Non-Fibrous	100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
1895-1B 105470	Paper Top of Foam	1895 B Wing Roof	black	Fiberglass 10 Non-Fibrous 90	None Detected
1895-1C 105471	Tar Above Deck	1895 B Wing Roof	black	Cellulose 20 Non-Fibrous 80	None Detected
1895-1D 105472	White Deck	1895 B Wing Roof	gray	Non-Fibrous 100	None Detected
1895-2A 105473	Glue Under Rubber	1895 B Wing Roof	yellow	Non-Fibrous 100	None Detected
1895-2B 105474	Gray Paper	Top of Foam 1895 B Wing Roof	gray	Cellulose 80 Non-Fibrous 20	None Detected
1895-2C 105475	Gray Paper	Bottom of Foam 1895 B Wing Roof	gray	Fiberglass 10 Cellulose 80 Non-Fibrous 10	None Detected
1895-2D 105476	White Top of Deck	1895 B Wing Roof	white	Cellulose 5 Non-Fibrous 95	None Detected
1895-4A 105477	Glue Under Rubber	1895 B Wing Roof	black	Non-Fibrous 100	None Detected
1895-4B 105478	Gray Paper Top of Foam	1895 B Wing Roof	black	Fiberglass 10 Non-Fibrous 90	None Detected
1895-4C 105479	Gray Paper Under Foam	1895 B Wing Roof	brown	Cellulose 60 Non-Fibrous 40	None Detected
1895-4D 105480	Gray Membrane Over White Deck	1895 B Wing Roof	black	Cellulose 40 Non-Fibrous 60	None Detected
1895-4E 105481	White Deck	1895 B Wing Roof	gray	Non-Fibrous 100	None Detected
1895-6A 105482	Glue Under Rubber	1895 B Wing Roof	yellow	Non-Fibrous 100	None Detected
1895-6B 105483	Gray Felt	Over Gray Paper 1895 B Wing Roof	gray	Cellulose 40 Non-Fibrous 60	None Detected
1895-6C 105484	DK Gray Paper	Over Foam 1895 B Wing Roof	black	Fiberglass 5 Non-Fibrous 95	None Detected
1895-6D 105485	Black Paper	Bottom of Foam 1895 B Wing Roof	black	Cellulose 30 Non-Fibrous 70	None Detected
1895-6E 105486	Gray Cement	Top of Deck 1895 B Wing Roof	gray	Non-Fibrous 100	None Detected
1929C-7A 105487	Gray Paper	Top of Foam 1929 C Wing Roof	gray	Fiberglass 10 Cellulose 80 Non-Fibrous 10	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
1929C-7B 105488	Gray Paper	Bottom of Foam 1925 C Wing Roof	gray	Fiberglass 10 Cellulose 80 Non-Fibrous 10	None Detected
1929C-8A 105489	Gray Paper	Top of Foam	gray	Fiberglass 10 Cellulose 80 Non-Fibrous 10	None Detected
1929C-8B 105490	Gray Paper	Bottom of Foam 1929 C Wing	gray	Fiberglass 10 Cellulose 80 Non-Fibrous 10	None Detected
1929C-9A 105491	Gray Paper	Top of Foam 1929 C Wing	gray	Fiberglass 5 Cellulose 85 Non-Fibrous 10	None Detected
1929C-9B 105492	Gray Paper Bottom of Foam	1929 C Wing	gray	Fiberglass 5 Cellulose 85 Non-Fibrous 10	None Detected
1929D-10 105493	Roof Shingle	1929 D Wing	black	Cellulose 30 Non-Fibrous 70	None Detected
1929D-11 105494	Roof Shingle	1929 D Wing	black	Cellulose 30 Non-Fibrous 70	None Detected
1929D-12 105495	Roof Shingle	1929 D Wing	black	Cellulose 30 Non-Fibrous 70	None Detected
1895-13A 105496	Glue Under Rubber	1895 B Wing	clear	Non-Fibrous 100	None Detected
1895-13B 105497	Gray Paper	Top of Foam	gray	Fiberglass 10 Cellulose 80 Non-Fibrous 10	None Detected
1895-13C 105498	Gray Paper	Bottom of Foam	gray	Fiberglass 10 Cellulose 80 Non-Fibrous 10	None Detected
Curb-1 105499	Curb, Black	A Wing	black	Non-Fibrous 80	**Detected** **Chrysotile 20**
Curb-2 105500	Curb, Black	B Wing	black	Non-Fibrous 80	**Detected** **Chrysotile 20**
1988-1A 105501	Gray Paper	Bottom of Foam 1988 Wing	gray	Fiberglass 20 Non-Fibrous 80	None Detected
1988-2A 105502	Gray Paper	Bottom of Foam 1988 Wing	gray	Fiberglass 20 Non-Fibrous 80	None Detected
1988-3A 105503	Gray Paper	Bottom of Foam 1988 Wing	gray	Fiberglass 30 Non-Fibrous 70	None Detected
1988-2B 105504	White Gypsum Deck	1988 Wing	white	Fiberglass 5 Cellulose 2 Non-Fibrous 93	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
1988-1B 105505	White Gypsum Deck	1988 Wing	white	Fiberglass 5 Cellulose 2 Non-Fibrous 93	None Detected
1988-3B 105506	White Gypsum Deck	1988 Wing	white	Fiberglass 5 Cellulose 2 Non-Fibrous 93	None Detected

Monday 16 November

Analyzed by: Michael

End of Report

Batch: 9780

Client: CDVO Consultants
Address: 10 Speen St Suite 301 Framingham MA
Project Site & #: Somerville High School (SHS)
Phone / email address:
Scahalan @ cdwconsultants.com
Contact: Susan Cahala
Relinquish by/date: 11/9/15
Received by/date: 11/10/15
# of Samples Received: 50

CHAIN OF CUSTODY

EPA/600/R-93/116

Asbestos Identification Lab

165-U New Boston St.
Suite 271
Woburn, MA 01801
(781)932-9600
www.asbestosidentificationlab.com

Date Sampled: 11/3/15

BATCH# 6780

Rev. 6/12

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Turnaround Time	Sample Method
☐ Rush	☒ Bulk
☐ Same Day	☐ Soil
☐ Next Day	☐ Wipe
☒ Two Day 4 day	☐ Point Count

Stop on 1st Positive? Yes/[✓ No]
Notify Method: Mail/E-Mail/Verbal
Anayzed By:
Date: 11/13/15

Temp in Celcius = 23

			Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
165457	1895-5A	**Material** Glue **Location** under Rubber Roof 1895 wing						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
			0	Y	Y	R	N	Anthophylite															
								Actinolite															100
58	1895-5B	**Material** Gray Paper **Location** under foam 1895 Roof						Chrysotile															
								Amosite															
								Crocidolite									T		W				
								Tremolite															
								Anthophylite															
			0	GY	Y	F	Y.	Actinolite									10		25				15
59	1895-5C	**Material** White Board **Location** Bottom layer roof 1895 wing						Chrysotile															
								Amosite															
								Crocidolite											W				
								Tremolite															
								Anthophylite															
			0	Wht	N	F Gru	Y	Actinolite											5				95

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Page 2 of 11

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
60	1929 Roof-1A	**Material** Give under rubber						Chrysotile															
								Amosite															
								Crocidolite											W				
		Location						Tremolite															
								Anthophylite															
		1929 A wing roof	0	BK	Y	F/Y	N	Actinolite											75				25
61	1929 Roof-1B	**Material** Black paper top of foam						Chrysotile															
								Amosite															
								Crocidolite									I		W				
		Location						Tremolite															
								Anthophylite															
		1929 A wing roof	0	BK	Y	F/Y	N	Actinolite									5		25				70
62	1929 Roof-1C	**Material** ~~[illegible]~~ fiberboard						Chrysotile															
								Amosite															
								Crocidolite											W				
		Location						Tremolite															
								Anthophylite															
		1929 A wing roof	0	BR	Y	F	Y	Actinolite											70				30
63	1929 Roof-2A	**Material** Give Undr rubbr						Chrysotile															
								Amosite															
								Crocidolite															
		Location						Tremolite															
								Anthophylite															
		1929 A Roof	0	Y	Y	R	N	Actinolite															100
64	1929 Roof-2B	**Material** Give under foam on wood deck						Chrysotile															
								Amosite															
								Crocidolite															
		Location						Tremolite															
								Anthophylite															
		1929 A Roof	0	Y	Y	R	N	Actinolite															100

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
65	1929-3A	**Material** Glue under rubber **Location** 1929 A wing floor	0	Y	Y	R	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
66	1929-3B	**Material** Paper top of foam **Location** 1929 A wing floor	0	BK	N	F/4	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite									I 5		W 10				85
67	1929-3C	**Material** Paper bottom of foam **Location** 1929 A wing floor	0	BK	N	F/4	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite									I 5		W 15				80
68	1929-3D	**Material** White top of deck **Location** 1929 A wing floor	0	WH	Y	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
69	1895 1A	**Material** Glue under rubber **Location** 1895 B wing Roof	0	Y	Y	R	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
70	1895-1B	**Material** Papr Top of foam **Location** 1895 B wing roof	0	BK	Y	F/T	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite									I 10						90
71	1895-1C	**Material** Tar above Deck **Location** 1895 B wing roof	0 ~~0~~	BK ~~GY~~	N ~~N~~	F/T	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite											W 20				80
72	1895-1D	**Material** White Deck **Location** 1895 B wing roof	0	GY	N	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
73	1895-2A	**Material** Glue under Rubbr **Location** 1895 B wing Roof	0	Y	Y	R	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
74	1895-2B	**Material** Gray paper **Location** Top of foam 1895 B wing roof	0	GY	Y	F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite											W 80				20

8H5

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ∥	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
75	1895-3C	**Material** Gray paper **Location** Bottom of foam 1895 B wing Roof	0	GY	Y	F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite									I 10		W 80				10
76	1895-3D	**Material** White Top of Deck **Location** 1895 B wing Roof	0	WH	N	F GU	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite											W 5				95
77	1895-4A	**Material** Glue under rubber **Location** 1895 B wing Roof	0	BK	Y	R	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
78	1895-4B	**Material** Gray paper Top of foam **Location** 1895 B wing Roof	0	BK	Y	T	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite									T 10						90
79	1895-4C	**Material** Gray paper under foam **Location** 1895 B wing Roof	0	BR	Y	F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite											W 60				40

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	∥	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
80	1895-AD	**Material** Gray Membrane over White Deck **Location** 1895 B wing Roof	0	BK	N	F/T	N	Chrysotile											W				
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite											40				60
								Actinolite															
81	1895-AE	**Material** White Deck **Location** 1895 B wing Roof	0	GY	N	GN	Y	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
82	1895-~~6A~~	**Material** Glue under Rubber **Location** 1895 B wing Roof	0	Y	Y	R	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
83	1895-6B	**Material** Gray felt **Location** over Gray paper 1895 B wing Roof	0	GY	Y	F/R	Y	Chrysotile											W				
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite											40				60
								Actinolite															
84	1895-6C	**Material** Dk gray paper **Location** over foam 1895 B wing Roof	0	BK	Y	F/T	N	Chrysotile									I						
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite									5						95
								Actinolite															

SHJ

Page 7 of 11

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
85	1895-6D	**Material** Black Paper **Location** Bottom of foam 1895 B wing Roof	0	BK	N	F/T	N	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite											W 30				70
86	1895-6E	**Material** Gray, Cement **Location** Top of Deck 1895B wing roof	0	GY	Y	GN	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite															100
87	1929C-7A	**Material** Gray Paper **Location** Top of foam 1929 C wing roof	0	GY	Y	F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite									I 10		W 80				10
88	1929C-7B	**Material** Gray Paper **Location** Bottom of foam 1929 C wing Roof	0	GY	Y	F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite									I 10		W 80				10
89	1929C-8A	**Material** Gray Paper **Location** Top of foam	0	GY	Y	F	Y	Chrysotile Amosite Crocidolite Tremolite Anthophylite Actinolite									I 10		W 80				10

Page 8 of 11

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI ‖	RI ⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
90	1929C-8B	**Material** Gray papr **Location** Bottom of foam 1929 C wing	0	GY	Y	F	Y	Chrysotile									I		W				
								Amosite															
								Crocidolite															
								Tremolite									10		80				10
								Anthophylite															
								Actinolite															
91	1929C-9A	**Material** Gray Papr **Location** Top of foam 1929 C wing	0	GY	Y	F	Y	Chrysotile									I		W				
								Amosite															
								Crocidolite															
								Tremolite									5		85				10
								Anthophylite															
								Actinolite															
92	1929C-9B	**Material** Gray papr Bottom of foam **Location** 1929 C wing	0	GY	Y	F	Y	Chrysotile									I		W				
								Amosite															
								Crocidolite															
								Tremolite									5		85				10
								Anthophylite															
								Actinolite															
93	1929D-10	**Material** Roof Shingle **Location** 1929 D wing	0	BK	N	F/T	N	Chrysotile											W				
								Amosite															
								Crocidolite															
								Tremolite											30				70
								Anthophylite															
								Actinolite															
94	1929D-11	**Material** Roof Shingle **Location** 1929 D wing	0	BK	N	F/T	N	Chrysotile											W				
								Amosite															
								Crocidolite															
								Tremolite											30				70
								Anthophylite															
								Actinolite															

8AS.

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ∥	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
95	1929D-12	**Material** Roof Shingle **Location** 1929 D wing	0	BK	N	F/T	N	Chrysotile											W 30				70
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
96	1895-13A	**Material** Glue under rubbr **Location** 1895 B wing	0	CL	Y	R	N	Chrysotile															100
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
97	1895-13B	**Material** Gray paper **Location** Top of foam	0	GY	Y	F	Y	Chrysotile									I 10		W 80				10
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
98	1895-13C	**Material** Gray paper **Location** Bottom of foam	0	GY	Y	F	Y	Chrysotile									I 10		W 80				10
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
99	CURB-1	**Material** Curb, black **Location** A wing	20	BK	Y	F/T	N	Chrysotile	20	W	ll	+	L	N	1.553	1.550							80
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI ∥	⊥	Non-Asbestos Percentage (%) Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
500	Curb-2	**Material** Curb, Black **Location** B wing	20	BK	Y	F/T	N	Chrysotile	20	W	ll	+	L	N	1.553	1.552							80
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
5	1988-1A	**Material** Gray paper **Location** Bottom of foam 1988 wing	0	GY	N	F/GN	Y	Chrysotile									I 20		2				80
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
6	1988-2A	**Material** Gray paper **Location** Bottom of foam 1988 wing	0	GY	N	F/GN	Y	Chrysotile									I 20						80
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
8	1988-3A	**Material** Gray paper **Location** Bottom of foam 1988 wing	0	GY	N	F/GN	Y	Chrysotile									I 30						70
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															
3	1988-2B	**Material** White Gypsum Deck **Location** 1988 wing	0	WH	N	F/GN	Y	Chrysotile									I 5		W 2				93
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophylite															
								Actinolite															

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Page 11 of 11

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____	Stereo Scope						Optical Properties						RI		Non-Asbestos Percentage (%)						
		Material / Location	% of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	‖	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
05	1988- 3B	**Material** White gypsum Deck	0	WH	N	F/GN	Y	Chrysotile									I		W				
								Amosite															
								Crocidolite															
		Location 1988 wing						Tremolite									5		2				93
								Anthophylite															
								Actinolite															
105506	1988- 3B	**Material** White gypsum Deck	0	WH	N	F/GN	Y	Chrysotile									I		W				
								Amosite															
								Crocidolite															
		Location 1988 wing						Tremolite									5		2				93
								Anthophylite															
								Actinolite															
		Material						Chrysotile															
								Amosite															
								Crocidolite															
		Location						Tremolite															
								Anthophylite															
								Actinolite															
		Material						Chrysotile															
								Amosite															
								Crocidolite															
		Location						Tremolite															
								Anthophylite															
								Actinolite															
		Material						Chrysotile															
								Amosite															
								Crocidolite															
		Location						Tremolite															
								Anthophylite															
								Actinolite															

ATTACHMENT B

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (856) 303-2500 / (856) 786-5974
http://www.EMSL.com cinnaminsonleadlab@emsl.com

EMSL Order: 201513355
CustomerID: CDWC26
CustomerPO:
ProjectID:

Attn: **Susan Cahalan**
CDW Consultants
40 Speen Street
Suite 301
Framingham, MA 01701

Phone: (508) 875-2657
Fax:
Received: 11/18/15 10:35 AM
Collected: 11/12/2015

Project: **Sommerville H.S.**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
LP-1	*201513355-0001* Site: Red Paint on Concrete Exterior A Wing	11/12/2015	11/19/2015	0.093 % wt
LP-2	*201513355-0002* Site: White Classroom Paint A09	11/12/2015	11/19/2015	0.084 % wt
LP-3	*201513355-0003* Site: Tan Paint on Metal Radiator	11/12/2015	11/19/2015	0.45 % wt
LP-4	*201513355-0004* Site: Door Frame Paint Int. B Wing	11/12/2015	11/19/2015	0.093 % wt
LP-5	*201513355-0005* Site: White Paint on Brick B Wing	11/12/2015	11/19/2015	0.016 % wt
LP-6	*201513355-0006* Site: White Wall Paint A Wing Hall Lower	11/12/2015	11/19/2015	<0.013 % wt
LP-7	*201513355-0007* Site: White Radiator Paint 4th Floor B Wing	11/12/2015	11/19/2015	0.71 % wt
LP-8	*201513355-0008* Site: Ext. Red Paint on Concrete D Wing	11/12/2015	11/19/2015	0.015 % wt
LP-9	*201513355-0009* Site: White Paint on Concrete Hall D Wing	11/12/2015	11/19/2015	<0.011 % wt

Julie Smith

Julie Smith - Laboratory Director
NJ-NELAP Accredited:03036
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements established by the AIHA-LAP, unless specifically indicated otherwise.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, NY 10872, PA 68-00367, AIHA-LAP, LLC ELLAP 100194, A2LA 2845.01

Initial report from 11/20/2015 11:06:33

OrderID: 201513355

EMSL ANALYTICAL, INC.
LABORATORY•PRODUCTS•TRAINING

Lead (Pb) Chain of Custody

EMSL Order ID *(Lab Use Only)*: 201513355

200 Route 130 North
Cinnaminson, NJ 08077
PHONE: 1-800-220-3675
FAX: (856) 786-5974

Company : CDW Consultants	**EMSL-Bill to:** ☐ Different ☑ Same If Bill to is Different note instructions in Comments**
Street: 40 Speen Street Suite 301	*Third Party Billing requires written authorization from third party*
City: Framingham **State/Province:** MA	**Zip/Postal Code:** 01701 **Country:** United States
Report To (Name): susan cahalan	**Telephone #:** 5088752657
Email Address: scahalan@cdwconsultants.com	**Fax #:** **Purchase Order:**
Project Name/Number: Sommerville H.S.	**Please Provide Results:** ☐ FAX ☑ E-mail ☐ Mail
U.S. State Samples Taken: MA	**CT Samples:** ☐ **Commercial/Taxable** ☐ **Residential/Tax Exempt**

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☒ 48 Hour ☐ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide*

Matrix	Method	Instrument	Reporting Limit	Check
Chips ☒ % by wt. ☐ mg/cm² ☐ ppm	SW846-7000B	Flame Atomic Absorption	0.01%	☒
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	☐
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	☐
	NIOSH 7300 modified	ICP-AES/ICP-MS	0.5 µg/filter	☐
Wipe* ASTM ☐ non ASTM ☐ *if no box is checked, non-ASTM Wipe is assumed	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	☐
	SW846-6010B or C	ICP-AES	1.0 µg/wipe	☐
	SW846-7000B/7010	Graphite Furnace AA	0.075 µg/wipe	☐
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW846-1131/SW846-6010B or C	ICP-AES	0.1 mg/L (ppm)	☐
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	SW846-7010	Graphite Furnace AA	0.3 mg/kg (ppm)	☐
	SW846-6010B or C	ICP-AES	2 mg/kg (ppm)	☐
Wastewater Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.7	ICP-AES	0.020 mg/L (ppm)	☐
Drinking Water Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	☐
TSP/SPM Filter	40 CFR Part 50	ICP-AES	12 µg/filter	☐
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	☐
Other:				☐

Name of Sampler: **Signature of Sampler:**

Sample #	Location	Volume/Area	Date/Time Sampled
LP-1	Red paint on Concrete Exterior A wing	NA	11/12/15
LP-2	White Classroom paint 409		
LP-3	Tan paint on Metal Radiator		
LP-4	Door frame paint Int. B wing		
LP-5	White paint on Brick B wing		

Client Sample #'s	-		**Total # of Samples:**		
Relinquished (Client):		**Date:**	11/17/15	**Time:**	
Received (Lab):		**Date:**	11/18/15	**Time:** 1035	Fedex

Comments:

Page 1 of 2 pages

EMSL ANALYTICAL, INC.
LABORATORY•PRODUCTS•TRAINING

LEAD (Pb) CHAIN OF CUSTODY

EMSL ORDER ID *(Lab Use Only)*: 201513355

EMSL Analytical, Inc.
200 Route 130 North

Cinnaminson, NJ 08077
PHONE: 1-800-220-3675
FAX: (856) 786-5974

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Location	Volume/Area	Date/Time Sampled
LP-6	White Wall Paint A wing Hall lower	N/A	11/12/15
LP-7	White Radiator Paint 4th floor B wing	↓	↓
LP-8	EXT. Red Paint on Concrete D wing	↓	↓
LP-9	White Paint on Concrete Hall D wing	↓	↓

Comments/Special Instructions:

Page 2 of 2 pages

ATTACHMENT C

PHOENIX
Environmental Laboratories, Inc.

Thursday, November 12, 2015

Ms. Susan Cahalan
CDW Consultants, Inc
40 Speen Street
Suite 301
Framingham, MA 01701

Project ID: SOMERVILLE HIGH SCHOOL (SHS)
Sample ID#s: BK19397 - BK19402

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller

Phyllis Shiller

Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #MA-CT-007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B

NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 12, 2015

FOR:
Ms. Susan Cahalan
CDW Consultants, Inc
40 Speen Street
Suite 301
Framingham, MA 01701

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:		11/02/15	
Location Code:	CDW-PCB	Received by:	LK	11/06/15	13:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBK19397
Phoenix ID: BK19397

Project ID: SOMERVILLE HIGH SCHOOL (SHS)
Client ID: PCB-1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction for PCB	Completed				11/06/15	QQ/W	SW3540C
PCB (Soxhlet SW3540C)							
PCB-1016	ND	17	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1221	ND	17	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1232	ND	17	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1242	ND	17	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1248	ND	17	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1254	ND	17	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1260	ND	17	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1262	ND	17	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1268	ND	17	mg/Kg	100	11/11/15	AW	SW8082A
QA/QC Surrogates							
% DCBP	Diluted Out		%	100	11/11/15	AW	30 - 150 %
% TCMX	Diluted Out		%	100	11/11/15	AW	30 - 150 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

PCB Comment:
For PCBs, due to matrix interference from non target compounds in the sample an elevated RL was reported. Multiple cleanup steps were performed but were unsuccessful. The extract was cleaned up with a combination of sulfuric acid, potassium permanganate, copper powder and additional florisil.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller

Phyllis Shiller, Laboratory Director
November 12, 2015
Reviewed and Released by: Bobbi Aloisa, Vice President

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 12, 2015

FOR: Ms. Susan Cahalan
CDW Consultants, Inc
40 Speen Street
Suite 301
Framingham, MA 01701

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:		11/02/15	
Location Code:	CDW-PCB	Received by:	LK	11/06/15	13:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBK19397
Phoenix ID: BK19398

Project ID: SOMERVILLE HIGH SCHOOL (SHS)
Client ID: PCB-2

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction for PCB	Completed				11/06/15	QQ/W	SW3540C
PCB (Soxhlet SW3540C)							
PCB-1016	ND	16	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1221	ND	16	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1232	ND	16	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1242	ND	16	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1248	ND	16	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1254	ND	16	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1260	ND	16	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1262	ND	16	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1268	ND	16	mg/Kg	100	11/11/15	AW	SW8082A
QA/QC Surrogates							
% DCBP	Diluted Out		%	100	11/11/15	AW	30 - 150 %
% TCMX	Diluted Out		%	100	11/11/15	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

PCB Comment:
For PCBs, due to matrix interference from non target compounds in the sample an elevated RL was reported. Multiple cleanup steps were performed but were unsuccessful. The extract was cleaned up with a combination of sulfuric acid, potassium permanganate, copper powder and additional florisil.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller

Phyllis Shiller, Laboratory Director
November 12, 2015
Reviewed and Released by: Bobbi Aloisa, Vice President

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 12, 2015

FOR: Ms. Susan Cahalan
CDW Consultants, Inc
40 Speen Street
Suite 301
Framingham, MA 01701

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:		11/02/15	
Location Code:	CDW-PCB	Received by:	LK	11/06/15	13:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBK19397
Phoenix ID: BK19399

Project ID: SOMERVILLE HIGH SCHOOL (SHS)
Client ID: PCB-3

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction for PCB	Completed				11/06/15	QQ/W	SW3540C
PCB (Soxhlet SW3540C)							
PCB-1016	ND	0.32	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1221	ND	0.32	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1232	ND	0.32	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1242	ND	0.32	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1248	ND	0.32	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1254	ND	0.32	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1260	ND	0.32	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1262	ND	0.32	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1268	ND	0.32	mg/Kg	1	11/09/15	AW	SW8082A
QA/QC Surrogates							
% DCBP	93		%	1	11/09/15	AW	30 - 150 %
% TCMX	85		%	1	11/09/15	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected   BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller

Phyllis Shiller, Laboratory Director
November 12, 2015
Reviewed and Released by: Bobbi Aloisa, Vice President

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 12, 2015

FOR: Ms. Susan Cahalan
CDW Consultants, Inc
40 Speen Street
Suite 301
Framingham, MA 01701

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:		11/02/15	
Location Code:	CDW-PCB	Received by:	LK	11/06/15	13:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBK19397
Phoenix ID: BK19400

Project ID: SOMERVILLE HIGH SCHOOL (SHS)
Client ID: PCB-4

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction for PCB	Completed				11/06/15	QQ/W	SW3540C
PCB (Soxhlet SW3540C)							
PCB-1016	ND	0.33	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1221	ND	0.33	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1232	ND	0.33	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1242	ND	0.33	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1248	ND	0.33	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1254	ND	0.33	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1260	ND	0.33	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1262	ND	0.33	mg/Kg	1	11/09/15	AW	SW8082A
PCB-1268	ND	0.33	mg/Kg	1	11/09/15	AW	SW8082A
QA/QC Surrogates							
% DCBP	76		%	1	11/09/15	AW	30 - 150 %
% TCMX	77		%	1	11/09/15	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

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Phyllis Shiller

Phyllis Shiller, Laboratory Director
November 12, 2015
Reviewed and Released by: Bobbi Aloisa, Vice President

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 12, 2015

FOR: Ms. Susan Cahalan
CDW Consultants, Inc
40 Speen Street
Suite 301
Framingham, MA 01701

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:		11/02/15	
Location Code:	CDW-PCB	Received by:	LK	11/06/15	13:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBK19397
Phoenix ID: BK19401

Project ID: SOMERVILLE HIGH SCHOOL (SHS)
Client ID: PCB-5

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction for PCB	Completed				11/06/15	QQ/W	SW3540C
PCB (Soxhlet SW3540C)							
PCB-1016	ND	33	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1221	ND	33	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1232	ND	33	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1242	ND	33	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1248	ND	33	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1254	ND	33	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1260	ND	33	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1262	ND	33	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1268	ND	33	mg/Kg	100	11/11/15	AW	SW8082A
QA/QC Surrogates							
% DCBP	Diluted Out		%	100	11/11/15	AW	30 - 150 %
% TCMX	Diluted Out		%	100	11/11/15	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

PCB Comment:
For PCBs, due to matrix interference from non target compounds in the sample an elevated RL was reported. Multiple cleanup steps were performed but were unsuccessful. The extract was cleaned up with a combination of sulfuric acid, potassium permanganate, copper powder and additional florisil.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

Phyllis Shiller

Phyllis Shiller, Laboratory Director
November 12, 2015
Reviewed and Released by: Bobbi Aloisa, Vice President

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

November 12, 2015

FOR:
Ms. Susan Cahalan
CDW Consultants, Inc
40 Speen Street
Suite 301
Framingham, MA 01701

Sample Information		Custody Information		Date	Time
Matrix:	SOLID	Collected by:		11/02/15	
Location Code:	CDW-PCB	Received by:	LK	11/06/15	13:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GBK19397
Phoenix ID: BK19402

Project ID: SOMERVILLE HIGH SCHOOL (SHS)
Client ID: PCB-6

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Extraction for PCB	Completed				11/06/15	QQ/W	SW3540C
PCB (Soxhlet SW3540C)							
PCB-1016	ND	31	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1221	ND	31	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1232	ND	31	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1242	ND	31	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1248	ND	31	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1254	ND	31	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1260	ND	31	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1262	ND	31	mg/Kg	100	11/11/15	AW	SW8082A
PCB-1268	ND	31	mg/Kg	100	11/11/15	AW	SW8082A
QA/QC Surrogates							
% DCBP	Diluted Out		%	100	11/11/15	AW	30 - 150 %
% TCMX	Diluted Out		%	100	11/11/15	AW	30 - 150 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Results are reported on an ``as received`` basis, and are not corrected for dry weight.

PCB Comment:
For PCBs, due to matrix interference from non target compounds in the sample an elevated RL was reported. Multiple cleanup steps were performed but were unsuccessful. The extract was cleaned up with a combination of sulfuric acid, potassium permanganate, copper powder and additional florisil.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

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Phyllis Shiller

Phyllis Shiller, Laboratory Director
November 12, 2015
Reviewed and Released by: Bobbi Aloisa, Vice President

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

November 12, 2015

QA/QC Data

SDG I.D.: GBK19397

QA/QC Batch 326027 (mg/Kg), QC Sample No: BK19631 10X (BK19397, BK19398, BK19399, BK19400, BK19401, BK19402)

Polychlorinated Biphenyls - Solid

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
PCB-1016	ND	0.17	78	73	6.6	71	68	4.3	40 - 140	20
PCB-1221	ND	0.17							40 - 140	20
PCB-1232	ND	0.17							40 - 140	20
PCB-1242	ND	0.17							40 - 140	20
PCB-1248	ND	0.17							40 - 140	20
PCB-1254	ND	0.17							40 - 140	20
PCB-1260	ND	0.17	93	88	5.5	89	82	8.2	40 - 140	20
PCB-1262	ND	0.17							40 - 140	20
PCB-1268	ND	0.17							40 - 140	20
% DCBP (Surrogate Rec)	95	%	101	99	2.0	95	87	8.8	30 - 150	20
% TCMX (Surrogate Rec)	77	%	83	75	10.1	71	73	2.8	30 - 150	20

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller

Phyllis Shiller, Laboratory Director
November 12, 2015

Thursday, November 12, 2015

Criteria: None

State: MA

Sample Criteria Exceedences Report

GBK19397 - CDW-PCB

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

Cooler: Yes ☒ No ☐
Coolant: IPK ☒ ICE ☐ No ☐
Temp 6 °C Pg of

PHOENIX
Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Data Delivery:
☐ Fax #:
☐ Email:

Customer: CDW Consultants
Address: 40 Speen St Suite 301
Framingham MA 01701

Project: Somerville High School (SHS)
Project P.O:
Report to: Susan Cahala
Invoice to: CDW Consultants
Phone #: 508 875-2657 ext 25
Fax #:

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature Date: 11/2/15

Matrix Code:
DW=Drinking Water GW=Ground Water SW=Surface Water WW=Waste Water
RW=Raw Water SE=Sediment SL=Sludge S=Soil [✓ SD=Solid] W=Wipe
OIL=Oil B=Bulk L=Liquid

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	PCBs 8082 Soxhlet	Baggie	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container ( ) oz	GL Soil container ( ) oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] H2SO4	PL As is [ ] 250ml [ ] 500ml [ ] 1000ml	PL H2SO4 [ ] 250ml [ ] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle
19397	PCB-1 Exp 80s Joint Wing	SD	11/2/15	–	X	1										
19398	PCB-2 Caulk at 80s Wing	SD	11/2/15	–	X	1										
19399	PCB-3 Door Caulk	SD	11/2/15	–	X	1										
19400	PCB-4 Ext gray Window Caulk	SD	11/2/15	–	X	1										
19401	PCB-5 Ext Red Window Caulk	SD	11/2/15	–	X	1										
19402	PCB-6 Ext Red window caulk	SD	11/2/15	–	X	1										

Relinquished by:	Accepted by:	Date:	Time:
		11-6-15	12:20
	Paradise	11/6/15	1345

Comments, Special Requirements or Regulations:
TSCA Detection Limits

Turnaround:
☐ 1 Day*
☐ 2 Days*
☐ 3 Days*
☒ Standard
☐ Other
* SURCHARGE APPLIES

RI
☐ Direct Exposure (Residential)
☐ GW
☐ Other

CT
☐ RCP Cert
☐ GW Protection
☐ SW Protection
☐ GA Mobility
☐ GB Mobility
☐ Residential DEC
☐ I/C DEC
☐ Other

MA
☐ MCP Certification
☐ GW-1
☐ GW-2
☐ GW-3
☐ S-1
☐ S-2
☐ S-3
☐ MWRA eSMART
☐ Other

Data Format
☐ Excel
☐ PDF
☐ GIS/Key
☐ EQuIS
☐ Other

Data Package
☐ Tier II Checklist
☐ Full Data Package*
☐ Phoenix Std Report
☐ Other

State where samples were collected: MA

* SURCHARGE APPLIES

APPENDIX D

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone: (856) 303-2500 Fax: (856) 858-4571 Email: EnvChemistry2@emsl.com

11/19/2015

Attn: **Susan Cahalan**
CDW Consultants
40 Speen Street
Suite 301
Framingham, MA 01701
Phone: (508) 875-2657
Fax:

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 11/17/2015. The results are tabulated on the attached data pages for the following client designated project:

Somerville High School

The reference number for these samples is EMSL Order #011506902. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 303-2500.

Reviewed and Approved By:

Julie Smith

Julie Smith - Laboratory Director

The test results contained within this report meet the requirements of NELAP and/or the specific certification program that is applicable, unless otherwise noted.
NELAP Certifications: NJ 03036, NY 10872, PA 68-00367

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (856) 303-2500 / (856) 858-4571
http://www.EMSL.com EnvChemistry2@emsl.com

EMSL Order: 011506902
CustomerID: CDWC26
CustomerPO:
ProjectID:

Attn: **Susan Cahalan**
CDW Consultants
40 Speen Street
Suite 301
Framingham, MA 01701

Phone: (508) 875-2657
Fax:
Received: 11/17/15 9:40 AM

Project: **Somerville High School**

Analytical Results

Client Sample Description Merc-1 ***Collected:*** 11/13/2015 ***Lab ID:*** *0001*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
7471B	Mercury	0.33	0.048	mg/Kg	11/19/2015	JS	11/19/2015	JS

Client Sample Description Merc-2 ***Collected:*** 11/13/2015 ***Lab ID:*** *0002*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
7471B	Mercury	ND	0.050	mg/Kg	11/19/2015	JS	11/19/2015	JS

Client Sample Description Merc-3 ***Collected:*** 11/13/2015 ***Lab ID:*** *0003*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
7471B	Mercury	0.056	0.050	mg/Kg	11/19/2015	JS	11/19/2015	JS

Client Sample Description Merc-4 ***Collected:*** 11/13/2015 ***Lab ID:*** *0004*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
7471B	Mercury	0.094	0.050	mg/Kg	11/19/2015	JS	11/19/2015	JS

Definitions:

ND - indicates that the analyte was not detected at the reporting limit
RL - Reporting Limit

EMSL ANALYTICAL, INC.
LABORATORY•PRODUCTS•TRAINING

Environmental Chemistry
Chain of Custody

EMSL Order Number (*Lab Use Only*): 011506902

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
PHONE: **1-800-220-3675**
FAX: **(856) 786-5974**

Report To Contact Name: susan cahalan
Company Name: CDW Consultants
Street: 40 Speen Street Suite 301
City: Framingham **State/Province:** MA **Zip Code:** 01701
Phone : 5088752657 **Fax :**
Project Name: Somerville High school
Number of Samples in Shipment: **Date of Shipment:**
Please Provide results: ☐ FAX ☑ E-mail ☐ Mail
Standard Turnaround Time: ☐ 2 Weeks

Bill To Company: CDW Consultants
Attention To: susan cahalan
Street: 40 Speen Street Suite 301
City: Framingham **State/Province:** MA **Zip Code:** 01701
Phone: 5088752657 **Fax:**
U.S. State where Samples Collected: MA
Purchase Order: Somerville HS **Sampled By (Signature):**
Email Results To: scahalan@cdwconsultants.com
The following TAT's are subject to lab approval: ☐ 1 Week ☐ 4 Days ☒ 3 Days ☐ 2 Days ☐ 1 Day

Failure to complete will hinder processing of samples				Matrix	Preservative	List Test(s) Needed								
Client Sample ID	Comp	Grab	Date/Time	W=Water S=Soil A=Air SL=Sludge O= Other	1=HCL 2=HNO3 3=H2SO4 4=ICE 5=Other	TOTAL Mercury								Comments
① Merc-1		X	11/13/15	O	5	X								
② Merc-2		X	↓	O	5	X								
③ Merc-3		X		O	5	X								
④ Merc-4		X	↓	O	5	X								

Released By (Signature)	Date & Time	Received By	Date & Time
	11/16/15	20 C	11/17/15 0940

Please indicate reporting requirements: ☒ Results Only ☐ Results and QC ☐ Reduced Deliverables ☐ Disk Deliverable ☐ Other ______
Instructions or Comments:

Page 1 of 1 pages

SOMERVILLE HIGH SCHOOL

Somerville, Massachusetts

Existing Conditions Traffic Analysis

Prepared For:

Symmes Maini & McKee Associates

Prepared by:

Design Consultants, Inc.

January 2016

TABLE OF CONTENTS

LIST OF FIGURES

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APPENDICES

EXECUTIVE SUMMARY

This traffic analysis report was prepared to analyze the existing traffic conditions within the study area around Somerville High School. The proposed project site is located at 81 Highland Avenue in Somerville, Massachusetts. It's bordered by Medford Street in the north, Walnut Street in the east, School Street in the west, and Highland Avenue in the south.

Study Area

The following 12 intersections in Somerville, Massachusetts were examined in this traffic study.

- McGrath Highway at Medford Street
- Medford Street at Highland Avenue
- Walnut Street at Highland Avenue
- Walnut Street at Medford Street
- Putnam Street at Highland Avenue
- Prescott Street at Highland Avenue
- School Street at Highland Avenue
- Central Street at Highland Avenue
- School Street at Medford Street
- Central Street at Medford Street
- School Street at Broadway
- McGrath Highway at Broadway

Each of the study intersections listed above are highlighted relative to the project site in Figure A1. See Section B for detailed descriptions of existing conditions.

Safety Analysis

A safety analysis was carried out on the study intersections based on 2011 to 2013 crash data from MassDOT. These are the most recent available years of data. Crash data was analyzed to determine trends in location, manner of collision, and weather in order to point out high crash locations and analyze possible causation if necessary. None of the intersections studied have crash rates above district or statewide averages. Based on this analysis, there are no major safety issues with existing conditions or intersection geometries that need to be addressed as part of this traffic study. Detailed safety analyses and crash data is contained in Section C.

Intersection Capacity Analysis

For each intersection, capacity analyses were carried out under the existing conditions scenario. The MassDOT Transportation Impact Assessment (TIA) Guidelines require a 7-year planning horizon. The Existing Conditions Analysis is based on current traffic counts carried out in the study area, the results of which were adjusted and calibrated to reflect a typical day on the calendar. Level of Service (LOS) is a term used to qualitatively measure performance of traffic conditions of each intersection and is explained further in the body of this study.

Table A: 2015 Existing LOS Table

ID	*East-West Road*	*North-South Road*	*Lane*	Existing		*ID*	*East-West Road*	*North-South Road*	*Lane*	Existing	
				AM	PM					AM	PM
1	McGrath Highway	Medford Street	*EB L*	E	E	*7*	Highland Avenue	School Street	*SB LTR*	C	C
			EB R	A	A				*Overall*	*C*	*C*
			WB R	A	A	*8*	Highland Avenue	Central Street	*EB LTR*	B	B
			NB L	E	D				*WB LTR*	B	B
			NB T	A	A				*NB LTR*	B	C
			SB TR	C	C				*SB LTR*	C	B
			Overall	*C*	*C*				*Overall*	*B*	*B*
2	Highland Avenue / Medford Street	Hamlet Street	*EB TR*	B	B	9	Medford Street	School Street	*EB LTR*	B	A
			WB TL	B	C				*WB LTR*	D	F
			NB LR	A	A				*SB LTR*	B	B
			NWB R	A	A				*Overall*	*C*	*E*
			SB LTR	A	A	10	Medford Street	Central Street	*EB LTR*	A	A
			Overall	*B*	*B*				*WB LTR*	A	A
3	Highland Avenue	Walnut Street	*EB LT*	B	C				*NB LTR*	C	C
			WB TR	A	B				*SB LTR*	C	B
			NB LTR	B	C				*Overall*	*B*	*B*
			Overall	*B*	*C*	11	Broadway	School Street	*EB TR*	B	B
4	Medford Street	Walnut Street	*EB LT*	A	A				*WB L*	D	D
			WB TR	A	B				*WB T*	A	A
			NB LTR	A	B				*NB LR*	B	B
			Overall	*A*	*B*				*Overall*	*B*	*B*
5	Highland Avenue	Putnam Street	*EB TR*	A	A	12	Broadway	McGrath Highway	*EB L*	E	E
			WB LT	A	A				*EB T*	D	D
			NB LR	C	C				*EB R*	D	C
			Overall	*A*	*A*				*WB L*	D	D
6	Highland Avenue	Prescott Street	*EB TR*	A	A				*WB T*	D	D
			WB LT	A	A				*WB R*	E	E
			NB LR	C	C				*NB L*	E	E
			Overall	*A*	*A*				*NB TR*	C	F
7	Highland Avenue	School Street	*EB TR*	C	B				*SB L*	E	E
			WB TL	C	C				*SB TR*	D	E
			-	-	-				*Overall*	*D*	*F*

Table A above summarizes the LOS for the existing condition scenario. There are no intersections or movements that currently operate at an LOS of F during the weekday AM peak period. There are however several operational concerns to make note of for the weekday PM peak period. At the intersection of Medford Street and School Street, the westbound approach operates at an LOS of F during the weekday PM Peak period. At the intersection of McGrath Highway and Broadway, the northbound shared through and right-turn lane operate at a LOS F during the weekday PM peak period and the intersection operates at an overall LOS of F.

Conclusion

This Traffic Study was produced to assess the existing conditions in the study area around Somerville High School at 81 Highland Avenue in Somerville, Massachusetts. The existing roadways, intersections, and networks were analyzed for safety, multimodal transportation access, and efficiency of traffic operations. The safety analysis, which reviewed crash data from MassDOT for years 2011 through 2013, showed that there are no major safety issues in the study network to be addressed at this time. No fatal crashes occurred at any study intersections during the study period, and no intersections had crash rates above the District 4 or statewide average. The 2015 existing conditions capacity analysis that was carried out based on adjusted traffic counts carried out in the area show only two intersections with operational issues. These issues have been noted and will be addressed as needed moving forward through the No-Build and Build conditions.

Moving forward, DCI will generate traffic conditions for future 2022 No-Build and 2022 Build scenarios, and carry out a full Traffic Impact & Access Study. This study will address the specific impact that the proposed redevelopment of Somerville High School will have on the surrounding traffic network. The proposed site driveways will be analyzed to ensure safe ingress and egress for the site. DCI will also make recommendations regarding pedestrian and bicycle access in the area, and propose traffic mitigation if deemed necessary by the results of the future conditions analysis.

1. INTRODUCTION

1.1 Project Background

On May 20, 2015, the City of Somerville Public School Committee issued a Request for Design Services (RFS), seeking services for the reconstruction of Somerville High School. Symmes Maini & McKee Associates (SMMA) was selected to serve as the architect and project manager, and DCI was selected to serve as the traffic consultant for the project.

Currently, Somerville High School is approximately 394,132 square feet and sits on a 568,665 square foot lot. This lot is shared with Somerville City Hall, the Main Library, and a large open common area. The site address is 81 Highland Avenue. It is bordered by Medford Street in the north, Highland Avenue in the south, School Street in the west and Walnut Street in the east. Figure 1.1 is a locus map, showing the study area relative to the larger transportation network.

SMMA has successfully completed the Massachusetts School Building Authority Module 2 (Forming the Project Team) and is proceeding to Module 3 (Feasibility Study) and Module 4 (Schematic Design). The MSBA Module 4 Section 4.1.2 requires a traffic study as a part of the Schematic Design Submittal for the MSBA. Consequently, this traffic study was prepared for submission for MSBA Board of Directors for their consideration and approval. The existing traffic operations and current conditions of the surrounding network are addressed in this report. The essential elements of the traffic study will follow the Transportation Impact Assessment (TIA) Guidelines issued by Massachusetts Department of Transportation.

Land use surrounding the site is mixed commercial and residential. There are two civic buildings located on the same parcel of SHS. Somerville City Hall is located on the west side of SHS and the Somerville Public Library is located on the east side of SHS. Highland Avenue is notable for its bus service and large apartment buildings, which transition to smaller-scale two- and three-family homes in the neighborhoods between Highland Avenue and Summer Street.

1.2 Study Area

The study area is within a half mile radius of the project location. The following 12 intersections were selected for analysis as part of this traffic impact study:

- Medford Street at Central Street
- Medford Street at School Street
- Highland Avenue at Central Street
- Highland Avenue at School Street
- Highland Avenue at Prescott Street
- Highland Avenue at Putnam Street and City Hall driveway
- Highland Avenue at Walnut Street
- Medford Street at Walnut Street
- Medford Street at Highland Avenue and Hamlet Street
- McGrath Highway at Medford Street and Chester Avenue
- McGrath Highway at Broadway
- Broadway at School Street

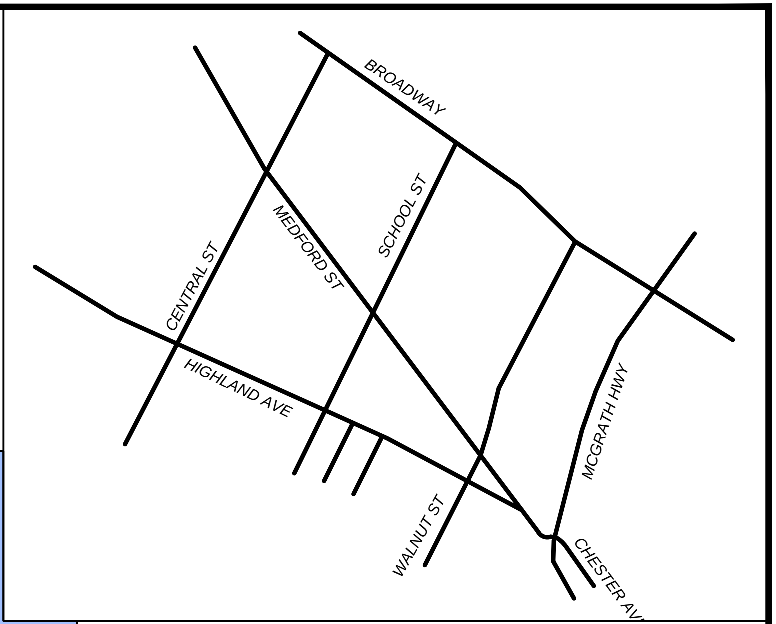
Out of the 12 intersections, 10 are signalized. The intersections of Highland Avenue at Prescott Street and Highland Avenue at Putnam Street are unsignalized. Figure 1.2 identifies the 12 intersections and also identifies the three locations where automatic traffic recorder (ATR) tubes were placed for the study. The details of each study intersections were discussed in Section 2.4.

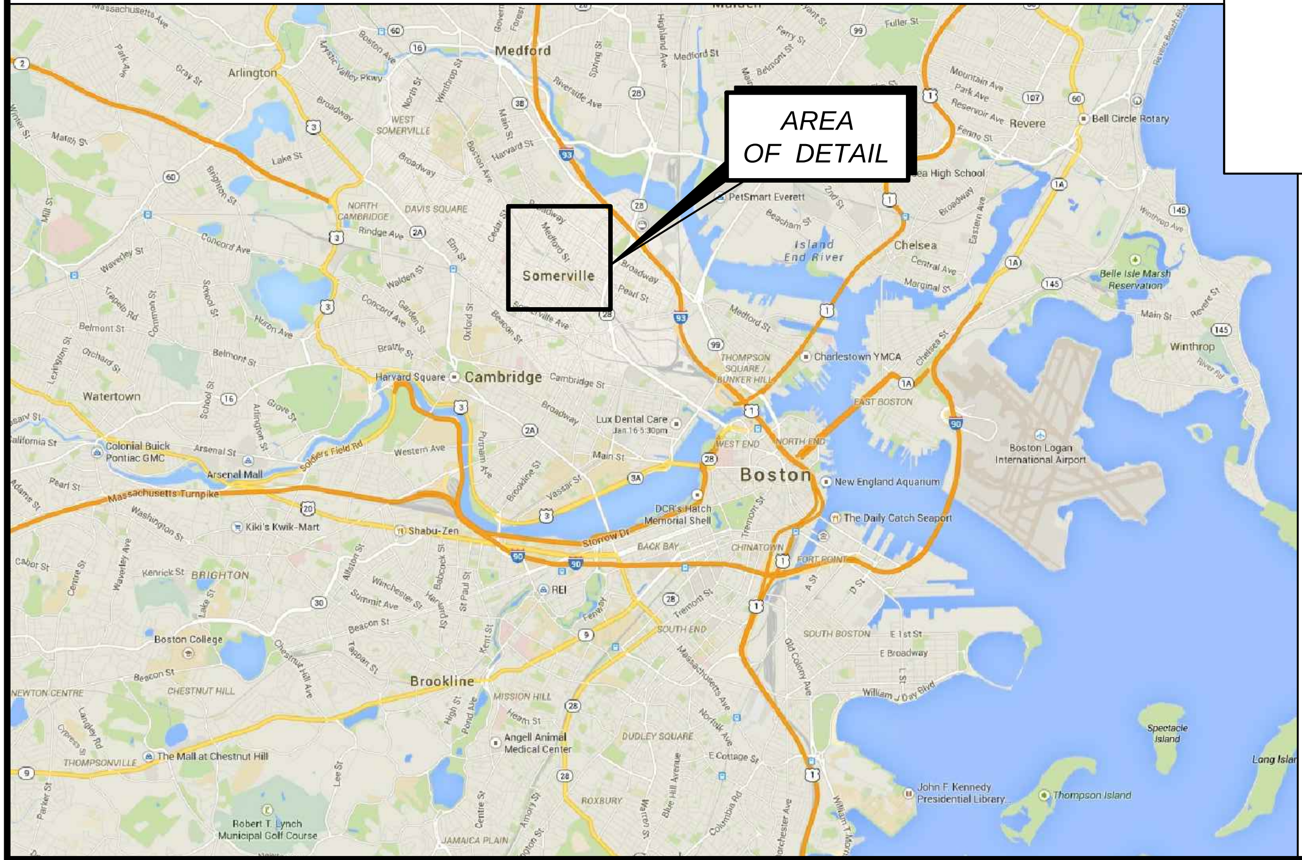
1.3 Results and Findings

This study surveyed the study area for the presence of pedestrian, bicycle and public transit facilities. An inventory was taken of sidewalk conditions in the area, and potential safety hazards have been noted. Bicycle access to Somerville High School will be analyzed, and potential improvements will be made in future parts of this study. Details are included in Section 2.5.

A safety analysis of the 12 intersections listed above was carried out based on the most recent years of crash data from MassDOT, 2011 to 2013. This analysis shows that there were no fatal crashes at these intersections, and none of the intersections included in the study have crash rates above District 4 or statewide averages. District 4 is the MassDOT Highway District that the site is located in.

Based on turning movement counts and data gathered in November 2015, a capacity analysis was carried out on the study network. During this analysis, existing signal timing and traffic control was replicated. It was determined that there are two existing operational issues for this network, only during the PM peak hour. These issues have been noted and will be addressed if needed in future parts of this traffic study.





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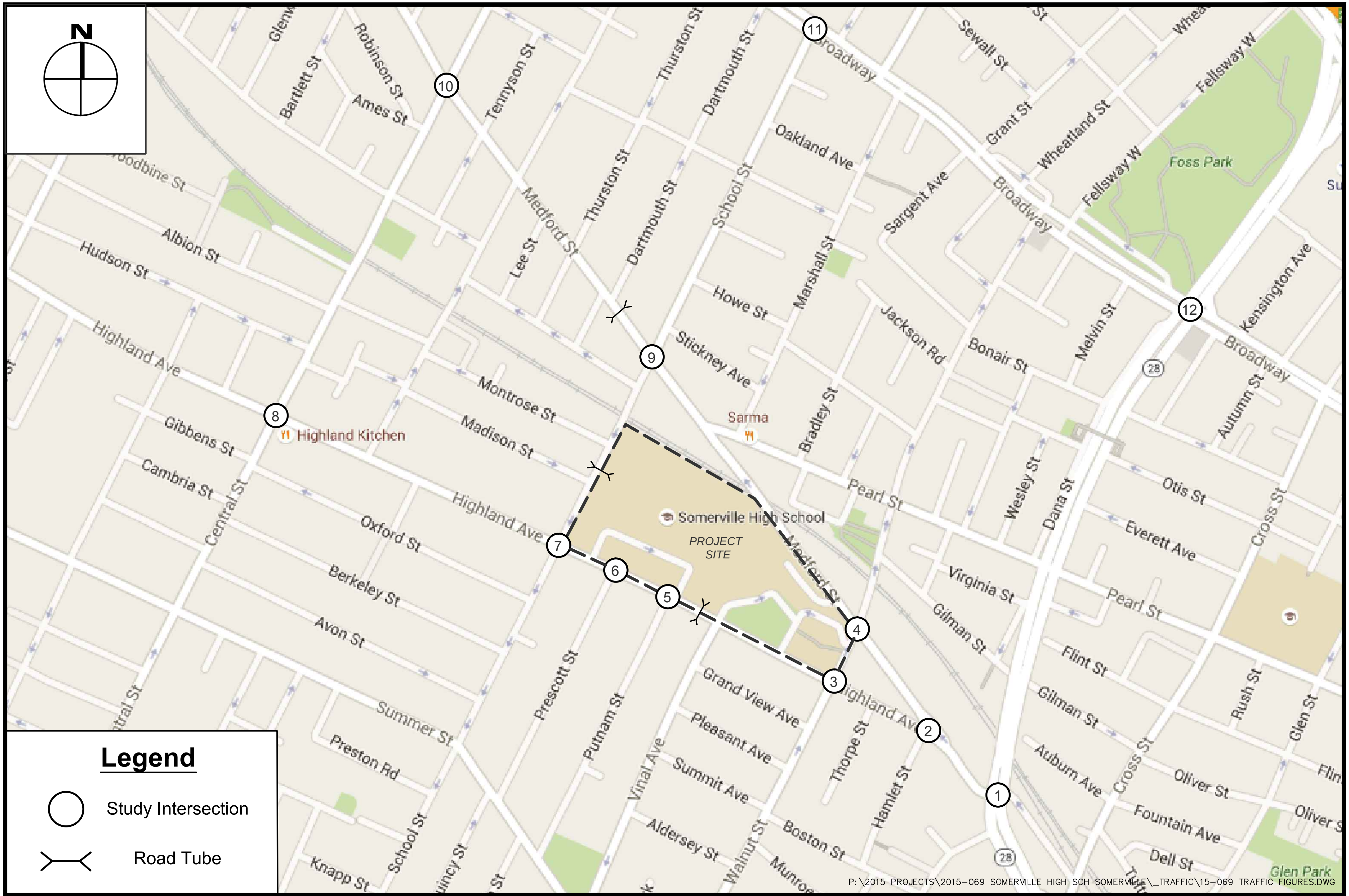
Design Consultants, Inc.
Consulting Engineers and Surveyors
120 MIDDLESEX AVENUE, SUITE 20
SOMERVILLE, MA 02145
(617) 776-3350

SOMERVILLE HIGH SCHOOL
SOMERVILLE, MA

Locus Map

PROJECT NO.: 2015-069
DATE: JANUARY 2016
SCALE: N.T.S.
Figure 1.1



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120 MIDDLESEX AVENUE, SUITE 20
SOMERVILLE, MA 02145
(617) 776-3350

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Study
Intersections

PROJECT NO.: 2015-069
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Figure 1.2

2. EXISTING CONDITIONS

2.1 Existing Site Layout

The parcel that houses Somerville High School, Somerville City Hall and the Somerville Public Library can be accessed via five entrance driveways. There are two entrances on Highland Avenue, one on Medford Street, one on Walnut Street, and one on School Street. Driveways on Medford Street and School Street provide access to parking lots for school staff only. There are two one-way access loops on Highland Avenue. Both operate in a clockwise direction from Highland Avenue. The western loop provides access to City Hall permit and visitor parking, plus some school department parking. The eastern loop provides access to the Library and parking for Library staff and patrons, as well as some school staff parking.

Somerville High School has bike racks for 18 bicycles. There is a six-bike rack at the front of the school on the west end, with three U-style racks (2 bikes each) across the front entrance loop. There are three more two-bike racks on the eastern side of the school towards the library. More information on pedestrian and bicycle facilities can be found in forthcoming sections of this report.

Figure 2.1, provided by SMMA, provides a visual layout of site access, circulation and the parking layout of the site.

Parking and Circulation Diagram

Somerville High School, Somerville, MA

Parking Legend

CH= City Hall
CHPO=City Hall Permit Only
EV=Electric Vehicle
OSPCD=Office of Strategic Planning and Community Developement
SC=Smart Car

Pick-up/Drop-off

→ Private vehicle
⇢ Large Bus
⇒ Small Bus

SMMA

2.2 Somerville High School Enrollment

Somerville High School currently serves grades 9 through 12. For the year 2015, there are 1,237 students enrolled at Somerville High School. Enrollment has been steadily decreasing at SHS, likely due to rising property and rent prices in the area, and the changing dynamic of Somerville as a whole. Long term goals of the City aim to bring more families back into Somerville. Based on this plan the baseline study enrollment for SHS in the year 2015 is 1,515 students. Figure 2.1 below shows historical enrollment trends over the past 21 years for Somerville High School.

As part of the Feasibility Study, the District would like to consider housing the alternative Full Circle High School and the alternative Next Wave Junior High School at Somerville High School. As a result of a collaborative analysis, the District and the MSBA have agreed upon proposed study enrollments as follows:

- 1,515 students – for grades 9-12 without inclusion of the Full Circle High School or the Next Wave Junior High School students.
- 1,565 students – for grades 9-12 including the Full Circle High School students.
- 1,590 students – for grades 9-12 including the Full Circle High School and the Next Wave Junior High School students.

This increase in enrollment, project improvements and future traffic conditions will be taken into account during the future conditions analysis portion of this project. The future enrollment used for the figure below and for this study is 1,590 students, the value associated with the highest project enrollment scenario.

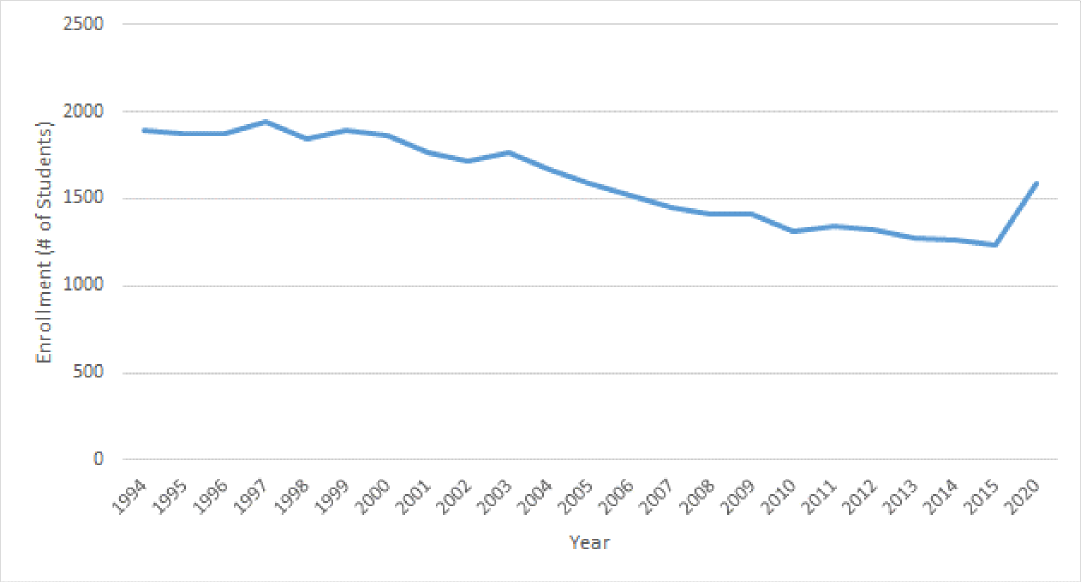


Figure 2.2 – Somerville High School Enrollment

2.3 SHS Activity

The school calendar is split into four quarters per year, with each quarter lasting 45 days. The busiest period on-site occurs between early September and mid-June as most other public schools. The school day officially starts at 7:55 in the morning and dismissal is at 2:32 in the afternoon.

There is no designated parking lot for student use, and they are not permitted to park in any on-site lot. Students are discouraged from driving to school as there is limited parking on the adjacent streets. Students who do drive are expected to follow city-parking regulations. Students are not allowed to park in the three parking lots or the front concourse, all of which require a special permit.

Two kinds of bus passes are available to S.H.S. students. Student 'S' passes are free of charge and the students load money on themselves, up to a maximum of $10. These passes allow the students to ride the MBTA at half the current full fare, and they are good for the entire academic year for all hours the MBTA is in operation. For $25 students may purchase a monthly T Pass that allows them to ride the bus as many times as they like during the month, but this pass is economical only for those students who take the bus more than twice a day. The monthly T Passes are for sale at the end of each month for the following month.

2.4 Study Roadways

Broadway is classified as an urban minor arterial west of its intersection with McGrath Highway and as an urban principal arterial east of its intersection with McGrath Highway. It travels in a generally southeast-northwest direction. Broadway's western limit is its intersection with Massachusetts Avenue in Arlington, and its eastern limit is its intersection with Route 38 in Somerville. It is approximately 4.3 miles long. Broadway has two travel lanes in either direction and within the study area, there is a median separating directions of travel in the vicinity of the project area. The posted speed limit on Broadway is 30 MPH.

McGrath Highway is a principal arterial that runs generally north-south through the study area. It carries the designation of State Route 28 south of its intersection with Fellsway and Mystic Avenue. McGrath Highway carries three travel lanes in either direction separated by a raised median. The posted speed limit is 35 MPH. Its southern limit is in East Cambridge where it becomes Monsignor O'Brien Highway, but maintains the designation of Route 28. McGrath Highway's northern limit is its intersection with Mystic Avenue. Land use along McGrath Highway varies between residential and commercial.

Medford Street is an urban minor arterial that travels spans approximately 2.5 miles in a generally northwest-southeast direction. It is separated into two parts by McGrath Highway. The northern segment lies between its intersection with Main Street in Somerville and its intersection with McGrath Highway and Chester Avenue. The southern segment lies between its intersection with Somerville Avenue and McGrath Highway and the Somerville/Cambridge boundary where it becomes Gore Street. It carries one travel lane in each direction and a 4-foot wide green painted bike lane in the southeast-bound direction in the vicinity of study area. Land use along Medford

Street is primarily commercial, but surrounding land use is increasingly residential as the road travels north. The speed limit on Medford Street is 30 miles per hour.

Highland Avenue is classified as an urban minor arterial. Surrounding land use is commercial, civic, and institutional. It spans approximately 1,800 feet from its intersection in the east with McGrath Highway to Davis Square. Highland Avenue carries one travel lane in each direction and “sharrows”, aka shared lane bicycle markings, are installed on both sides of the road in the vicinity of the study area. Parallel on-street parking is allowed on both sides of the street.

School Street runs in a generally north-south direction and is classified as an urban collector. It spans approximately one mile from its southern limit at Somerville Avenue to its northern limit at Broadway. South of its signalized intersection with Medford Street, School Street is one-way in the southbound direction. North of Medford Street, School Street is a two way road. School Street carries one travel lane in each direction, and parking is allowed on both sides of the road.

Central Street is classified as an urban collector and spans approximately 1 mile. It runs in a generally north-south direction from its intersection with Broadway in the north to its intersection with Somerville Avenue in the south. Land use along Central Street is primarily residential. It carries two-way traffic between Summer Street and Broadway, and becomes one-way in the southbound direction from its intersection with Summer Street to its intersection with Somerville Avenue.

Walnut Street is a one-way northbound street and is classified as an urban collector. It spans approximately 0.75 miles. Its northern limit is its intersection with Broadway, and its southern limit is its intersection with Bow Street. Walnut Street has regulated on-street parking on both sides of the street. Land use along Walnut Street is primarily residential.

Prescott Street is a local street that connects Summer Street and Highland Avenue. It spans approximately 1,100 feet. Prescott Street carries two-way traffic. The post speed limit on Prescott Street is 20 MPH in the school zone. Land use along Prescott Street is primarily residential.

Putnam Street is a local street that runs north-south. It connects to Summer Street in the south to Highland Avenue in the north. Putnam Street spans approximately 1,250 feet and carries two-way traffic. It provides regulated on-street parking on both sides of the street. Land use along Prescott Street is primarily residential.

2.5 Study Intersections

The intersection of **McGrath Highway at Medford Street and Chester Avenue** is a signalized intersection. McGrath Highway runs north south, Medford Street approaches from the northwest, and Chester Avenue is a one-way spur road that approaches the intersection from the east. At the southeast-bound approach, Medford Street carries a left-turn only lane and two right-turn only lanes. McGrath Highway carries two left-turn only lanes and three through lanes in the northbound direction, and carries two through lanes and one right-turn only lane in the southbound direction. Chester Avenue carries one right-turn only lane at the eastbound approach to the intersection. There are three receiving lanes on the McGrath Highway departures from the intersection. Crosswalks are installed across each approach to the intersection.

The intersection of **Medford Street at Highland Avenue and Hamlet Street** is a signalized, four-legged intersection that is northwest of the McGrath Highway, Medford Street, and Chester Avenue intersection. Highland Avenue approaches from the west while Medford Street approaches from the northwest and the southeast. Hamlet Street approaches from south. The Highland Avenue westbound approach carries one shared through-right lane. Medford Street westbound carries one shared left-through lane and a slip lane going north. Hamlet Street carries a shared left-right turn only lane. Crosswalks are installed across each approach to the intersection.

The intersection of **Highland Avenue and Walnut Street** is controlled by a traffic signal. Walnut Street is one-way in the northbound direction, and carries one travel lane. Parking is allowed on both sides of Walnut Street. Highland Avenue carries one lane in each direction, separated by a double solid yellow line. Parking is also allowed on both sides of Highland Avenue. Marked crosswalks are installed across each approach to the intersection.

The intersection of **Walnut Street at Medford Street** is a signalized intersection, just north of the Walnut Street at Medford Street intersection. Medford Street carries one approaching lane and one receiving lane at each approach. Walnut Street continues to be one-way in the northbound direction. Crosswalks are installed across each approach to the intersection.

The intersection of **Putnam Street at Highland Avenue and the City Hall Exit Driveway** is a four-legged unsignalized intersection. Highland Avenue doesn’t operate under any traffic control at this intersection and carries one approaching lane in the eastbound and westbound direction. Putnam Street is controlled by a stop sign and carries one approaching lane and one receiving lane. The exit driveway for City Hall is one-way in the southbound direction. Crosswalks are installed across the Putnam Street approach and the City Hall Driveway.

The intersection of **Prescott Street and Highland Avenue** is a three-legged, unsignalized intersection. Highland Avenue does not operate under any traffic control at this intersection. The northbound approach on Prescott Street is stop controlled. Prescott Street carries one approaching lane and one receiving lane at the intersection. A crosswalk is installed across the Prescott Street approach.

The intersection of **School Street and Highland Avenue** is a four-legged, signalized intersection. School Street is one-way in the southbound direction at this location. School Street carries one lane through this intersection. Highland Avenue runs east-west and carries one travel lane in each direction. Crosswalks are installed across all approaches to the intersection.

The intersection of **Central Street and Highland Avenue** is a four-way stop-controlled intersection. Eastbound and westbound approaches each carry one lane in each direction. Northbound and southbound approaches on Central Street also carry one lane in each direction. Crosswalks are installed across all approaches to the intersection.

The intersection of **School Street and Medford Street** is a four-way signalized intersection. School Street is a two-way road north of this intersection, and one-way in the southbound direction south of this intersection. The eastbound, westbound and northbound approaches carry one lane in each direction. Crosswalks are installed across all approaches to the intersection.

The intersection of **Medford Street and Central Street** is a signalized intersection. Central Street carries one shared left-through-right turn lane in either direction. Medford Street also carries one lane in each direction. Parking is allowed on both sides of Medford Street, and only the east side of Central Street. Crosswalks are installed at all approaches to the intersection.

The intersection of **School Street and Broadway** is a signalized three-legged intersection. School Street is a two-way roadway at this location and runs in a generally north-south direction. At this intersection, Broadway travels in a generally east-west direction. Broadway carries three lanes in the westbound direction and two lanes in the eastbound direction. Crosswalks are installed across all approaches to the intersection.

The intersection of **Broadway and McGrath Highway** is a four-legged intersection controlled by a traffic signal. Surrounding land use is commercial and residential. The eastbound approach on Broadway carries one left-turn only lane, one shared left-through lane, one through lane, and one right-turn only lane. The westbound approach on Broadway carries one left-turn only lane, one shared left-through lane, one through lane, and a channelized slip lane for the right turn movement. The westbound departure from the intersection has two receiving lanes, and the eastbound departure has three receiving lanes. The northbound and southbound approaches on McGrath Highway each carry a left-turn only lane, two through lanes and one through-right lane. Northbound and southbound departures from the intersection each have three receiving lanes. There are sidewalks and marked crosswalks at each approach.

Refer to Figure 1.2 which highlights each of these study intersections and shows them relative to the project site.

2.6 Multi-Modal Transportation

Pedestrian Facilities

Pedestrian connectivity in the area is facilitated by existing sidewalks along each of the study roads in the area. As part of the existing conditions analysis, a sidewalk conditions inventory was carried out. Generally, the study area covered a one-block distance from the school, but went out to several blocks along principal access routes. The survey was conducted to determine locations, conditions, and potential safety issues of sidewalks in the study area. Sidewalks conditions were classified into the following categories:

> ***Excellent:*** No significant deterioration noted.
>
> ***Good:*** Minimal cracking, heaving, or encroachment of vegetation noted.
>
> ***Fair:*** Some deterioration noted, including significant cracking, heaving, sinking or encroachment of vegetation. There are no serious walking impediments noted.
>
> ***Poor:*** Severe deterioration noted, that may inhibit the safe passage of pedestrians.

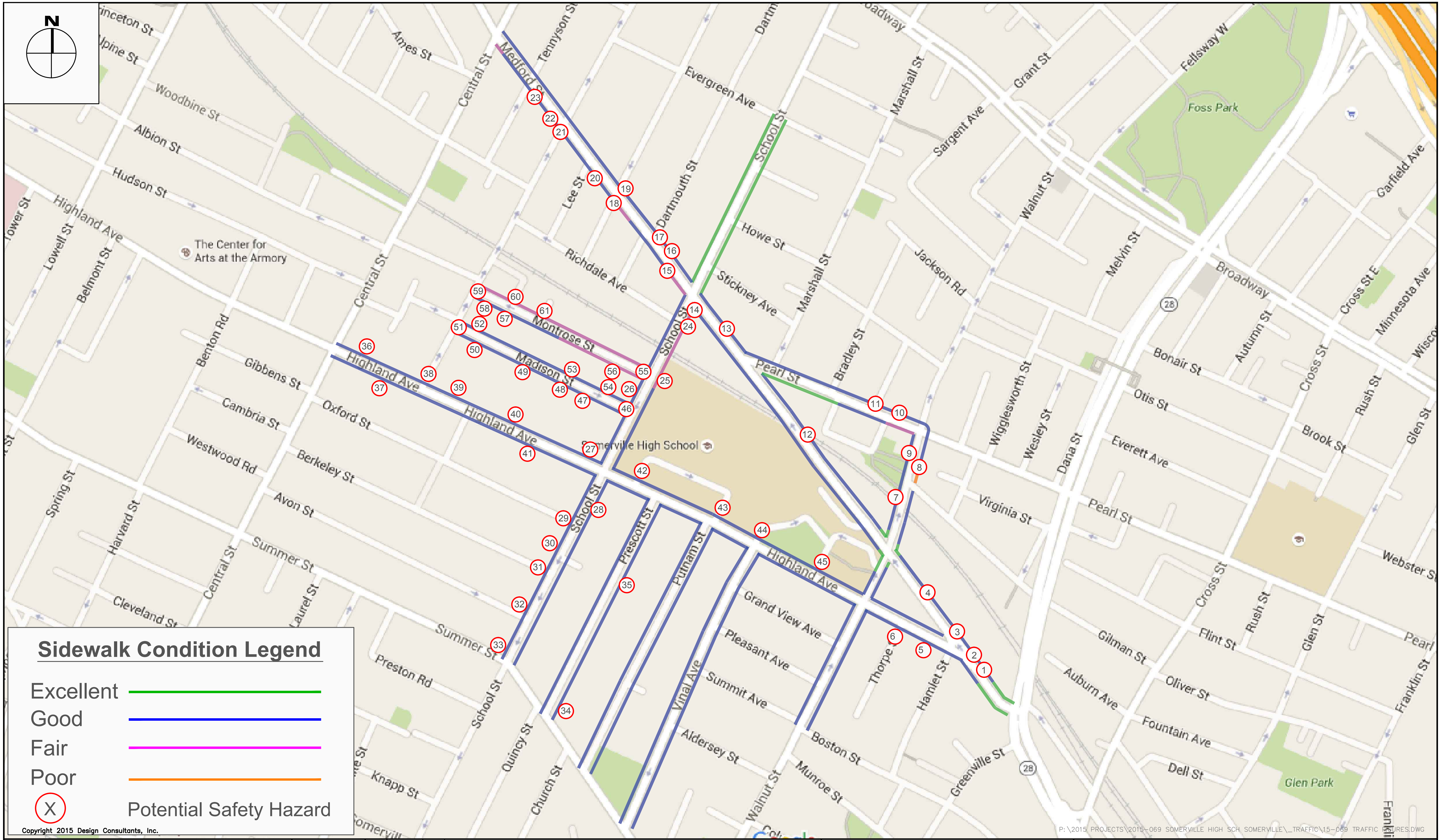
Additionally, potential safety hazards along each of the sidewalks studied were noted. These include significant encroachment of vegetation, major cracks, excessive heaving, and other deficiencies that may inhibit the ability of pedestrians to safely pass. Figure 2.2 shows the conditions of each sidewalk, with potential safety hazards numbered. These corresponding hazards are shown below in Table 1.

In general, most sidewalks in the study area are in good and passable condition. Many crosswalks are faded from tire wear. There were no major issues noted that made walking on the sidewalk prohibitive or hazardous. The potential safety hazards listed above are locations where improvements could be made, and where repairs would be necessary to make the passageway clear and completely accessible to all pedestrians.

Table 1: Potential Safety Hazards on Sidewalks

Location	*Description*	*Location*	*Description*
1	Cracking across driveway	32	Cracking crosswalk, erosion of crossing
2	Heaving, cracking, uneven surface	33	Cracking on sidewalk
3	Heaving due to tree roots	34	Minor cracking
4	Heaving due to tree roots	35	Cracking of crosswalk
5	Cracking of crosswalk, no detectable warning panel, erosion of crossing	36	Minor cracking
6	Cracking on sidewalk	37	missing patch of asphalt, cracking
7	Narrow passage due to location of utility pole	38	Cracking on WC ramp, no accessible
8	Heaving due to tree roots	39	heaving around SMH
9	Heaving, cracking, uneven asphalt patches	40	Minor Cracking
10	Heaving due to tree roots	41	minor cracking and patching
11	No accessible WC ramp, heaving around SMH	42	Crackin gof crosswalk
12	Uneven asphalt patch	43	Heaving, uneven sutface caused by tree root
13	Cracking on sidewalk due to car/truck overrun	44	Cracking of crosswalk, no detectable warning panel
14	Cracking on sidewalk	45	Cracking of crosswalk
15	Uneven asphalt patch	46	No accessible WC ramps at intersection
16	Heaving due to tree roots, narrow passage	47	Cracking on sidewalk
17	WC ramp is cracking and deteriorated	48	Cracking on sidewalk
18	WC ramp is cracking and deteriorated	49	Uneven asphalt patch
19	WC ramp is cracking and deteriorated	50	Heaving due to tree roots, uneven asphalt patch
20	Heaving, uneven surface	51	No accessible WC ramps at intersection
21	WC ramp is cracking and deteriorated	52	Heaving, uneven surface
22	Heaving due to tree roots, narrow passage	53	Heaving, uneven surface
23	Uneven asphalt patch	54	Heaving, uneven surface
24	Patching present on sidewalk	55	No accessible WC ramps at intersection
25	Patching present on sidewalk	56	Heaving due to tree roots
26	Cracking on sidewalk	57	Heaving due to tree roots, uneven asphalt patch
27	Heaving, uneven surface caused by tree root	58	Heaving due to tree roots, uneven asphalt patch
28	Craking on sidewalk, uneven asphalt patches	59	No accessible WC ramps at intersection
29	Cracking on sidewalk and crosswalk	60	No ramp to cross intersection
30	Uneven surface, cracking	61	Sidewalk deterioation / cracking
31	Cracking crosswalk, erosion of crossing		

See Figure 2.3 on the following page shows sidewalk conditions with the corresponding location numbers from the table above.



Design Consultants, Inc.
Consulting Engineers and Surveyors

120 MIDDLESEX AVENUE
SOMERVILLE, MA 02145
617-776-3350

68 PLEASANT STREET
NEWBURYPORT, MA 01950
978-358-7173

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VERT: N.T.S.

NO.	DATE	BY	REVISIONS

SOMERVILLE HIGH SCHOOL
SOMERVILLE, MA

Sidewalk Conditions

PROJECT NO. 2015-069

DATE: JANUARY 2016

Figure 2.3

Bicycle Facilities

Bicycle facilities were surveyed for the surrounding area and along principal access routes near Somerville High School.

Within the study area, Highland Avenue, School Street, Walnut Street, Pearl Street, Cross Street, parts of Washington Street and Medford Street have installed shared lane markings, also known as "sharrows." Summer Street, Somerville Avenue, Bow Street, and parts of Broadway, Washington Street and Medford Street have designated bike lanes. The bike lane along Medford Street directly north of the project site is colored green to warn cyclists and drivers of a conflict zone. Note that the bike lane on Medford Street is only installed in the southeast bound direction.

There are three nearby Hubway bicycle share stations. Hubway is a bicycle sharing system with stations in Boston, Cambridge, Brookline and Somerville. Hubway provides bicycles for short term rentals on a trip by trip basis. There is a station directly outside City Hall on the same lot as Somerville High School, one at the intersection of Somerville Avenue at Conway Park, and one at the intersection of Highland Avenue and Crocker Street near the Somerville Hospital.

Figure 2.4 shows the presence of different levels of bike facilities in the study area.

Public Transit

In terms of public transit, MBTA bus routes 80, 85, 88 and 90 run through the study area.

- Bus Route 80 runs between Lechmere Station in East Cambridge and Arlington Center in Arlington. Near the study area, Route 80 provides service along McGrath Highway, Pearl Street and Medford Street. Route 80 runs at 20 minute to hourly intervals.
- Bus Route 85 runs between Spring Hill in Somerville and Kendal/MIT station in Cambridge. Near the study area, it provides service at School Street at Avon Street. It runs at 30 to 40 minute intervals during weekdays and no service on weekends.
- Bus Route 88 provides connections between Lechmere Station in East Cambridge and Clarendon Hill in North Cambridge. Within the study area it has stops along Highland Avenue. It runs at 30 minute and hourly intervals.
- Bus Route 90 runs between Wellington Station in Medford and Davis Square in Somerville. Near the study area it has stops along Highland Avenue. It runs at 40 minute and hourly intervals.

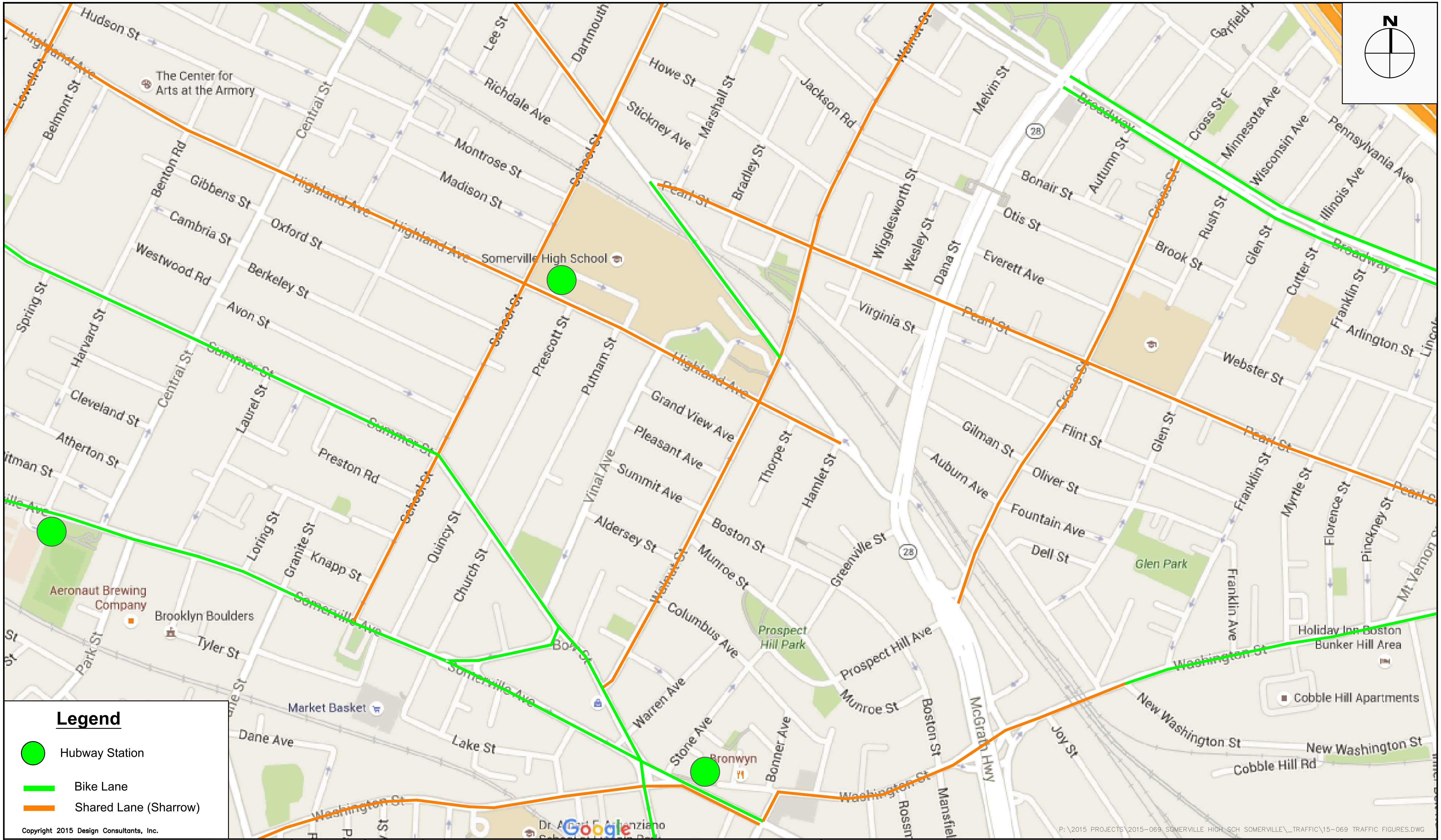
See Figure 2.5 for a map showing these public transit options in the study area.

The Green Line Extension project proposes to extent the existing MBTA Green Line Service from a relocated Lechmere Station in East Cambridge to Union Square in Somerville and to College Avenue in Medford. This project is a major transportation priority of the Commonwealth and would offer a "one-seat" ride along the project corridor to downtown Boston. It would eliminate the need for transfers at Lechmere Station and at Orange and Red Line stations and improve travel times within the project corridor. The new transit stations would meet or exceed the Americans with Disabilities Act (ADA) and Massachusetts Architectural Access Board (MAAB) standards.

Mitigation measures during construction would reduce existing noise and vibration impacts from area railroads. Once completed, trains would operate every five to six minutes during the peak periods, providing fast and efficient service to and from downtown Boston.

The MBTA and MassDOT are currently reevaluating additional funding options and possible changes to the project following a recent project cost analysis. New trolleys, plots of land, and some system improvements have been purchased. Construction that has already commenced will continue, but new work is currently on hold until new contracting plans and an adjusted budget are proposed in 2016.

The GLX project would have a proposed transit station at Gilman Square, which is the intersection of Medford Street, Pearl Street, and Marshall Street. It would be less than 400 feet away (or a 2-minute walk) from Somerville High School. If budget issues can be resolved, the current anticipated completion date for this project is December 2019.



Design Consultants, Inc.
Consulting Engineers and Surveyors

120 MIDDLESEX AVENUE
SOMERVILLE, MA 02145
617-776-3350

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NEWBURYPORT, MA 01950
978-358-7173

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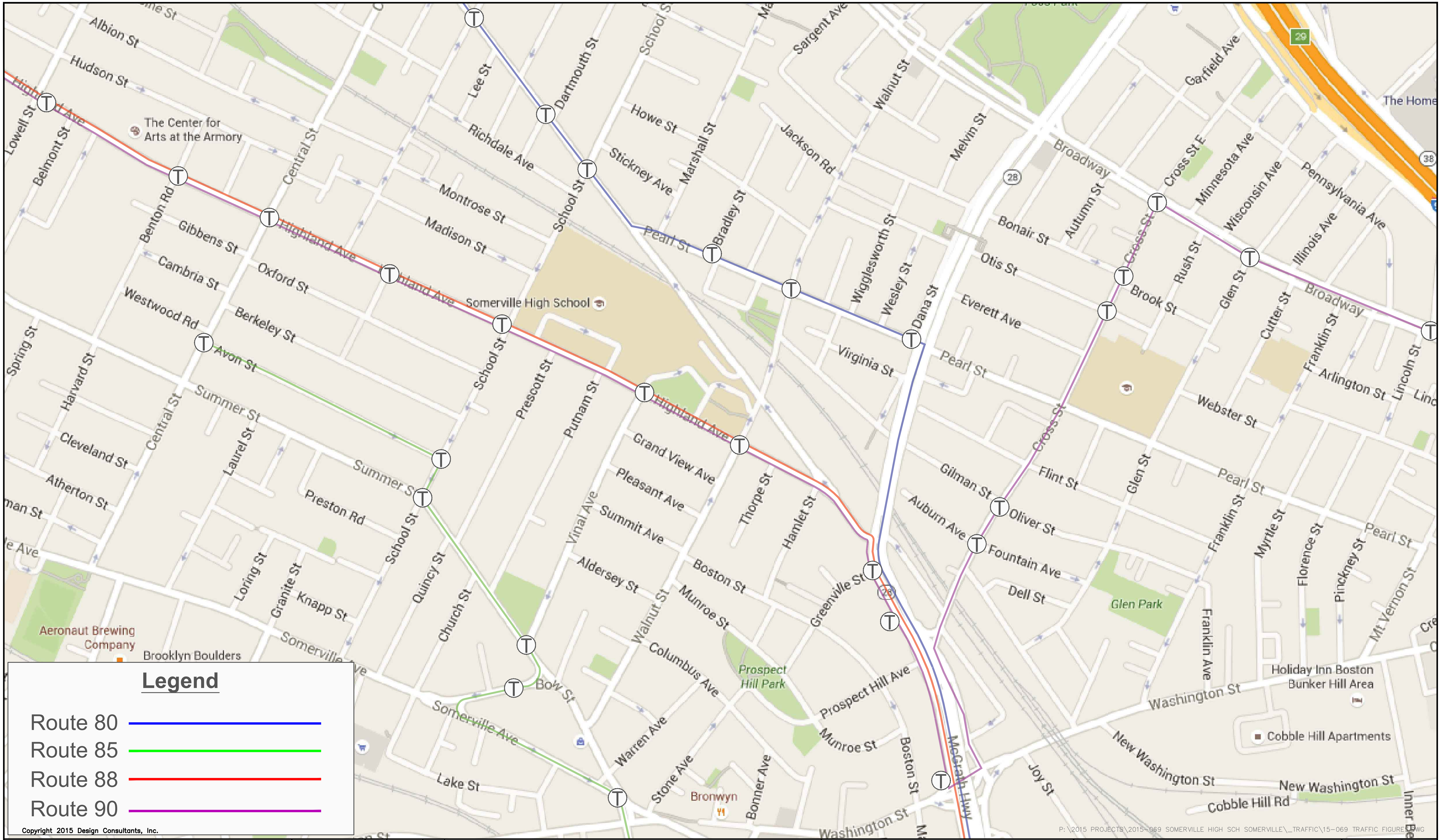
Bicycle Facilities Inventory

PROJECT NO. 2015-069

DATE: JANUARY 2016

Figure 2.4



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617-776-3350

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SOMERVILLE HIGH SCHOOL
SOMERVILLE, MA

Public Transit

PROJECT NO. 2015-069

DATE: JANUARY 2016

Figure 2.5

2.6 Traffic Volumes

Turning movement counts were collected in November 2015. To ensure the analysis is consistent and reliable, DCI collected two peak hours' data for both AM peak (7-9 AM) and PM peak (4-6 PM) on a typical Wednesday. The traffic counts include cars, heavy vehicles, pedestrians and bicycles. The data were collected at all study intersections listed in Section 1 and shown in Figure 1.2.

In addition, to comply with MassDOT Transportation Impact Assessment (TIA) Guidelines, DCI also collected Automatic Traffic Recorder counts through three consecutive days during a Tuesday to Thursday period in November 2015. The ATR collected traffic volume data, vehicular speed data, vehicle classification data, and the length of gaps in between vehicles. The counts are summarized in 15-minute, hourly, and daily intervals. ATR data was collected at the following locations:

- Highland Avenue between Putnam Street and Vinal Avenue
- Medford Street between Dartmouth Street and School Street
- School Street between Montrose Street and Madison Street

The ATR data was collected on Medford Street, Highland Avenue and School Street are summarized below. The average weekday daily traffic on Medford Street is approximately 10,000 vehicles. On School Street it is approximately 8,000 vehicles, and on Highland Avenue it is approximately 15,000 vehicles. Table 1 below shows locations, ADTs, 85th percentile speeds, and data broken up by direction and time period.

Table 2: ATR Data Summary

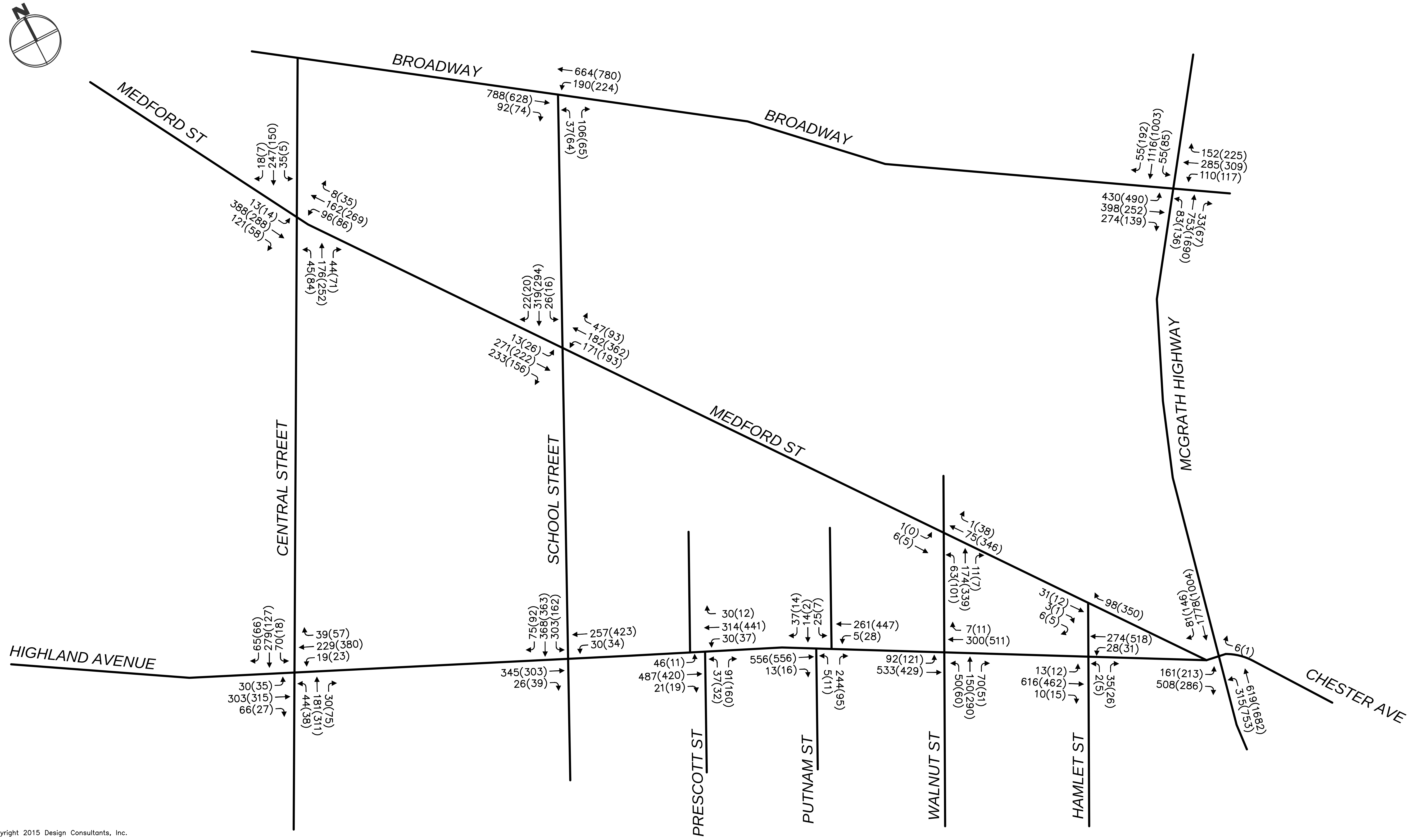
			Weekday AM Peak Hour			Weekday PM Peak Hour		
Location	ADT	85th Percentile Speed	Volume	K	Peak Direction	Volume	K	Peak Direction
Medford Street, east of School Street	10307	24 MPH (WB), 26 MPH (EB)	3605	18.1%	57% WB	6702	12.4%	72% WB
School Street, north of Madison Street	7675	22 MPH (SB)	3879	18.2%	100% SB	3797	14.1%	100% SB
Highland Avenue, east of Putnam Street	14887	28 MPH (WB), 26 MPH (EB)	5699	19.1%	75% EB	9188	11.5%	61% EB

Complete traffic count data are provided in Appendix I.

Seasonal Adjustment

On the basis of the MassDOT TIA and Traffic and Safety Engineering 25% Design Submission Guidelines, a seasonal factor was applied to the traffic volume. By calculating monthly volumes from MassDOT Permanent Counting Stations 8098 and 8099 on I-93, which are approximately 0.8 miles north of the project site. It was determined that traffic levels in Somerville are 1.2% lower in November when compared to the average monthly rate. To be conservative, a seasonal adjustment factor of 1.2% will be added to the existing volumes. The adjusted existing AM and PM peak hour traffic volumes are shown in Figure 2.5. These are the volumes that will be utilized for the existing conditions analysis. Detailed seasonal adjustment data has been attached in Appendix II

Peak hour pedestrian and bicycle volumes (unadjusted) are shown in Figures 2.6 and 2.7, respectively.



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SCALE:
HORIZ: N.T.S.
VERT: N.T.S.

NO.	DATE	BY	REVISIONS

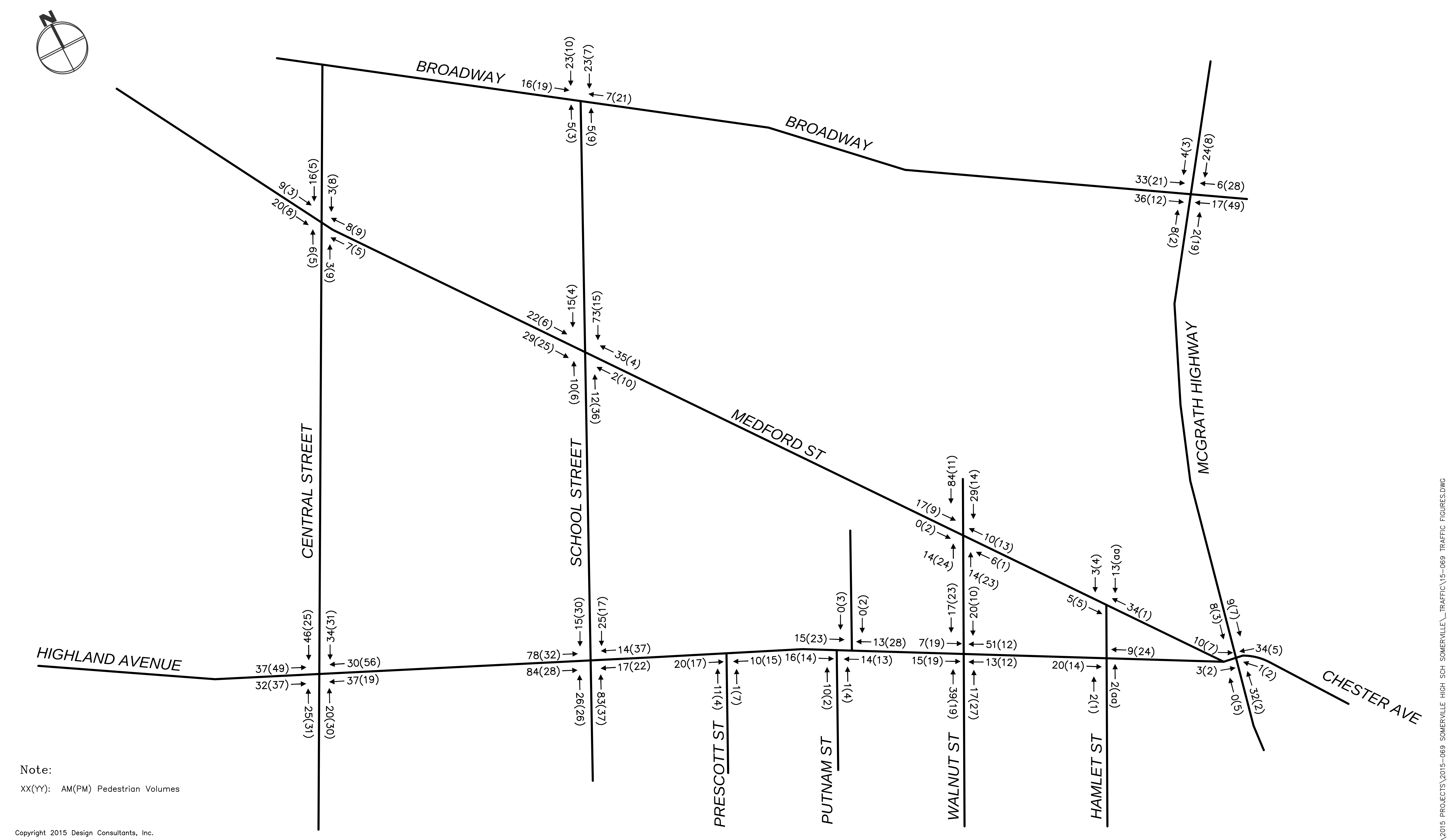
SOMERVILLE HIGH SCHOOL
SOMERVILLE, MA

Existing
Traffic Volumes

PROJECT NO.
2015-069

DATE: JANUARY 2016

Figure 2.6



Note:

XX(YY): AM(PM) Pedestrian Volumes

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Existing Pedestrian Volumes

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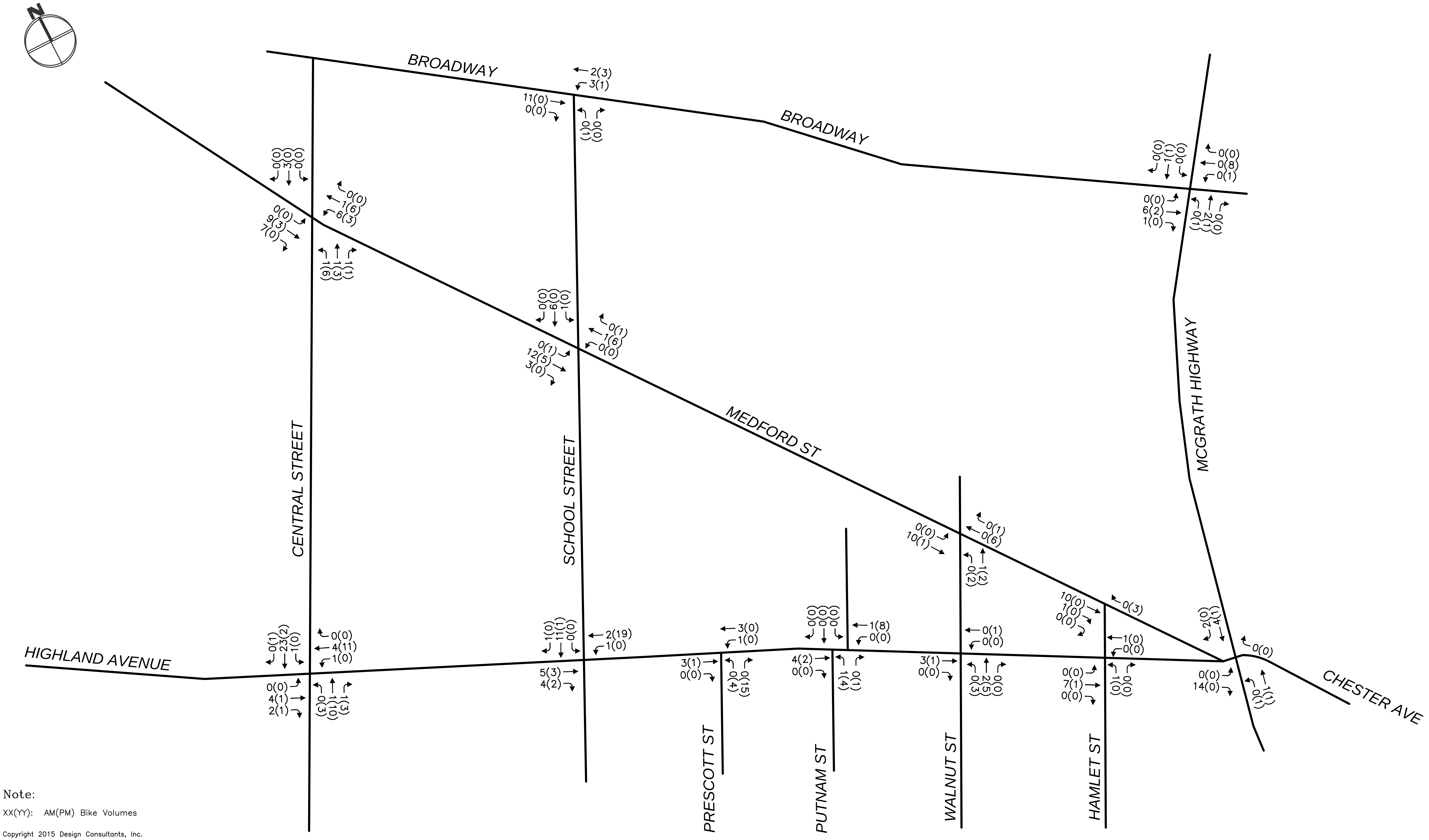
DATE: JANUARY 2016

Figure 2.7



Note:

XX(YY): AM(PM) Bike Volumes

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SOMERVILLE, MA

Existing
Bicycle Volumes

PROJECT NO.
2015-069

DATE: JANUARY 2016

Figure 2.8

2.7 Safety Analysis

Crash Data and Analysis

Crash data from MassDOT for years 2011 through 2013 was reviewed within the jurisdiction of Somerville. These are the most recent years of data available through the MassDOT crash database. The MassDOT crash records offered the following information:

- Crash Location (General or Specific) / Direction of vehicle(s)
- Date / Time
- Roadway surface conditions / Light conditions / Weather conditions
- Crash Severity / Manner of Collision

While it may be assumed that all relevant crash attributes should be reported and provided in recordkeeping, the fact of the matter is that a portion of the individual crash records have only partial information available - information may be missing for a variety of data fields in any given crash report. Among various reasons for this, missing crash information might be attributed to the type of police reports filled out and provided to MassDOT.

The locations of crashes in the area of the study intersections were general and approximated in a relatively large number of cases. This lack of specificity can hinder the engineer's ability to identify statistically significant trends and diagnose potential safety problems.

With that said, the synthesized data, in conjunction with engineering judgment, has yielded a summary of crashes that may be used to speculate on a variety of general crash patterns.

The results of the state crash analysis are shown in Tables 2.1 and 2.2. The crash rates compared to average District 4 and statewide crash rates are shown in Table 2.3. Detailed crash analysis worksheets for each intersection for years 2011-2013 are contained in Appendix III.

Table 2.1: MassDOT Intersection Crash Conditions

	Medford St & Central St	Medford St & School St	Highland Ave & Central St	Highland Ave & School St	Highland Ave & Prescott St	Highland Ave & Putnam St	Highland Ave & Walnut St	Medford St & Walnut St	Medford St & Highland Ave & Hamlet St	McGrath Hwy & Medford St	McGrath Hwy & Broadway	Broadway & School St
Year												
2011	2	1	3	4	0	1	3	0	3	5	9	1
2012	4	3	4	5	2	1	4	2	0	8	11	2
2013	2	2	6	1	1	0	5	3	3	4	16	3
Total	*8*	*6*	*13*	*10*	*3*	*2*	*12*	*5*	*6*	*17*	*36*	*6*
Crash Hour												
06:00AM to 10:00AM	1	1	2	3	2	0	3	3	0	0	7	1
10:00AM to 02:00PM	0	2	4	1	1	2	2	0	0	5	7	1
2:00PM to 06:00PM	3	0	4	4	0	0	2	1	1	6	7	1
06:00PM to 10:00PM	3	2	3	2	0	0	1	1	2	2	9	2
10:00PM to 02:00AM	1	1	0	0	0	0	4	0	2	3	3	0
02:00AM to 06:00AM	0	0	0	0	0	0	0	0	1	1	3	1
Total	*8*	*6*	*13*	*10*	*3*	*2*	*12*	*5*	*6*	*17*	*36*	*6*
Light Conditions												
Daylight	4	3	10	7	3	2	7	4	0	8	21	2
Dawn	0	1	0	0	0	0	1	0	0	0	1	0
Dusk	2	0	0	1	0	0	0	0	0	1	0	0
Dark - lighted roadway	0	1	3	1	0	0	4	1	3	7	14	1
Dark - roadway not lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark	1	0	0	0	0	0	0	0	0	0	0	0
Other, unknown	1	1	0	1	0	0	0	0	3	1	0	3
Total	*8*	*6*	*13*	*10*	*3*	*2*	*12*	*5*	*6*	*17*	*36*	*6*
Road Surface												
Dry	3	2	5	6	2	2	10	5	0	14	27	3
Wet	4	3	5	2	1	0	2	0	3	2	8	0
Snow	0	0	2	0	0	0	0	0	0	0	1	0
Ice	0	0	0	0	0	0	0	0	0	0	0	0
Sand, mud etc.	0	0	0	0	0	0	0	0	0	0	0	0
Water	0	0	0	0	0	0	0	0	0	0	0	0
Slush	0	0	0	0	0	0	0	0	0	0	0	0
Other, known	1	1	1	2	0	0	0	0	3	1	0	3
Total	*8*	*6*	*13*	*10*	*3*	*2*	*12*	*5*	*6*	*17*	*36*	*6*
Weather												
Clear	2	3	8	4	2	1	7	4	0	9	16	3
Cloudy	2	0	1	3	0	1	2	1	0	4	6	0
Rain	1	2	3	1	1	0	1	0	3	2	4	0
Snow	2	0	1	1	0	0	1	0	0	0	1	0
Sleet, hail, freezing rain	0	0	0	0	0	0	1	0	0	0	1	0
Fog, smog, smoke	0	0	0	0	0	0	0	0	0	0	0	0
Severe crosswinds	0	0	0	0	0	0	0	0	0	0	0	0
Blowing sand, snow	0	0	0	0	0	0	0	0	0	0	0	0
Other, unknown	1	1	0	1	0	0	0	0	3	2	8	3
Total	*8*	*6*	*13*	*10*	*3*	*2*	*12*	*5*	*6*	*17*	*36*	*6*

Table 2.2: MassDOT Intersection Crash Types

	Medford St & Central St	*Medford St & School St*	*Highland Ave & Central St*	*Highland Ave & School St*	*Highland Ave & Prescott St*	*Highland Ave & Putnam St*	*Highland Ave & Walnut St*	*Medford St & Walnut St*	*Medford St & Highland Ave & Hamlet St*	*McGrath Hwy & Medford St*	*McGrath Hwy & Broadway*	*Broadway & School St*
Crash Severity												
Property Damage Only	4	3	5	8	2	2	6	3	2	9	18	4
Non-fatal Injury	4	2	7	2	1	0	5	2	3	7	16	2
Fatal Injury	0	0	0	0	0	0	0	0	0	0	0	0
Not Reported, Unknown	0	1	1	0	0	0	1	0	1	1	2	0
Total	*8*	*6*	*13*	*10*	*3*	*2*	*12*	*5*	*6*	*17*	*36*	*6*
Manner of Collision												
Sideswipe, Same Direction	1	1	0	0	0	0	0	0	2	3	3	0
Sideswipe, Opposite Direction	0	0	0	0	0	0	2	0	0	0	0	0
Angle	5	1	2	4	3	2	7	0	0	6	6	0
Rear-end	2	3	3	4	0	0	2	5	1	6	20	2
Head-on	0	0	0	0	0	0	0	0	0	0	0	0
Single Vehicle	0	0	7	1	0	0	1	0	1	2	5	1
Other, not reported	0	1	1	1	0	0	0	0	2	0	2	3
Total	*8*	*6*	*13*	*10*	*3*	*2*	*12*	*5*	*6*	*17*	*36*	*6*

Table 2.3: MassDOT Intersection Crash Rates

	Avg. Crashes per Year	*Avg. Crash Rate (Crashes per MEV)*	*MassDOT D4 Avg. Crash Rate (Crashes per MEV)*	*Statewide Avg. Crash Rate (Crashes per MEV)*
Medford St & Central St	2.67	0.49	0.77	0.80
Medford St & School St	2.00	0.38	0.77	0.80
Highland Ave & Central St	4.33	0.73	0.77	0.80
Highland Ave & School St	3.33	0.59	0.77	0.80
Highland Ave & Prescott St	1.00	0.25	0.58	0.60
Highland Ave & Putnam St	0.67	0.15	0.58	0.60
Highland Ave & Walnut St	4.00	0.67	0.77	0.80
Medford St & Walnut St	1.67	0.49	0.77	0.80
Medford St & Highland Ave & Hamlet St	2.00	0.60	0.77	0.80
McGrath Hwy & Medford St	5.67	0.40	0.77	0.80
McGrath Hwy & Broadway	12.00	0.63	0.77	0.80
Broadway & School St	2.00	0.26	0.77	0.80

Tables 2.1 through 2.3 are summarized below, and any notable trends or statistics from each intersection are pointed out. Any recorded pedestrian or bicycle related crash are pointed out in the following summaries.

The intersection of **Medford Street and Central Street** had eight (8) recorded crashes over the period of 2011 to 2013. It is notable that 63% of these crashes were angle collisions. There was one pedestrian related crash at this intersection. This collision happened in the snow and resulted in a non-fatal injury. This intersection averaged 2.67 crashes per year, and a MassDOT crash rate of 0.49 crashes per Million Entering Vehicles (MEV) was calculated, which is below the District 4 and statewide averages for signalized intersections.

The intersection of **Medford Street and School Street** had six (6) recorded crashes over the period of 2011 to 2013. There was one pedestrian related crash at this intersection, which resulted in a non-fatal injury. This resulted in an average of two crashes per year, and a MassDOT crash rate of 0.38 crashes per MEV. This is below the District 4 and statewide averages for signalized intersections.

The intersection of **Highland Avenue and Central Street** had thirteen (13) recorded crashes over the period of 2011 to 2013. It is notable that six of these thirteen crashes involved a pedestrian or cyclist. Two involved cyclists, and four involved pedestrians. 54% of the crashes at this intersection resulted in non-fatal injuries, including five of the six bicycle or pedestrian related crashes. This resulted in an average of 4.33 crashes per year and a MassDOT crash rate of 0.73 crashes per MEV. This is below the District 4 and Statewide averages for signalized intersections.

The intersection of **Highland Avenue and School Street** had ten (10) recorded crashes over the period of 2011 to 2013. 40% of these crashes were angle collisions and 40% were rear-end collisions. There was one crash at this intersection that involved a pedestrian, resulting in non-fatal injury. The intersection averaged 3.33 crashes per year, and a MassDOT crash rate of 0.59 crashes per MEV was calculated. This is below the District 4 and Statewide averages for signalized intersections.

The intersection of **Highland Avenue and Prescott Street** had three (3) recorded crashes over the period of 2011 to 2013. This resulted in an average of one crash per year, and a MassDOT crash rate of 0.25 crashes per MEV. This is below the District 4 and Statewide averages for unsignalized intersections.

The intersection of **Highland Avenue and Putnam Street** had two (2) recorded crashes over the period of 2011 to 2013. This resulted in an average of 0.67 crashes per year and a MassDOT average crash rate of 0.15 crashes per MEV. This is below the District 4 and Statewide averages for unsignalized intersections.

The intersection of **Highland Avenue and Walnut Street** had twelve (12) recorded crashes over the period of 2011 to 2013. 58% of these crashes were angle collisions. There was one crash involving a pedestrian and one crash involving a cyclist. Both of these collisions resulted in non-fatal injuries. This intersection had four crashes per year, resulting in a MassDOT crash rate of 0.67 crashes per MEV. This is below the District 4 and Statewide averages for signalized intersections.

The intersection of **Medford Street and Walnut Street** had five (5) recorded crashes over the period of 2011 to 2013. It is notable that 100% of these crashes were rear-end collisions. This intersection averaged 1.67 crashes per year, resulting in a MassDOT crash rate of 0.49 crashes per MEV. This is below the District 4 and Statewide averages for signalized intersections.

The intersection of **Highland Avenue at Medford Street and Hamlet Street** had six (6) recorded crashes over the period of 2011 to 2013. One crash at this intersection involved a cyclist and resulted in a non-fatal injury. This intersection had an average of two crashes per year and a MassDOT crash rate of 0.60 crashes per MEV. This is below the District 4 and Statewide averages for signalized intersections.

The intersection of **McGrath Highway and Medford Street** had seventeen (17) recorded crashes over the period of 2011 to 2013. 35% of the crashes at this intersection were angle collisions and 35% were rear-end collisions. The intersection averaged 5.67 crashes per year and had a MassDOT crash rate of 0.40 crashes per MEV. This is below the District 4 and statewide averages for signalized intersections.

The intersection of **McGrath Highway and Broadway** had thirty six (36) recorded crashes over the period of 2011 to 2013. 56% of these crashes were rear-end collisions. Two crashes at this intersection involved pedestrians, both of which resulted in non-fatal injury. This intersection averaged 12 crashes per year, resulting in a MassDOT crash rate of 0.63 crashes per MEV. This is below the District 4 and statewide averages for signalized intersections.

The intersection of **Broadway and School Street** had six (6) recorded crashes over the period of 2011 to 2013. One crash involved a cyclist, resulting in non-fatal injury. The intersection averaged two crashes per year, and a MassDOT crash rate of 0.26 crashes per MEV was calculated. This is below the District 4 and statewide averages for signalized intersections.

Conclusion

Based on the safety analysis carried out on crash data from MassDOT from 2011 through 2013, none of the study intersections for this project have crash rates above District 4 or statewide averages. There were no fatal crashes at any of the study intersections. The existing conditions and roadway geometries do not present any salient safety issues that need to be addressed as part of this traffic study.

2.8 Intersection Capacity Analysis

In this study, intersection performance measures were calculated in the form of volume to capacity (v/c) ratio, average intersection delay, 95th percentile queue lengths, level-of-service (LOS) of overall intersections, and the LOS of each approach. Synchro 8.0 was the software used to execute the intersection analysis. Synchro 8.0, a software program from Trafficware, uses the methodologies and thresholds outlined within the Highway Capacity Manual (HCM).

Synchro is the preferred and recommended software of MassDOT. Traffic volumes represents the observed travel demand and capacity represents the amount of traffic the intersection can accommodate under prevailing conditions. Volume to capacity ratios that approach or exceed 1.0 indicates traffic congestion or poor operating conditions.

Level of Service (LOS) is a term used to denote different operating conditions that occur under various traffic volume loads. It is a qualitative measure of the effect of a number of factors including geometrics, speed, travel delay, freedom to maneuver, and safety. LOS is divided into a range of six letter grades, ranging from A to F, with A being the best and F the worst. LOS F is generally considered inadequate traffic operations in suburban and urban areas. The delay ranges differ slightly between unsignalized and signalized intersections due to driver expectations and behavior for each LOS. Table 2.4 summarizes the LOS criteria.

Table 2.4, Level-Of-Service Criteria for Intersections

LOS	**Signalized**	**Unsignalized**
	Control Delay (sec/veh)	**Control Delay (sec/veh)**
A	0-10	0-10
B	>10-20	> 10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

Source: 2000 Highway Capacity Manual

The traffic study analyzed traffic operations under the existing conditions reflecting the 2015 traffic operations. The existing traffic signal timing was obtained from each signal timing control cabinet at each signalized intersection. Table 2.5 on the subsequent page summarizes the 2015 existing conditions traffic operations.

Table 2.5: 2015 Existing Conditions LOS

ID	East-West Road	North-South Road	Lane	Existing Conditions							
				AM Peak Hour				PM Peak Hour			
				v/c	ave delay (sec/ veh)	LOS	95th % Q (ft)	v/c	ave delay (sec/ veh)	LOS	95th % Q (ft)
1	McGrath Highway	Medford Street	EB L	0.74	68.1	E	199	0.78	75.1	E	248
			EB R	0.43	3.3	A	35	0.19	2.1	A	19
			WB R	0.01	8.3	A	0	0.00	8.3	A	0
			NB L	0.72	57.8	E	174	0.80	45.2	D	363
			NB T	0.17	4.5	A	72	0.50	8.2	A	280
			SB TR	0.71	22.1	C	560	0.67	34.5	C	389
			Overall		21.6	C			25.5	C	
2	Highland Avenue / Medford Street	Hamlet Street	EB TR	0.77	19.0	B	#295	0.58	13.2	B	167
			WB TL	0.57	14.8	B	123	0.80	24.8	C	#277
			NWB R	0.07	0.1	A	0	0.24	0.4	A	0
			NB L	0.00	10.0	A	4	0.01	10.2	B	6
			NB R	0.06	0.2	A	1	0.05	0.2	A	0
			SB LTR	0.07	9.6	A	22	0.03	9.2	A	12
			Overall		15.2	B			14.2	B	
3	Highland Avenue	Walnut Street	EB LT	0.67	13.2	B	246	0.87	28.7	C	#322
			WB TR	0.30	7.7	A	93	0.54	10.8	B	173
			NB LTR	0.56	19.7	B	127	0.71	23.7	C	#220
			Overall		13.2	B			21.0	C	
4	Medford Street	Walnut Street	EB LT	0.01	8.1	A	6	0.01	9.6	A	6
			WB TR	0.14	8.7	A	25	0.59	15.3	B	152
			NB LTR	0.41	9.2	A	56	0.61	14.6	B	185
			Overall		9.1	A			14.9	B	
5	Highland Avenue	Putnam Street	EB TR	0.36	0.0	A	0	0.37	0.0	A	0
			WB LT	0.01	0.2	A	0	0.03	0.9	A	3
			NB LR	0.54	20.5	C	80	0.25	15.2	C	24
			Overall		4.8	A			1.8	A	
6	Highland Avenue	Prescott Street	EB TR	0.32	0.0	A	0	0.28	0.0	A	0
			WB LT	0.03	1.1	A	3	0.04	1.1	A	3
			NB LR	0.32	17.2	C	34	0.39	15.9	C	46
			Overall		2.6	A			3.2	A	
7	Highland Avenue	School Street	EB TR	0.66	21.2	C	175	0.52	16.9	B	156
			WB TL	0.61	21.0	C	142	0.72	22.3	C	223
			SB LTR	0.86	26.2	C	#480	0.75	22.0	C	#415
			Overall		23.8	C			20.9	C	
8	Highland Avenue	Central Street	EB LTR	0.52	15.4	B	187	0.50	15.2	B	179
			WB LTR	0.37	13.4	B	130	0.58	16.4	B	224
			NB LTR	0.47	15.4	B	122	0.74	22.5	C	219
			SB LTR	0.73	22.8	C	221	0.37	14.4	B	100
			Overall		17.3	B			17.6	B	
9	Medford Street	School Street	EB LTR	0.66	12.0	B	148	0.54	10.0	A	110
			WB LTR	0.93	43.7	D	#227	1.16	106.2	F	#358
			SB LTR	0.48	11.3	B	116	0.43	10.7	B	103
			Overall		21.6	C			55.2	E	
10	Medford Street	Central Street	EB LTR	0.48	8.7	A	173	0.35	8.1	A	110
			WB LTR	0.33	7.8	A	91	0.44	9.4	A	131
			NB LTR	0.56	20.4	C	136	0.74	26.2	C	#252
			SB LTR	0.62	22.5	C	158	0.28	16.1	B	85
			Overall		13.9	B			15.0	B	
11	Broadway	School Street	EB TR	0.65	14.8	B	191	0.57	14.9	B	157
			WB L	0.67	38.1	D	#195	0.71	37.6	D	#214
			WB T	0.30	3.8	A	68	0.34	4.7	A	96
			NB LR	0.47	14.3	B	62	0.41	19.3	B	77
			Overall		13.2	B			13.7	B	
12	Broadway	McGrath Highway	EB L	0.76	60.4	E	288	0.86	70.6	E	#382
			EB T	0.70	48.1	D	219	0.56	44.9	D	186
			EB R	0.54	35.1	D	271	0.25	28.8	C	144
			WB L	0.45	51.3	D	138	0.37	43.9	D	138
			WB T	0.64	53.4	D	169	0.53	45.7	D	174
			WB R	0.70	63.8	E	186	0.80	64.9	E	261
			NB L	0.56	66.7	E	#183	0.71	72.1	E	#303
			NB TR	0.43	30.5	C	260	1.23	144.3	F	#831
			SB L	0.53	71.4	E	#117	0.67	78.6	E	#187
			SB TR	0.74	39.3	D	#447	0.97	60.1	E	#459
			Overall		43.3	D			89.1	F	

As shown in Table 2.5, there are no intersections and movements that currently operate with an LOS of F during the weekday AM peak period. There are however several operational concerns to make note of for the weekday PM peak period. These operational concerns are noted below.

Weekday PM Peak Hour

- At the intersection of Medford Street and School Street, the westbound approach operates at an LOS of F, an average delay of 106.2 seconds per vehicle.

- At the intersection of McGrath Highway and Broadway, the northbound shared through right-turn movement operates at a LOS of F, with an average delay over 120 seconds per vehicle. The intersection operates with an overall LOS of F with an average delay of 89.1 seconds per vehicle.

The remaining study area intersections all operate at acceptable levels of service during both the morning and the evening peak hours.

3. CONCLUSION

This Traffic Study was produced to assess the existing conditions in the study area around Somerville High School at 81 Highland Avenue in Somerville, Massachusetts. The existing roadways, intersections, and networks were analyzed for safety, multimodal transportation access, and efficiency of traffic operations. The safety analysis, which reviewed crash data from MassDOT for years 2011 through 2013, showed that there are no major safety issues in the study network to be addressed at this time. No fatal crashes occurred at any study intersections during the study period, and no intersections had crash rates above the District 4 or statewide average. The 2015 existing conditions capacity analysis that was carried out based on adjusted traffic counts conducted in the area show only two operational issues that exist. These issues have been noted and will be addressed as needed during the No-Build and Build operational analysis.

Moving forward, DCI will generate traffic conditions for future 2022 No-Build and 2022 Build scenarios, and carry out a full Traffic Impact & Access Study. This study will address the specific impact that the proposed redevelopment of Somerville High School will have on the surrounding traffic network. The proposed site driveways will be analyzed to ensure safe ingress and egress for the site. DCI will also make recommendations regarding pedestrian and bicycle access in the area, and propose traffic mitigation if deemed necessary by the results of the future conditions analysis.

APPENDIX I – TRAFFIC COUNTS

Client:	Engineer:	Site Code:	Date:	PDI Job Number:	City, State:
Design Consultants	D. Caiazzo	2015-069	Tues 11/17 thru Wed 11/18/2015	154724	Somerville, MA

Medford Street
east of School Street
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

154724 A Class
Site Code: 2015-069
Date Start: 17-Nov-15

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/17/15	0	59	3	1	0	0	0	0	0	0	0	0	0	63
01:00	0	28	0	1	0	0	0	0	0	0	0	0	0	29
02:00	2	16	0	0	0	0	0	0	0	0	0	0	0	18
03:00	0	12	1	0	0	0	0	0	0	0	0	0	0	13
04:00	0	20	0	0	1	1	0	0	0	0	0	0	0	22
05:00	3	47	8	1	0	1	0	0	0	0	0	0	0	60
06:00	3	155	33	3	4	3	0	0	0	0	0	0	0	201
07:00	8	294	37	2	1	5	0	0	0	0	0	0	0	347
08:00	5	281	28	1	9	1	0	0	0	0	0	0	0	325
09:00	8	251	38	3	7	2	0	0	0	0	0	0	0	309
10:00	7	244	38	1	7	3	0	1	0	0	0	0	0	301
11:00	12	264	32	1	9	1	0	0	0	0	0	0	0	319
12 PM	7	269	38	1	5	2	0	0	0	0	0	0	0	322
13:00	4	292	44	3	9	4	0	0	0	0	0	0	0	356
14:00	8	367	54	2	6	1	0	1	1	0	0	0	0	440
15:00	9	457	54	2	13	4	1	2	0	0	0	0	0	542
16:00	8	555	43	0	6	2	0	3	0	0	0	0	0	617
17:00	22	525	38	2	5	1	1	0	0	0	0	0	0	594
18:00	7	508	37	1	7	5	0	1	0	0	0	0	0	566
19:00	8	365	31	2	1	0	0	0	0	0	0	0	0	407
20:00	8	320	15	2	0	1	0	0	0	0	0	0	0	346
21:00	2	226	10	1	1	0	0	0	0	0	0	0	0	240
22:00	2	195	9	1	2	1	0	0	0	0	0	0	0	210
23:00	3	109	4	1	0	0	0	0	0	0	0	0	0	117
Total	136	5859	595	32	93	38	2	8	1	0	0	0	0	6764
Percent	2.0%	86.6%	8.8%	0.5%	1.4%	0.6%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	07:00	09:00	06:00	08:00	07:00		10:00						07:00
Vol.	12	294	38	3	9	5		1						347
PM Peak	17:00	16:00	14:00	13:00	15:00	18:00	15:00	16:00	14:00					16:00
Vol.	22	555	54	3	13	5	1	3	1					617

Medford Street
east of School Street
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

154724 A Class
Site Code: 2015-069
Date Start: 17-Nov-15

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/18/15	0	58	3	1	0	0	0	0	0	0	0	0	0	62
01:00	0	28	3	1	0	0	0	0	0	0	0	0	0	32
02:00	0	26	0	0	0	0	0	0	0	0	0	0	0	26
03:00	0	19	0	0	1	1	0	0	0	0	0	0	0	21
04:00	0	23	1	0	1	0	0	0	0	0	0	0	0	25
05:00	0	54	6	1	0	0	0	0	0	0	0	0	0	61
06:00	4	148	26	1	1	1	0	1	0	0	0	0	0	182
07:00	9	293	43	1	0	2	1	0	0	0	0	0	0	349
08:00	4	292	30	0	10	3	1	1	0	0	0	0	0	341
09:00	8	280	47	3	5	3	0	0	0	0	0	0	0	346
10:00	8	257	41	1	10	7	0	0	0	0	0	0	0	324
11:00	2	274	49	3	10	2	0	1	1	0	0	0	0	342
12 PM	5	308	48	3	7	1	0	0	0	0	0	0	0	372
13:00	10	290	47	5	6	0	0	0	0	0	0	0	0	358
14:00	13	345	46	1	6	4	0	0	0	0	0	0	0	415
15:00	11	413	75	4	10	1	0	2	0	0	0	0	0	516
16:00	10	538	56	3	7	2	0	0	0	0	0	0	0	616
17:00	4	544	45	0	5	2	0	0	0	0	0	0	0	600
18:00	11	546	49	1	3	1	0	0	0	0	0	0	0	611
19:00	8	379	36	1	2	4	0	0	0	0	0	0	0	430
20:00	5	323	21	2	1	1	0	0	0	0	0	0	0	353
21:00	4	236	14	1	0	1	0	0	0	0	0	0	0	256
22:00	5	174	11	1	1	0	0	0	0	0	0	0	0	192
23:00	2	126	11	1	1	0	0	0	0	0	0	0	0	141
Total	123	5974	708	35	87	36	2	5	1	0	0	0	0	6971
Percent	1.8%	85.7%	10.2%	0.5%	1.2%	0.5%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	11:00	09:00	08:00	10:00	07:00	06:00	11:00					07:00
Vol.	9	293	49	3	10	7	1	1	1					349
PM Peak	14:00	18:00	15:00	13:00	15:00	14:00		15:00						16:00
Vol.	13	546	75	5	10	4		2						616
Total		11833	1303	67	180	74	4	13	2	0	0	0	0	13735

Medford Street
east of School Street
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

154724 A Class
Site Code: 2015-069
Date Start: 17-Nov-15

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/17/15	1	16	3	1	1	0	0	0	0	0	0	0	0	22
01:00	0	7	4	0	0	0	0	0	0	0	0	0	0	11
02:00	0	10	1	0	0	0	0	0	0	0	0	0	0	11
03:00	0	5	1	0	1	0	0	0	0	0	0	0	0	7
04:00	0	9	1	0	1	1	0	0	0	0	0	0	0	12
05:00	1	46	13	4	0	0	0	0	0	0	0	0	0	64
06:00	2	138	34	3	11	0	0	0	0	0	0	0	0	188
07:00	1	233	27	1	7	3	0	1	0	0	0	0	0	273
08:00	4	219	28	2	11	3	0	0	0	0	0	0	0	267
09:00	6	215	37	3	5	0	1	0	1	0	0	0	0	268
10:00	2	197	31	3	6	0	0	1	0	0	0	0	0	240
11:00	2	136	23	4	10	2	0	0	0	0	0	0	0	177
12 PM	4	139	15	4	10	1	0	0	0	0	0	0	0	173
13:00	4	164	31	1	10	1	0	1	0	0	0	0	0	212
14:00	9	196	33	3	8	0	0	0	0	0	0	0	0	249
15:00	3	148	27	2	6	5	0	0	0	0	0	0	0	191
16:00	3	160	12	1	9	3	0	0	0	0	0	0	0	188
17:00	8	179	20	0	3	3	0	0	0	0	0	0	0	213
18:00	8	146	17	2	4	1	0	0	0	0	0	0	0	178
19:00	0	118	20	2	2	1	0	0	0	0	0	0	0	143
20:00	0	93	21	1	4	1	0	0	0	0	0	0	0	120
21:00	1	78	21	2	2	2	0	0	0	0	0	0	0	106
22:00	0	66	15	1	1	0	0	0	0	0	0	0	0	83
23:00	1	37	2	1	1	0	0	0	0	0	0	0	0	42
Total	60	2755	437	41	113	27	1	3	1	0	0	0	0	3438
Percent	1.7%	80.1%	12.7%	1.2%	3.3%	0.8%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	07:00	09:00	05:00	06:00	07:00	09:00	07:00	09:00					07:00
Vol.	6	233	37	4	11	3	1	1	1					273
PM Peak	14:00	14:00	14:00	12:00	12:00	15:00		13:00						14:00
Vol.	9	196	33	4	10	5		1						249

Medford Street
east of School Street
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

154724 A Class
Site Code: 2015-069
Date Start: 17-Nov-15

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/18/15	1	22	1	1	0	0	0	0	0	0	0	0	0	25
01:00	0	18	2	0	0	0	0	0	0	0	0	0	0	20
02:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
03:00	0	7	3	0	1	0	0	0	0	0	0	0	0	11
04:00	0	14	0	0	1	0	0	0	0	0	0	0	0	15
05:00	1	40	9	2	1	0	0	0	0	0	0	0	0	53
06:00	1	146	32	3	11	0	0	0	0	0	0	0	0	193
07:00	1	234	36	1	6	2	0	0	1	0	0	0	0	281
08:00	1	236	20	1	7	1	0	0	0	0	0	0	0	266
09:00	5	225	37	5	15	1	0	1	0	0	0	0	0	289
10:00	2	160	34	4	7	2	0	0	0	0	0	0	0	209
11:00	2	130	33	5	10	1	0	1	0	0	0	0	0	182
12 PM	3	126	23	1	18	2	0	1	0	0	0	0	0	174
13:00	4	141	24	3	11	1	0	0	0	0	0	0	0	184
14:00	4	156	25	4	8	0	0	1	0	0	0	0	0	198
15:00	4	126	31	3	7	0	0	2	0	0	0	0	0	173
16:00	3	148	14	0	3	4	0	0	0	0	0	0	0	172
17:00	1	185	17	1	2	1	0	0	0	0	0	0	0	207
18:00	3	178	15	0	7	1	0	0	0	0	0	0	0	204
19:00	0	129	14	2	4	0	0	0	0	0	0	0	0	149
20:00	1	101	15	1	4	0	0	0	0	0	0	0	0	122
21:00	1	146	13	0	6	0	0	0	0	0	0	0	0	166
22:00	1	71	9	2	1	0	0	0	0	0	0	0	0	84
23:00	1	46	5	1	3	0	0	0	0	0	0	0	0	56
Total	40	2792	412	40	133	16	0	6	1	0	0	0	0	3440
Percent	1.2%	81.2%	12.0%	1.2%	3.9%	0.5%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	08:00	09:00	09:00	09:00	07:00		09:00	07:00					09:00
Vol.	5	236	37	5	15	2		1	1					289
PM Peak	13:00	17:00	15:00	14:00	12:00	16:00		15:00						17:00
Vol.	4	185	31	4	18	4		2						207
Total		5547	849	81	246	43	1	9	2	0	0	0	0	6878

Medford Street
east of School Street
City, State: Somerville, MA
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154724 A Speed
Site Code: 2015-069
Date Start: 17-Nov-15

WB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
11/17/15	0	11	29	17	**6**	0	0	0	0	0	0	0	0	63	27	23
01:00	0	5	14	8	2	0	0	0	0	0	0	0	0	29	27	23
02:00	1	3	9	5	0	0	0	0	0	0	0	0	0	18	26	22
03:00	0	2	6	4	1	0	0	0	0	0	0	0	0	13	27	24
04:00	1	2	9	10	0	0	0	0	0	0	0	0	0	22	27	23
05:00	1	12	27	16	2	**2**	0	0	0	0	0	0	0	60	27	23
06:00	25	71	76	24	5	0	0	0	0	0	0	0	0	201	23	19
07:00	**133**	66	133	12	3	0	0	0	0	0	0	0	0	**347**	22	16
08:00	93	**92**	122	17	1	0	0	0	0	0	0	0	0	325	22	17
09:00	75	70	**137**	**26**	1	0	0	0	0	0	0	0	0	309	23	18
10:00	81	73	119	25	3	0	0	0	0	0	0	0	0	301	23	17
11:00	65	103	123	27	1	0	0	0	0	0	0	0	0	319	23	18
12 PM	77	81	122	**38**	3	**1**	0	0	0	0	0	0	0	322	23	18
13:00	87	**109**	126	30	**4**	0	0	0	0	0	0	0	0	356	23	17
14:00	**181**	108	**141**	9	1	0	0	0	0	0	0	0	0	**440**	22	15
15:00	264	126	141	11	0	0	0	0	0	0	0	0	0	542	21	14
16:00	312	127	**177**	1	0	0	0	0	0	0	0	0	0	**617**	21	14
17:00	**326**	96	168	4	0	0	0	0	0	0	0	0	0	594	21	13
18:00	244	**155**	157	10	0	0	0	0	0	0	0	0	0	566	21	14
19:00	112	137	138	19	1	0	0	0	0	0	0	0	0	407	22	17
20:00	93	109	120	22	2	0	0	0	0	0	0	0	0	346	22	17
21:00	27	73	108	29	1	**2**	0	0	0	0	0	0	0	240	23	20
22:00	20	60	88	**36**	5	1	0	0	0	0	0	0	0	210	25	20
23:00	13	29	39	28	**7**	1	0	0	0	0	0	0	0	117	27	21
Total	2231	1720	2329	428	49	7	0	0	0	0	0	0	0	6764		
%	33.0%	25.4%	34.4%	6.3%	0.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	08:00	09:00	09:00	00:00	05:00								07:00		
Vol.	133	92	137	26	6	2								347		
Midday Peak	14:00	13:00	14:00	12:00	13:00	12:00								14:00		
Vol.	181	109	141	38	4	1								440		
PM Peak	17:00	18:00	16:00	22:00	23:00	21:00								16:00		
Vol.	326	155	177	36	7	2								617		

% iles

15th Percentile : 6 MPH
50th Percentile : 17 MPH
85th Percentile : 22 MPH
95th Percentile : 25 MPH

Stats

10 MPH Pace Speed : 15-24 MPH
Number in Pace : 4049
Percent in Pace : 59.9%
Number of Vehicles > 25 MPH : 398
Percent of Vehicles > 25 MPH : 5.9%
Mean Speed(Average) : 16 MPH

Medford Street
east of School Street
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

154724 A Speed
Site Code: 2015-069
Date Start: 17-Nov-15

WB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
11/18/15	0	12	29	17	4	0	0	0	0	0	0	0	0	62	27	23
01:00	1	8	16	4	3	0	0	0	0	0	0	0	0	32	26	22
02:00	1	3	11	9	2	0	0	0	0	0	0	0	0	26	27	23
03:00	0	5	6	4	**6**	0	0	0	0	0	0	0	0	21	31	25
04:00	0	1	8	15	1	0	0	0	0	0	0	0	0	25	28	25
05:00	2	13	23	20	3	0	0	0	0	0	0	0	0	61	27	23
06:00	28	50	58	**40**	6	0	0	0	0	0	0	0	0	182	26	20
07:00	**142**	59	**138**	10	0	0	0	0	0	0	0	0	0	**349**	22	15
08:00	136	78	117	9	1	0	0	0	0	0	0	0	0	341	22	15
09:00	117	**95**	121	11	2	0	0	0	0	0	0	0	0	346	22	16
10:00	106	84	113	20	1	0	0	0	0	0	0	0	0	324	22	16
11:00	95	**101**	120	24	2	0	0	0	0	0	0	0	0	342	22	17
12 PM	89	87	144	**47**	**5**	0	0	0	0	0	0	0	0	372	23	18
13:00	94	90	**145**	26	3	0	0	0	0	0	0	0	0	358	23	17
14:00	**166**	91	143	13	2	0	0	0	0	0	0	0	0	**415**	22	15
15:00	194	138	159	25	0	0	0	0	0	0	0	0	0	516	22	15
16:00	242	**172**	**191**	10	0	**1**	0	0	0	0	0	0	0	**616**	21	15
17:00	324	92	184	0	0	0	0	0	0	0	0	0	0	600	21	13
18:00	**326**	103	181	0	1	0	0	0	0	0	0	0	0	611	21	13
19:00	125	143	136	24	2	0	0	0	0	0	0	0	0	430	22	16
20:00	76	97	141	**34**	**5**	0	0	0	0	0	0	0	0	353	23	18
21:00	34	82	103	33	4	0	0	0	0	0	0	0	0	256	23	19
22:00	13	55	85	34	4	1	0	0	0	0	0	0	0	192	25	21
23:00	4	33	69	30	4	1	0	0	0	0	0	0	0	141	26	22
Total	2315	1692	2441	459	61	3	0	0	0	0	0	0	0	6971		
%	33.2%	24.3%	35.0%	6.6%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	09:00	07:00	06:00	03:00									07:00		
Vol.	142	95	138	40	6									349		
Midday Peak	14:00	11:00	13:00	12:00	12:00									14:00		
Vol.	166	101	145	47	5									415		
PM Peak	18:00	16:00	16:00	20:00	20:00	16:00								16:00		
Vol.	326	172	191	34	5	1								616		

% iles

15th Percentile :	6 MPH
50th Percentile :	17 MPH
85th Percentile :	22 MPH
95th Percentile :	25 MPH

Stats

10 MPH Pace Speed :	15-24 MPH
Number in Pace :	4133
Percent in Pace :	59.3%
Number of Vehicles > 25 MPH :	431
Percent of Vehicles > 25 MPH :	6.2%
Mean Speed(Average) :	16 MPH

Medford Street
east of School Street
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

154724 A Speed
Site Code: 2015-069
Date Start: 17-Nov-15

EB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
11/17/ 15	0	0	7	12	3	0	0	0	0	0	0	0	0	22	28	26
01:00	0	1	3	5	2	0	0	0	0	0	0	0	0	11	29	26
02:00	0	0	7	3	1	0	0	0	0	0	0	0	0	11	27	24
03:00	0	0	0	3	3	1	0	0	0	0	0	0	0	7	33	31
04:00	0	1	2	7	1	0	0	**1**	0	0	0	0	0	12	29	27
05:00	1	3	16	28	12	**4**	0	0	0	0	0	0	0	64	31	27
06:00	8	15	81	71	**13**	0	0	0	0	0	0	0	0	188	27	24
07:00	9	**59**	**153**	50	2	0	0	0	0	0	0	0	0	**273**	25	21
08:00	**24**	40	145	54	4	0	0	0	0	0	0	0	0	267	25	21
09:00	7	36	126	**87**	12	0	0	0	0	0	0	0	0	268	27	23
10:00	6	32	139	53	9	1	0	0	0	0	0	0	0	240	26	23
11:00	3	19	96	45	**12**	**2**	0	0	0	0	0	0	0	177	27	23
12 PM	6	17	94	48	8	0	0	0	0	0	0	0	0	173	27	23
13:00	7	22	123	**50**	10	0	0	0	0	0	0	0	0	212	26	23
14:00	**24**	**38**	**148**	38	1	0	0	0	0	0	0	0	0	**249**	24	21
15:00	9	26	126	26	4	0	0	0	0	0	0	0	0	191	24	22
16:00	6	26	135	17	4	0	0	0	0	0	0	0	0	188	23	22
17:00	**21**	**45**	**137**	9	1	0	0	0	0	0	0	0	0	**213**	23	20
18:00	9	37	106	22	4	0	0	0	0	0	0	0	0	178	23	21
19:00	7	12	86	27	**10**	1	0	0	0	0	0	0	0	143	27	23
20:00	3	19	63	28	6	1	0	0	0	0	0	0	0	120	27	23
21:00	1	14	50	32	9	0	0	0	0	0	0	0	0	106	27	24
22:00	0	6	35	**33**	7	**2**	0	0	0	0	0	0	0	83	28	25
23:00	0	3	17	17	5	0	0	0	0	0	0	0	0	42	28	25
Total	151	471	1895	765	143	12	0	1	0	0	0	0	0	3438		
%	4.4%	13.7%	55.1%	22.3%	4.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	07:00	07:00	09:00	06:00	05:00		04:00						07:00		
Vol.	24	59	153	87	13	4		1						273		
Midday Peak	14:00	14:00	14:00	13:00	11:00	11:00								14:00		
Vol.	24	38	148	50	12	2								249		
PM Peak	17:00	17:00	17:00	22:00	19:00	22:00								17:00		
Vol.	21	45	137	33	10	2								213		

% iles

15th Percentile : 17 MPH
50th Percentile : 21 MPH
85th Percentile : 26 MPH
95th Percentile : 28 MPH

Stats

10 MPH Pace Speed : 20-29 MPH
Number in Pace : 2660
Percent in Pace : 77.4%
Number of Vehicles > 25 MPH : 768
Percent of Vehicles > 25 MPH : 22.3%
Mean Speed(Average) : 22 MPH

Medford Street
east of School Street
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

154724 A Speed
Site Code: 2015-069
Date Start: 17-Nov-15

EB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
11/18/15	0	1	7	11	4	**2**	0	0	0	0	0	0	0	25	31	27
01:00	2	2	4	10	2	0	0	0	0	0	0	0	0	20	28	24
02:00	0	0	4	3	0	0	0	0	0	0	0	0	0	7	27	24
03:00	0	0	3	4	2	2	0	0	0	0	0	0	0	11	34	28
04:00	0	1	2	9	3	0	0	0	0	0	0	0	0	15	30	27
05:00	0	0	13	25	13	2	0	0	0	0	0	0	0	53	31	27
06:00	3	3	92	**80**	**15**	0	0	0	0	0	0	0	0	193	28	25
07:00	17	**48**	**167**	46	2	1	0	0	0	0	0	0	0	281	24	21
08:00	**34**	36	154	38	4	0	0	0	0	0	0	0	0	266	24	20
09:00	17	41	144	71	15	1	0	0	0	0	0	0	0	**289**	27	22
10:00	11	22	124	45	7	0	0	0	0	0	0	0	0	209	26	22
11:00	9	19	94	51	**9**	0	0	0	0	0	0	0	0	182	27	23
12 PM	10	17	80	**62**	4	1	0	0	0	0	0	0	0	174	27	23
13:00	6	17	113	36	9	**3**	0	0	0	0	0	0	0	184	26	23
14:00	**15**	**25**	**130**	25	3	0	0	0	0	0	0	0	0	**198**	23	21
15:00	5	24	110	30	4	0	0	0	0	0	0	0	0	173	25	22
16:00	4	25	116	26	1	0	0	0	0	0	0	0	0	172	24	22
17:00	**8**	29	**156**	12	2	0	0	0	0	0	0	0	0	**207**	23	21
18:00	7	**30**	153	12	2	0	0	0	0	0	0	0	0	204	23	21
19:00	6	25	89	23	**6**	0	0	0	0	0	0	0	0	149	25	22
20:00	3	9	77	28	5	0	0	0	0	0	0	0	0	122	26	23
21:00	2	21	93	**45**	4	**1**	0	0	0	0	0	0	0	166	26	23
22:00	3	6	43	27	5	0	0	0	0	0	0	0	0	84	27	23
23:00	1	1	28	19	6	0	0	**1**	0	0	0	0	0	56	28	25
Total	163	402	1996	738	127	13	0	1	0	0	0	0	0	3440		
%	4.7%	11.7%	58.0%	21.5%	3.7%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	07:00	07:00	06:00	06:00	00:00								09:00		
Vol.	34	48	167	80	15	2								289		
Midday Peak	14:00	14:00	14:00	12:00	11:00	13:00								14:00		
Vol.	15	25	130	62	9	3								198		
PM Peak	17:00	18:00	17:00	21:00	19:00	21:00		23:00						17:00		
Vol.	8	30	156	45	6	1		1						207		

% iles
15th Percentile : 18 MPH
50th Percentile : 21 MPH
85th Percentile : 26 MPH
95th Percentile : 28 MPH

Stats
10 MPH Pace Speed : 20-29 MPH
Number in Pace : 2734
Percent in Pace : 79.5%
Number of Vehicles > 25 MPH : 731
Percent of Vehicles > 25 MPH : 21.3%
Mean Speed(Average) : 22 MPH

Medford Street
east of School Street
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

PRECISION
DATA
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

154724 A Volume
Site Code: 2015-069
Date Start: 17-Nov-15

Start	WB				EB				Combined				17-Nov-15	
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Tue	
12:00	13		79		8		40		21		119			
12:15	28		71		2		44		30		115			
12:30	13		80		7		50		20		130			
12:45	9	63	92	322	5	22	39	173	14	85	131	495		
01:00	7		94		2		36		9		130			
01:15	9		64		3		53		12		117			
01:30	6		83		3		74		9		157			
01:45	7	29	115	356	3	11	49	212	10	40	164	568		
02:00	7		108		4		64		11		172			
02:15	5		128		2		68		7		196			
02:30	3		95		2		59		5		154			
02:45	3	18	109	440	3	11	58	249	6	29	167	689		
03:00	1		133		1		54		2		187			
03:15	2		116		1		52		3		168			
03:30	8		144		3		47		11		191			
03:45	2	13	149	542	2	7	38	191	4	20	187	733		
04:00	2		160		4		35		6		195			
04:15	11		154		2		47		13		201			
04:30	5		158		2		51		7		209			
04:45	4	22	145	617	4	12	55	188	8	34	200	805		
05:00	10		155		6		50		16		205			
05:15	5		147		16		64		21		211			
05:30	22		137		19		53		41		190			
05:45	23	60	155	594	23	64	46	213	46	124	201	807		
06:00	28		151		29		42		57		193			
06:15	48		136		47		47		95		183			
06:30	53		153		59		47		112		200			
06:45	72	201	126	566	53	188	42	178	125	389	168	744		
07:00	73		114		64		42		137		156			
07:15	89		105		72		37		161		142			
07:30	99		102		73		33		172		135			
07:45	86	347	86	407	64	273	31	143	150	620	117	550		
08:00	95		85		62		35		157		120			
08:15	72		96		64		43		136		139			
08:30	69		86		77		18		146		104			
08:45	89	325	79	346	64	267	24	120	153	592	103	466		
09:00	82		57		66		28		148		85			
09:15	87		72		74		26		161		98			
09:30	73		59		78		25		151		84			
09:45	67	309	52	240	50	268	27	106	117	577	79	346		
10:00	71		70		54		26		125		96			
10:15	80		51		59		17		139		68			
10:30	74		50		74		19		148		69			
10:45	76	301	39	210	53	240	21	83	129	541	60	293		
11:00	80		40		48		7		128		47			
11:15	84		31		36		11		120		42			
11:30	66		27		39		15		105		42			
11:45	89	319	19	117	54	177	9	42	143	496	28	159		
Total	2007		4757		1540		1898		3547		6655			
Percent	56.6%		71.5%		43.4%		28.5%							
Day Total		6764				3438				10202				
Peak	07:15	-	03:45	-	08:45	-	01:30	-	07:15	-	04:30	-	-	-
Vol.	369	-	621	-	282	-	255	-	640	-	825	-	-	-
P.H.F.	0.932		0.970		0.904		0.861		0.930		0.977			

Medford Street
east of School Street
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

PRECISION
DATA
INDUSTRIES, LLC

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Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

154724 A Volume
Site Code: 2015-069
Date Start: 17-Nov-15

Start	WB				EB				Combined				18-Nov-15	
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed	
12:00	22		87		8		46		30		133			
12:15	16		93		6		44		22		137			
12:30	15		111		3		40		18		151			
12:45	9	62	81	372	8	25	44	174	17	87	125	546		
01:00	10		87		6		45		16		132			
01:15	7		79		3		46		10		125			
01:30	7		93		7		55		14		148			
01:45	8	32	99	358	4	20	38	184	12	52	137	542		
02:00	10		117		1		40		11		157			
02:15	4		97		3		44		7		141			
02:30	6		101		2		55		8		156			
02:45	6	26	100	415	1	7	59	198	7	33	159	613		
03:00	6		103		2		43		8		146			
03:15	2		118		5		50		7		168			
03:30	5		153		1		33		6		186			
03:45	8	21	142	516	3	11	47	173	11	32	189	689		
04:00	6		147		5		41		11		188			
04:15	4		164		0		39		4		203			
04:30	13		151		4		50		17		201			
04:45	2	25	154	616	6	15	42	172	8	40	196	788		
05:00	11		144		5		56		16		200			
05:15	14		151		16		49		30		200			
05:30	17		144		16		53		33		197			
05:45	19	61	161	600	16	53	49	207	35	114	210	807		
06:00	29		157		43		55		72		212			
06:15	41		155		43		46		84		201			
06:30	53		162		52		46		105		208			
06:45	59	182	137	611	55	193	57	204	114	375	194	815		
07:00	68		128		76		46		144		174			
07:15	106		76		64		39		170		115			
07:30	83		107		85		32		168		139			
07:45	92	349	119	430	56	281	32	149	148	630	151	579		
08:00	93		103		66		33		159		136			
08:15	87		86		91		33		178		119			
08:30	74		93		57		24		131		117			
08:45	87	341	71	353	52	266	32	122	139	607	103	475		
09:00	90		60		62		27		152		87			
09:15	92		74		73		29		165		103			
09:30	75		64		72		51		147		115			
09:45	89	346	58	256	82	289	59	166	171	635	117	422		
10:00	84		58		54		29		138		87			
10:15	73		51		65		22		138		73			
10:30	83		50		43		20		126		70			
10:45	84	324	33	192	47	209	13	84	131	533	46	276		
11:00	81		39		47		19		128		58			
11:15	81		48		36		15		117		63			
11:30	89		29		47		14		136		43			
11:45	91	342	25	141	52	182	8	56	143	524	33	197		
Total	2111		4860		1551		1889		3662		6749			
Percent	57.6%		72.0%		42.4%		28.0%							
Day Total		6971				3440				10411				
Peak	07:15	-	05:45	-	07:30	-	02:30	-	07:30	-	05:45	-	-	-
Vol.	374	-	635	-	298	-	207	-	653	-	831	-	-	-
P.H.F.	0.882		0.980		0.819		0.877		0.917		0.980			

Highland Avenue
between Putnam St. and Vinal Ave.
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

154724 C Class
Site Code: 2015-069
Date Start: 16-Nov-15

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/16/15	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	1	414	66	5	16	1	0	0	0	0	0	0	0	503
13:00	5	437	73	3	13	5	1	0	0	0	0	0	0	537
14:00	9	444	61	3	7	2	0	1	0	0	0	0	0	527
15:00	5	418	45	2	13	5	0	0	0	0	0	0	0	488
16:00	6	497	65	5	6	1	0	1	0	0	0	0	0	581
17:00	4	478	41	1	3	5	1	2	0	0	0	0	0	535
18:00	5	424	40	2	6	2	0	0	0	0	0	0	0	479
19:00	6	396	35	3	2	0	0	1	0	0	0	0	0	443
20:00	0	253	23	2	3	0	0	1	0	0	0	0	0	282
21:00	0	219	11	1	3	0	0	0	0	0	0	0	0	234
22:00	1	182	13	2	3	0	0	0	0	0	0	0	0	201
23:00	1	83	10	2	0	1	0	0	0	0	0	0	0	97
Total	43	4245	483	31	75	22	2	6	0	0	0	0	0	4907
Percent	0.9%	86.5%	9.8%	0.6%	1.5%	0.4%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.														
PM Peak	14:00	16:00	13:00	12:00	12:00	13:00	13:00	17:00						16:00
Vol.	9	497	73	5	16	5	1	2						581

Highland Avenue
between Putnam St. and Vinal Ave.
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

154724 C Class
Site Code: 2015-069
Date Start: 16-Nov-15

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/17/15	0	38	3	2	0	0	0	0	0	0	0	0	0	43
01:00	0	32	3	0	1	0	0	0	0	0	0	0	0	36
02:00	0	19	0	0	0	0	0	0	0	0	0	0	0	19
03:00	0	17	3	1	0	0	0	0	0	0	0	0	0	21
04:00	0	31	8	0	0	1	0	0	0	0	0	0	0	40
05:00	1	117	23	1	2	1	0	0	0	0	0	0	0	145
06:00	0	425	61	2	3	0	0	0	0	0	0	0	0	491
07:00	9	644	65	1	6	0	0	0	0	0	0	0	0	725
08:00	14	769	80	3	9	4	0	1	0	0	0	0	0	880
09:00	6	591	73	8	15	1	0	3	0	0	0	0	0	697
10:00	2	451	69	5	16	1	0	2	0	0	0	0	0	546
11:00	1	432	80	4	8	1	0	0	0	0	0	0	0	526
12 PM	8	425	70	2	16	5	0	3	0	0	0	0	0	529
13:00	6	391	77	4	17	0	0	0	0	0	0	0	0	495
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	47	4382	615	33	93	14	0	9	0	0	0	0	0	5193
Percent	0.9%	84.4%	11.8%	0.6%	1.8%	0.3%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	08:00	08:00	09:00	10:00	08:00		09:00						08:00
Vol.	14	769	80	8	16	4		3						880
PM Peak	12:00	12:00	13:00	13:00	13:00	12:00		12:00						12:00
Vol.	8	425	77	4	17	5		3						529
Total		8627	1098	64	168	36	2	15	0	0	0	0	0	10100

Highland Avenue
between Putnam St. and Vinal Ave.
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

154724 C Class
Site Code: 2015-069
Date Start: 16-Nov-15

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/16/15	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	1	205	38	6	11	0	0	1	0	0	0	0	0	262
13:00	2	248	43	9	8	2	0	3	0	0	0	0	0	315
14:00	5	271	38	3	11	0	0	1	0	0	0	0	0	329
15:00	6	335	43	1	11	2	0	1	0	0	0	0	0	399
16:00	4	357	45	1	10	2	0	0	0	0	0	0	0	419
17:00	11	363	51	1	7	1	0	0	0	0	0	0	0	434
18:00	6	367	52	3	4	0	0	1	0	0	0	0	0	433
19:00	2	278	46	3	5	1	0	0	0	0	0	0	0	335
20:00	2	189	19	2	5	0	0	1	0	0	0	0	0	218
21:00	0	160	21	4	5	0	0	0	0	0	0	0	0	190
22:00	1	105	11	3	0	1	0	0	0	0	0	0	0	121
23:00	0	52	11	1	1	0	0	0	0	0	0	0	0	65
Total	40	2930	418	37	78	9	0	8	0	0	0	0	0	3520
Percent	1.1%	83.2%	11.9%	1.1%	2.2%	0.3%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak														
Vol.														
PM Peak	17:00	18:00	18:00	13:00	12:00	13:00		13:00						17:00
Vol.	11	367	52	9	11	2		3						434

Highland Avenue
between Putnam St. and Vinal Ave.
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

154724 C Class
Site Code: 2015-069
Date Start: 16-Nov-15

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
11/17/15	0	38	3	2	0	0	0	0	0	0	0	0	0	43
01:00	0	13	3	1	0	0	0	0	0	0	0	0	0	17
02:00	0	16	2	0	0	0	0	0	0	0	0	0	0	18
03:00	0	7	4	0	1	0	0	0	0	0	0	0	0	12
04:00	0	9	1	0	1	0	0	0	0	0	0	0	0	11
05:00	0	37	4	1	3	0	0	0	0	0	0	0	0	45
06:00	1	60	24	4	5	2	0	0	0	0	0	0	0	96
07:00	6	169	37	5	8	0	0	1	0	0	0	0	0	226
08:00	6	169	29	2	10	1	0	1	0	0	0	0	0	218
09:00	2	172	51	3	10	0	0	0	0	0	0	0	0	238
10:00	0	163	35	7	10	1	0	0	0	0	0	0	0	216
11:00	3	167	46	5	14	2	0	0	0	0	0	0	0	237
12 PM	2	204	31	7	14	2	0	0	0	0	0	0	0	260
13:00	1	178	51	7	11	1	0	1	1	0	0	0	0	251
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	21	1402	321	44	87	9	0	3	1	0	0	0	0	1888
Percent	1.1%	74.3%	17.0%	2.3%	4.6%	0.5%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	09:00	09:00	10:00	11:00	06:00		07:00						09:00
Vol.	6	172	51	7	14	2		1						238
PM Peak	12:00	12:00	13:00	12:00	12:00	12:00		13:00	13:00					12:00
Vol.	2	204	51	7	14	2		1	1					260
Total		4332	739	81	165	18	0	11	1	0	0	0	0	5408

Highland Avenue
between Putnam St. and Vinal Ave.
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

154724 C Speed
Site Code: 2015-069
Date Start: 16-Nov-15

EB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
11/16/15	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	11	105	**258**	104	**23**	**1**	0	**1**	0	0	0	0	0	503	26	22
13:00	64	**121**	207	**127**	18	0	0	0	0	0	0	0	0	**537**	26	21
14:00	**109**	115	219	70	13	1	0	0	0	0	0	0	0	527	24	19
15:00	159	82	209	29	8	1	0	0	0	0	0	0	0	488	23	17
16:00	66	**181**	**257**	71	6	0	0	0	0	0	0	0	0	**581**	23	20
17:00	**197**	99	214	25	0	0	0	0	0	0	0	0	0	535	22	16
18:00	67	114	227	62	8	1	0	0	0	0	0	0	0	479	23	20
19:00	45	81	197	93	25	2	0	0	0	0	0	0	0	443	26	21
20:00	8	37	104	**112**	18	3	0	0	0	0	0	0	0	282	28	24
21:00	6	32	73	88	**32**	1	**2**	0	0	0	0	0	0	234	28	24
22:00	5	21	64	91	17	3	0	0	0	0	0	0	0	201	28	24
23:00	1	10	16	40	26	**4**	0	0	0	0	0	0	0	97	31	27
Total	738	998	2045	912	194	17	2	1	0	0	0	0	0	4907		
%	15.0%	20.3%	41.7%	18.6%	4.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak																
Vol.																
Midday Peak	14:00	13:00	12:00	13:00	12:00	12:00		12:00						13:00		
Vol.	109	121	258	127	23	1		1						537		
PM Peak	17:00	16:00	16:00	20:00	21:00	23:00	21:00							16:00		
Vol.	197	181	257	112	32	4	2							581		

% iles
15th Percentile : 13 MPH
50th Percentile : 20 MPH
85th Percentile : 26 MPH
95th Percentile : 28 MPH

Stats
10 MPH Pace Speed : 15-24 MPH
Number in Pace : 3043
Percent in Pace : 62.0%
Number of Vehicles > 25 MPH : 944
Percent of Vehicles > 25 MPH : 19.2%
Mean Speed(Average) : 20 MPH

Highland Avenue
between Putnam St. and Vinal Ave.
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

154724 C Speed
Site Code: 2015-069
Date Start: 16-Nov-15

EB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
11/17/15	0	2	6	24	9	2	0	0	0	0	0	0	0	43	31	27
01:00	0	2	9	17	8	0	0	0	0	0	0	0	0	36	30	26
02:00	0	2	6	7	0	4	0	0	0	0	0	0	0	19	35	26
03:00	0	1	3	5	7	3	**2**	0	0	0	0	0	0	21	37	30
04:00	0	2	5	14	15	4	0	0	0	0	0	0	0	40	33	29
05:00	0	3	33	60	38	**10**	1	0	0	0	0	0	0	145	32	28
06:00	32	79	172	**156**	**44**	7	0	0	**1**	0	0	0	0	491	28	23
07:00	341	93	237	50	3	1	0	0	0	0	0	0	0	725	22	15
08:00	**509**	176	187	7	1	0	0	0	0	0	0	0	0	**880**	20	13
09:00	132	**177**	**281**	97	9	1	0	0	0	0	0	0	0	697	24	19
10:00	36	118	230	141	20	1	0	0	0	0	0	0	0	546	26	22
11:00	13	107	235	**146**	**23**	**2**	0	0	0	0	0	0	0	526	27	23
12 PM	**38**	**139**	**238**	103	10	1	0	0	0	0	0	0	0	**529**	25	21
13:00	32	114	219	111	16	2	0	0	**1**	0	0	0	0	495	26	21
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
Total	1133	1015	1861	938	203	38	3	0	2	0	0	0	0	5193		
%	21.8%	19.5%	35.8%	18.1%	3.9%	0.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	09:00	09:00	06:00	06:00	05:00	03:00		06:00					08:00		
Vol.	509	177	281	156	44	10	2		1					880		
Midday Peak	12:00	12:00	12:00	11:00	11:00	11:00			13:00					12:00		
Vol.	38	139	238	146	23	2			1					529		
PM Peak																
Vol.																

% iles
15th Percentile : 9 MPH
50th Percentile : 20 MPH
85th Percentile : 26 MPH
95th Percentile : 28 MPH

Stats
10 MPH Pace Speed : 15-24 MPH
Number in Pace : 2876
Percent in Pace : 55.4%
Number of Vehicles > 25 MPH : 996
Percent of Vehicles > 25 MPH : 19.2%
Mean Speed(Average) : 19 MPH

Highland Avenue
between Putnam St. and Vinal Ave.
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

154724 C Speed
Site Code: 2015-069
Date Start: 16-Nov-15

WB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
11/16/15	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	1	21	125	**103**	**12**	0	0	0	0	0	0	0	0	262	27	24
13:00	**16**	34	157	102	6	0	0	0	0	0	0	0	0	315	26	23
14:00	12	**54**	**189**	66	8	0	0	0	0	0	0	0	0	**329**	25	22
15:00	**85**	63	208	36	7	0	0	0	0	0	0	0	0	399	23	19
16:00	27	67	203	104	16	2	0	0	0	0	0	0	0	419	26	22
17:00	51	**84**	**240**	50	9	0	0	0	0	0	0	0	0	**434**	23	20
18:00	67	53	225	84	3	1	0	0	0	0	0	0	0	433	25	20
19:00	3	10	137	**153**	29	1	0	**1**	**1**	0	0	0	0	335	28	25
20:00	2	8	82	92	31	3	0	0	0	0	0	0	0	218	29	25
21:00	3	6	47	91	**38**	**5**	0	0	0	0	0	0	0	190	30	26
22:00	1	5	23	61	27	4	0	0	0	0	0	0	0	121	31	27
23:00	1	2	12	24	21	5	0	0	0	0	0	0	0	65	32	28
Total	269	407	1648	966	207	21	0	1	1	0	0	0	0	3520		
%	7.6%	11.6%	46.8%	27.4%	5.9%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak Vol.																
Midday Peak	13:00	14:00	14:00	12:00	12:00									14:00		
Vol.	16	54	189	103	12									329		
PM Peak	15:00	17:00	17:00	19:00	21:00	21:00		19:00	19:00					17:00		
Vol.	85	84	240	153	38	5		1	1					434		

% iles
15th Percentile : 17 MPH
50th Percentile : 22 MPH
85th Percentile : 27 MPH
95th Percentile : 30 MPH

Stats
10 MPH Pace Speed : 20-29 MPH
Number in Pace : 2614
Percent in Pace : 74.3%
Number of Vehicles > 25 MPH : 1003
Percent of Vehicles > 25 MPH : 28.5%
Mean Speed(Average) : 22 MPH

Highland Avenue
between Putnam St. and Vinal Ave.
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

154724 C Speed
Site Code: 2015-069
Date Start: 16-Nov-15

WB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
11/17/ 15	0	3	4	10	**22**	2	**2**	0	0	0	0	0	0	43	33	30
01:00	0	0	4	3	7	2	1	0	0	0	0	0	0	17	35	30
02:00	1	0	2	7	8	0	0	0	0	0	0	0	0	18	32	28
03:00	0	0	1	3	6	2	0	0	0	0	0	0	0	12	34	31
04:00	0	0	2	4	4	1	0	0	0	0	0	0	0	11	33	29
05:00	0	1	2	24	14	**4**	0	0	0	0	0	0	0	45	33	29
06:00	0	0	21	51	20	3	1	0	0	0	0	0	0	96	31	27
07:00	**9**	**30**	108	62	17	0	0	0	0	0	0	0	0	226	27	23
08:00	6	15	**144**	48	5	0	0	0	0	0	0	0	0	218	26	23
09:00	6	13	117	**81**	21	0	0	0	0	0	0	0	0	**238**	28	24
10:00	3	15	80	96	20	2	0	0	0	0	0	0	0	216	28	25
11:00	1	10	90	**102**	**31**	**3**	0	0	0	0	0	0	0	237	28	25
12 PM	**2**	**32**	**127**	89	9	1	0	0	0	0	0	0	0	**260**	27	23
13:00	1	18	106	99	25	2	0	0	0	0	0	0	0	251	28	25
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
Total	29	137	808	679	209	22	4	0	0	0	0	0	0	1888		
%	1.5%	7.3%	42.8%	36.0%	11.1%	1.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	07:00	08:00	09:00	00:00	05:00	00:00							09:00		
Vol.	9	30	144	81	22	4	2							238		
Midday Peak	12:00	12:00	12:00	11:00	11:00	11:00								12:00		
Vol.	2	32	127	102	31	3								260		
PM Peak																
Vol.																

% iles

15th Percentile :	19 MPH
50th Percentile :	23 MPH
85th Percentile :	28 MPH
95th Percentile :	32 MPH

Stats

10 MPH Pace Speed :	20-29 MPH
Number in Pace :	1487
Percent in Pace :	78.8%
Number of Vehicles > 25 MPH :	778
Percent of Vehicles > 25 MPH :	41.2%
Mean Speed(Average) :	25 MPH

Highland Avenue
between Putnam St. and Vinal Ave.
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

154724 C Volume
Site Code: 2015-069
Date Start: 16-Nov-15

Start	EB				WB				Combined				16-Nov-15	
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Mon	
12:00	*		113		*		66		*		179			
12:15	*		142		*		63		*		205			
12:30	*		129		*		71		*		200			
12:45	*	0	119	503	*	0	62	262	*	0	181	765		
01:00	*		131		*		82		*		213			
01:15	*		134		*		72		*		206			
01:30	*		138		*		81		*		219			
01:45	*	0	134	537	*	0	80	315	*	0	214	852		
02:00	*		130		*		78		*		208			
02:15	*		124		*		80		*		204			
02:30	*		136		*		70		*		206			
02:45	*	0	137	527	*	0	101	329	*	0	238	856		
03:00	*		112		*		107		*		219			
03:15	*		138		*		91		*		229			
03:30	*		121		*		95		*		216			
03:45	*	0	117	488	*	0	106	399	*	0	223	887		
04:00	*		153		*		94		*		247			
04:15	*		157		*		105		*		262			
04:30	*		145		*		109		*		254			
04:45	*	0	126	581	*	0	111	419	*	0	237	1000		
05:00	*		123		*		108		*		231			
05:15	*		148		*		106		*		254			
05:30	*		137		*		94		*		231			
05:45	*	0	127	535	*	0	126	434	*	0	253	969		
06:00	*		133		*		115		*		248			
06:15	*		117		*		109		*		226			
06:30	*		121		*		115		*		236			
06:45	*	0	108	479	*	0	94	433	*	0	202	912		
07:00	*		136		*		91		*		227			
07:15	*		108		*		101		*		209			
07:30	*		99		*		84		*		183			
07:45	*	0	100	443	*	0	59	335	*	0	159	778		
08:00	*		72		*		62		*		134			
08:15	*		69		*		50		*		119			
08:30	*		62		*		54		*		116			
08:45	*	0	79	282	*	0	52	218	*	0	131	500		
09:00	*		68		*		64		*		132			
09:15	*		54		*		43		*		97			
09:30	*		54		*		47		*		101			
09:45	*	0	58	234	*	0	36	190	*	0	94	424		
10:00	*		71		*		36		*		107			
10:15	*		47		*		27		*		74			
10:30	*		46		*		35		*		81			
10:45	*	0	37	201	*	0	23	121	*	0	60	322		
11:00	*		23		*		23		*		46			
11:15	*		18		*		13		*		31			
11:30	*		32		*		11		*		43			
11:45	145	145	24	97	62	62	18	65	207	207	42	162		
Total	145		4907		62		3520		207		8427			
Percent	70.0%		58.2%		30.0%		41.8%							
Day Total		5052				3582				8634				
Peak	-	-	04:00	-	-	-	05:45	-	-	-	04:00	-	-	-
Vol.	-	-	581	-	-	-	465	-	-	-	1000	-	-	-
P.H.F.			0.925				0.923				0.954			

Highland Avenue
between Putnam St. and Vinal Ave.
City, State: Somerville, MA
Client: Design Consultants / D. Caiazzo

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Date Start: 16-Nov-15

Start Time	EB A.M.		EB P.M.		WB A.M.		WB P.M.		Combined A.M.		Combined P.M.		17-Nov-15 Tue	
12:00	14		138		12		70		26		208			
12:15	8		136		11		67		19		203			
12:30	7		122		13		69		20		191			
12:45	14	43	133	529	7	43	54	260	21	86	187	789		
01:00	9		141		7		78		16		219			
01:15	9		141		3		55		12		196			
01:30	9		125		7		69		16		194			
01:45	9	36	88	495	0	17	49	251	9	53	137	746		
02:00	5		0		6		0		11		0			
02:15	7		0		6		0		13		0			
02:30	4		0		2		0		6		0			
02:45	3	19	0	0	4	18	0	0	7	37	0	0		
03:00	4		0		4		0		8		0			
03:15	5		0		4		0		9		0			
03:30	5		0		2		0		7		0			
03:45	7	21	0	0	2	12	0	0	9	33	0	0		
04:00	3		0		1		0		4		0			
04:15	12		0		2		0		14		0			
04:30	14		0		2		0		16		0			
04:45	11	40	0	0	6	11	0	0	17	51	0	0		
05:00	18		0		5		0		23		0			
05:15	29		0		11		0		40		0			
05:30	49		0		10		0		59		0			
05:45	49	145	0	0	19	45	0	0	68	190	0	0		
06:00	78		0		18		0		96		0			
06:15	91		0		14		0		105		0			
06:30	131		0		28		0		159		0			
06:45	191	491	0	0	36	96	0	0	227	587	0	0		
07:00	176		0		55		0		231		0			
07:15	186		0		52		0		238		0			
07:30	176		0		53		0		229		0			
07:45	187	725	0	0	66	226	0	0	253	951	0	0		
08:00	226		0		47		0		273		0			
08:15	218		0		54		0		272		0			
08:30	233		0		55		0		288		0			
08:45	203	880	0	0	62	218	0	0	265	1098	0	0		
09:00	207		0		60		0		267		0			
09:15	178		0		62		0		240		0			
09:30	174		0		59		0		233		0			
09:45	138	697	0	0	57	238	0	0	195	935	0	0		
10:00	143		0		54		0		197		0			
10:15	156		0		49		0		205		0			
10:30	118		0		59		0		177		0			
10:45	129	546	0	0	54	216	0	0	183	762	0	0		
11:00	130		0		51		0		181		0			
11:15	111		0		72		0		183		0			
11:30	131		0		57		0		188		0			
11:45	154	526	0	0	57	237	0	0	211	763	0	0		
Total	4169		1024		1377		511		5546		1535			
Percent	75.2%		66.7%		24.8%		33.3%							
Day Total		5193				1888				7081				
Peak	08:00	-	00:45	-	08:45	-	00:15	-	08:00	-	00:15	-	-	-
Vol.	880	-	540	-	243	-	268	-	1098	-	800	-	-	-
P.H.F.	0.944		0.957		0.980		0.859		0.953		0.913			

School Street
south of Montrose Street
City, State: Somerville, MA
Client: Design Consultants/ D. Caizzo

154724 BB Class
Site Code: 2015-069
Date Start: 08-Dec-15

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/08/15	0	32	2	0	1	0	0	0	0	0	0	0	0	35
01:00	0	26	0	0	0	0	0	0	0	0	0	0	0	26
02:00	0	6	3	0	0	0	0	0	0	0	0	0	0	9
03:00	0	13	1	0	0	0	0	0	0	0	0	0	0	14
04:00	0	18	8	0	1	0	0	0	0	0	0	0	0	27
05:00	1	102	25	0	5	0	0	0	0	0	0	0	0	133
06:00	0	363	69	0	10	1	0	0	0	0	0	0	0	443
07:00	3	612	76	1	11	1	0	0	0	1	0	0	0	705
08:00	4	489	79	0	13	0	0	0	0	1	0	0	0	586
09:00	4	463	79	2	13	0	0	2	0	0	0	0	0	563
10:00	3	406	62	0	11	0	0	2	0	0	0	0	0	484
11:00	2	321	67	1	9	0	0	1	0	0	0	0	0	401
12 PM	0	312	80	1	12	0	0	0	0	0	0	0	0	405
13:00	1	327	67	3	14	1	0	1	0	0	0	0	0	414
14:00	0	377	51	3	13	0	0	0	0	0	0	0	0	444
15:00	1	362	54	1	6	2	0	4	0	0	0	0	0	430
16:00	0	389	56	0	4	0	0	0	0	0	0	0	0	449
17:00	1	462	59	0	5	0	0	1	0	0	0	0	0	528
18:00	2	429	38	0	6	0	0	0	0	0	0	0	1	476
19:00	0	298	28	0	2	1	0	0	0	0	0	0	0	329
20:00	1	210	24	0	8	0	0	0	0	0	0	0	0	243
21:00	0	186	7	0	1	0	0	0	0	0	0	0	0	194
22:00	0	128	8	0	0	0	0	0	0	0	0	0	0	136
23:00	0	71	6	0	0	0	0	0	0	0	0	0	0	77
Total	23	6402	949	12	145	6	0	11	0	2	0	0	1	7551
Percent	0.3%	84.8%	12.6%	0.2%	1.9%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	07:00	08:00	09:00	08:00	06:00		09:00		07:00				07:00
Vol.	4	612	79	2	13	1		2		1				705
PM Peak	18:00	17:00	12:00	13:00	13:00	15:00		15:00					18:00	17:00
Vol.	2	462	80	3	14	2		4					1	528

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Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/09/15	0	31	4	0	1	0	0	0	0	0	0	0	0	36
01:00	0	9	1	0	1	0	0	0	0	0	0	0	0	11
02:00	0	12	1	0	0	0	0	0	0	0	0	0	0	13
03:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
04:00	0	27	9	0	1	0	0	0	0	0	0	0	0	37
05:00	0	92	28	0	2	1	0	0	0	0	0	0	0	123
06:00	0	380	75	0	20	0	0	0	0	0	0	0	0	475
07:00	3	558	75	2	8	1	0	0	0	0	0	0	0	647
08:00	1	581	84	1	15	0	0	0	0	0	0	0	0	682
09:00	5	463	66	0	12	0	0	2	0	0	0	0	0	548
10:00	2	367	71	1	13	0	1	5	0	0	0	0	0	460
11:00	2	374	54	1	12	1	0	0	0	0	0	0	0	444
12 PM	2	373	56	4	11	1	0	0	0	0	0	0	0	447
13:00	2	354	74	2	12	0	0	0	0	0	0	0	0	444
14:00	0	375	61	2	10	1	1	0	0	0	0	0	0	450
15:00	1	388	64	0	11	0	0	0	0	0	0	0	0	464
16:00	1	394	50	0	10	0	0	0	0	0	0	0	0	455
17:00	0	474	52	0	7	0	0	1	0	0	0	0	0	534
18:00	1	436	49	0	6	0	0	0	0	0	0	0	0	492
19:00	0	321	29	1	2	0	0	0	0	0	0	0	0	353
20:00	1	240	19	0	0	0	0	0	0	0	0	0	0	260
21:00	0	179	13	0	0	0	0	0	0	0	0	0	0	192
22:00	0	145	10	0	0	0	0	0	0	0	0	0	0	155
23:00	0	68	5	0	1	0	0	0	0	0	0	0	0	74
Total	21	6644	950	14	155	5	2	8	0	0	0	0	0	7799
Percent	0.3%	85.2%	12.2%	0.2%	2.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	08:00	08:00	07:00	06:00	05:00	10:00	10:00						08:00
Vol.	5	581	84	2	20	1	1	5						682
PM Peak	12:00	17:00	13:00	12:00	13:00	12:00	14:00	17:00						17:00
Vol.	2	474	74	4	12	1	1	1						534
Total		13046	1899	26	300	11	2	19	0	2	0	0	1	15350

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154724 BB Speed
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SB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/08/15	4	10	12	8	1	0	0	0	0	0	0	0	0	35	26	20
01:00	0	9	9	5	**3**	0	0	0	0	0	0	0	0	26	28	22
02:00	0	3	5	0	1	0	0	0	0	0	0	0	0	9	23	21
03:00	1	5	5	2	1	0	0	0	0	0	0	0	0	14	26	21
04:00	0	5	7	12	3	0	0	0	0	0	0	0	0	27	28	24
05:00	2	35	65	26	3	**2**	0	0	0	0	0	0	0	133	26	22
06:00	15	155	**215**	**54**	3	1	0	0	0	0	0	0	0	443	23	20
07:00	249	**236**	212	7	1	0	0	0	0	0	0	0	0	**705**	21	15
08:00	**362**	118	105	1	0	0	0	0	0	0	0	0	0	586	19	12
09:00	361	118	84	0	0	0	0	0	0	0	0	0	0	563	18	12
10:00	149	139	191	5	0	0	0	0	0	0	0	0	0	484	22	16
11:00	48	199	**142**	12	0	0	0	0	0	0	0	0	0	401	22	18
12 PM	54	199	134	15	**3**	0	0	0	0	0	0	0	0	405	22	18
13:00	57	206	132	**17**	2	0	0	0	0	0	0	0	0	414	22	18
14:00	**88**	**258**	89	8	1	0	0	0	0	0	0	0	0	**444**	20	16
15:00	**67**	**233**	119	9	2	0	0	0	0	0	0	0	0	430	21	17
16:00	27	218	187	16	1	0	0	0	0	0	0	0	0	449	22	19
17:00	64	227	218	19	0	0	0	0	0	0	0	0	0	**528**	22	18
18:00	7	182	**240**	**44**	2	**1**	0	0	0	0	0	0	0	476	23	20
19:00	11	110	174	34	0	0	0	0	0	0	0	0	0	329	23	20
20:00	4	65	133	38	3	0	0	0	0	0	0	0	0	243	24	21
21:00	3	60	99	29	2	1	0	0	0	0	0	0	0	194	24	21
22:00	3	46	66	20	1	0	0	0	0	0	0	0	0	136	24	21
23:00	2	21	40	7	**6**	1	0	0	0	0	0	0	0	77	25	22
Total	1578	2857	2683	388	39	6	0	0	0	0	0	0	0	7551		
%	20.9%	37.8%	35.5%	5.1%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	07:00	06:00	06:00	01:00	05:00								07:00		
Vol.	362	236	215	54	3	2								705		
Midday Peak	14:00	14:00	11:00	13:00	12:00									14:00		
Vol.	88	258	142	17	3									444		
PM Peak	15:00	15:00	18:00	18:00	23:00	18:00								17:00		
Vol.	67	233	240	44	6	1								528		

% iles		
	15th Percentile :	10 MPH
	50th Percentile :	17 MPH
	85th Percentile :	22 MPH
	95th Percentile :	24 MPH

Stats		
	10 MPH Pace Speed :	15-24 MPH
	Number in Pace :	5540
	Percent in Pace :	73.4%
	Number of Vehicles > 20 MPH :	2579
	Percent of Vehicles > 20 MPH :	34.2%
	Mean Speed(Average) :	17 MPH

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Start	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th	Ave
Time	14	19	24	29	34	39	44	49	54	59	64	69	9999		% ile	Speed
12/09/15	0	12	19	5	0	0	0	0	0	0	0	0	0	36	23	21
01:00	0	5	5	1	0	0	0	0	0	0	0	0	0	11	23	20
02:00	0	3	6	3	1	0	0	0	0	0	0	0	0	13	27	23
03:00	1	0	0	2	0	0	0	0	0	0	0	0	0	3	27	20
04:00	0	8	19	7	**3**	0	0	0	0	0	0	0	0	37	27	23
05:00	3	35	56	28	1	0	0	0	0	0	0	0	0	123	25	21
06:00	15	157	**252**	**50**	1	0	0	0	0	0	0	0	0	475	23	20
07:00	265	191	180	10	1	0	0	0	0	0	0	0	0	647	21	15
08:00	**369**	**207**	104	2	0	0	0	0	0	0	0	0	0	**682**	19	13
09:00	327	133	88	0	0	0	0	0	0	0	0	0	0	548	19	12
10:00	122	240	86	11	1	0	0	0	0	0	0	0	0	460	20	16
11:00	81	224	**129**	10	0	0	0	0	0	0	0	0	0	444	21	17
12 PM	**122**	211	100	**14**	0	0	0	0	0	0	0	0	0	447	21	16
13:00	87	221	123	11	**2**	0	0	0	0	0	0	0	0	444	21	17
14:00	102	**229**	112	7	0	0	0	0	0	0	0	0	0	**450**	21	16
15:00	60	235	159	9	1	0	0	0	0	0	0	0	0	464	22	18
16:00	34	239	164	17	1	0	0	0	0	0	0	0	0	455	22	18
17:00	**73**	**255**	180	24	1	**1**	0	0	0	0	0	0	0	**534**	22	18
18:00	14	208	**239**	**30**	1	0	0	0	0	0	0	0	0	492	23	20
19:00	14	117	187	29	**6**	0	0	0	0	0	0	0	0	353	23	20
20:00	2	80	149	25	4	0	0	0	0	0	0	0	0	260	23	21
21:00	4	56	100	28	3	1	0	0	0	0	0	0	0	192	24	21
22:00	3	44	81	23	4	0	0	0	0	0	0	0	0	155	24	21
23:00	1	15	38	19	0	1	0	0	0	0	0	0	0	74	26	22
Total	1699	3125	2576	365	31	3	0	0	0	0	0	0	0	7799		
%	21.8%	40.1%	33.0%	4.7%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	08:00	06:00	06:00	04:00									08:00		
Vol.	369	207	252	50	3									682		
Midday Peak	12:00	14:00	11:00	12:00	13:00									14:00		
Vol.	122	229	129	14	2									450		
PM Peak	17:00	17:00	18:00	18:00	19:00	17:00								17:00		
Vol.	73	255	239	30	6	1								534		

% iles

15th Percentile : 9 MPH
50th Percentile : 17 MPH
85th Percentile : 22 MPH
95th Percentile : 24 MPH

Stats

10 MPH Pace Speed : 15-24 MPH
Number in Pace : 5701
Percent in Pace : 73.1%
Number of Vehicles > 20 MPH : 2460
Percent of Vehicles > 20 MPH : 31.5%
Mean Speed(Average) : 17 MPH

School Street
south of Montrose Street
City, State: Somerville, MA
Client: Design Consultants/ D. Caizzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

154724 BB Volume
Site Code: 2015-069
Date Start: 08-Dec-15

Start Time	A.M.	SB	P.M.										Tue 08-Dec-15	
12:00	10		97											
12:15	18		107											
12:30	2		101											
12:45	5	35	100	405										
01:00	6		105											
01:15	8		101											
01:30	1		93											
01:45	11	26	115	414										
02:00	3		104											
02:15	1		117											
02:30	3		110											
02:45	2	9	113	444										
03:00	4		100											
03:15	1		102											
03:30	2		120											
03:45	7	14	108	430										
04:00	3		113											
04:15	5		116											
04:30	11		109											
04:45	8	27	111	449										
05:00	21		129											
05:15	27		122											
05:30	38		138											
05:45	47	133	139	528										
06:00	54		114											
06:15	98		115											
06:30	128		123											
06:45	163	443	124	476										
07:00	203		105											
07:15	193		81											
07:30	155		72											
07:45	154	705	71	329										
08:00	139		73											
08:15	136		54											
08:30	148		53											
08:45	163	586	63	243										
09:00	156		51											
09:15	139		53											
09:30	130		46											
09:45	138	563	44	194										
10:00	125		49											
10:15	134		31											
10:30	115		30											
10:45	110	484	26	136										
11:00	78		21											
11:15	88		25											
11:30	128		21											
11:45	107	401	10	77										
Total	3426		4125											
Percent			100.0%		0.0%		0.0%							
Day Total		7551												
Peak	06:45	-	05:00	-	-	-	-	-	-	-	-	-	-	-
Vol.	714	-	528	-	-	-	-	-	-	-	-	-	-	-
P.H.F.	0.879		0.950											

School Street
south of Montrose Street
City, State: Somerville, MA
Client: Design Consultants/ D. Caizzo

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Office: 508.481.3999 Fax: 508.545.1234
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154724 BB Volume
Site Code: 2015-069
Date Start: 08-Dec-15

Start Time	A.M.	SB	P.M.										Wed 09-Dec-15	
12:00	11		107											
12:15	11		113											
12:30	6		104											
12:45	8	36	123	447										
01:00	3		113											
01:15	2		102											
01:30	4		113											
01:45	2	11	116	444										
02:00	4		104											
02:15	3		96											
02:30	1		133											
02:45	5	13	117	450										
03:00	0		103											
03:15	0		116											
03:30	1		132											
03:45	2	3	113	464										
04:00	3		97											
04:15	5		115											
04:30	17		122											
04:45	12	37	121	455										
05:00	12		124											
05:15	27		142											
05:30	44		141											
05:45	40	123	127	534										
06:00	61		141											
06:15	105		107											
06:30	126		121											
06:45	183	475	123	492										
07:00	164		100											
07:15	182		83											
07:30	160		94											
07:45	141	647	76	353										
08:00	173		79											
08:15	170		63											
08:30	170		53											
08:45	169	682	65	260										
09:00	160		36											
09:15	142		51											
09:30	132		60											
09:45	114	548	45	192										
10:00	118		39											
10:15	126		41											
10:30	113		31											
10:45	103	460	44	155										
11:00	102		20											
11:15	114		16											
11:30	119		22											
11:45	109	444	16	74										
Total	3479		4320											
Percent			100.0%		0.0%		0.0%							
Day Total		7799												
Peak	06:45	-	05:15	-	-	-	-	-	-	-	-	-	-	-
Vol.	689	-	551	-	-	-	-	-	-	-	-	-	-	-
P.H.F.	0.941		0.970											

Highland Avenue
west of Vinal Avenue
City, State: Somerville, MA
Client: Design Consultants/ D. Caiazzo

154724 CC Class
Site Code: 2015-069
Date Start: 08-Dec-15

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/08/15	0	34	8	2	1	0	0	0	0	0	0	0	0	45
01:00	0	11	1	1	1	0	0	0	0	0	0	0	0	14
02:00	0	7	3	0	1	0	0	0	0	0	0	0	0	11
03:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
04:00	0	9	2	1	0	0	0	0	0	0	0	0	0	12
05:00	0	36	6	1	3	0	0	0	0	0	0	0	0	46
06:00	2	86	12	3	3	2	0	0	0	0	0	0	0	108
07:00	5	175	24	2	4	5	0	0	0	0	0	0	0	215
08:00	4	189	21	1	5	0	0	0	0	0	0	0	0	220
09:00	5	180	41	2	12	2	0	0	0	0	0	0	0	242
10:00	1	205	46	4	14	5	0	0	0	0	0	0	0	275
11:00	3	181	41	3	7	3	0	2	0	0	0	0	0	240
12 PM	2	209	50	9	20	1	0	0	0	0	0	0	0	291
13:00	4	207	32	5	14	7	0	1	0	0	0	0	0	270
14:00	5	272	36	4	13	2	0	0	0	0	0	0	0	332
15:00	5	282	45	4	8	2	0	1	0	0	0	0	0	347
16:00	10	328	47	2	3	5	0	1	0	0	0	0	0	396
17:00	3	407	42	1	5	4	0	1	0	0	0	0	0	463
18:00	4	369	36	0	9	5	0	0	0	0	0	0	0	423
19:00	3	318	33	3	6	2	0	0	0	0	0	0	0	365
20:00	2	211	19	3	1	0	0	1	0	0	0	0	0	237
21:00	2	187	19	3	3	1	0	0	0	0	0	0	0	215
22:00	1	125	11	1	2	1	0	0	0	0	0	0	0	141
23:00	2	79	12	0	1	0	0	0	0	0	0	0	0	94
Total	63	4113	587	55	136	47	0	7	0	0	0	0	0	5008
Percent	1.3%	82.1%	11.7%	1.1%	2.7%	0.9%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	10:00	10:00	10:00	10:00	07:00		11:00						10:00
Vol.	5	205	46	4	14	5		2						275
PM Peak	16:00	17:00	12:00	12:00	12:00	13:00		13:00						17:00
Vol.	10	407	50	9	20	7		1						463

Highland Avenue
west of Vinal Avenue
City, State: Somerville, MA
Client: Design Consultants/ D. Caiazzo

154724 CC Class
Site Code: 2015-069
Date Start: 08-Dec-15

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/09/15	0	39	7	2	1	0	0	0	0	0	0	0	0	49
01:00	0	18	1	1	0	0	0	0	0	0	0	0	0	20
02:00	0	13	2	0	0	0	0	0	0	0	0	0	0	15
03:00	0	2	3	0	1	0	0	0	0	0	0	0	0	6
04:00	0	11	1	0	0	0	0	0	0	0	0	0	0	12
05:00	0	42	9	4	2	1	0	0	0	0	0	0	0	58
06:00	2	76	21	4	3	0	0	0	0	0	0	0	0	106
07:00	4	184	22	4	4	6	0	0	0	0	0	0	0	224
08:00	10	172	23	0	4	4	0	0	0	0	0	0	0	213
09:00	5	178	33	5	15	2	0	2	0	0	0	0	0	240
10:00	6	179	34	2	16	3	0	0	0	0	0	0	0	240
11:00	1	186	43	6	14	2	0	0	0	0	0	0	0	252
12 PM	0	203	37	3	14	3	0	0	0	0	0	0	0	260
13:00	5	257	38	5	14	1	0	0	0	0	0	0	0	320
14:00	6	223	58	5	6	1	0	2	0	0	0	0	0	301
15:00	6	292	40	3	9	4	0	0	0	0	0	0	0	354
16:00	9	343	45	1	9	3	0	1	0	0	0	0	0	411
17:00	9	378	37	1	6	3	0	1	0	0	0	0	0	435
18:00	6	331	39	1	4	2	0	0	0	0	0	0	0	383
19:00	2	327	40	0	9	2	0	0	0	0	0	0	0	380
20:00	1	277	25	2	5	5	0	0	0	0	0	0	0	315
21:00	1	209	15	3	1	0	0	0	0	0	0	0	0	229
22:00	1	153	16	1	3	2	0	0	0	0	0	0	0	176
23:00	1	106	9	0	1	0	0	0	0	0	0	0	0	117
Total	75	4199	598	53	141	44	0	6	0	0	0	0	0	5116
Percent	1.5%	82.1%	11.7%	1.0%	2.8%	0.9%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	11:00	11:00	11:00	10:00	07:00		09:00						11:00
Vol.	10	186	43	6	16	6		2						252
PM Peak	16:00	17:00	14:00	13:00	12:00	20:00		14:00						17:00
Vol.	9	378	58	5	14	5		2						435
Total		8312	1185	108	277	91	0	13	0	0	0	0	0	10124

Highland Avenue
west of Vinal Avenue
City, State: Somerville, MA
Client: Design Consultants/ D. Caiazzo

154724 CC Class
Site Code: 2015-069
Date Start: 08-Dec-15

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/08/15	1	64	2	2	1	0	0	0	0	0	0	0	0	70
01:00	0	29	0	0	3	0	0	0	0	0	0	0	0	32
02:00	0	16	2	0	0	0	0	0	0	0	0	0	0	18
03:00	0	19	2	0	1	0	0	0	0	0	0	0	0	22
04:00	0	38	7	0	5	1	0	0	0	0	0	0	0	51
05:00	1	121	15	1	7	0	0	0	0	0	0	0	0	145
06:00	2	388	55	2	17	0	0	0	0	0	0	0	0	464
07:00	16	700	70	0	12	0	1	1	0	0	0	0	0	800
08:00	8	745	92	2	11	4	0	3	0	0	0	0	0	865
09:00	3	573	116	8	16	1	0	1	1	0	0	0	0	719
10:00	3	467	88	4	12	4	0	3	0	0	0	0	0	581
11:00	2	401	104	3	24	4	0	0	0	0	0	0	0	538
12 PM	5	439	85	3	20	3	0	0	0	0	0	0	0	555
13:00	7	433	82	9	17	4	0	1	1	0	0	0	0	554
14:00	10	447	76	4	11	4	0	0	0	0	0	0	0	552
15:00	0	439	75	4	14	5	0	3	0	0	0	0	0	540
16:00	7	484	55	3	11	4	0	0	0	0	0	0	0	564
17:00	4	477	61	1	8	2	0	1	0	0	0	0	0	554
18:00	5	528	40	3	11	2	0	0	0	0	0	0	0	589
19:00	2	390	33	5	6	2	0	0	0	0	0	0	0	438
20:00	4	315	38	2	6	2	0	0	1	0	0	0	0	368
21:00	0	302	33	2	0	1	0	0	0	0	0	0	0	338
22:00	0	205	29	2	4	0	0	0	0	0	0	0	0	240
23:00	2	103	12	1	2	0	0	0	0	0	0	0	0	120
Total	82	8123	1172	61	219	43	1	13	3	0	0	0	0	9717
Percent	0.8%	83.6%	12.1%	0.6%	2.3%	0.4%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	09:00	09:00	11:00	08:00	07:00	08:00	09:00					08:00
Vol.	16	745	116	8	24	4	1	3	1					865
PM Peak	14:00	18:00	12:00	13:00	12:00	15:00		15:00	13:00					18:00
Vol.	10	528	85	9	20	5		3	1					589

Highland Avenue
west of Vinal Avenue
City, State: Somerville, MA
Client: Design Consultants/ D. Caiazzo

154724 CC Class
Site Code: 2015-069
Date Start: 08-Dec-15

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/09/15	3	54	4	2	0	0	0	0	0	0	0	0	0	63
01:00	1	38	3	0	0	0	0	0	0	0	0	0	0	42
02:00	0	19	2	0	0	1	0	0	0	0	0	0	0	22
03:00	0	18	3	0	0	0	0	0	0	0	0	0	0	21
04:00	0	35	7	0	2	0	0	0	0	0	0	0	0	44
05:00	0	122	30	1	5	2	0	0	0	0	0	0	0	160
06:00	2	406	64	4	18	0	0	0	0	0	0	0	0	494
07:00	20	656	73	2	13	2	1	1	0	0	0	0	0	768
08:00	15	715	87	4	13	4	1	3	0	0	0	0	0	842
09:00	7	545	90	6	13	1	0	2	0	0	0	0	0	664
10:00	1	442	90	5	20	4	0	2	0	0	0	0	0	564
11:00	2	425	87	4	15	3	1	2	0	0	0	0	0	539
12 PM	6	480	88	6	27	1	0	0	0	0	0	0	0	608
13:00	4	479	69	6	13	5	0	4	0	0	0	0	0	580
14:00	3	430	80	5	23	4	0	0	1	0	0	0	0	546
15:00	2	465	76	4	14	4	0	0	0	0	0	0	0	565
16:00	9	498	71	2	8	2	0	0	0	0	0	0	0	590
17:00	5	525	63	1	9	1	0	0	0	0	0	0	0	604
18:00	3	465	54	3	15	2	1	1	0	0	0	0	0	544
19:00	4	448	33	2	7	0	0	0	0	0	0	0	0	494
20:00	5	363	25	3	10	1	0	0	2	0	0	0	0	409
21:00	1	331	25	2	0	0	0	0	0	0	0	0	0	359
22:00	1	231	27	2	2	1	0	0	0	0	0	0	0	264
23:00	3	123	17	1	2	0	0	0	0	0	0	0	0	146
Total	97	8313	1168	65	229	38	4	15	3	0	0	0	0	9932
Percent	1.0%	83.7%	11.8%	0.7%	2.3%	0.4%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	09:00	09:00	10:00	08:00	07:00	08:00						08:00
Vol.	20	715	90	6	20	4	1	3						842
PM Peak	16:00	17:00	12:00	12:00	12:00	13:00	18:00	13:00	20:00					12:00
Vol.	9	525	88	6	27	5	1	4	2					608
Total		16436	2340	126	448	81	5	28	6	0	0	0	0	19649

PRECISION
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Highland Avenue
west of Vinal Avenue
City, State: Somerville, MA
Client: Design Consultants/ D. Caiazzo

154724 CC Speed
Site Code: 2015-069
Date Start: 08-Dec-15

WB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/08/15	0	1	6	23	12	2	**1**	0	0	0	0	0	0	45	32	28
01:00	0	0	0	8	6	0	0	0	0	0	0	0	0	14	32	29
02:00	0	0	0	4	3	3	1	0	0	0	0	0	0	11	37	32
03:00	0	1	1	4	0	0	0	0	0	0	0	0	0	6	27	24
04:00	0	0	3	3	5	1	0	0	0	0	0	0	0	12	33	29
05:00	0	1	4	19	17	**4**	1	0	0	0	0	0	0	46	33	29
06:00	1	2	28	54	**20**	3	0	0	0	0	0	0	0	108	30	27
07:00	**12**	**30**	128	39	4	2	0	0	0	0	0	0	0	215	25	22
08:00	10	29	**135**	42	4	0	0	0	0	0	0	0	0	220	25	22
09:00	7	28	129	**70**	8	0	0	0	0	0	0	0	0	**242**	26	23
10:00	4	20	154	83	13	1	0	0	0	0	0	0	0	275	27	23
11:00	15	31	94	82	18	0	0	0	0	0	0	0	0	240	27	23
12 PM	6	18	117	**126**	**20**	**4**	0	0	0	0	0	0	0	291	28	24
13:00	4	22	116	108	19	1	0	0	0	0	0	0	0	270	28	24
14:00	**42**	**64**	**155**	63	7	1	0	0	0	0	0	0	0	**332**	25	20
15:00	15	46	178	94	11	3	0	0	0	0	0	0	0	347	26	23
16:00	18	74	198	93	11	2	0	0	0	0	0	0	0	396	26	22
17:00	19	**80**	**273**	78	12	1	0	0	0	0	0	0	0	**463**	25	22
18:00	**25**	58	218	112	10	0	0	0	0	0	0	0	0	423	26	22
19:00	0	29	140	**158**	**34**	4	0	0	0	0	0	0	0	365	28	25
20:00	1	3	69	129	34	1	0	0	0	0	0	0	0	237	28	26
21:00	0	9	64	103	34	5	0	0	0	0	0	0	0	215	29	26
22:00	1	6	27	69	33	3	**1**	**1**	0	0	0	0	0	141	31	27
23:00	1	2	8	45	30	**7**	0	1	0	0	0	0	0	94	32	29
Total	181	554	2245	1609	365	48	4	2	0	0	0	0	0	5008		
%	3.6%	11.1%	44.8%	32.1%	7.3%	1.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	07:00	08:00	09:00	06:00	05:00	00:00							09:00		
Vol.	12	30	135	70	20	4	1							242		
Midday Peak	14:00	14:00	14:00	12:00	12:00	12:00								14:00		
Vol.	42	64	155	126	20	4								332		
PM Peak	18:00	17:00	17:00	19:00	19:00	23:00	22:00	22:00						17:00		
Vol.	25	80	273	158	34	7	1	1						463		

% iles

15th Percentile :	19 MPH
50th Percentile :	22 MPH
85th Percentile :	27 MPH
95th Percentile :	31 MPH

Stats

10 MPH Pace Speed :	20-29 MPH
Number in Pace :	3854
Percent in Pace :	77.0%
Number of Vehicles > 25 MPH :	1706
Percent of Vehicles > 25 MPH :	34.1%
Mean Speed(Average) :	23 MPH

Highland Avenue
west of Vinal Avenue
City, State: Somerville, MA
Client: Design Consultants/ D. Caiazzo

154724 CC Speed
Site Code: 2015-069
Date Start: 08-Dec-15

WB

Start	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th	Ave
Time	14	19	24	29	34	39	44	49	54	59	64	69	9999		% ile	Speed
12/09/15	0	2	6	16	19	2	**3**	**1**	0	0	0	0	0	49	33	30
01:00	0	2	2	7	8	1	0	0	0	0	0	0	0	20	32	28
02:00	0	0	5	5	5	0	0	0	0	0	0	0	0	15	31	27
03:00	0	1	1	1	3	0	0	0	0	0	0	0	0	6	32	27
04:00	0	0	1	4	3	3	1	0	0	0	0	0	0	12	37	32
05:00	0	0	2	35	17	4	0	0	0	0	0	0	0	58	32	29
06:00	0	2	27	46	**25**	**6**	0	0	0	0	0	0	0	106	32	27
07:00	**7**	**36**	125	43	12	1	0	0	0	0	0	0	0	224	26	22
08:00	3	20	**143**	43	4	0	0	0	0	0	0	0	0	213	25	23
09:00	7	19	99	**94**	19	1	1	0	0	0	0	0	0	**240**	28	24
10:00	11	18	84	103	23	1	0	0	0	0	0	0	0	240	28	24
11:00	6	29	99	94	23	1	0	0	0	0	0	0	0	252	28	24
12 PM	5	18	97	**106**	**33**	1	0	0	0	0	0	0	0	260	28	25
13:00	16	43	**160**	88	13	0	0	0	0	0	0	0	0	**320**	27	22
14:00	**18**	**46**	137	81	17	**2**	0	0	0	0	0	0	0	301	27	22
15:00	15	28	170	109	30	1	0	0	0	**1**	0	0	0	354	28	24
16:00	**19**	54	**237**	86	14	1	0	0	0	0	0	0	0	411	26	22
17:00	12	**61**	222	131	9	0	0	0	0	0	0	0	0	**435**	26	23
18:00	13	42	173	139	16	0	0	0	0	0	0	0	0	383	27	23
19:00	11	29	172	142	22	3	0	0	**1**	0	0	0	0	380	27	24
20:00	5	20	107	**153**	26	4	0	0	0	0	0	0	0	315	28	25
21:00	0	2	60	125	38	2	**2**	0	0	0	0	0	0	229	30	27
22:00	2	4	34	84	**46**	6	0	0	0	0	0	0	0	176	31	27
23:00	0	3	19	47	39	**7**	2	0	0	0	0	0	0	117	32	28
Total	150	479	2182	1782	464	47	9	1	1	1	0	0	0	5116		
%	2.9%	9.4%	42.7%	34.8%	9.1%	0.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	07:00	08:00	09:00	06:00	06:00	00:00	00:00						09:00		
Vol.	7	36	143	94	25	6	3	1						240		
Midday Peak	14:00	14:00	13:00	12:00	12:00	14:00								13:00		
Vol.	18	46	160	106	33	2								320		
PM Peak	16:00	17:00	16:00	20:00	22:00	23:00	21:00		19:00	15:00				17:00		
Vol.	19	61	237	153	46	7	2		1	1				435		

% iles
15th Percentile : 19 MPH
50th Percentile : 23 MPH
85th Percentile : 28 MPH
95th Percentile : 31 MPH

Stats
10 MPH Pace Speed : 20-29 MPH
Number in Pace : 3964
Percent in Pace : 77.5%
Number of Vehicles > 25 MPH : 1949
Percent of Vehicles > 25 MPH : 38.1%
Mean Speed(Average) : 24 MPH

Highland Avenue
west of Vinal Avenue
City, State: Somerville, MA
Client: Design Consultants/ D. Caiazzo

154724 CC Speed
Site Code: 2015-069
Date Start: 08-Dec-15

EB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/08/15	0	3	16	25	21	5	0	0	0	0	0	0	0	70	32	28
01:00	0	2	9	10	7	3	1	0	0	0	0	0	0	32	33	27
02:00	0	0	1	11	5	0	1	0	0	0	0	0	0	18	32	29
03:00	1	0	4	8	5	4	0	0	0	0	0	0	0	22	34	28
04:00	0	3	4	17	16	7	**3**	**1**	0	0	0	0	0	51	36	30
05:00	0	6	19	65	42	**13**	0	0	0	0	0	0	0	145	32	28
06:00	0	37	138	**211**	**68**	10	0	0	0	0	0	0	0	464	29	26
07:00	367	152	**248**	29	4	0	0	0	0	0	0	0	0	800	22	15
08:00	**553**	120	192	0	0	0	0	0	0	0	0	0	0	**865**	20	12
09:00	210	**184**	242	73	9	1	0	0	0	0	0	0	0	719	23	17
10:00	38	136	259	123	23	2	0	0	0	0	0	0	0	581	26	21
11:00	58	125	234	105	13	**2**	**1**	0	0	0	0	0	0	538	25	21
12 PM	40	143	213	**133**	**24**	2	0	0	0	0	0	0	0	**555**	26	21
13:00	37	122	**261**	116	16	2	0	0	0	0	0	0	0	554	26	21
14:00	**94**	**148**	253	52	5	0	0	0	0	0	0	0	0	552	23	19
15:00	120	128	216	70	5	1	0	0	0	0	0	0	0	540	23	18
16:00	**122**	119	249	69	5	0	0	0	0	0	0	0	0	564	23	19
17:00	33	134	**283**	90	14	0	0	0	0	0	0	0	0	554	25	21
18:00	98	**137**	273	68	11	2	0	0	0	0	0	0	0	**589**	23	19
19:00	3	52	205	144	32	2	0	0	0	0	0	0	0	438	27	24
20:00	15	37	138	137	39	2	0	0	0	0	0	0	0	368	28	24
21:00	8	25	101	**164**	34	6	0	0	0	0	0	0	0	338	28	25
22:00	0	19	84	91	**42**	2	**1**	**1**	0	0	0	0	0	240	30	26
23:00	1	2	28	40	38	**9**	1	0	**1**	0	0	0	0	120	33	28
Total	1798	1834	3670	1851	478	75	8	2	1	0	0	0	0	9717		
%	18.5%	18.9%	37.8%	19.0%	4.9%	0.8%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	09:00	07:00	06:00	06:00	05:00	04:00	04:00						08:00		
Vol.	553	184	248	211	68	13	3	1						865		
Midday Peak	14:00	14:00	13:00	12:00	12:00	11:00	11:00							12:00		
Vol.	94	148	261	133	24	2	1							555		
PM Peak	16:00	18:00	17:00	21:00	22:00	23:00	22:00	22:00	23:00					18:00		
Vol.	122	137	283	164	42	9	1	1	1					589		

% iles
15th Percentile : 11 MPH
50th Percentile : 20 MPH
85th Percentile : 26 MPH
95th Percentile : 29 MPH

Stats
10 MPH Pace Speed : 20-29 MPH
Number in Pace : 5521
Percent in Pace : 56.8%
Number of Vehicles > 25 MPH : 2045
Percent of Vehicles > 25 MPH : 21.0%
Mean Speed(Average) : 20 MPH

Highland Avenue
west of Vinal Avenue
City, State: Somerville, MA
Client: Design Consultants/ D. Caiazzo

154724 CC Speed
Site Code: 2015-069
Date Start: 08-Dec-15

EB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/09/15	2	1	12	23	13	6	**5**	1	0	0	0	0	0	63	36	29
01:00	0	1	9	11	15	5	1	0	0	0	0	0	0	42	33	29
02:00	0	4	1	7	6	4	0	0	0	0	0	0	0	22	34	28
03:00	0	1	5	5	7	2	1	0	0	0	0	0	0	21	33	29
04:00	0	0	2	9	21	10	1	1	0	0	0	0	0	44	36	32
05:00	0	4	16	68	58	11	2	1	0	0	0	0	0	160	33	29
06:00	9	57	158	**182**	**74**	**13**	1	0	0	0	0	0	0	494	29	25
07:00	355	125	228	52	7	1	0	0	0	0	0	0	0	768	22	15
08:00	**501**	134	205	2	0	0	0	0	0	0	0	0	0	**842**	20	13
09:00	77	**157**	**266**	143	17	2	0	**2**	0	0	0	0	0	664	26	21
10:00	27	102	255	152	26	2	0	0	0	0	0	0	0	564	27	22
11:00	38	98	241	**144**	15	**3**	0	0	0	0	0	0	0	539	26	22
12 PM	55	126	262	131	**33**	1	0	0	0	0	0	0	0	**608**	26	21
13:00	**82**	**144**	**263**	76	15	0	0	0	0	0	0	0	0	580	24	20
14:00	64	122	233	115	12	0	0	0	0	0	0	0	0	546	25	20
15:00	69	116	249	119	10	2	0	0	0	0	0	0	0	565	25	20
16:00	44	**187**	**274**	70	12	3	0	0	0	0	0	0	0	590	23	20
17:00	**124**	120	253	94	13	0	0	0	0	0	0	0	0	**604**	24	19
18:00	51	79	258	138	14	4	0	0	0	0	0	0	0	544	26	22
19:00	10	88	226	**146**	20	2	0	**2**	0	0	0	0	0	494	27	23
20:00	18	56	172	142	21	0	0	0	0	0	0	0	0	409	27	23
21:00	5	35	153	132	**34**	0	0	0	0	0	0	0	0	359	28	24
22:00	3	14	89	119	34	4	**1**	0	0	0	0	0	0	264	28	25
23:00	2	10	36	60	26	**12**	0	0	0	0	0	0	0	146	32	27
Total	1536	1781	3866	2140	503	87	12	7	0	0	0	0	0	9932		
%	15.5%	17.9%	38.9%	21.5%	5.1%	0.9%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	09:00	09:00	06:00	06:00	06:00	00:00	09:00						08:00		
Vol.	501	157	266	182	74	13	5	2						842		
Midday Peak	13:00	13:00	13:00	11:00	12:00	11:00								12:00		
Vol.	82	144	263	144	33	3								608		
PM Peak	17:00	16:00	16:00	19:00	21:00	23:00	22:00	19:00						17:00		
Vol.	124	187	274	146	34	12	1	2						604		

% iles

15th Percentile :	13 MPH
50th Percentile :	21 MPH
85th Percentile :	26 MPH
95th Percentile :	30 MPH

Stats

10 MPH Pace Speed :	20-29 MPH
Number in Pace :	6006
Percent in Pace :	60.5%
Number of Vehicles > 25 MPH :	2321
Percent of Vehicles > 25 MPH :	23.4%
Mean Speed(Average) :	21 MPH

Highland Avenue
west of Vinal Avenue
City, State: Somerville, MA
Client: Design Consultants/ D. Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

154724 CC Volume
Site Code: 2015-069
Date Start: 08-Dec-15

Start	WB				EB				Combined				08-Dec-15	
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Tue	
12:00	15		68		19		159		34		227			
12:15	13		76		25		137		38		213			
12:30	11		82		11		122		22		204			
12:45	6	45	65	291	15	70	137	555	21	115	202	846		
01:00	3		48		12		153		15		201			
01:15	5		95		5		125		10		220			
01:30	3		58		7		153		10		211			
01:45	3	14	69	270	8	32	123	554	11	46	192	824		
02:00	2		74		2		133		4		207			
02:15	5		84		4		138		9		222			
02:30	4		80		7		138		11		218			
02:45	0	11	94	332	5	18	143	552	5	29	237	884		
03:00	2		72		3		132		5		204			
03:15	1		92		6		128		7		220			
03:30	1		88		6		128		7		216			
03:45	2	6	95	347	7	22	152	540	9	28	247	887		
04:00	2		96		11		146		13		242			
04:15	1		98		6		135		7		233			
04:30	3		99		15		151		18		250			
04:45	6	12	103	396	19	51	132	564	25	63	235	960		
05:00	8		114		14		134		22		248			
05:15	12		112		34		148		46		260			
05:30	14		119		49		125		63		244			
05:45	12	46	118	463	48	145	147	554	60	191	265	1017		
06:00	19		95		68		158		87		253			
06:15	17		120		97		154		114		274			
06:30	28		107		145		137		173		244			
06:45	44	108	101	423	154	464	140	589	198	572	241	1012		
07:00	43		110		192		117		235		227			
07:15	43		94		207		108		250		202			
07:30	60		80		200		107		260		187			
07:45	69	215	81	365	201	800	106	438	270	1015	187	803		
08:00	61		65		205		86		266		151			
08:15	37		53		232		94		269		147			
08:30	64		66		219		90		283		156			
08:45	58	220	53	237	209	865	98	368	267	1085	151	605		
09:00	61		65		174		100		235		165			
09:15	59		51		188		81		247		132			
09:30	69		54		189		78		258		132			
09:45	53	242	45	215	168	719	79	338	221	961	124	553		
10:00	60		47		143		90		203		137			
10:15	58		42		153		64		211		106			
10:30	83		27		154		52		237		79			
10:45	74	275	25	141	131	581	34	240	205	856	59	381		
11:00	58		27		138		34		196		61			
11:15	56		32		125		31		181		63			
11:30	56		15		134		30		190		45			
11:45	70	240	20	94	141	538	25	120	211	778	45	214		
Total	1434		3574		4305		5412		5739		8986			
Percent	25.0%		39.8%		75.0%		60.2%							
Day Total		5008				9717				14725				
Peak	10:00	-	05:00	-	08:00	-	05:45	-	07:45	-	05:30	-	-	-
Vol.	275	-	463	-	865	-	596	-	1088	-	1036	-	-	-
P.H.F.	0.828		0.973		0.932		0.943		0.961		0.945			

Highland Avenue
west of Vinal Avenue
City, State: Somerville, MA
Client: Design Consultants/ D. Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

154724 CC Volume
Site Code: 2015-069
Date Start: 08-Dec-15

Start	WB				EB				Combined				09-Dec-15	
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed	
12:00	17		61		19		162		36		223			
12:15	12		70		17		163		29		233			
12:30	8		65		14		130		22		195			
12:45	12	49	64	260	13	63	153	608	25	112	217	868		
01:00	7		80		14		143		21		223			
01:15	4		76		12		160		16		236			
01:30	6		90		9		137		15		227			
01:45	3	20	74	320	7	42	140	580	10	62	214	900		
02:00	6		60		4		118		10		178			
02:15	5		78		9		142		14		220			
02:30	3		72		7		152		10		224			
02:45	1	15	91	301	2	22	134	546	3	37	225	847		
03:00	1		87		7		139		8		226			
03:15	2		73		3		152		5		225			
03:30	2		95		4		127		6		222			
03:45	1	6	99	354	7	21	147	565	8	27	246	919		
04:00	1		113		5		157		6		270			
04:15	2		96		10		145		12		241			
04:30	0		113		15		131		15		244			
04:45	9	12	89	411	14	44	157	590	23	56	246	1001		
05:00	13		104		13		161		26		265			
05:15	10		115		38		162		48		277			
05:30	19		112		56		155		75		267			
05:45	16	58	104	435	53	160	126	604	69	218	230	1039		
06:00	20		115		71		136		91		251			
06:15	19		106		102		138		121		244			
06:30	27		85		144		142		171		227			
06:45	40	106	77	383	177	494	128	544	217	600	205	927		
07:00	51		93		189		114		240		207			
07:15	47		99		198		122		245		221			
07:30	56		90		198		128		254		218			
07:45	70	224	98	380	183	768	130	494	253	992	228	874		
08:00	51		88		209		117		260		205			
08:15	61		93		212		99		273		192			
08:30	52		84		212		101		264		185			
08:45	49	213	50	315	209	842	92	409	258	1055	142	724		
09:00	58		65		175		116		233		181			
09:15	60		59		195		91		255		150			
09:30	67		59		143		86		210		145			
09:45	55	240	46	229	151	664	66	359	206	904	112	588		
10:00	48		52		149		72		197		124			
10:15	54		45		167		78		221		123			
10:30	62		49		125		61		187		110			
10:45	76	240	30	176	123	564	53	264	199	804	83	440		
11:00	45		36		117		49		162		85			
11:15	66		37		147		42		213		79			
11:30	75		23		129		32		204		55			
11:45	66	252	21	117	146	539	23	146	212	791	44	263		
Total	1435		3681		4223		5709		5658		9390			
Percent	25.4%		39.2%		74.6%		60.8%							
Day Total		5116				9932				15048				
Peak	10:45	-	05:15	-	08:00	-	04:45	-	08:00	-	04:45	-	-	-
Vol.	262	-	446	-	842	-	635	-	1055	-	1055	-	-	-
P.H.F.	0.862		0.970		0.993		0.980		0.966		0.952			

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N/S: Central Street
E/W: Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 A
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Central Street From North				Medford Street From East				Central Street From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	2	45	4	0	0	26	5	0	5	28	13	0	24	104	4	0	260
07:15 AM	5	54	7	0	1	46	18	0	2	49	17	0	31	102	1	0	333
07:30 AM	2	65	8	0	0	30	15	0	8	42	12	0	26	87	3	0	298
07:45 AM	2	69	12	0	3	44	28	0	7	30	13	0	37	90	2	0	337
Total	11	233	31	0	4	146	66	0	22	149	55	0	118	383	10	0	1228
08:00 AM	3	53	8	0	2	40	30	0	18	62	12	0	31	89	7	0	355
08:15 AM	11	57	7	0	3	46	22	0	10	40	7	0	26	117	1	0	347
08:30 AM	7	29	12	0	5	43	18	0	9	14	1	0	33	120	6	0	297
08:45 AM	4	46	8	0	2	49	26	0	3	4	1	0	39	79	7	0	268
Total	25	185	35	0	12	178	96	0	40	120	21	0	129	405	21	0	1267
Grand Total	36	418	66	0	16	324	162	0	62	269	76	0	247	788	31	0	2495
Apprch %	6.9	80.4	12.7	0	3.2	64.5	32.3	0	15.2	66.1	18.7	0	23.2	73.9	2.9	0	
Total %	1.4	16.8	2.6	0	0.6	13	6.5	0	2.5	10.8	3	0	9.9	31.6	1.2	0	
Cars	36	412	64	0	15	311	158	0	61	262	74	0	236	769	31	0	2429
% Cars	100	98.6	97	0	93.8	96	97.5	0	98.4	97.4	97.4	0	95.5	97.6	100	0	97.4
Heavy Vehicles	0	6	2	0	1	13	4	0	1	7	2	0	11	19	0	0	66
% Heavy Vehicles	0	1.4	3	0	6.2	4	2.5	0	1.6	2.6	2.6	0	4.5	2.4	0	0	2.6

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

	Central Street From North					Medford Street From East					Central Street From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:30 AM	2	65	8	0	75	0	30	15	0	45	8	42	12	0	62	26	87	3	0	116	298
07:45 AM	2	69	12	0	83	3	44	28	0	75	7	30	13	0	50	37	90	2	0	129	337
08:00 AM	3	53	8	0	64	2	40	30	0	72	18	62	12	0	92	31	89	7	0	127	355
08:15 AM	11	57	7	0	75	3	46	22	0	71	10	40	7	0	57	26	117	1	0	144	347
Total Volume	18	244	35	0	297	8	160	95	0	263	43	174	44	0	261	120	383	13	0	516	1337
% App. Total	6.1	82.2	11.8	0		3	60.8	36.1	0		16.5	66.7	16.9	0		23.3	74.2	2.5	0		
PHF	.409	.884	.729	.000	.895	.667	.870	.792	.000	.877	.597	.702	.846	.000	.709	.811	.818	.464	.000	.896	.942
Cars	18	241	34	0	293	7	153	94	0	254	43	170	44	0	257	114	371	13	0	498	1302
% Cars	100	98.8	97.1	0	98.7	87.5	95.6	98.9	0	96.6	100	97.7	100	0	98.5	95.0	96.9	100	0	96.5	97.4
Heavy Vehicles	0	3	1	0	4	1	7	1	0	9	0	4	0	0	4	6	12	0	0	18	35
% Heavy Vehicles	0	1.2	2.9	0	1.3	12.5	4.4	1.1	0	3.4	0	2.3	0	0	1.5	5.0	3.1	0	0	3.5	2.6

N/S: Central Street
E/W: Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 A
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	Central Street From North				Medford Street From East				Central Street From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	2	45	4	0	0	24	5	0	5	27	11	0	24	104	4	0	255
07:15 AM	5	54	6	0	1	44	18	0	2	47	17	0	30	101	1	0	326
07:30 AM	2	65	8	0	0	29	15	0	8	40	12	0	25	86	3	0	293
07:45 AM	2	68	11	0	3	43	28	0	7	30	13	0	34	86	2	0	327
Total	11	232	29	0	4	140	66	0	22	144	53	0	113	377	10	0	1201
08:00 AM	3	51	8	0	1	38	29	0	18	60	12	0	31	83	7	0	341
08:15 AM	11	57	7	0	3	43	22	0	10	40	7	0	24	116	1	0	341
08:30 AM	7	27	12	0	5	41	17	0	8	14	1	0	32	117	6	0	287
08:45 AM	4	45	8	0	2	49	24	0	3	4	1	0	36	76	7	0	259
Total	25	180	35	0	11	171	92	0	39	118	21	0	123	392	21	0	1228
Grand Total	36	412	64	0	15	311	158	0	61	262	74	0	236	769	31	0	2429
Apprch %	7	80.5	12.5	0	3.1	64.3	32.6	0	15.4	66	18.6	0	22.8	74.2	3	0	
Total %	1.5	17	2.6	0	0.6	12.8	6.5	0	2.5	10.8	3	0	9.7	31.7	1.3	0	

	Central Street From North					Medford Street From East					Central Street From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	2	65	8	0	75	0	29	15	0	44	8	40	12	0	60	25	86	3	0	114	293
07:45 AM	2	68	11	0	81	3	43	28	0	74	7	30	13	0	50	34	86	2	0	122	327
08:00 AM	3	51	8	0	62	1	38	29	0	68	18	60	12	0	90	31	83	7	0	121	341
08:15 AM	11	57	7	0	75	3	43	22	0	68	10	40	7	0	57	24	116	1	0	141	341
Total Volume	18	241	34	0	293	7	153	94	0	254	43	170	44	0	257	114	371	13	0	498	1302
% App. Total	6.1	82.3	11.6	0		2.8	60.2	37	0		16.7	66.1	17.1	0		22.9	74.5	2.6	0		
PHF	.409	.886	.773	.000	.904	.583	.890	.810	.000	.858	.597	.708	.846	.000	.714	.838	.800	.464	.000	.883	.955

N/S: Central Street
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PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

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Site Code : 2015-069
Start Date : 11/18/2015
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Groups Printed- Heavy Vehicles

	Central Street From North				Medford Street From East				Central Street From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	0	2	0	0	0	1	2	0	0	0	0	0	5
07:15 AM	0	0	1	0	0	2	0	0	0	2	0	0	1	1	0	0	7
07:30 AM	0	0	0	0	0	1	0	0	0	2	0	0	1	1	0	0	5
07:45 AM	0	1	1	0	0	1	0	0	0	0	0	0	3	4	0	0	10
Total	0	1	2	0	0	6	0	0	0	5	2	0	5	6	0	0	27
08:00 AM	0	2	0	0	1	2	1	0	0	2	0	0	0	6	0	0	14
08:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	2	1	0	0	6
08:30 AM	0	2	0	0	0	2	1	0	1	0	0	0	1	3	0	0	10
08:45 AM	0	1	0	0	0	0	2	0	0	0	0	0	3	3	0	0	9
Total	0	5	0	0	1	7	4	0	1	2	0	0	6	13	0	0	39
Grand Total	0	6	2	0	1	13	4	0	1	7	2	0	11	19	0	0	66
Apprch %	0	75	25	0	5.6	72.2	22.2	0	10	70	20	0	36.7	63.3	0	0	
Total %	0	9.1	3	0	1.5	19.7	6.1	0	1.5	10.6	3	0	16.7	28.8	0	0	

	Central Street From North					Medford Street From East					Central Street From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45 AM

Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:45 AM	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	3	4	0	0	7	10
08:00 AM	0	2	0	0	2	1	2	1	0	4	0	2	0	0	2	0	6	0	0	6	14
08:15 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	2	1	0	0	3	6
08:30 AM	0	2	0	0	2	0	2	1	0	3	1	0	0	0	1	1	3	0	0	4	10
Total Volume	0	5	1	0	6	1	8	2	0	11	1	2	0	0	3	6	14	0	0	20	40
% App. Total	0	83.3	16.7	0		9.1	72.7	18.2	0		33.3	66.7	0	0		30	70	0	0		
PHF	.000	.625	.250	.000	.750	.250	.667	.500	.000	.688	.250	.250	.000	.000	.375	.500	.583	.000	.000	.714	.714

N/S: Central Street
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City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 A
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Peds and Bikes

	Central Street From North					**Medford Street From East**					**Central Street From South**					**Medford Street From West**					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	2	0	0	0	1	0	1	0	0	0	0	2	2	1	0	0	0	9
07:15 AM	0	0	0	4	1	0	0	2	1	0	0	0	0	4	3	0	0	0	1	1	17
07:30 AM	0	0	0	4	4	0	0	1	1	0	0	0	0	4	8	1	1	0	1	5	30
07:45 AM	0	0	0	1	0	0	1	2	1	2	1	1	1	0	5	1	6	0	1	3	26
Total	0	0	0	11	5	0	1	6	3	3	1	1	1	8	18	4	8	0	3	9	82
08:00 AM	0	1	0	4	2	0	0	2	1	1	0	0	0	3	4	1	0	0	3	3	25
08:15 AM	0	2	0	0	2	0	0	1	0	0	0	0	0	0	3	4	2	0	1	5	20
08:30 AM	0	0	1	2	1	0	0	0	2	2	0	0	0	2	1	7	3	0	1	3	25
08:45 AM	0	0	0	1	0	0	1	3	1	0	1	0	0	0	0	3	3	0	0	1	14
Total	0	3	1	7	5	0	1	6	4	3	1	0	0	5	8	15	8	0	5	12	84
Grand Total	0	3	1	18	10	0	2	12	7	6	2	1	1	13	26	19	16	0	8	21	166
Apprch %	0	9.4	3.1	56.2	31.2	0	7.4	44.4	25.9	22.2	4.7	2.3	2.3	30.2	60.5	29.7	25	0	12.5	32.8	
Total %	0	1.8	0.6	10.8	6	0	1.2	7.2	4.2	3.6	1.2	0.6	0.6	7.8	15.7	11.4	9.6	0	4.8	12.7	

	Central Street From North						**Medford Street From East**						**Central Street From South**						**Medford Street From West**						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

07:30 AM	0	0	0	4	4	8	0	0	1	1	0	2	0	0	0	4	8	12	1	1	0	1	5	8	30
07:45 AM	0	0	0	1	0	1	0	1	2	1	2	6	1	1	1	0	5	8	1	6	0	1	3	11	26
08:00 AM	0	1	0	4	2	7	0	0	2	1	1	4	0	0	0	3	4	7	1	0	0	3	3	7	25
08:15 AM	0	2	0	0	2	4	0	0	1	0	0	1	0	0	0	0	3	3	4	2	0	1	5	12	20
Total Volume	0	3	0	9	8	20	0	1	6	3	3	13	1	1	1	7	20	30	7	9	0	6	16	38	101
% App. Total	0	15	0	45	40		0	7.7	46.2	23.1	23.1		3.3	3.3	3.3	23.3	66.7		18.4	23.7	0	15.8	42.1		
PHF	.000	.375	.000	.563	.500	.625	.000	.250	.750	.750	.375	.542	.250	.250	.250	.438	.625	.625	.438	.375	.000	.500	.800	.792	.842

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PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

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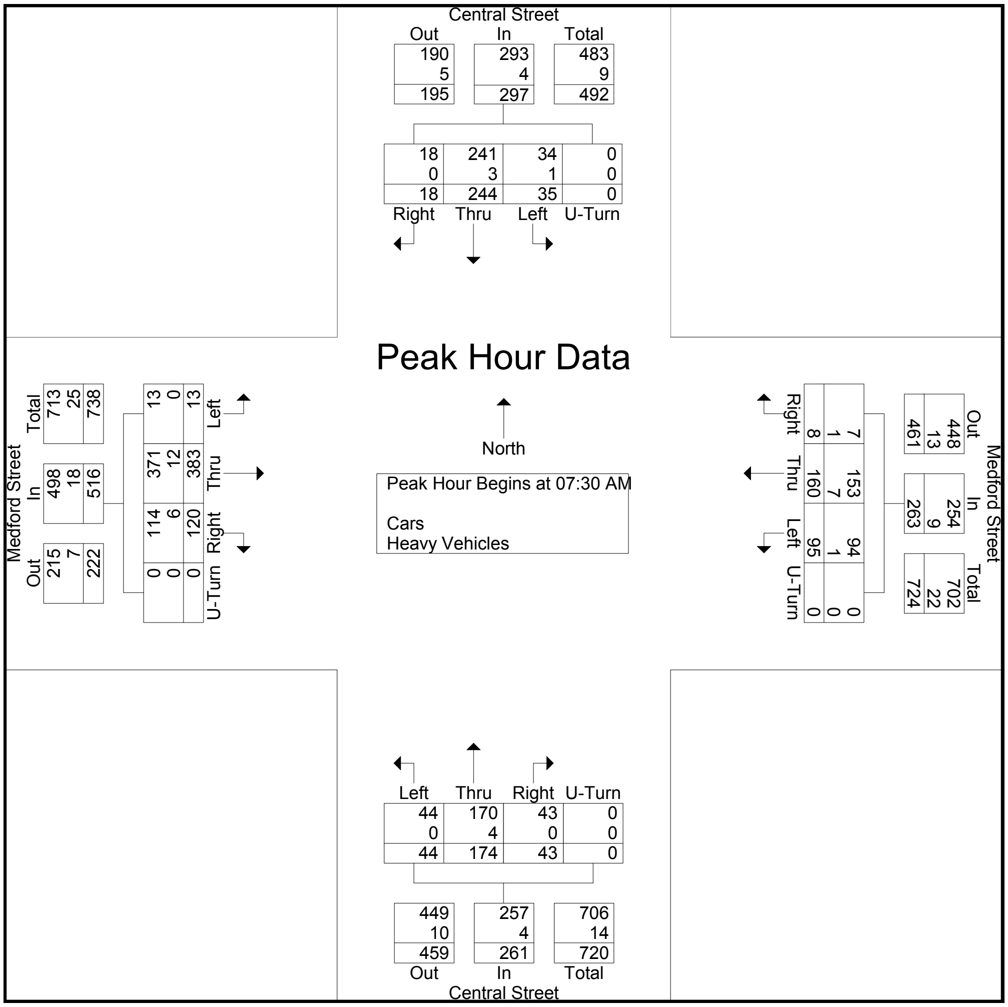
	Central Street From North					Medford Street From East					Central Street From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	2	65	8	0	75	0	30	15	0	45	8	42	12	0	62	26	87	3	0	116	298
07:45 AM	2	69	12	0	83	3	44	28	0	75	7	30	13	0	50	37	90	2	0	129	337
08:00 AM	3	53	8	0	64	2	40	30	0	72	18	62	12	0	92	31	89	7	0	127	355
08:15 AM	11	57	7	0	75	3	46	22	0	71	10	40	7	0	57	26	117	1	0	144	347
Total Volume	18	244	35	0	297	8	160	95	0	263	43	174	44	0	261	120	383	13	0	516	1337
% App. Total	6.1	82.2	11.8	0		3	60.8	36.1	0		16.5	66.7	16.9	0		23.3	74.2	2.5	0		
PHF	.409	.884	.729	.000	.895	.667	.870	.792	.000	.877	.597	.702	.846	.000	.709	.811	.818	.464	.000	.896	.942
Cars	18	241	34	0	293	7	153	94	0	254	43	170	44	0	257	114	371	13	0	498	1302
% Cars	100	98.8	97.1	0	98.7	87.5	95.6	98.9	0	96.6	100	97.7	100	0	98.5	95.0	96.9	100	0	96.5	97.4
Heavy Vehicles	0	3	1	0	4	1	7	1	0	9	0	4	0	0	4	6	12	0	0	18	35
% Heavy Vehicles	0	1.2	2.9	0	1.3	12.5	4.4	1.1	0	3.4	0	2.3	0	0	1.5	5.0	3.1	0	0	3.5	2.6



N/S: Central Street
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PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

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Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Central Street From North				Medford Street From East				Central Street From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	2	16	1	0	8	75	17	0	14	61	22	0	10	68	5	0	299
04:15 PM	2	26	2	0	10	83	12	0	9	60	18	0	13	47	2	0	284
04:30 PM	0	29	2	0	4	72	18	0	13	62	19	0	16	65	2	0	302
04:45 PM	1	39	1	0	9	65	23	0	10	64	27	0	14	56	5	0	314
Total	5	110	6	0	31	295	70	0	46	247	86	0	53	236	14	0	1199
05:00 PM	0	30	2	0	8	75	27	0	18	54	17	0	15	73	2	0	321
05:15 PM	3	41	1	0	10	56	23	0	21	59	20	0	11	79	4	0	328
05:30 PM	3	38	1	0	8	70	12	0	21	72	19	0	17	77	3	0	341
05:45 PM	0	44	3	0	11	73	16	0	11	43	23	0	18	66	6	0	314
Total	6	153	7	0	37	274	78	0	71	228	79	0	61	295	15	0	1304
Grand Total	11	263	13	0	68	569	148	0	117	475	165	0	114	531	29	0	2503
Apprch %	3.8	91.6	4.5	0	8.7	72.5	18.9	0	15.5	62.7	21.8	0	16.9	78.8	4.3	0	
Total %	0.4	10.5	0.5	0	2.7	22.7	5.9	0	4.7	19	6.6	0	4.6	21.2	1.2	0	
Cars	11	262	13	0	67	557	148	0	113	469	161	0	114	515	29	0	2459
% Cars	100	99.6	100	0	98.5	97.9	100	0	96.6	98.7	97.6	0	100	97	100	0	98.2
Heavy Vehicles	0	1	0	0	1	12	0	0	4	6	4	0	0	16	0	0	44
% Heavy Vehicles	0	0.4	0	0	1.5	2.1	0	0	3.4	1.3	2.4	0	0	3	0	0	1.8

	Central Street From North					Medford Street From East					Central Street From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	1	39	1	0	41	9	65	23	0	97	10	64	27	0	101	14	56	5	0	75	314
05:00 PM	0	30	2	0	32	8	75	27	0	110	18	54	17	0	89	15	73	2	0	90	321
05:15 PM	3	41	1	0	45	10	56	23	0	89	21	59	20	0	100	11	79	4	0	94	328
05:30 PM	3	38	1	0	42	8	70	12	0	90	21	72	19	0	112	17	77	3	0	97	341
Total Volume	7	148	5	0	160	35	266	85	0	386	70	249	83	0	402	57	285	14	0	356	1304
% App. Total	4.4	92.5	3.1	0		9.1	68.9	22	0		17.4	61.9	20.6	0		16	80.1	3.9	0		
PHF	.583	.902	.625	.000	.889	.875	.887	.787	.000	.877	.833	.865	.769	.000	.897	.838	.902	.700	.000	.918	.956
Cars	7	148	5	0	160	34	261	85	0	380	68	248	81	0	397	57	278	14	0	349	1286
% Cars	100	100	100	0	100	97.1	98.1	100	0	98.4	97.1	99.6	97.6	0	98.8	100	97.5	100	0	98.0	98.6
Heavy Vehicles	0	0	0	0	0	1	5	0	0	6	2	1	2	0	5	0	7	0	0	7	18
% Heavy Vehicles	0	0	0	0	0	2.9	1.9	0	0	1.6	2.9	0.4	2.4	0	1.2	0	2.5	0	0	2.0	1.4

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N/S: Central Street
E/W: Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 AA
Site Code : 2015-069
Start Date : 11/18/2015

Groups Printed- Cars

	Central Street From North				Medford Street From East				Central Street From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	2	16	1	0	8	73	17	0	14	60	21	0	10	65	5	0	292
04:15 PM	2	25	2	0	10	80	12	0	9	58	18	0	13	46	2	0	277
04:30 PM	0	29	2	0	4	70	18	0	12	60	18	0	16	61	2	0	292
04:45 PM	1	39	1	0	9	63	23	0	10	63	26	0	14	55	5	0	309
Total	5	109	6	0	31	286	70	0	45	241	83	0	53	227	14	0	1170
05:00 PM	0	30	2	0	8	75	27	0	16	54	16	0	15	71	2	0	316
05:15 PM	3	41	1	0	9	54	23	0	21	59	20	0	11	78	4	0	324
05:30 PM	3	38	1	0	8	69	12	0	21	72	19	0	17	74	3	0	337
05:45 PM	0	44	3	0	11	73	16	0	10	43	23	0	18	65	6	0	312
Total	6	153	7	0	36	271	78	0	68	228	78	0	61	288	15	0	1289
Grand Total	11	262	13	0	67	557	148	0	113	469	161	0	114	515	29	0	2459
Apprch %	3.8	91.6	4.5	0	8.7	72.2	19.2	0	15.2	63.1	21.7	0	17.3	78.3	4.4	0	
Total %	0.4	10.7	0.5	0	2.7	22.7	6	0	4.6	19.1	6.5	0	4.6	20.9	1.2	0	

	Central Street From North					Medford Street From East					Central Street From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	30	2	0	32	8	75	27	0	110	16	54	16	0	86	15	71	2	0	88	316
05:15 PM	3	41	1	0	45	9	54	23	0	86	21	59	20	0	100	11	78	4	0	93	324
05:30 PM	3	38	1	0	42	8	69	12	0	89	21	72	19	0	112	17	74	3	0	94	337
05:45 PM	0	44	3	0	47	11	73	16	0	100	10	43	23	0	76	18	65	6	0	89	312
Total Volume	6	153	7	0	166	36	271	78	0	385	68	228	78	0	374	61	288	15	0	364	1289
% App. Total	3.6	92.2	4.2	0		9.4	70.4	20.3	0		18.2	61	20.9	0		16.8	79.1	4.1	0		
PHF	.500	.869	.583	.000	.883	.818	.903	.722	.000	.875	.810	.792	.848	.000	.835	.847	.923	.625	.000	.968	.956

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Groups Printed- Heavy Vehicles

	Central Street From North				**Medford Street From East**				**Central Street From South**				**Medford Street From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	0	2	0	0	0	1	1	0	0	3	0	0	7
04:15 PM	0	1	0	0	0	3	0	0	0	2	0	0	0	1	0	0	7
04:30 PM	0	0	0	0	0	2	0	0	1	2	1	0	0	4	0	0	10
04:45 PM	0	0	0	0	0	2	0	0	0	1	1	0	0	1	0	0	5
Total	0	1	0	0	0	9	0	0	1	6	3	0	0	9	0	0	29
05:00 PM	0	0	0	0	0	0	0	0	2	0	1	0	0	2	0	0	5
05:15 PM	0	0	0	0	1	2	0	0	0	0	0	0	0	1	0	0	4
05:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	4
05:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	2
Total	0	0	0	0	1	3	0	0	3	0	1	0	0	7	0	0	15
Grand Total	0	1	0	0	1	12	0	0	4	6	4	0	0	16	0	0	44
Apprch %	0	100	0	0	7.7	92.3	0	0	28.6	42.9	28.6	0	0	100	0	0	
Total %	0	2.3	0	0	2.3	27.3	0	0	9.1	13.6	9.1	0	0	36.4	0	0	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

	Central Street From North					**Medford Street From East**					**Central Street From South**					**Medford Street From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	2	0	0	2	0	1	1	0	2	0	3	0	0	3	7
04:15 PM	0	1	0	0	1	0	3	0	0	3	0	2	0	0	2	0	1	0	0	1	7
04:30 PM	0	0	0	0	0	0	2	0	0	2	1	2	1	0	4	0	4	0	0	4	10
04:45 PM	0	0	0	0	0	0	2	0	0	2	0	1	1	0	2	0	1	0	0	1	5
Total Volume	0	1	0	0	1	0	9	0	0	9	1	6	3	0	10	0	9	0	0	9	29
% App. Total	0	100	0	0		0	100	0	0		10	60	30	0		0	100	0	0		
PHF	.000	.250	.000	.000	.250	.000	.750	.000	.000	.750	.250	.750	.750	.000	.625	.000	.563	.000	.000	.563	.725

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PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 AA
Site Code : 2015-069
Start Date : 11/18/2015
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Groups Printed- Peds and Bikes

	Central Street From North					Medford Street From East					Central Street From South					Medford Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	3	4	0	1	0	0	1	1	1	0	2	1	0	0	0	0	3	17
04:15 PM	0	0	0	1	2	0	0	0	2	4	0	0	0	0	3	0	0	0	1	0	13
04:30 PM	0	0	0	3	0	0	0	1	2	1	0	1	0	3	1	1	1	0	4	1	19
04:45 PM	0	0	0	1	0	0	0	0	0	1	1	0	0	5	0	0	1	0	4	0	13
Total	0	0	0	8	6	0	1	1	4	7	2	2	0	10	5	1	2	0	9	4	62
05:00 PM	0	0	0	1	5	0	2	0	1	3	1	0	1	1	2	0	0	0	4	3	24
05:15 PM	0	0	0	0	0	0	1	1	2	1	0	1	1	3	1	0	1	0	1	2	15
05:30 PM	0	0	0	0	2	0	1	0	0	2	0	2	0	1	0	0	0	0	0	0	8
05:45 PM	0	0	0	2	2	0	2	2	5	3	0	0	4	0	5	0	2	0	1	0	28
Total	0	0	0	3	9	0	6	3	8	9	1	3	6	5	8	0	3	0	6	5	75
Grand Total	0	0	0	11	15	0	7	4	12	16	3	5	6	15	13	1	5	0	15	9	137
Apprch %	0	0	0	42.3	57.7	0	17.9	10.3	30.8	41	7.1	11.9	14.3	35.7	31	3.3	16.7	0	50	30	
Total %	0	0	0	8	10.9	0	5.1	2.9	8.8	11.7	2.2	3.6	4.4	10.9	9.5	0.7	3.6	0	10.9	6.6	

	Central Street From North						Medford Street From East						Central Street From South						Medford Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 05:00 PM																									
05:00 PM	0	0	0	1	5	6	0	2	0	1	3	6	1	0	1	1	2	5	0	0	0	4	3	7	24
05:15 PM	0	0	0	0	0	0	0	1	1	2	1	5	0	1	1	3	1	6	0	1	0	1	2	4	15
05:30 PM	0	0	0	0	2	2	0	1	0	0	2	3	0	2	0	1	0	3	0	0	0	0	0	0	8
05:45 PM	0	0	0	2	2	4	0	2	2	5	3	12	0	0	4	0	5	9	0	2	0	1	0	3	28
Total Volume	0	0	0	3	9	12	0	6	3	8	9	26	1	3	6	5	8	23	0	3	0	6	5	14	75
% App. Total	0	0	0	25	75		0	23.1	11.5	30.8	34.6		4.3	13	26.1	21.7	34.8		0	21.4	0	42.9	35.7		
PHF	.000	.000	.000	.375	.450	.500	.000	.750	.375	.400	.750	.542	.250	.375	.375	.417	.400	.639	.000	.375	.000	.375	.417	.500	.670

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PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

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Start Date : 11/18/2015
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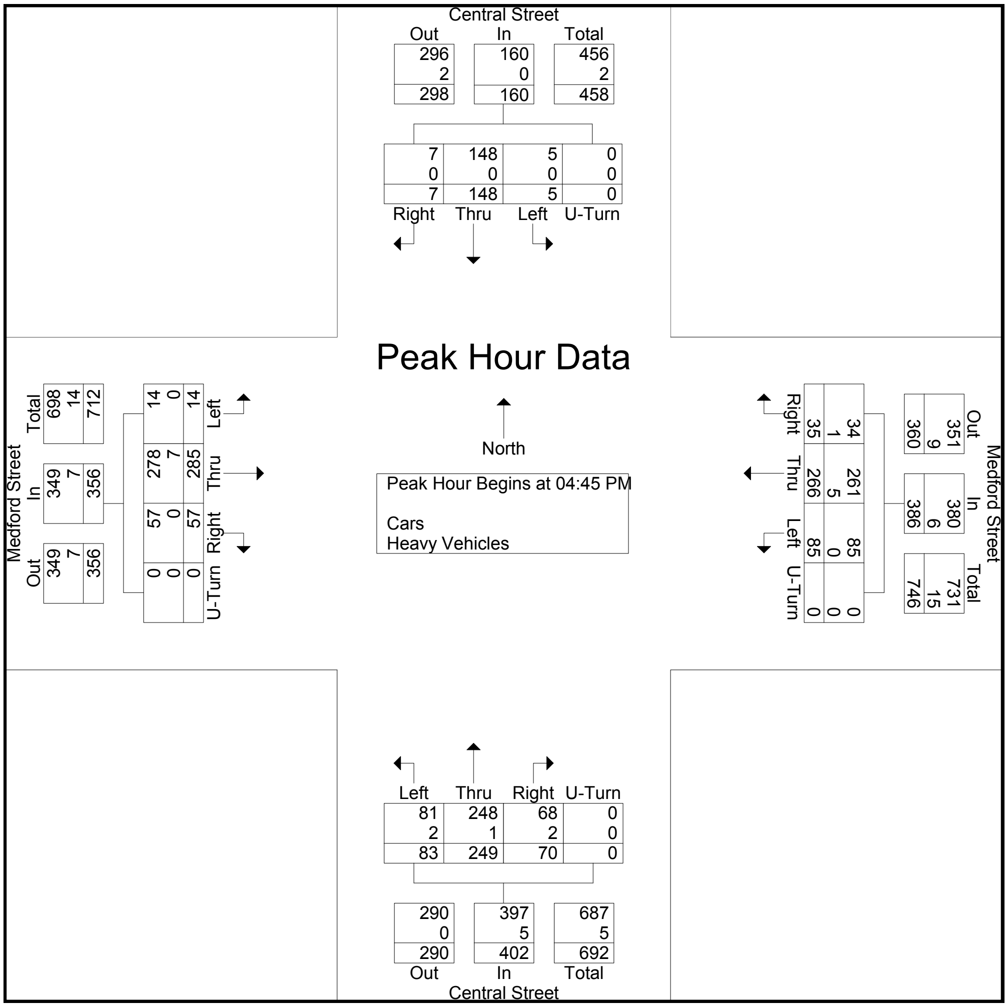
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM

	Central Street From North					**Medford Street From East**					**Central Street From South**					**Medford Street From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
04:45 PM	1	39	1	0	41	9	65	23	0	97	10	64	27	0	101	14	56	5	0	75	314
05:00 PM	0	30	2	0	32	8	75	27	0	110	18	54	17	0	89	15	73	2	0	90	321
05:15 PM	3	41	1	0	45	10	56	23	0	89	21	59	20	0	100	11	79	4	0	94	328
05:30 PM	3	38	1	0	42	8	70	12	0	90	21	72	19	0	112	17	77	3	0	97	341
Total Volume	7	148	5	0	160	35	266	85	0	386	70	249	83	0	402	57	285	14	0	356	1304
% App. Total	4.4	92.5	3.1	0		9.1	68.9	22	0		17.4	61.9	20.6	0		16	80.1	3.9	0		
PHF	.583	.902	.625	.000	.889	.875	.887	.787	.000	.877	.833	.865	.769	.000	.897	.838	.902	.700	.000	.918	.956
Cars	7	148	5	0	160	34	261	85	0	380	68	248	81	0	397	57	278	14	0	349	1286
% Cars	100	100	100	0	100	97.1	98.1	100	0	98.4	97.1	99.6	97.6	0	98.8	100	97.5	100	0	98.0	98.6
Heavy Vehicles	0	0	0	0	0	1	5	0	0	6	2	1	2	0	5	0	7	0	0	7	18
% Heavy Vehicles	0	0	0	0	0	2.9	1.9	0	0	1.6	2.9	0.4	2.4	0	1.2	0	2.5	0	0	2.0	1.4



N/S: School Street
E/W: Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

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DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 B
Site Code : 2015-069
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Groups Printed- Cars - Heavy Vehicles

	School Street From North				Medford Street From East				School Street From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	5	91	10	0	6	25	31	0	0	0	0	0	53	66	2	0	289
07:15 AM	6	86	9	0	17	47	46	0	0	0	0	0	62	70	3	0	346
07:30 AM	6	87	3	0	15	33	48	0	0	0	0	0	63	80	3	0	338
07:45 AM	4	63	4	0	10	47	42	0	0	0	0	0	52	60	4	0	286
Total	21	327	26	0	48	152	167	0	0	0	0	0	230	276	12	0	1259
08:00 AM	6	79	10	0	4	53	33	0	0	0	0	0	53	58	3	0	299
08:15 AM	9	75	4	0	12	40	31	0	0	0	0	0	80	91	2	0	344
08:30 AM	6	76	4	0	13	40	25	0	0	0	0	0	70	65	3	0	302
08:45 AM	4	64	3	0	15	49	29	0	0	0	0	0	60	47	1	0	272
Total	25	294	21	0	44	182	118	0	0	0	0	0	263	261	9	0	1217
Grand Total	46	621	47	0	92	334	285	0	0	0	0	0	493	537	21	0	2476
Apprch %	6.4	87	6.6	0	12.9	47	40.1	0	0	0	0	0	46.9	51.1	2	0	
Total %	1.9	25.1	1.9	0	3.7	13.5	11.5	0	0	0	0	0	19.9	21.7	0.8	0	
Cars	44	611	46	0	91	319	276	0	0	0	0	0	485	518	21	0	2411
% Cars	95.7	98.4	97.9	0	98.9	95.5	96.8	0	0	0	0	0	98.4	96.5	100	0	97.4
Heavy Vehicles	2	10	1	0	1	15	9	0	0	0	0	0	8	19	0	0	65
% Heavy Vehicles	4.3	1.6	2.1	0	1.1	4.5	3.2	0	0	0	0	0	1.6	3.5	0	0	2.6

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

	School Street From North					Medford Street From East					School Street From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:15 AM	6	86	9	0	101	17	47	46	0	110	0	0	0	0	0	62	70	3	0	135	346
07:30 AM	6	87	3	0	96	15	33	48	0	96	0	0	0	0	0	63	80	3	0	146	338
07:45 AM	4	63	4	0	71	10	47	42	0	99	0	0	0	0	0	52	60	4	0	116	286
08:00 AM	6	79	10	0	95	4	53	33	0	90	0	0	0	0	0	53	58	3	0	114	299
Total Volume	22	315	26	0	363	46	180	169	0	395	0	0	0	0	0	230	268	13	0	511	1269
% App. Total	6.1	86.8	7.2	0		11.6	45.6	42.8	0		0	0	0	0		45	52.4	2.5	0		
PHF	.917	.905	.650	.000	.899	.676	.849	.880	.000	.898	.000	.000	.000	.000	.000	.913	.838	.813	.000	.875	.917
Cars	21	310	26	0	357	45	174	165	0	384	0	0	0	0	0	227	257	13	0	497	1238
% Cars	95.5	98.4	100	0	98.3	97.8	96.7	97.6	0	97.2	0	0	0	0	0	98.7	95.9	100	0	97.3	97.6
Heavy Vehicles	1	5	0	0	6	1	6	4	0	11	0	0	0	0	0	3	11	0	0	14	31
% Heavy Vehicles	4.5	1.6	0	0	1.7	2.2	3.3	2.4	0	2.8	0	0	0	0	0	1.3	4.1	0	0	2.7	2.4

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Page No : 1

Groups Printed- Cars

	School Street From North				Medford Street From East				School Street From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	5	90	9	0	6	23	28	0	0	0	0	0	53	64	2	0	280
07:15 AM	6	86	9	0	17	45	45	0	0	0	0	0	62	65	3	0	338
07:30 AM	5	84	3	0	15	32	48	0	0	0	0	0	63	79	3	0	332
07:45 AM	4	62	4	0	9	46	41	0	0	0	0	0	50	58	4	0	278
Total	20	322	25	0	47	146	162	0	0	0	0	0	228	266	12	0	1228
08:00 AM	6	78	10	0	4	51	31	0	0	0	0	0	52	55	3	0	290
08:15 AM	9	74	4	0	12	37	29	0	0	0	0	0	78	90	2	0	335
08:30 AM	6	75	4	0	13	37	25	0	0	0	0	0	68	63	3	0	294
08:45 AM	3	62	3	0	15	48	29	0	0	0	0	0	59	44	1	0	264
Total	24	289	21	0	44	173	114	0	0	0	0	0	257	252	9	0	1183
Grand Total	44	611	46	0	91	319	276	0	0	0	0	0	485	518	21	0	2411
Apprch %	6.3	87.2	6.6	0	13.3	46.5	40.2	0	0	0	0	0	47.4	50.6	2.1	0	
Total %	1.8	25.3	1.9	0	3.8	13.2	11.4	0	0	0	0	0	20.1	21.5	0.9	0	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

	School Street From North					Medford Street From East					School Street From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:15 AM	6	86	9	0	101	17	45	45	0	107	0	0	0	0	0	62	65	3	0	130	338
07:30 AM	5	84	3	0	92	15	32	48	0	95	0	0	0	0	0	63	79	3	0	145	332
07:45 AM	4	62	4	0	70	9	46	41	0	96	0	0	0	0	0	50	58	4	0	112	278
08:00 AM	6	78	10	0	94	4	51	31	0	86	0	0	0	0	0	52	55	3	0	110	290
Total Volume	21	310	26	0	357	45	174	165	0	384	0	0	0	0	0	227	257	13	0	497	1238
% App. Total	5.9	86.8	7.3	0		11.7	45.3	43	0		0	0	0	0		45.7	51.7	2.6	0		
PHF	.875	.901	.650	.000	.884	.662	.853	.859	.000	.897	.000	.000	.000	.000	.000	.901	.813	.813	.000	.857	.916

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D A T A
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Office: 508.481.3999 Fax: 508.545.1234
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Groups Printed- Heavy Vehicles

	School Street From North				**Medford Street From East**				**School Street From South**				**Medford Street From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	1	1	0	0	2	3	0	0	0	0	0	0	2	0	0	9
07:15 AM	0	0	0	0	0	2	1	0	0	0	0	0	0	5	0	0	8
07:30 AM	1	3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	6
07:45 AM	0	1	0	0	1	1	1	0	0	0	0	0	2	2	0	0	8
Total	1	5	1	0	1	6	5	0	0	0	0	0	2	10	0	0	31
08:00 AM	0	1	0	0	0	2	2	0	0	0	0	0	1	3	0	0	9
08:15 AM	0	1	0	0	0	3	2	0	0	0	0	0	2	1	0	0	9
08:30 AM	0	1	0	0	0	3	0	0	0	0	0	0	2	2	0	0	8
08:45 AM	1	2	0	0	0	1	0	0	0	0	0	0	1	3	0	0	8
Total	1	5	0	0	0	9	4	0	0	0	0	0	6	9	0	0	34
Grand Total	2	10	1	0	1	15	9	0	0	0	0	0	8	19	0	0	65
Apprch %	15.4	76.9	7.7	0	4	60	36	0	0	0	0	0	29.6	70.4	0	0	
Total %	3.1	15.4	1.5	0	1.5	23.1	13.8	0	0	0	0	0	12.3	29.2	0	0	

	School Street From North					**Medford Street From East**					**School Street From South**					**Medford Street From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	1	0	0	1	1	1	1	0	3	0	0	0	0	0	2	2	0	0	4	8
08:00 AM	0	1	0	0	1	0	2	2	0	4	0	0	0	0	0	1	3	0	0	4	9
08:15 AM	0	1	0	0	1	0	3	2	0	5	0	0	0	0	0	2	1	0	0	3	9
08:30 AM	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	2	2	0	0	4	8
Total Volume	0	4	0	0	4	1	9	5	0	15	0	0	0	0	0	7	8	0	0	15	34
% App. Total	0	100	0	0		6.7	60	33.3	0		0	0	0	0		46.7	53.3	0	0		
PHF	.000	1.00	.000	.000	1.00	.250	.750	.625	.000	.750	.000	.000	.000	.000	.000	.875	.667	.000	.000	.938	.944

N/S: School Street
E/W: Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 B
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Peds and Bikes

	School Street From North					Medford Street From East					School Street From South					Medford Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	3	2	0	0	0	6	2	0	0	0	0	7	0	3	0	1	1	25
07:15 AM	0	1	0	1	9	0	0	0	8	2	0	0	0	2	11	0	2	0	2	2	40
07:30 AM	0	0	0	6	9	0	1	0	30	2	0	0	0	0	6	1	2	0	1	4	62
07:45 AM	0	4	1	8	4	0	0	0	23	7	0	0	0	0	11	1	6	0	4	8	77
Total	0	5	1	18	24	0	1	0	67	13	0	0	0	2	35	2	13	0	8	15	204
08:00 AM	0	1	0	7	13	0	0	0	12	1	0	0	0	0	1	1	2	0	3	1	42
08:15 AM	0	5	0	5	2	0	0	0	6	4	0	0	0	0	3	1	3	0	0	1	30
08:30 AM	0	2	1	1	1	0	0	0	7	3	0	0	0	2	1	3	2	0	0	1	24
08:45 AM	0	3	0	5	0	0	4	0	4	5	0	0	0	3	1	1	2	0	2	3	33
Total	0	11	1	18	16	0	4	0	29	13	0	0	0	5	6	6	9	0	5	6	129
Grand Total	0	16	2	36	40	0	5	0	96	26	0	0	0	7	41	8	22	0	13	21	333
Apprch %	0	17	2.1	38.3	42.6	0	3.9	0	75.6	20.5	0	0	0	14.6	85.4	12.5	34.4	0	20.3	32.8	
Total %	0	4.8	0.6	10.8	12	0	1.5	0	28.8	7.8	0	0	0	2.1	12.3	2.4	6.6	0	3.9	6.3	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

	School Street From North						Medford Street From East						School Street From South						Medford Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
07:15 AM	0	1	0	1	9	11	0	0	0	8	2	10	0	0	0	2	11	13	0	2	0	2	2	6	40
07:30 AM	0	0	0	6	9	15	0	1	0	30	2	33	0	0	0	0	6	6	1	2	0	1	4	8	62
07:45 AM	0	4	1	8	4	17	0	0	0	23	7	30	0	0	0	0	11	11	1	6	0	4	8	19	77
08:00 AM	0	1	0	7	13	21	0	0	0	12	1	13	0	0	0	0	1	1	1	2	0	3	1	7	42
Total Volume	0	6	1	22	35	64	0	1	0	73	12	86	0	0	0	2	29	31	3	12	0	10	15	40	221
% App. Total	0	9.4	1.6	34.4	54.7		0	1.2	0	84.9	14		0	0	0	6.5	93.5		7.5	30	0	25	37.5		
PHF	.000	.375	.250	.688	.673	.762	.000	.250	.000	.608	.429	.652	.000	.000	.000	.250	.659	.596	.750	.500	.000	.625	.469	.526	.718

N/S: School Street
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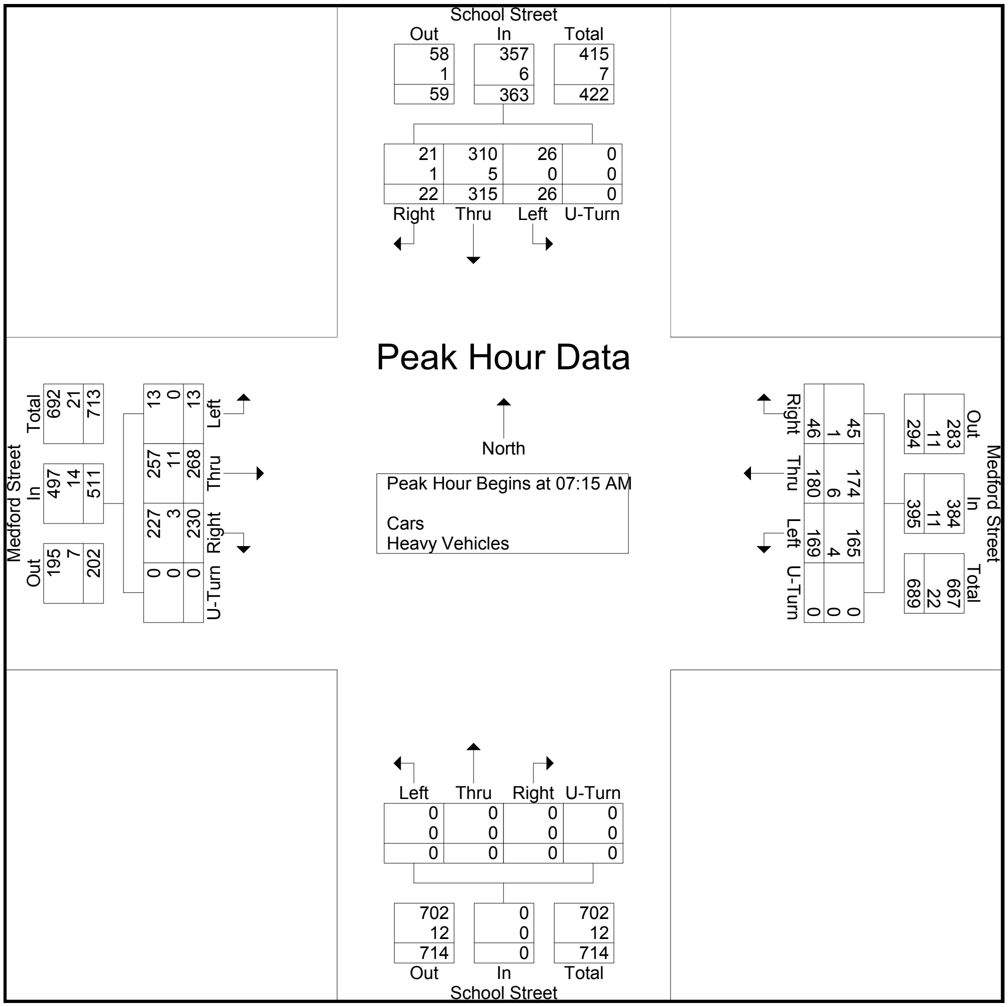
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 B
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

	School Street From North					Medford Street From East					School Street From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	6	86	9	0	101	17	47	46	0	110	0	0	0	0	0	62	70	3	0	135	346
07:30 AM	6	87	3	0	96	15	33	48	0	96	0	0	0	0	0	63	80	3	0	146	338
07:45 AM	4	63	4	0	71	10	47	42	0	99	0	0	0	0	0	52	60	4	0	116	286
08:00 AM	6	79	10	0	95	4	53	33	0	90	0	0	0	0	0	53	58	3	0	114	299
Total Volume	22	315	26	0	363	46	180	169	0	395	0	0	0	0	0	230	268	13	0	511	1269
% App. Total	6.1	86.8	7.2	0		11.6	45.6	42.8	0		0	0	0	0		45	52.4	2.5	0		
PHF	.917	.905	.650	.000	.899	.676	.849	.880	.000	.898	.000	.000	.000	.000	.000	.913	.838	.813	.000	.875	.917
Cars	21	310	26	0	357	45	174	165	0	384	0	0	0	0	0	227	257	13	0	497	1238
% Cars	95.5	98.4	100	0	98.3	97.8	96.7	97.6	0	97.2	0	0	0	0	0	98.7	95.9	100	0	97.3	97.6
Heavy Vehicles	1	5	0	0	6	1	6	4	0	11	0	0	0	0	0	3	11	0	0	14	31
% Heavy Vehicles	4.5	1.6	0	0	1.7	2.2	3.3	2.4	0	2.8	0	0	0	0	0	1.3	4.1	0	0	2.7	2.4



N/S: School Street
E/W: Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 BB
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	School Street From North				**Medford Street From East**				**School Street From South**				**Medford Street From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	7	56	4	0	40	85	32	0	0	0	0	0	33	43	3	0	303
04:15 PM	3	56	1	0	25	106	43	0	0	0	0	0	33	44	6	0	317
04:30 PM	3	63	4	0	18	99	41	0	1	0	0	0	29	48	10	0	316
04:45 PM	11	61	6	0	33	88	51	0	0	0	0	0	27	53	6	0	336
Total	24	236	15	0	116	378	167	0	1	0	0	0	122	188	25	0	1272
05:00 PM	2	72	3	0	23	95	35	0	0	0	0	0	44	58	6	0	338
05:15 PM	6	67	3	0	25	85	52	0	0	0	0	0	38	55	8	0	339
05:30 PM	7	79	6	0	17	76	59	0	0	0	0	0	37	54	8	0	343
05:45 PM	5	73	4	0	27	102	45	0	0	0	0	0	35	52	4	0	347
Total	20	291	16	0	92	358	191	0	0	0	0	0	154	219	26	0	1367
Grand Total	44	527	31	0	208	736	358	0	1	0	0	0	276	407	51	0	2639
Apprch %	7.3	87.5	5.1	0	16	56.5	27.5	0	100	0	0	0	37.6	55.4	6.9	0	
Total %	1.7	20	1.2	0	7.9	27.9	13.6	0	0	0	0	0	10.5	15.4	1.9	0	
Cars	44	523	31	0	206	723	352	0	1	0	0	0	270	397	51	0	2598
% Cars	100	99.2	100	0	99	98.2	98.3	0	100	0	0	0	97.8	97.5	100	0	98.4
Heavy Vehicles	0	4	0	0	2	13	6	0	0	0	0	0	6	10	0	0	41
% Heavy Vehicles	0	0.8	0	0	1	1.8	1.7	0	0	0	0	0	2.2	2.5	0	0	1.6

	School Street From North					**Medford Street From East**					**School Street From South**					**Medford Street From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	2	72	3	0	77	23	95	35	0	153	0	0	0	0	0	44	58	6	0	108	338
05:15 PM	6	67	3	0	76	25	85	52	0	162	0	0	0	0	0	38	55	8	0	101	339
05:30 PM	7	79	6	0	92	17	76	59	0	152	0	0	0	0	0	37	54	8	0	99	343
05:45 PM	5	73	4	0	82	27	102	45	0	174	0	0	0	0	0	35	52	4	0	91	347
Total Volume	20	291	16	0	327	92	358	191	0	641	0	0	0	0	0	154	219	26	0	399	1367
% App. Total	6.1	89	4.9	0		14.4	55.9	29.8	0		0	0	0	0		38.6	54.9	6.5	0		
PHF	.714	.921	.667	.000	.889	.852	.877	.809	.000	.921	.000	.000	.000	.000	.000	.875	.944	.813	.000	.924	.985
Cars	20	291	16	0	327	92	352	189	0	633	0	0	0	0	0	151	216	26	0	393	1353
% Cars	100	100	100	0	100	100	98.3	99.0	0	98.8	0	0	0	0	0	98.1	98.6	100	0	98.5	99.0
Heavy Vehicles	0	0	0	0	0	0	6	2	0	8	0	0	0	0	0	3	3	0	0	6	14
% Heavy Vehicles	0	0	0	0	0	0	1.7	1.0	0	1.2	0	0	0	0	0	1.9	1.4	0	0	1.5	1.0

N/S: School Street
E/W: Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 BB
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	School Street From North				Medford Street From East				School Street From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	7	56	4	0	38	83	32	0	0	0	0	0	33	41	3	0	297
04:15 PM	3	54	1	0	25	104	41	0	0	0	0	0	31	43	6	0	308
04:30 PM	3	63	4	0	18	98	40	0	1	0	0	0	28	46	10	0	311
04:45 PM	11	59	6	0	33	86	50	0	0	0	0	0	27	51	6	0	329
Total	24	232	15	0	114	371	163	0	1	0	0	0	119	181	25	0	1245
05:00 PM	2	72	3	0	23	94	35	0	0	0	0	0	42	57	6	0	334
05:15 PM	6	67	3	0	25	82	52	0	0	0	0	0	38	54	8	0	335
05:30 PM	7	79	6	0	17	75	59	0	0	0	0	0	36	54	8	0	341
05:45 PM	5	73	4	0	27	101	43	0	0	0	0	0	35	51	4	0	343
Total	20	291	16	0	92	352	189	0	0	0	0	0	151	216	26	0	1353
Grand Total	44	523	31	0	206	723	352	0	1	0	0	0	270	397	51	0	2598
Apprch %	7.4	87.5	5.2	0	16.1	56.4	27.5	0	100	0	0	0	37.6	55.3	7.1	0	
Total %	1.7	20.1	1.2	0	7.9	27.8	13.5	0	0	0	0	0	10.4	15.3	2	0	

	School Street From North					Medford Street From East					School Street From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	2	72	3	0	77	23	94	35	0	152	0	0	0	0	0	42	57	6	0	105	334
05:15 PM	6	67	3	0	76	25	82	52	0	159	0	0	0	0	0	38	54	8	0	100	335
05:30 PM	7	79	6	0	92	17	75	59	0	151	0	0	0	0	0	36	54	8	0	98	341
05:45 PM	5	73	4	0	82	27	101	43	0	171	0	0	0	0	0	35	51	4	0	90	343
Total Volume	20	291	16	0	327	92	352	189	0	633	0	0	0	0	0	151	216	26	0	393	1353
% App. Total	6.1	89	4.9	0		14.5	55.6	29.9	0		0	0	0	0		38.4	55	6.6	0		
PHF	.714	.921	.667	.000	.889	.852	.871	.801	.000	.925	.000	.000	.000	.000	.000	.899	.947	.813	.000	.936	.986

N/S: School Street
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File Name : 154724 BB
Site Code : 2015-069
Start Date : 11/18/2015

Groups Printed- Heavy Vehicles

	School Street From North				Medford Street From East				School Street From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	2	2	0	0	0	0	0	0	0	2	0	0	6
04:15 PM	0	2	0	0	0	2	2	0	0	0	0	0	2	1	0	0	9
04:30 PM	0	0	0	0	0	1	1	0	0	0	0	0	1	2	0	0	5
04:45 PM	0	2	0	0	0	2	1	0	0	0	0	0	0	2	0	0	7
Total	0	4	0	0	2	7	4	0	0	0	0	0	3	7	0	0	27
05:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	2	1	0	0	4
05:15 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	4
05:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
05:45 PM	0	0	0	0	0	1	2	0	0	0	0	0	0	1	0	0	4
Total	0	0	0	0	0	6	2	0	0	0	0	0	3	3	0	0	14
Grand Total	0	4	0	0	2	13	6	0	0	0	0	0	6	10	0	0	41
Apprch %	0	100	0	0	9.5	61.9	28.6	0	0	0	0	0	37.5	62.5	0	0	
Total %	0	9.8	0	0	4.9	31.7	14.6	0	0	0	0	0	14.6	24.4	0	0	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

	School Street From North					Medford Street From East					School Street From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	2	2	0	0	4	0	0	0	0	0	0	2	0	0	2	6
04:15 PM	0	2	0	0	2	0	2	2	0	4	0	0	0	0	0	2	1	0	0	3	9
04:30 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	1	2	0	0	3	5
04:45 PM	0	2	0	0	2	0	2	1	0	3	0	0	0	0	0	0	2	0	0	2	7
Total Volume	0	4	0	0	4	2	7	4	0	13	0	0	0	0	0	3	7	0	0	10	27
% App. Total	0	100	0	0		15.4	53.8	30.8	0		0	0	0	0		30	70	0	0		
PHF	.000	.500	.000	.000	.500	.250	.875	.500	.000	.813	.000	.000	.000	.000	.000	.375	.875	.000	.000	.833	.750

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Groups Printed- Peds and Bikes

	School Street From North					Medford Street From East					School Street From South					Medford Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	1	2	0	0	1	4	5	0	0	0	1	1	0	0	0	0	1	16
04:15 PM	0	0	0	4	2	0	0	0	2	10	0	0	0	1	0	0	0	0	3	2	24
04:30 PM	0	0	0	1	1	0	0	0	4	0	0	0	0	0	4	0	0	0	1	2	13
04:45 PM	0	0	0	0	0	0	0	0	4	2	0	0	0	2	1	0	0	0	3	0	12
Total	0	0	0	6	5	0	0	1	14	17	0	0	0	4	6	0	0	0	7	5	65
05:00 PM	0	0	0	2	1	0	4	0	0	10	0	0	0	3	3	0	0	0	3	1	27
05:15 PM	0	0	0	1	2	1	0	0	3	7	0	0	0	2	11	0	4	0	1	1	33
05:30 PM	0	0	0	1	1	0	2	0	3	7	0	0	0	3	1	0	0	0	1	1	20
05:45 PM	0	0	0	2	0	0	0	0	9	12	0	0	0	2	10	0	1	1	1	1	39
Total	0	0	0	6	4	1	6	0	15	36	0	0	0	10	25	0	5	1	6	4	119
Grand Total	0	0	0	12	9	1	6	1	29	53	0	0	0	14	31	0	5	1	13	9	184
Apprch %	0	0	0	57.1	42.9	1.1	6.7	1.1	32.2	58.9	0	0	0	31.1	68.9	0	17.9	3.6	46.4	32.1	
Total %	0	0	0	6.5	4.9	0.5	3.3	0.5	15.8	28.8	0	0	0	7.6	16.8	0	2.7	0.5	7.1	4.9	

	School Street From North						Medford Street From East						School Street From South						Medford Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
05:00 PM	0	0	0	2	1	3	0	4	0	0	10	14	0	0	0	3	3	6	0	0	0	3	1	4	27
05:15 PM	0	0	0	1	2	3	1	0	0	3	7	11	0	0	0	2	11	13	0	4	0	1	1	6	33
05:30 PM	0	0	0	1	1	2	0	2	0	3	7	12	0	0	0	3	1	4	0	0	0	1	1	2	20
05:45 PM	0	0	0	2	0	2	0	0	0	9	12	21	0	0	0	2	10	12	0	1	1	1	1	4	39
Total Volume	0	0	0	6	4	10	1	6	0	15	36	58	0	0	0	10	25	35	0	5	1	6	4	16	119
% App. Total	0	0	0	60	40		1.7	10.3	0	25.9	62.1		0	0	0	28.6	71.4		0	31.2	6.2	37.5	25		
PHF	.000	.000	.000	.750	.500	.833	.250	.375	.000	.417	.750	.690	.000	.000	.000	.833	.568	.673	.000	.313	.250	.500	1.000	.667	.763

N/S: School Street
E/W: Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

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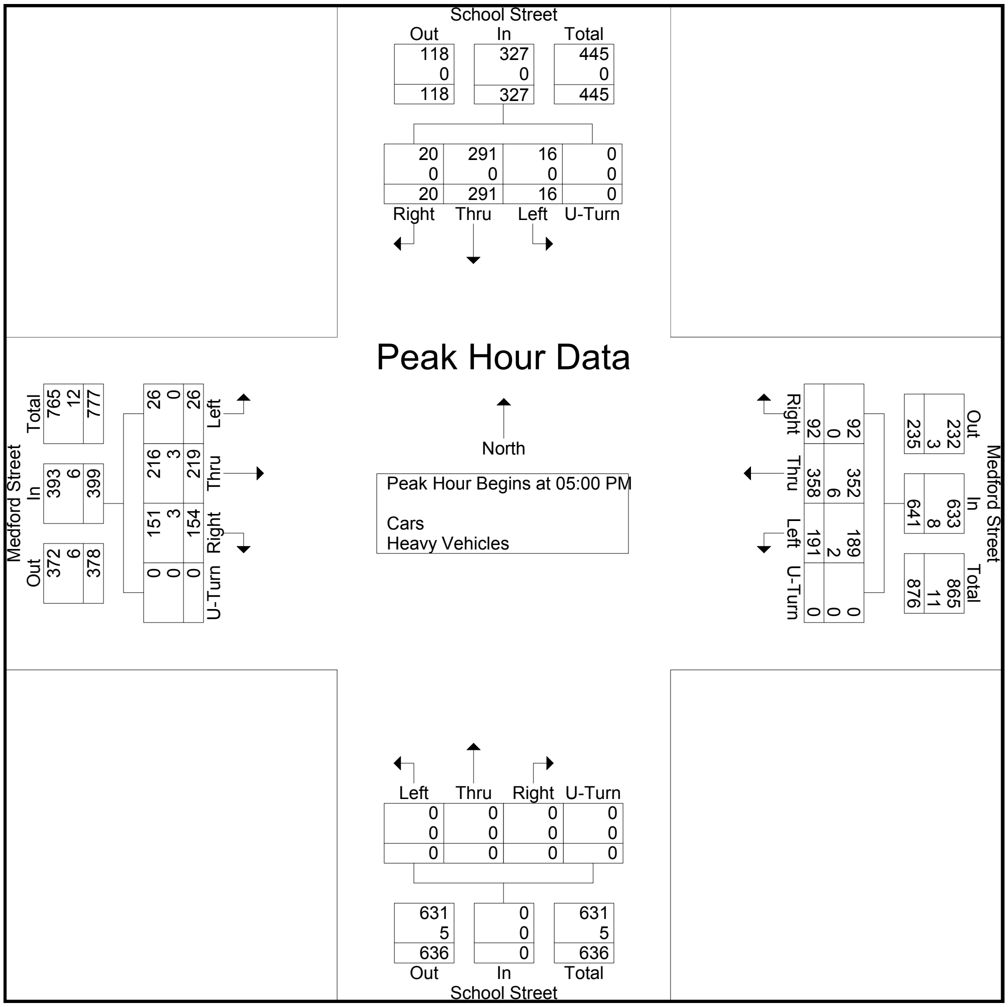
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 BB
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

	School Street From North					**Medford Street From East**					**School Street From South**					**Medford Street From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	2	72	3	0	77	23	95	35	0	153	0	0	0	0	0	44	58	6	0	108	338
05:15 PM	6	67	3	0	76	25	85	52	0	162	0	0	0	0	0	38	55	8	0	101	339
05:30 PM	7	79	6	0	92	17	76	59	0	152	0	0	0	0	0	37	54	8	0	99	343
05:45 PM	5	73	4	0	82	27	102	45	0	174	0	0	0	0	0	35	52	4	0	91	347
Total Volume	20	291	16	0	327	92	358	191	0	641	0	0	0	0	0	154	219	26	0	399	1367
% App. Total	6.1	89	4.9	0		14.4	55.9	29.8	0		0	0	0	0		38.6	54.9	6.5	0		
PHF	.714	.921	.667	.000	.889	.852	.877	.809	.000	.921	.000	.000	.000	.000	.000	.875	.944	.813	.000	.924	.985
Cars	20	291	16	0	327	92	352	189	0	633	0	0	0	0	0	151	216	26	0	393	1353
% Cars	100	100	100	0	100	100	98.3	99.0	0	98.8	0	0	0	0	0	98.1	98.6	100	0	98.5	99.0
Heavy Vehicles	0	0	0	0	0	0	6	2	0	8	0	0	0	0	0	3	3	0	0	6	14
% Heavy Vehicles	0	0	0	0	0	0	1.7	1.0	0	1.2	0	0	0	0	0	1.9	1.4	0	0	1.5	1.0



N/S: Central Avenue
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 C
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Central Avenue From North				Highland Avenue From East				Central Avenue From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	16	54	20	0	4	44	4	0	14	33	9	0	10	92	5	0	305
07:15 AM	18	58	23	0	11	41	2	0	3	44	7	0	17	92	5	0	321
07:30 AM	11	71	21	0	8	70	7	0	6	40	12	0	17	77	4	0	344
07:45 AM	21	78	11	0	10	68	3	0	12	38	8	0	15	72	6	0	342
Total	66	261	75	0	33	223	16	0	35	155	36	0	59	333	20	0	1312
08:00 AM	14	69	14	0	10	47	7	0	9	57	16	0	16	58	15	0	332
08:15 AM	17	55	20	0	3	47	8	0	13	45	13	0	16	65	15	0	317
08:30 AM	4	19	7	0	0	64	8	0	28	3	22	0	15	67	0	0	237
08:45 AM	0	9	2	0	0	69	7	0	20	0	25	0	30	86	0	0	248
Total	35	152	43	0	13	227	30	0	70	105	76	0	77	276	30	0	1134
Grand Total	101	413	118	0	46	450	46	0	105	260	112	0	136	609	50	0	2446
Apprch %	16	65.3	18.7	0	8.5	83	8.5	0	22	54.5	23.5	0	17.1	76.6	6.3	0	
Total %	4.1	16.9	4.8	0	1.9	18.4	1.9	0	4.3	10.6	4.6	0	5.6	24.9	2	0	
Cars	95	405	117	0	42	427	44	0	101	255	104	0	128	587	47	0	2352
% Cars	94.1	98.1	99.2	0	91.3	94.9	95.7	0	96.2	98.1	92.9	0	94.1	96.4	94	0	96.2
Heavy Vehicles	6	8	1	0	4	23	2	0	4	5	8	0	8	22	3	0	94
% Heavy Vehicles	5.9	1.9	0.8	0	8.7	5.1	4.3	0	3.8	1.9	7.1	0	5.9	3.6	6	0	3.8

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

	Central Avenue From North					Highland Avenue From East					Central Avenue From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:15 AM	18	58	23	0	99	11	41	2	0	54	3	44	7	0	54	17	92	5	0	114	321
07:30 AM	11	71	21	0	103	8	70	7	0	85	6	40	12	0	58	17	77	4	0	98	344
07:45 AM	21	78	11	0	110	10	68	3	0	81	12	38	8	0	58	15	72	6	0	93	342
08:00 AM	14	69	14	0	97	10	47	7	0	64	9	57	16	0	82	16	58	15	0	89	332
Total Volume	64	276	69	0	409	39	226	19	0	284	30	179	43	0	252	65	299	30	0	394	1339
% App. Total	15.6	67.5	16.9	0		13.7	79.6	6.7	0		11.9	71	17.1	0		16.5	75.9	7.6	0		
PHF	.762	.885	.750	.000	.930	.886	.807	.679	.000	.835	.625	.785	.672	.000	.768	.956	.813	.500	.000	.864	.973
Cars	60	270	69	0	399	36	214	19	0	269	30	177	40	0	247	61	290	27	0	378	1293
% Cars	93.8	97.8	100	0	97.6	92.3	94.7	100	0	94.7	100	98.9	93.0	0	98.0	93.8	97.0	90.0	0	95.9	96.6
Heavy Vehicles	4	6	0	0	10	3	12	0	0	15	0	2	3	0	5	4	9	3	0	16	46
% Heavy Vehicles	6.3	2.2	0	0	2.4	7.7	5.3	0	0	5.3	0	1.1	7.0	0	2.0	6.2	3.0	10.0	0	4.1	3.4

N/S: Central Avenue
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 C
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	Central Avenue From North				**Highland Avenue From East**				**Central Avenue From South**				**Highland Avenue From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	15	53	20	0	3	42	3	0	14	30	8	0	9	89	5	0	291
07:15 AM	16	58	23	0	9	40	2	0	3	42	7	0	15	90	5	0	310
07:30 AM	11	69	21	0	8	64	7	0	6	40	12	0	16	76	4	0	334
07:45 AM	20	76	11	0	10	65	3	0	12	38	6	0	15	68	5	0	329
Total	62	256	75	0	30	211	15	0	35	150	33	0	55	323	19	0	1264
08:00 AM	13	67	14	0	9	45	7	0	9	57	15	0	15	56	13	0	320
08:15 AM	16	54	20	0	3	45	8	0	13	45	13	0	14	64	15	0	310
08:30 AM	4	19	6	0	0	62	7	0	25	3	20	0	15	62	0	0	223
08:45 AM	0	9	2	0	0	64	7	0	19	0	23	0	29	82	0	0	235
Total	33	149	42	0	12	216	29	0	66	105	71	0	73	264	28	0	1088
Grand Total	95	405	117	0	42	427	44	0	101	255	104	0	128	587	47	0	2352
Apprch %	15.4	65.6	19	0	8.2	83.2	8.6	0	22	55.4	22.6	0	16.8	77	6.2	0	
Total %	4	17.2	5	0	1.8	18.2	1.9	0	4.3	10.8	4.4	0	5.4	25	2	0	

	Central Avenue From North					**Highland Avenue From East**					**Central Avenue From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	16	58	23	0	97	9	40	2	0	51	3	42	7	0	52	15	90	5	0	110	310
07:30 AM	11	69	21	0	101	8	64	7	0	79	6	40	12	0	58	16	76	4	0	96	334
07:45 AM	20	76	11	0	107	10	65	3	0	78	12	38	6	0	56	15	68	5	0	88	329
08:00 AM	13	67	14	0	94	9	45	7	0	61	9	57	15	0	81	15	56	13	0	84	320
Total Volume	60	270	69	0	399	36	214	19	0	269	30	177	40	0	247	61	290	27	0	378	1293
% App. Total	15	67.7	17.3	0		13.4	79.6	7.1	0		12.1	71.7	16.2	0		16.1	76.7	7.1	0		
PHF	.750	.888	.750	.000	.932	.900	.823	.679	.000	.851	.625	.776	.667	.000	.762	.953	.806	.519	.000	.859	.968

N/S: Central Avenue
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 C
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Central Avenue From North				Highland Avenue From East				Central Avenue From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	1	1	0	0	1	2	1	0	0	3	1	0	1	3	0	0	14
07:15 AM	2	0	0	0	2	1	0	0	0	2	0	0	2	2	0	0	11
07:30 AM	0	2	0	0	0	6	0	0	0	0	0	0	1	1	0	0	10
07:45 AM	1	2	0	0	0	3	0	0	0	0	2	0	0	4	1	0	13
Total	4	5	0	0	3	12	1	0	0	5	3	0	4	10	1	0	48
08:00 AM	1	2	0	0	1	2	0	0	0	0	1	0	1	2	2	0	12
08:15 AM	1	1	0	0	0	2	0	0	0	0	0	0	2	1	0	0	7
08:30 AM	0	0	1	0	0	2	1	0	3	0	2	0	0	5	0	0	14
08:45 AM	0	0	0	0	0	5	0	0	1	0	2	0	1	4	0	0	13
Total	2	3	1	0	1	11	1	0	4	0	5	0	4	12	2	0	46
Grand Total	6	8	1	0	4	23	2	0	4	5	8	0	8	22	3	0	94
Apprch %	40	53.3	6.7	0	13.8	79.3	6.9	0	23.5	29.4	47.1	0	24.2	66.7	9.1	0	
Total %	6.4	8.5	1.1	0	4.3	24.5	2.1	0	4.3	5.3	8.5	0	8.5	23.4	3.2	0	

	Central Avenue From North					Highland Avenue From East					Central Avenue From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	1	1	0	0	2	1	2	1	0	4	0	3	1	0	4	1	3	0	0	4	14
07:15 AM	2	0	0	0	2	2	1	0	0	3	0	2	0	0	2	2	2	0	0	4	11
07:30 AM	0	2	0	0	2	0	6	0	0	6	0	0	0	0	0	1	1	0	0	2	10
07:45 AM	1	2	0	0	3	0	3	0	0	3	0	0	2	0	2	0	4	1	0	5	13
Total Volume	4	5	0	0	9	3	12	1	0	16	0	5	3	0	8	4	10	1	0	15	48
% App. Total	44.4	55.6	0	0		18.8	75	6.2	0		0	62.5	37.5	0		26.7	66.7	6.7	0		
PHF	.500	.625	.000	.000	.750	.375	.500	.250	.000	.667	.000	.417	.375	.000	.500	.500	.625	.250	.000	.750	.857

N/S: Central Avenue
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PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 C
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Peds and Bikes

	Central Avenue From North					Highland Avenue From East					Central Avenue From South					Highland Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	1	0	3	9	0	0	0	3	0	0	0	0	9	10	0	0	0	5	7	47
07:15 AM	0	5	0	6	5	0	0	0	7	7	0	0	0	6	11	0	0	0	2	7	56
07:30 AM	0	4	0	7	8	0	1	0	4	8	0	0	0	6	14	0	0	0	9	9	70
07:45 AM	0	5	0	12	7	0	2	0	12	3	0	1	0	7	5	2	1	0	6	12	75
Total	0	15	0	28	29	0	3	0	26	18	0	1	0	28	40	2	1	0	22	35	248
08:00 AM	0	4	0	1	4	0	0	0	10	6	0	0	0	12	7	0	2	0	3	7	56
08:15 AM	0	7	1	18	9	0	0	0	4	4	0	0	0	9	8	0	0	0	6	5	71
08:30 AM	0	7	0	6	10	0	2	1	8	7	1	0	0	9	12	0	1	0	10	22	96
08:45 AM	0	4	1	6	5	0	2	1	5	5	0	0	1	6	4	0	1	0	3	5	49
Total	0	22	2	31	28	0	4	2	27	22	1	0	1	36	31	0	4	0	22	39	272
Grand Total	0	37	2	59	57	0	7	2	53	40	1	1	1	64	71	2	5	0	44	74	520
Apprch %	0	23.9	1.3	38.1	36.8	0	6.9	2	52	39.2	0.7	0.7	0.7	46.4	51.4	1.6	4	0	35.2	59.2	
Total %	0	7.1	0.4	11.3	11	0	1.3	0.4	10.2	7.7	0.2	0.2	0.2	12.3	13.7	0.4	1	0	8.5	14.2	

	Central Avenue From North						Highland Avenue From East						Central Avenue From South						Highland Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:45 AM																									
07:45 AM	0	5	0	12	7	24	0	2	0	12	3	17	0	1	0	7	5	13	2	1	0	6	12	21	75
08:00 AM	0	4	0	1	4	9	0	0	0	10	6	16	0	0	0	12	7	19	0	2	0	3	7	12	56
08:15 AM	0	7	1	18	9	35	0	0	0	4	4	8	0	0	0	9	8	17	0	0	0	6	5	11	71
08:30 AM	0	7	0	6	10	23	0	2	1	8	7	18	1	0	0	9	12	22	0	1	0	10	22	33	96
Total Volume	0	23	1	37	30	91	0	4	1	34	20	59	1	1	0	37	32	71	2	4	0	25	46	77	298
% App. Total	0	25.3	1.1	40.7	33		0	6.8	1.7	57.6	33.9		1.4	1.4	0	52.1	45.1		2.6	5.2	0	32.5	59.7		
PHF	.000	.821	.250	.514	.750	.650	.000	.500	.250	.708	.714	.819	.250	.250	.000	.771	.667	.807	.250	.500	.000	.625	.523	.583	.776

N/S: Central Avenue
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Office: 508.481.3999 Fax: 508.545.1234
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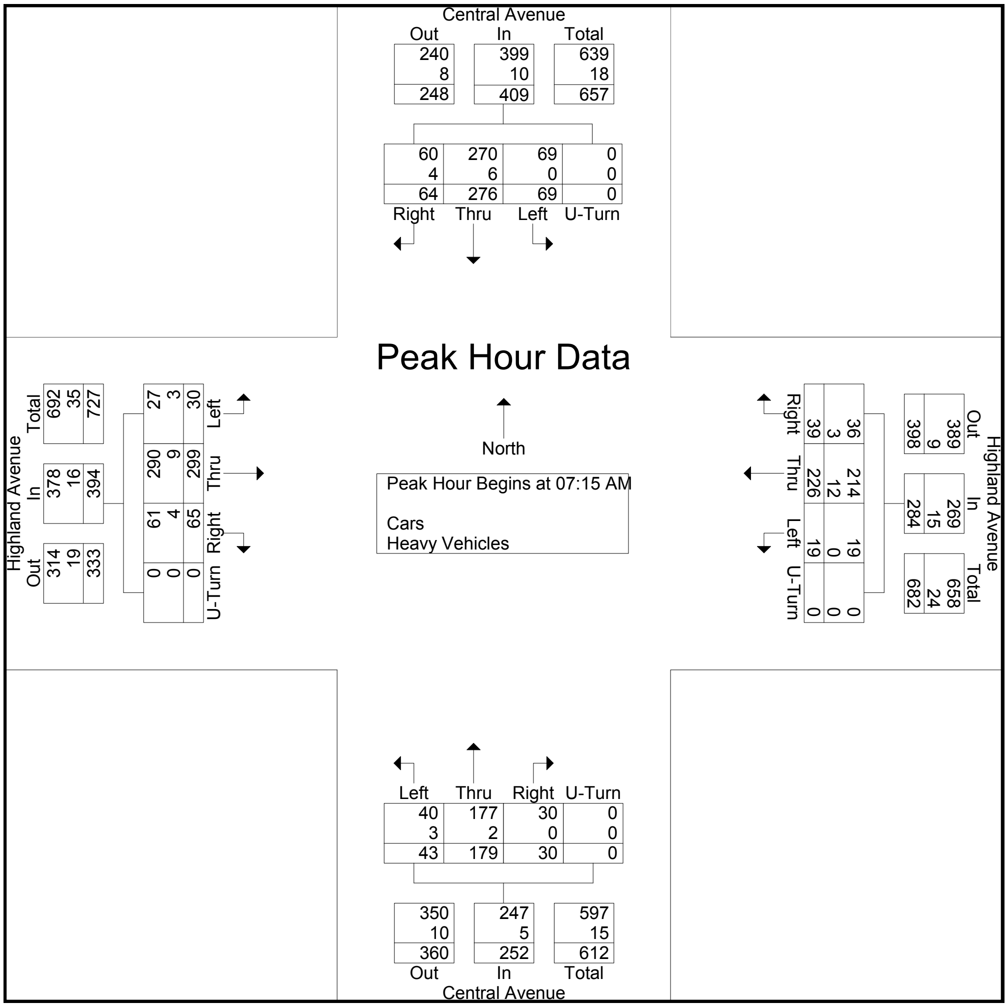
	Central Avenue **From North**					**Highland Avenue** **From East**					**Central Avenue** **From South**					**Highland Avenue** **From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	18	58	23	0	99	11	41	2	0	54	3	44	7	0	54	17	92	5	0	114	321
07:30 AM	11	71	21	0	103	8	70	7	0	85	6	40	12	0	58	17	77	4	0	98	344
07:45 AM	21	78	11	0	110	10	68	3	0	81	12	38	8	0	58	15	72	6	0	93	342
08:00 AM	14	69	14	0	97	10	47	7	0	64	9	57	16	0	82	16	58	15	0	89	332
Total Volume	64	276	69	0	409	39	226	19	0	284	30	179	43	0	252	65	299	30	0	394	1339
% App. Total	15.6	67.5	16.9	0		13.7	79.6	6.7	0		11.9	71	17.1	0		16.5	75.9	7.6	0		
PHF	.762	.885	.750	.000	.930	.886	.807	.679	.000	.835	.625	.785	.672	.000	.768	.956	.813	.500	.000	.864	.973
Cars	60	270	69	0	399	36	214	19	0	269	30	177	40	0	247	61	290	27	0	378	1293
% Cars	93.8	97.8	100	0	97.6	92.3	94.7	100	0	94.7	100	98.9	93.0	0	98.0	93.8	97.0	90.0	0	95.9	96.6
Heavy Vehicles	4	6	0	0	10	3	12	0	0	15	0	2	3	0	5	4	9	3	0	16	46
% Heavy Vehicles	6.3	2.2	0	0	2.4	7.7	5.3	0	0	5.3	0	1.1	7.0	0	2.0	6.2	3.0	10.0	0	4.1	3.4



N/S: Central Avenue
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 CC
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Central Avenue From North				Highland Avenue From East				Central Avenue From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	13	25	6	0	6	66	7	0	24	79	5	0	5	62	13	0	311
04:15 PM	14	38	6	0	7	69	4	0	22	75	9	0	4	57	9	0	314
04:30 PM	10	29	8	0	9	107	8	0	21	71	7	0	5	76	9	0	360
04:45 PM	22	31	4	0	11	84	6	0	23	86	5	0	5	88	8	0	373
Total	59	123	24	0	33	326	25	0	90	311	26	0	19	283	39	0	1358
05:00 PM	13	36	1	0	13	101	3	0	21	71	10	0	5	79	7	0	360
05:15 PM	20	29	5	0	23	83	6	0	9	79	16	0	12	68	11	0	361
05:30 PM	14	31	6	0	9	91	7	0	9	75	7	0	14	72	14	0	349
05:45 PM	11	41	11	0	10	94	4	0	20	54	13	0	4	84	12	0	358
Total	58	137	23	0	55	369	20	0	59	279	46	0	35	303	44	0	1428
Grand Total	117	260	47	0	88	695	45	0	149	590	72	0	54	586	83	0	2786
Apprch %	27.6	61.3	11.1	0	10.6	83.9	5.4	0	18.4	72.7	8.9	0	7.5	81.1	11.5	0	
Total %	4.2	9.3	1.7	0	3.2	24.9	1.6	0	5.3	21.2	2.6	0	1.9	21	3	0	
Cars	117	258	47	0	88	681	45	0	147	581	70	0	52	571	81	0	2738
% Cars	100	99.2	100	0	100	98	100	0	98.7	98.5	97.2	0	96.3	97.4	97.6	0	98.3
Heavy Vehicles	0	2	0	0	0	14	0	0	2	9	2	0	2	15	2	0	48
% Heavy Vehicles	0	0.8	0	0	0	2	0	0	1.3	1.5	2.8	0	3.7	2.6	2.4	0	1.7

	Central Avenue From North					Highland Avenue From East					Central Avenue From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

04:30 PM	10	29	8	0	47	9	107	8	0	124	21	71	7	0	99	5	76	9	0	90	360
04:45 PM	22	31	4	0	57	11	84	6	0	101	23	86	5	0	114	5	88	8	0	101	373
05:00 PM	13	36	1	0	50	13	101	3	0	117	21	71	10	0	102	5	79	7	0	91	360
05:15 PM	20	29	5	0	54	23	83	6	0	112	9	79	16	0	104	12	68	11	0	91	361
Total Volume	65	125	18	0	208	56	375	23	0	454	74	307	38	0	419	27	311	35	0	373	1454
% App. Total	31.2	60.1	8.7	0		12.3	82.6	5.1	0		17.7	73.3	9.1	0		7.2	83.4	9.4	0		
PHF	.739	.868	.563	.000	.912	.609	.876	.719	.000	.915	.804	.892	.594	.000	.919	.563	.884	.795	.000	.923	.975
Cars	65	124	18	0	207	56	369	23	0	448	74	302	37	0	413	27	303	34	0	364	1432
% Cars	100	99.2	100	0	99.5	100	98.4	100	0	98.7	100	98.4	97.4	0	98.6	100	97.4	97.1	0	97.6	98.5
Heavy Vehicles	0	1	0	0	1	0	6	0	0	6	0	5	1	0	6	0	8	1	0	9	22
% Heavy Vehicles	0	0.8	0	0	0.5	0	1.6	0	0	1.3	0	1.6	2.6	0	1.4	0	2.6	2.9	0	2.4	1.5

N/S: Central Avenue
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 CC
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	Central Avenue From North				**Highland Avenue From East**				**Central Avenue From South**				**Highland Avenue From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	13	25	6	0	6	63	7	0	23	77	4	0	4	61	13	0	302
04:15 PM	14	37	6	0	7	66	4	0	21	73	9	0	3	53	8	0	301
04:30 PM	10	28	8	0	9	105	8	0	21	69	7	0	5	76	8	0	354
04:45 PM	22	31	4	0	11	83	6	0	23	84	5	0	5	85	8	0	367
Total	59	121	24	0	33	317	25	0	88	303	25	0	17	275	37	0	1324
05:00 PM	13	36	1	0	13	99	3	0	21	70	9	0	5	78	7	0	355
05:15 PM	20	29	5	0	23	82	6	0	9	79	16	0	12	64	11	0	356
05:30 PM	14	31	6	0	9	90	7	0	9	75	7	0	14	71	14	0	347
05:45 PM	11	41	11	0	10	93	4	0	20	54	13	0	4	83	12	0	356
Total	58	137	23	0	55	364	20	0	59	278	45	0	35	296	44	0	1414
Grand Total	117	258	47	0	88	681	45	0	147	581	70	0	52	571	81	0	2738
Apprch %	27.7	61.1	11.1	0	10.8	83.7	5.5	0	18.4	72.8	8.8	0	7.4	81.1	11.5	0	
Total %	4.3	9.4	1.7	0	3.2	24.9	1.6	0	5.4	21.2	2.6	0	1.9	20.9	3	0	

	Central Avenue From North					**Highland Avenue From East**					**Central Avenue From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	10	28	8	0	46	9	105	8	0	122	21	69	7	0	97	5	76	8	0	89	354
04:45 PM	22	31	4	0	57	11	83	6	0	100	23	84	5	0	112	5	85	8	0	98	367
05:00 PM	13	36	1	0	50	13	99	3	0	115	21	70	9	0	100	5	78	7	0	90	355
05:15 PM	20	29	5	0	54	23	82	6	0	111	9	79	16	0	104	12	64	11	0	87	356
Total Volume	65	124	18	0	207	56	369	23	0	448	74	302	37	0	413	27	303	34	0	364	1432
% App. Total	31.4	59.9	8.7	0		12.5	82.4	5.1	0		17.9	73.1	9	0		7.4	83.2	9.3	0		
PHF	.739	.861	.563	.000	.908	.609	.879	.719	.000	.918	.804	.899	.578	.000	.922	.563	.891	.773	.000	.929	.975

N/S: Central Avenue
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 CC
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Central Avenue From North				Highland Avenue From East				Central Avenue From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	0	3	0	0	1	2	1	0	1	1	0	0	9
04:15 PM	0	1	0	0	0	3	0	0	1	2	0	0	1	4	1	0	13
04:30 PM	0	1	0	0	0	2	0	0	0	2	0	0	0	0	1	0	6
04:45 PM	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0	0	6
Total	0	2	0	0	0	9	0	0	2	8	1	0	2	8	2	0	34
05:00 PM	0	0	0	0	0	2	0	0	0	1	1	0	0	1	0	0	5
05:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0	5
05:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
05:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
Total	0	0	0	0	0	5	0	0	0	1	1	0	0	7	0	0	14
Grand Total	0	2	0	0	0	14	0	0	2	9	2	0	2	15	2	0	48
Apprch %	0	100	0	0	0	100	0	0	15.4	69.2	15.4	0	10.5	78.9	10.5	0	
Total %	0	4.2	0	0	0	29.2	0	0	4.2	18.8	4.2	0	4.2	31.2	4.2	0	

	Central Avenue From North					Highland Avenue From East					Central Avenue From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	3	0	0	3	1	2	1	0	4	1	1	0	0	2	9
04:15 PM	0	1	0	0	1	0	3	0	0	3	1	2	0	0	3	1	4	1	0	6	13
04:30 PM	0	1	0	0	1	0	2	0	0	2	0	2	0	0	2	0	0	1	0	1	6
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	0	3	0	0	3	6
Total Volume	0	2	0	0	2	0	9	0	0	9	2	8	1	0	11	2	8	2	0	12	34
% App. Total	0	100	0	0		0	100	0	0		18.2	72.7	9.1	0		16.7	66.7	16.7	0		
PHF	.000	.500	.000	.000	.500	.000	.750	.000	.000	.750	.500	1.00	.250	.000	.688	.500	.500	.500	.000	.500	.654

N/S: Central Avenue
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 CC
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Peds and Bikes

	Central Avenue From North					Highland Avenue From East					Central Avenue From South					Highland Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	7	5	0	1	0	2	3	0	1	0	4	14	0	0	2	5	6	50
04:15 PM	0	0	0	2	6	0	1	0	0	5	0	3	2	6	4	0	0	1	9	3	42
04:30 PM	0	2	0	18	8	0	0	0	4	5	0	1	2	6	4	0	0	0	8	6	64
04:45 PM	0	2	0	7	6	0	0	0	1	10	0	1	0	5	3	0	0	0	11	5	51
Total	0	4	0	34	25	0	2	0	7	23	0	6	4	21	25	0	0	3	33	20	207
05:00 PM	0	0	0	15	9	0	3	0	11	8	0	2	0	6	6	0	0	0	6	7	73
05:15 PM	1	1	0	9	11	0	4	0	7	10	1	0	2	4	13	0	1	0	3	5	72
05:30 PM	0	0	0	8	17	0	2	0	7	7	1	2	1	3	7	1	0	0	7	5	68
05:45 PM	0	1	0	17	19	0	2	0	6	5	1	6	0	6	11	0	0	0	15	8	97
Total	1	2	0	49	56	0	11	0	31	30	3	10	3	19	37	1	1	0	31	25	310
Grand Total	1	6	0	83	81	0	13	0	38	53	3	16	7	40	62	1	1	3	64	45	517
Apprch %	0.6	3.5	0	48.5	47.4	0	12.5	0	36.5	51	2.3	12.5	5.5	31.2	48.4	0.9	0.9	2.6	56.1	39.5	
Total %	0.2	1.2	0	16.1	15.7	0	2.5	0	7.4	10.3	0.6	3.1	1.4	7.7	12	0.2	0.2	0.6	12.4	8.7	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

	Central Avenue From North						Highland Avenue From East						Central Avenue From South						Highland Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
05:00 PM	0	0	0	15	9	24	0	3	0	11	8	22	0	2	0	6	6	14	0	0	0	6	7	13	73
05:15 PM	1	1	0	9	11	22	0	4	0	7	10	21	1	0	2	4	13	20	0	1	0	3	5	9	72
05:30 PM	0	0	0	8	17	25	0	2	0	7	7	16	1	2	1	3	7	14	1	0	0	7	5	13	68
05:45 PM	0	1	0	17	19	37	0	2	0	6	5	13	1	6	0	6	11	24	0	0	0	15	8	23	97
Total Volume	1	2	0	49	56	108	0	11	0	31	30	72	3	10	3	19	37	72	1	1	0	31	25	58	310
% App. Total	0.9	1.9	0	45.4	51.9		0	15.3	0	43.1	41.7		4.2	13.9	4.2	26.4	51.4		1.7	1.7	0	53.4	43.1		
PHF	.250	.500	.000	.721	.737	.730	.000	.688	.000	.705	.750	.818	.750	.417	.375	.792	.712	.750	.250	.250	.000	.517	.781	.630	.799

N/S: Central Avenue
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC
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Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

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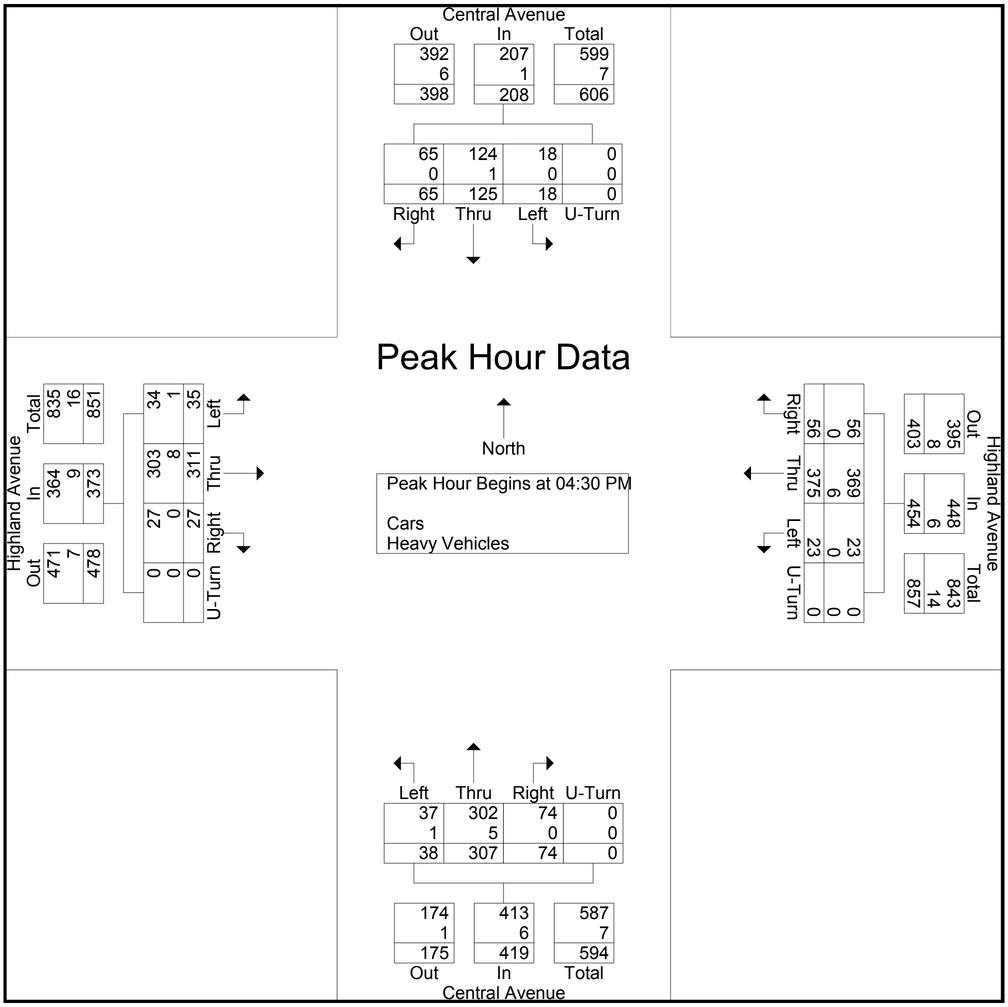
	Central Avenue From North					**Highland Avenue From East**					**Central Avenue From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	10	29	8	0	47	9	107	8	0	124	21	71	7	0	99	5	76	9	0	90	360
04:45 PM	22	31	4	0	57	11	84	6	0	101	23	86	5	0	114	5	88	8	0	101	373
05:00 PM	13	36	1	0	50	13	101	3	0	117	21	71	10	0	102	5	79	7	0	91	360
05:15 PM	20	29	5	0	54	23	83	6	0	112	9	79	16	0	104	12	68	11	0	91	361
Total Volume	65	125	18	0	208	56	375	23	0	454	74	307	38	0	419	27	311	35	0	373	1454
% App. Total	31.2	60.1	8.7	0		12.3	82.6	5.1	0		17.7	73.3	9.1	0		7.2	83.4	9.4	0		
PHF	.739	.868	.563	.000	.912	.609	.876	.719	.000	.915	.804	.892	.594	.000	.919	.563	.884	.795	.000	.923	.975
Cars	65	124	18	0	207	56	369	23	0	448	74	302	37	0	413	27	303	34	0	364	1432
% Cars	100	99.2	100	0	99.5	100	98.4	100	0	98.7	100	98.4	97.4	0	98.6	100	97.4	97.1	0	97.6	98.5
Heavy Vehicles	0	1	0	0	1	0	6	0	0	6	0	5	1	0	6	0	8	1	0	9	22
% Heavy Vehicles	0	0.8	0	0	0.5	0	1.6	0	0	1.3	0	1.6	2.6	0	1.4	0	2.6	2.9	0	2.4	1.5



PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N/S: School Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 D
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	School Street From North				Highland Avenue From East				School Street From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	12	84	78	0	0	41	5	0	0	0	0	0	7	94	0	0	321
07:15 AM	10	102	72	0	0	57	11	0	0	0	0	0	3	103	0	0	358
07:30 AM	26	88	83	0	0	76	4	0	0	0	0	0	5	91	0	0	373
07:45 AM	26	90	66	0	0	80	10	0	0	0	0	0	11	53	0	0	336
Total	74	364	299	0	0	254	30	0	0	0	0	0	26	341	0	0	1388
08:00 AM	21	88	71	0	0	44	6	0	0	0	0	0	3	48	0	0	281
08:15 AM	16	92	82	0	0	48	8	0	0	0	0	0	10	68	0	0	324
08:30 AM	20	86	80	0	0	53	10	0	0	0	0	0	11	64	0	0	324
08:45 AM	16	75	55	1	0	59	7	0	0	0	0	0	6	92	0	0	311
Total	73	341	288	1	0	204	31	0	0	0	0	0	30	272	0	0	1240
Grand Total	147	705	587	1	0	458	61	0	0	0	0	0	56	613	0	0	2628
Apprch %	10.2	49	40.8	0.1	0	88.2	11.8	0	0	0	0	0	8.4	91.6	0	0	
Total %	5.6	26.8	22.3	0	0	17.4	2.3	0	0	0	0	0	2.1	23.3	0	0	
Cars	143	687	583	1	0	434	59	0	0	0	0	0	56	591	0	0	2554
% Cars	97.3	97.4	99.3	100	0	94.8	96.7	0	0	0	0	0	100	96.4	0	0	97.2
Heavy Vehicles	4	18	4	0	0	24	2	0	0	0	0	0	0	22	0	0	74
% Heavy Vehicles	2.7	2.6	0.7	0	0	5.2	3.3	0	0	0	0	0	0	3.6	0	0	2.8

	School Street From North					Highland Avenue From East					School Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	12	84	78	0	174	0	41	5	0	46	0	0	0	0	0	7	94	0	0	101	321
07:15 AM	10	102	72	0	184	0	57	11	0	68	0	0	0	0	0	3	103	0	0	106	358
07:30 AM	26	88	83	0	197	0	76	4	0	80	0	0	0	0	0	5	91	0	0	96	373
07:45 AM	26	90	66	0	182	0	80	10	0	90	0	0	0	0	0	11	53	0	0	64	336
Total Volume	74	364	299	0	737	0	254	30	0	284	0	0	0	0	0	26	341	0	0	367	1388
% App. Total	10	49.4	40.6	0		0	89.4	10.6	0		0	0	0	0		7.1	92.9	0	0		
PHF	.712	.892	.901	.000	.935	.000	.794	.682	.000	.789	.000	.000	.000	.000	.000	.591	.828	.000	.000	.866	.930
Cars	71	359	298	0	728	0	243	30	0	273	0	0	0	0	0	26	333	0	0	359	1360
% Cars	95.9	98.6	99.7	0	98.8	0	95.7	100	0	96.1	0	0	0	0	0	100	97.7	0	0	97.8	98.0
Heavy Vehicles	3	5	1	0	9	0	11	0	0	11	0	0	0	0	0	0	8	0	0	8	28
% Heavy Vehicles	4.1	1.4	0.3	0	1.2	0	4.3	0	0	3.9	0	0	0	0	0	0	2.3	0	0	2.2	2.0

N/S: School Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 D
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	School Street From North				**Highland Avenue From East**				**School Street From South**				**Highland Avenue From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	11	83	78	0	0	39	5	0	0	0	0	0	7	91	0	0	314
07:15 AM	9	101	71	0	0	55	11	0	0	0	0	0	3	101	0	0	351
07:30 AM	25	86	83	0	0	73	4	0	0	0	0	0	5	91	0	0	367
07:45 AM	26	89	66	0	0	76	10	0	0	0	0	0	11	50	0	0	328
Total	71	359	298	0	0	243	30	0	0	0	0	0	26	333	0	0	1360
08:00 AM	21	84	69	0	0	41	6	0	0	0	0	0	3	46	0	0	270
08:15 AM	16	90	81	0	0	46	7	0	0	0	0	0	10	67	0	0	317
08:30 AM	20	81	80	0	0	48	9	0	0	0	0	0	11	59	0	0	308
08:45 AM	15	73	55	1	0	56	7	0	0	0	0	0	6	86	0	0	299
Total	72	328	285	1	0	191	29	0	0	0	0	0	30	258	0	0	1194
Grand Total	143	687	583	1	0	434	59	0	0	0	0	0	56	591	0	0	2554
Apprch %	10.1	48.6	41.2	0.1	0	88	12	0	0	0	0	0	8.7	91.3	0	0	
Total %	5.6	26.9	22.8	0	0	17	2.3	0	0	0	0	0	2.2	23.1	0	0	

	School Street From North					**Highland Avenue From East**					**School Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	11	83	78	0	172	0	39	5	0	44	0	0	0	0	0	7	91	0	0	98	314
07:15 AM	9	101	71	0	181	0	55	11	0	66	0	0	0	0	0	3	101	0	0	104	351
07:30 AM	25	86	83	0	194	0	73	4	0	77	0	0	0	0	0	5	91	0	0	96	367
07:45 AM	26	89	66	0	181	0	76	10	0	86	0	0	0	0	0	11	50	0	0	61	328
Total Volume	71	359	298	0	728	0	243	30	0	273	0	0	0	0	0	26	333	0	0	359	1360
% App. Total	9.8	49.3	40.9	0		0	89	11	0		0	0	0	0		7.2	92.8	0	0		
PHF	.683	.889	.898	.000	.938	.000	.799	.682	.000	.794	.000	.000	.000	.000	.000	.591	.824	.000	.000	.863	.926

N/S: School Street
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D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 D
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Heavy Vehicles

	School Street From North				Highland Avenue From East				School Street From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	1	1	0	0	0	2	0	0	0	0	0	0	0	3	0	0	7
07:15 AM	1	1	1	0	0	2	0	0	0	0	0	0	0	2	0	0	7
07:30 AM	1	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6
07:45 AM	0	1	0	0	0	4	0	0	0	0	0	0	0	3	0	0	8
Total	3	5	1	0	0	11	0	0	0	0	0	0	0	8	0	0	28
08:00 AM	0	4	2	0	0	3	0	0	0	0	0	0	0	2	0	0	11
08:15 AM	0	2	1	0	0	2	1	0	0	0	0	0	0	1	0	0	7
08:30 AM	0	5	0	0	0	5	1	0	0	0	0	0	0	5	0	0	16
08:45 AM	1	2	0	0	0	3	0	0	0	0	0	0	0	6	0	0	12
Total	1	13	3	0	0	13	2	0	0	0	0	0	0	14	0	0	46
Grand Total	4	18	4	0	0	24	2	0	0	0	0	0	0	22	0	0	74
Apprch %	15.4	69.2	15.4	0	0	92.3	7.7	0	0	0	0	0	0	100	0	0	
Total %	5.4	24.3	5.4	0	0	32.4	2.7	0	0	0	0	0	0	29.7	0	0	

	School Street From North					Highland Avenue From East					School Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	4	2	0	6	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	11
08:15 AM	0	2	1	0	3	0	2	1	0	3	0	0	0	0	0	0	1	0	0	1	7
08:30 AM	0	5	0	0	5	0	5	1	0	6	0	0	0	0	0	0	5	0	0	5	16
08:45 AM	1	2	0	0	3	0	3	0	0	3	0	0	0	0	0	0	6	0	0	6	12
Total Volume	1	13	3	0	17	0	13	2	0	15	0	0	0	0	0	0	14	0	0	14	46
% App. Total	5.9	76.5	17.6	0		0	86.7	13.3	0		0	0	0	0		0	100	0	0		
PHF	.250	.650	.375	.000	.708	.000	.650	.500	.000	.625	.000	.000	.000	.000	.000	.000	.583	.000	.000	.583	.719

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Site Code : 2015-069
Start Date : 11/18/2015
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Groups Printed- Peds and Bikes

	School Street From North					Highland Avenue From East					School Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	8	7	0	0	0	1	9	0	0	0	4	6	1	0	0	1	1	38
07:15 AM	0	1	0	24	3	0	0	0	4	32	0	0	0	0	40	1	1	0	16	3	125
07:30 AM	0	3	0	28	3	0	0	0	3	25	0	0	0	4	29	1	0	0	3	4	103
07:45 AM	0	5	1	17	3	0	1	1	5	20	0	0	0	6	10	1	3	0	4	4	81
Total	0	9	1	77	16	0	1	1	13	86	0	0	0	14	85	4	4	0	24	12	347
08:00 AM	0	2	0	9	5	0	1	0	13	6	0	0	0	7	5	1	1	0	3	4	57
08:15 AM	0	7	0	7	7	0	0	0	11	3	0	0	0	3	3	4	0	0	1	5	51
08:30 AM	0	4	1	10	1	0	1	1	3	2	0	0	0	5	1	1	2	0	7	3	42
08:45 AM	1	8	2	5	3	0	1	0	2	1	0	0	0	4	4	2	2	0	3	5	43
Total	1	21	3	31	16	0	3	1	29	12	0	0	0	19	13	8	5	0	14	17	193
Grand Total	1	30	4	108	32	0	4	2	42	98	0	0	0	33	98	12	9	0	38	29	540
Apprch %	0.6	17.1	2.3	61.7	18.3	0	2.7	1.4	28.8	67.1	0	0	0	25.2	74.8	13.6	10.2	0	43.2	33	
Total %	0.2	5.6	0.7	20	5.9	0	0.7	0.4	7.8	18.1	0	0	0	6.1	18.1	2.2	1.7	0	7	5.4	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

	School Street From North						Highland Avenue From East						School Street From South						Highland Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
07:15 AM	0	1	0	24	3	28	0	0	0	4	32	36	0	0	0	0	40	40	1	1	0	16	3	21	125
07:30 AM	0	3	0	28	3	34	0	0	0	3	25	28	0	0	0	4	29	33	1	0	0	3	4	8	103
07:45 AM	0	5	1	17	3	26	0	1	1	5	20	27	0	0	0	6	10	16	1	3	0	4	4	12	81
08:00 AM	0	2	0	9	5	16	0	1	0	13	6	20	0	0	0	7	5	12	1	1	0	3	4	9	57
Total Volume	0	11	1	78	14	104	0	2	1	25	83	111	0	0	0	17	84	101	4	5	0	26	15	50	366
% App. Total	0	10.6	1	75	13.5		0	1.8	0.9	22.5	74.8		0	0	0	16.8	83.2		8	10	0	52	30		
PHF	.000	.550	.250	.696	.700	.765	.000	.500	.250	.481	.648	.771	.000	.000	.000	.607	.525	.631	1.0 0	.417	.000	.406	.938	.595	.732

N/S: School Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 D
Site Code : 2015-069
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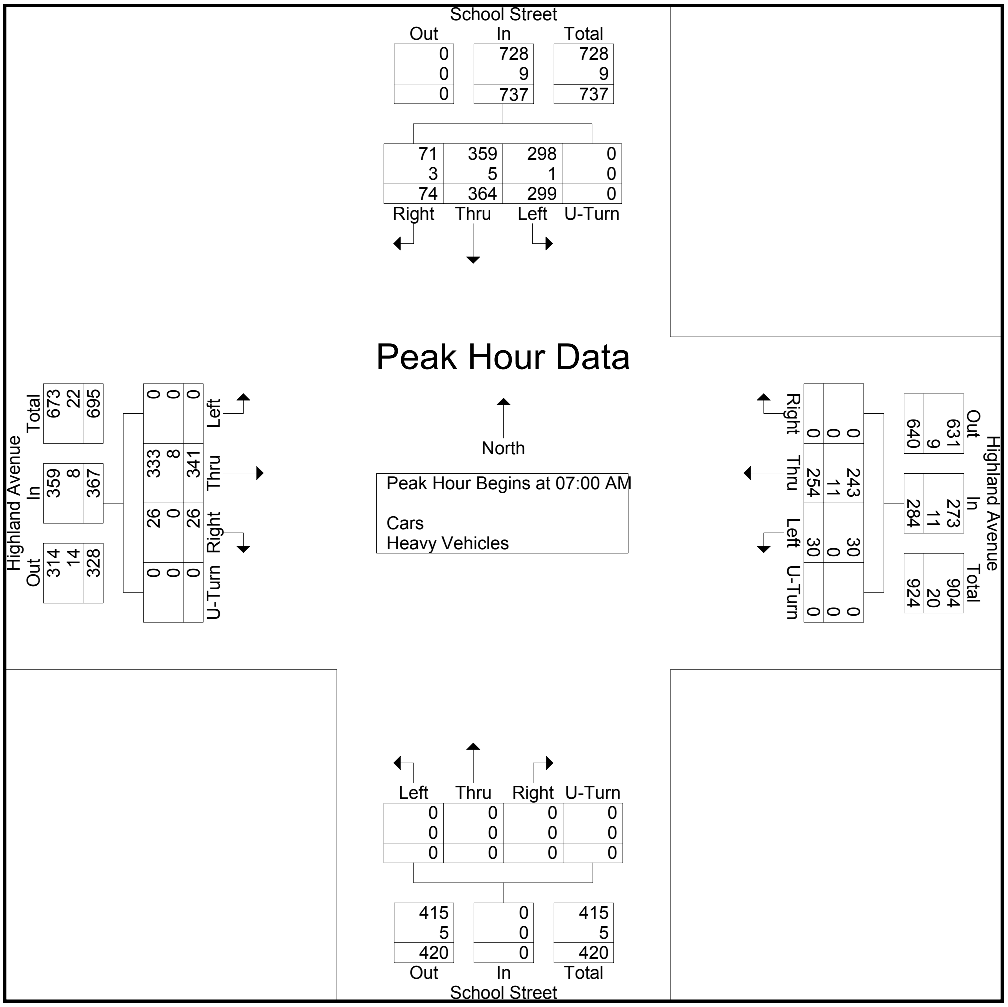
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:00 AM

	School Street From North					Highland Avenue From East					School Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:00 AM	12	84	78	0	174	0	41	5	0	46	0	0	0	0	0	7	94	0	0	101	321
07:15 AM	10	102	72	0	184	0	57	11	0	68	0	0	0	0	0	3	103	0	0	106	358
07:30 AM	26	88	83	0	197	0	76	4	0	80	0	0	0	0	0	5	91	0	0	96	373
07:45 AM	26	90	66	0	182	0	80	10	0	90	0	0	0	0	0	11	53	0	0	64	336
Total Volume	74	364	299	0	737	0	254	30	0	284	0	0	0	0	0	26	341	0	0	367	1388
% App. Total	10	49.4	40.6	0		0	89.4	10.6	0		0	0	0	0		7.1	92.9	0	0		
PHF	.712	.892	.901	.000	.935	.000	.794	.682	.000	.789	.000	.000	.000	.000	.000	.591	.828	.000	.000	.866	.930
Cars	71	359	298	0	728	0	243	30	0	273	0	0	0	0	0	26	333	0	0	359	1360
% Cars	95.9	98.6	99.7	0	98.8	0	95.7	100	0	96.1	0	0	0	0	0	100	97.7	0	0	97.8	98.0
Heavy Vehicles	3	5	1	0	9	0	11	0	0	11	0	0	0	0	0	0	8	0	0	8	28
% Heavy Vehicles	4.1	1.4	0.3	0	1.2	0	4.3	0	0	3.9	0	0	0	0	0	0	2.3	0	0	2.2	2.0



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PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 DD
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Page No : 1

Groups Printed- Cars - Heavy Vehicles

	School Street From North				**Highland Avenue From East**				**School Street From South**				**Highland Avenue From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	17	71	35	0	0	75	13	0	0	0	0	0	7	77	0	0	295
04:15 PM	13	85	34	0	0	85	7	0	0	0	0	0	13	65	0	0	302
04:30 PM	21	74	33	0	0	113	9	0	0	0	0	0	5	61	0	0	316
04:45 PM	18	89	32	0	0	98	16	0	0	0	0	0	9	74	0	0	336
Total	69	319	134	0	0	371	45	0	0	0	0	0	34	277	0	0	1249
05:00 PM	26	88	36	0	0	103	8	0	0	0	0	0	8	68	0	0	337
05:15 PM	22	86	40	0	1	106	9	0	0	0	0	0	9	75	0	0	348
05:30 PM	24	97	49	0	0	103	6	0	0	0	0	0	16	78	0	0	373
05:45 PM	19	88	35	0	0	106	11	0	0	0	0	0	6	78	0	0	343
Total	91	359	160	0	1	418	34	0	0	0	0	0	39	299	0	0	1401
Grand Total	160	678	294	0	1	789	79	0	0	0	0	0	73	576	0	0	2650
Apprch %	14.1	59.9	26	0	0.1	90.8	9.1	0	0	0	0	0	11.2	88.8	0	0	
Total %	6	25.6	11.1	0	0	29.8	3	0	0	0	0	0	2.8	21.7	0	0	
Cars	159	669	290	0	1	775	78	0	0	0	0	0	73	557	0	0	2602
% Cars	99.4	98.7	98.6	0	100	98.2	98.7	0	0	0	0	0	100	96.7	0	0	98.2
Heavy Vehicles	1	9	4	0	0	14	1	0	0	0	0	0	0	19	0	0	48
% Heavy Vehicles	0.6	1.3	1.4	0	0	1.8	1.3	0	0	0	0	0	0	3.3	0	0	1.8

	School Street From North					**Highland Avenue From East**					**School Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	26	88	36	0	150	0	103	8	0	111	0	0	0	0	0	8	68	0	0	76	337
05:15 PM	22	86	40	0	148	1	106	9	0	116	0	0	0	0	0	9	75	0	0	84	348
05:30 PM	24	97	49	0	170	0	103	6	0	109	0	0	0	0	0	16	78	0	0	94	373
05:45 PM	19	88	35	0	142	0	106	11	0	117	0	0	0	0	0	6	78	0	0	84	343
Total Volume	91	359	160	0	610	1	418	34	0	453	0	0	0	0	0	39	299	0	0	338	1401
% App. Total	14.9	58.9	26.2	0		0.2	92.3	7.5	0		0	0	0	0		11.5	88.5	0	0		
PHF	.875	.925	.816	.000	.897	.250	.986	.773	.000	.968	.000	.000	.000	.000	.000	.609	.958	.000	.000	.899	.939
Cars	91	356	159	0	606	1	412	33	0	446	0	0	0	0	0	39	293	0	0	332	1384
% Cars	100	99.2	99.4	0	99.3	100	98.6	97.1	0	98.5	0	0	0	0	0	100	98.0	0	0	98.2	98.8
Heavy Vehicles	0	3	1	0	4	0	6	1	0	7	0	0	0	0	0	0	6	0	0	6	17
% Heavy Vehicles	0	0.8	0.6	0	0.7	0	1.4	2.9	0	1.5	0	0	0	0	0	0	2.0	0	0	1.8	1.2

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Office: 508.481.3999 Fax: 508.545.1234
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Groups Printed- Cars

	School Street From North				Highland Avenue From East				School Street From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	17	71	35	0	0	73	13	0	0	0	0	0	7	74	0	0	290
04:15 PM	13	83	32	0	0	82	7	0	0	0	0	0	13	60	0	0	290
04:30 PM	20	73	33	0	0	111	9	0	0	0	0	0	5	61	0	0	312
04:45 PM	18	86	31	0	0	97	16	0	0	0	0	0	9	69	0	0	326
Total	68	313	131	0	0	363	45	0	0	0	0	0	34	264	0	0	1218
05:00 PM	26	86	36	0	0	101	7	0	0	0	0	0	8	67	0	0	331
05:15 PM	22	86	40	0	1	105	9	0	0	0	0	0	9	72	0	0	344
05:30 PM	24	97	48	0	0	102	6	0	0	0	0	0	16	77	0	0	370
05:45 PM	19	87	35	0	0	104	11	0	0	0	0	0	6	77	0	0	339
Total	91	356	159	0	1	412	33	0	0	0	0	0	39	293	0	0	1384
Grand Total	159	669	290	0	1	775	78	0	0	0	0	0	73	557	0	0	2602
Apprch %	14.2	59.8	25.9	0	0.1	90.7	9.1	0	0	0	0	0	11.6	88.4	0	0	
Total %	6.1	25.7	11.1	0	0	29.8	3	0	0	0	0	0	2.8	21.4	0	0	

	School Street From North					Highland Avenue From East					School Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	26	86	36	0	148	0	101	7	0	108	0	0	0	0	0	8	67	0	0	75	331
05:15 PM	22	86	40	0	148	1	105	9	0	115	0	0	0	0	0	9	72	0	0	81	344
05:30 PM	24	97	48	0	169	0	102	6	0	108	0	0	0	0	0	16	77	0	0	93	370
05:45 PM	19	87	35	0	141	0	104	11	0	115	0	0	0	0	0	6	77	0	0	83	339
Total Volume	91	356	159	0	606	1	412	33	0	446	0	0	0	0	0	39	293	0	0	332	1384
% App. Total	15	58.7	26.2	0		0.2	92.4	7.4	0		0	0	0	0		11.7	88.3	0	0		
PHF	.875	.918	.828	.000	.896	.250	.981	.750	.000	.970	.000	.000	.000	.000	.000	.609	.951	.000	.000	.892	.935

N/S: School Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 DD
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Heavy Vehicles

	School Street From North				**Highland Avenue From East**				**School Street From South**				**Highland Avenue From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0	5
04:15 PM	0	2	2	0	0	3	0	0	0	0	0	0	0	5	0	0	12
04:30 PM	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
04:45 PM	0	3	1	0	0	1	0	0	0	0	0	0	0	5	0	0	10
Total	1	6	3	0	0	8	0	0	0	0	0	0	0	13	0	0	31
05:00 PM	0	2	0	0	0	2	1	0	0	0	0	0	0	1	0	0	6
05:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	4
05:30 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	3
05:45 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	1	0	0	4
Total	0	3	1	0	0	6	1	0	0	0	0	0	0	6	0	0	17
Grand Total	1	9	4	0	0	14	1	0	0	0	0	0	0	19	0	0	48
Apprch %	7.1	64.3	28.6	0	0	93.3	6.7	0	0	0	0	0	0	100	0	0	
Total %	2.1	18.8	8.3	0	0	29.2	2.1	0	0	0	0	0	0	39.6	0	0	

	School Street From North					**Highland Avenue From East**					**School Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:15 PM

04:15 PM	0	2	2	0	4	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	12
04:30 PM	1	1	0	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	4
04:45 PM	0	3	1	0	4	0	1	0	0	1	0	0	0	0	0	0	5	0	0	5	10
05:00 PM	0	2	0	0	2	0	2	1	0	3	0	0	0	0	0	0	1	0	0	1	6
Total Volume	1	8	3	0	12	0	8	1	0	9	0	0	0	0	0	0	11	0	0	11	32
% App. Total	8.3	66.7	25	0		0	88.9	11.1	0		0	0	0	0		0	100	0	0		
PHF	.250	.667	.375	.000	.750	.000	.667	.250	.000	.750	.000	.000	.000	.000	.000	.000	.550	.000	.000	.550	.667

N/S: School Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

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D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

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Page No : 1

Groups Printed- Peds and Bikes

	School Street From North					**Highland Avenue From East**					**School Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	1	0	9	16	0	2	0	8	6	0	0	0	11	5	0	0	0	5	4	67
04:15 PM	0	1	1	5	9	0	1	0	5	5	0	0	0	7	8	0	0	0	1	7	50
04:30 PM	0	1	0	7	8	0	0	0	10	9	0	0	0	4	7	0	0	0	3	6	55
04:45 PM	0	1	0	11	6	0	2	0	6	5	0	0	0	3	7	0	1	0	8	6	56
Total	0	4	1	32	39	0	5	0	29	25	0	0	0	25	27	0	1	0	17	23	228
05:00 PM	0	0	0	10	7	0	3	0	7	6	0	0	0	4	4	0	0	0	5	5	51
05:15 PM	0	0	0	10	10	0	4	0	1	12	0	0	0	3	5	0	2	0	4	11	62
05:30 PM	0	1	0	5	10	0	3	0	3	11	0	0	0	7	9	1	1	0	8	7	66
05:45 PM	0	0	0	7	10	0	9	0	6	8	0	0	0	8	10	1	0	0	9	7	75
Total	0	1	0	32	37	0	19	0	17	37	0	0	0	22	28	2	3	0	26	30	254
Grand Total	0	5	1	64	76	0	24	0	46	62	0	0	0	47	55	2	4	0	43	53	482
Apprch %	0	3.4	0.7	43.8	52.1	0	18.2	0	34.8	47	0	0	0	46.1	53.9	2	3.9	0	42.2	52	
Total %	0	1	0.2	13.3	15.8	0	5	0	9.5	12.9	0	0	0	9.8	11.4	0.4	0.8	0	8.9	11	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 05:00 PM

	School Street From North						**Highland Avenue From East**						**School Street From South**						**Highland Avenue From West**						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
05:00 PM	0	0	0	10	7	17	0	3	0	7	6	16	0	0	0	4	4	8	0	0	0	5	5	10	51
05:15 PM	0	0	0	10	10	20	0	4	0	1	12	17	0	0	0	3	5	8	0	2	0	4	11	17	62
05:30 PM	0	1	0	5	10	16	0	3	0	3	11	17	0	0	0	7	9	16	1	1	0	8	7	17	66
05:45 PM	0	0	0	7	10	17	0	9	0	6	8	23	0	0	0	8	10	18	1	0	0	9	7	17	75
Total Volume	0	1	0	32	37	70	0	19	0	17	37	73	0	0	0	22	28	50	2	3	0	26	30	61	254
% App. Total	0	1.4	0	45.7	52.9		0	26	0	23.3	50.7		0	0	0	44	56		3.3	4.9	0	42.6	49.2		
PHF	.000	.250	.000	.800	.925	.875	.000	.528	.000	.607	.771	.793	.000	.000	.000	.688	.700	.694	.500	.375	.000	.722	.682	.897	.847

N/S: School Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

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DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

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Site Code : 2015-069
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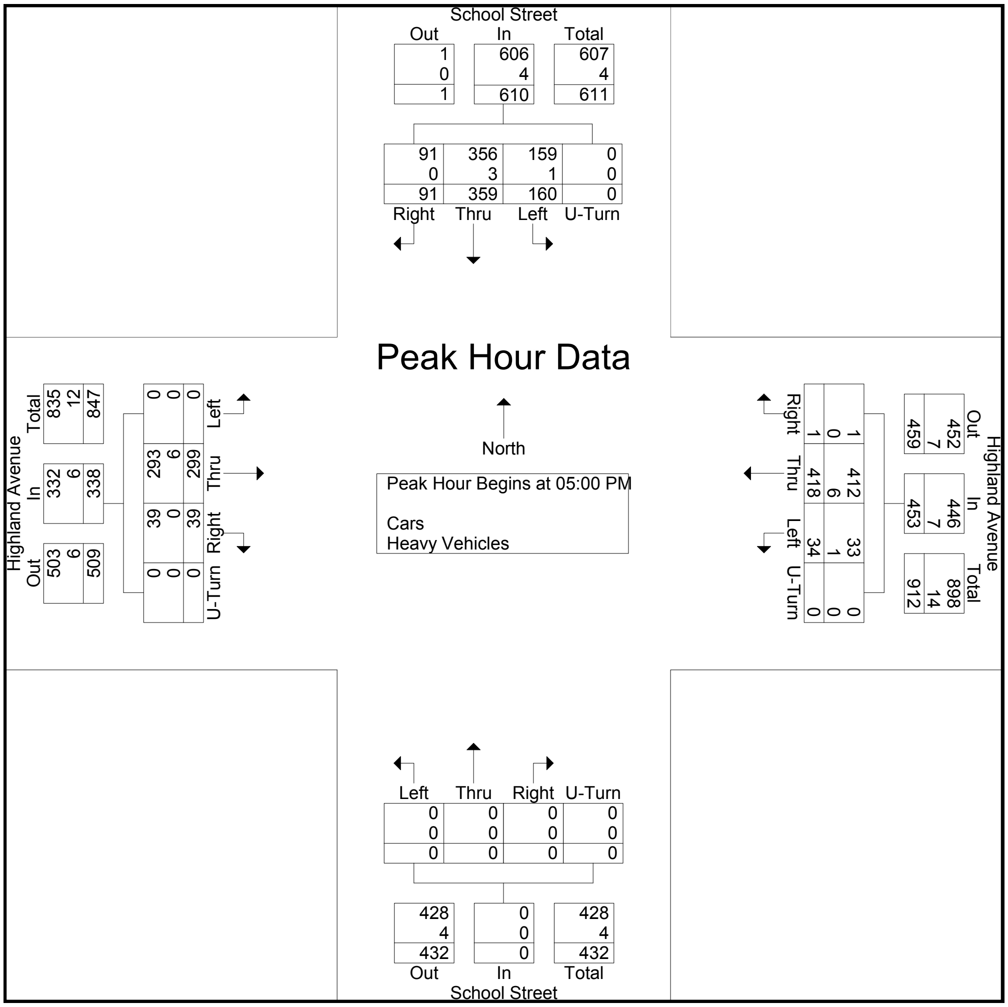
Page No : 1

	School Street From North					**Highland Avenue From East**					**School Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	26	88	36	0	150	0	103	8	0	111	0	0	0	0	0	8	68	0	0	76	337
05:15 PM	22	86	40	0	148	1	106	9	0	116	0	0	0	0	0	9	75	0	0	84	348
05:30 PM	24	97	49	0	170	0	103	6	0	109	0	0	0	0	0	16	78	0	0	94	373
05:45 PM	19	88	35	0	142	0	106	11	0	117	0	0	0	0	0	6	78	0	0	84	343
Total Volume	91	359	160	0	610	1	418	34	0	453	0	0	0	0	0	39	299	0	0	338	1401
% App. Total	14.9	58.9	26.2	0		0.2	92.3	7.5	0		0	0	0	0		11.5	88.5	0	0		
PHF	.875	.925	.816	.000	.897	.250	.986	.773	.000	.968	.000	.000	.000	.000	.000	.609	.958	.000	.000	.899	.939
Cars	91	356	159	0	606	1	412	33	0	446	0	0	0	0	0	39	293	0	0	332	1384
% Cars	100	99.2	99.4	0	99.3	100	98.6	97.1	0	98.5	0	0	0	0	0	100	98.0	0	0	98.2	98.8
Heavy Vehicles	0	3	1	0	4	0	6	1	0	7	0	0	0	0	0	0	6	0	0	6	17
% Heavy Vehicles	0	0.8	0.6	0	0.7	0	1.4	2.9	0	1.5	0	0	0	0	0	0	2.0	0	0	1.8	1.2



S: Prescott Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

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D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 E
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Highland Avenue From East			**Prescott Street From South**			**Highland Avenue From West**			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	53	3	0	20	5	0	4	144	0	229
07:15 AM	72	4	0	19	3	0	8	145	0	251
07:30 AM	89	6	0	24	12	0	4	113	0	248
07:45 AM	96	17	0	27	17	0	5	79	0	241
Total	310	30	0	90	37	0	21	481	0	969
08:00 AM	53	6	0	25	5	0	4	110	0	203
08:15 AM	54	4	0	40	7	0	6	124	0	235
08:30 AM	71	5	0	21	4	0	2	142	0	245
08:45 AM	69	2	0	19	6	0	7	126	0	229
Total	247	17	0	105	22	0	19	502	0	912
Grand Total	557	47	0	195	59	0	40	983	0	1881
Apprch %	92.2	7.8	0	76.8	23.2	0	3.9	96.1	0	
Total %	29.6	2.5	0	10.4	3.1	0	2.1	52.3	0	
Cars	532	46	0	191	57	0	39	956	0	1821
% Cars	95.5	97.9	0	97.9	96.6	0	97.5	97.3	0	96.8
Heavy Vehicles	25	1	0	4	2	0	1	27	0	60
% Heavy Vehicles	4.5	2.1	0	2.1	3.4	0	2.5	2.7	0	3.2

	Highland Avenue From East				**Prescott Street From South**				**Highland Avenue From West**				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	53	3	0	56	20	5	0	25	4	144	0	148	229
07:15 AM	72	4	0	76	19	3	0	22	8	145	0	153	251
07:30 AM	89	6	0	95	24	12	0	36	4	113	0	117	248
07:45 AM	96	17	0	113	27	17	0	44	5	79	0	84	241
Total Volume	310	30	0	340	90	37	0	127	21	481	0	502	969
% App. Total	91.2	8.8	0		70.9	29.1	0		4.2	95.8	0		
PHF	.807	.441	.000	.752	.833	.544	.000	.722	.656	.829	.000	.820	.965
Cars	299	29	0	328	88	35	0	123	21	471	0	492	943
% Cars	96.5	96.7	0	96.5	97.8	94.6	0	96.9	100	97.9	0	98.0	97.3
Heavy Vehicles	11	1	0	12	2	2	0	4	0	10	0	10	26
% Heavy Vehicles	3.5	3.3	0	3.5	2.2	5.4	0	3.1	0	2.1	0	2.0	2.7

S: Prescott Street
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DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

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Page No : 1

Groups Printed- Cars

	Highland Avenue From East			**Prescott Street From South**			**Highland Avenue From West**			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	50	2	0	19	5	0	4	140	0	220
07:15 AM	71	4	0	19	1	0	8	142	0	245
07:30 AM	85	6	0	24	12	0	4	113	0	244
07:45 AM	93	17	0	26	17	0	5	76	0	234
Total	299	29	0	88	35	0	21	471	0	943
08:00 AM	50	6	0	24	5	0	3	106	0	194
08:15 AM	51	4	0	39	7	0	6	121	0	228
08:30 AM	66	5	0	21	4	0	2	137	0	235
08:45 AM	66	2	0	19	6	0	7	121	0	221
Total	233	17	0	103	22	0	18	485	0	878
Grand Total	532	46	0	191	57	0	39	956	0	1821
Apprch %	92	8	0	77	23	0	3.9	96.1	0	
Total %	29.2	2.5	0	10.5	3.1	0	2.1	52.5	0	

	Highland Avenue From East				**Prescott Street From South**				**Highland Avenue From West**				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	50	2	0	52	19	5	0	24	4	140	0	144	220
07:15 AM	71	4	0	75	19	1	0	20	8	142	0	150	245
07:30 AM	85	6	0	91	24	12	0	36	4	113	0	117	244
07:45 AM	93	17	0	110	26	17	0	43	5	76	0	81	234
Total Volume	299	29	0	328	88	35	0	123	21	471	0	492	943
% App. Total	91.2	8.8	0		71.5	28.5	0		4.3	95.7	0		
PHF	.804	.426	.000	.745	.846	.515	.000	.715	.656	.829	.000	.820	.962

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Start Date : 11/18/2015

Groups Printed- Heavy Vehicles

	Highland Avenue From East			**Prescott Street From South**			**Highland Avenue From West**			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	3	1	0	1	0	0	0	4	0	9
07:15 AM	1	0	0	0	2	0	0	3	0	6
07:30 AM	4	0	0	0	0	0	0	0	0	4
07:45 AM	3	0	0	1	0	0	0	3	0	7
Total	11	1	0	2	2	0	0	10	0	26
08:00 AM	3	0	0	1	0	0	1	4	0	9
08:15 AM	3	0	0	1	0	0	0	3	0	7
08:30 AM	5	0	0	0	0	0	0	5	0	10
08:45 AM	3	0	0	0	0	0	0	5	0	8
Total	14	0	0	2	0	0	1	17	0	34
Grand Total	25	1	0	4	2	0	1	27	0	60
Apprch %	96.2	3.8	0	66.7	33.3	0	3.6	96.4	0	
Total %	41.7	1.7	0	6.7	3.3	0	1.7	45	0	

	Highland Avenue From East				**Prescott Street From South**				**Highland Avenue From West**				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	3	0	0	3	1	0	0	1	1	4	0	5	9
08:15 AM	3	0	0	3	1	0	0	1	0	3	0	3	7
08:30 AM	5	0	0	5	0	0	0	0	0	5	0	5	10
08:45 AM	3	0	0	3	0	0	0	0	0	5	0	5	8
Total Volume	14	0	0	14	2	0	0	2	1	17	0	18	34
% App. Total	100	0	0		100	0	0		5.6	94.4	0		
PHF	.700	.000	.000	.700	.500	.000	.000	.500	.250	.850	.000	.900	.850

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Groups Printed- Peds and Bikes

	Highland Avenue From East				Prescott Street From South				Highland Avenue From West				
Start Time	Thru	Left	Peds SB	Peds NB	Right	Left	Peds WB	Peds EB	Right	Thru	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	1	0	0	7	4	0	0	0	0	12
07:15 AM	0	0	0	1	0	0	1	6	0	1	0	0	9
07:30 AM	0	0	0	5	0	0	4	6	0	1	0	0	16
07:45 AM	3	1	0	3	0	0	2	2	0	0	0	0	11
Total	3	1	0	10	0	0	14	18	0	2	0	0	48
08:00 AM	0	0	0	2	0	0	3	6	0	1	1	0	13
08:15 AM	0	0	0	0	0	0	4	4	0	0	1	0	9
08:30 AM	2	0	0	0	0	0	5	0	0	5	0	0	12
08:45 AM	2	0	1	1	0	0	4	3	2	1	0	0	14
Total	4	0	1	3	0	0	16	13	2	7	2	0	48
Grand Total	7	1	1	13	0	0	30	31	2	9	2	0	96
Apprch %	31.8	4.5	4.5	59.1	0	0	49.2	50.8	15.4	69.2	15.4	0	
Total %	7.3	1	1	13.5	0	0	31.2	32.3	2.1	9.4	2.1	0	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

	Highland Avenue From East					Prescott Street From South					Highland Avenue From West					
Start Time	Thru	Left	Peds SB	Peds NB	App. Total	Right	Left	Peds WB	Peds EB	App. Total	Right	Thru	Peds NB	Peds SB	App. Total	Int. Total
07:15 AM	0	0	0	1	1	0	0	1	6	7	0	1	0	0	1	9
07:30 AM	0	0	0	5	5	0	0	4	6	10	0	1	0	0	1	16
07:45 AM	3	1	0	3	7	0	0	2	2	4	0	0	0	0	0	11
08:00 AM	0	0	0	2	2	0	0	3	6	9	0	1	1	0	2	13
Total Volume	3	1	0	11	15	0	0	10	20	30	0	3	1	0	4	49
% App. Total	20	6.7	0	73.3		0	0	33.3	66.7		0	75	25	0		
PHF	.250	.250	.000	.550	.536	.000	.000	.625	.833	.750	.000	.750	.250	.000	.500	.766

S: Prescott Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 E
Site Code : 2015-069
Start Date : 11/18/2015
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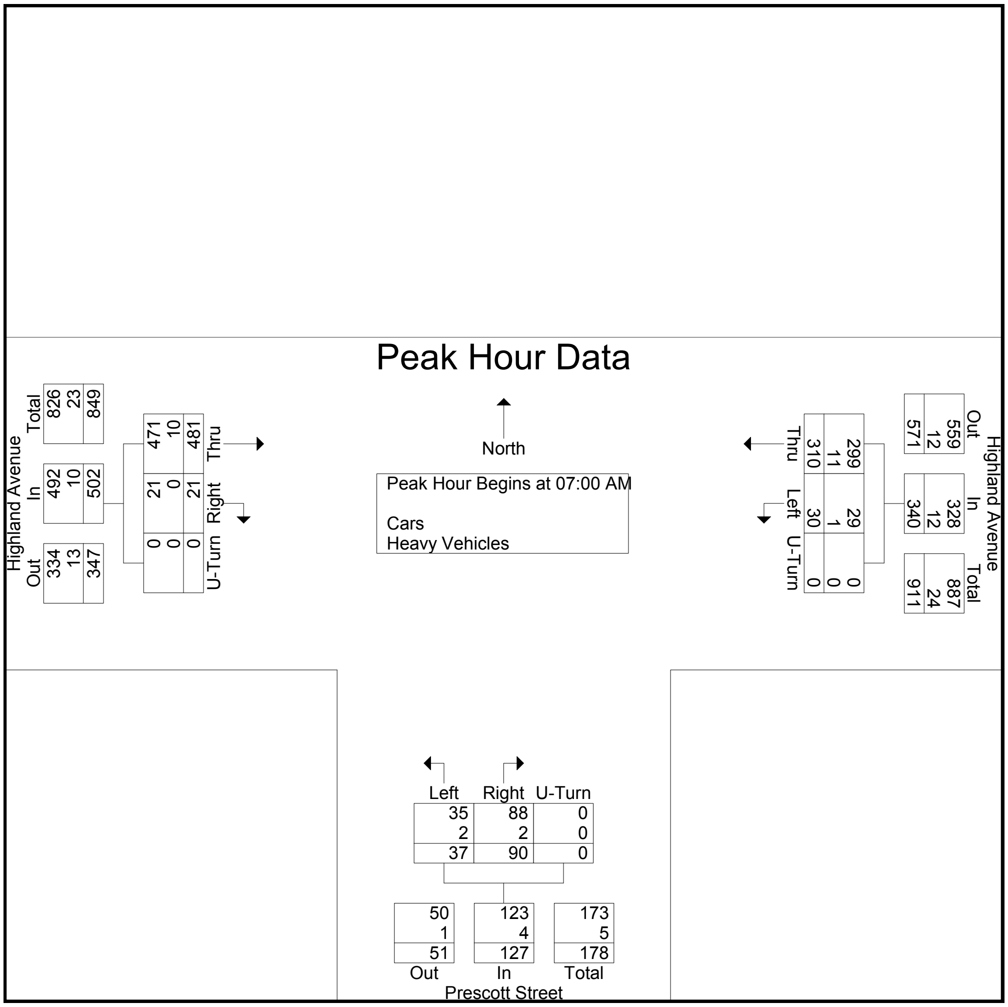
	Highland Avenue From East				Prescott Street From South				Highland Avenue From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	53	3	0	56	20	5	0	25	4	144	0	148	229
07:15 AM	72	4	0	76	19	3	0	22	8	145	0	153	251
07:30 AM	89	6	0	95	24	12	0	36	4	113	0	117	248
07:45 AM	96	17	0	113	27	17	0	44	5	79	0	84	241
Total Volume	310	30	0	340	90	37	0	127	21	481	0	502	969
% App. Total	91.2	8.8	0		70.9	29.1	0		4.2	95.8	0		
PHF	.807	.441	.000	.752	.833	.544	.000	.722	.656	.829	.000	.820	.965
Cars	299	29	0	328	88	35	0	123	21	471	0	492	943
% Cars	96.5	96.7	0	96.5	97.8	94.6	0	96.9	100	97.9	0	98.0	97.3
Heavy Vehicles	11	1	0	12	2	2	0	4	0	10	0	10	26
% Heavy Vehicles	3.5	3.3	0	3.5	2.2	5.4	0	3.1	0	2.1	0	2.0	2.7



S: Prescott Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
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INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 EE
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Highland Avenue From East			**Prescott Street From South**			**Highland Avenue From West**			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	89	9	0	36	8	0	3	99	0	244
04:15 PM	90	11	0	38	5	0	2	104	0	250
04:30 PM	121	7	0	21	6	0	4	81	0	240
04:45 PM	106	7	0	23	7	0	5	99	0	247
Total	406	34	0	118	26	0	14	383	0	981
05:00 PM	106	10	0	39	8	0	4	95	0	262
05:15 PM	111	11	0	40	9	0	2	114	0	287
05:30 PM	101	8	0	43	10	0	3	111	0	276
05:45 PM	118	8	0	36	5	0	10	95	0	272
Total	436	37	0	158	32	0	19	415	0	1097
Grand Total	842	71	0	276	58	0	33	798	0	2078
Apprch %	92.2	7.8	0	82.6	17.4	0	4	96	0	
Total %	40.5	3.4	0	13.3	2.8	0	1.6	38.4	0	
Cars	824	68	0	270	58	0	33	780	0	2033
% Cars	97.9	95.8	0	97.8	100	0	100	97.7	0	97.8
Heavy Vehicles	18	3	0	6	0	0	0	18	0	45
% Heavy Vehicles	2.1	4.2	0	2.2	0	0	0	2.3	0	2.2

	Highland Avenue From East				**Prescott Street From South**				**Highland Avenue From West**				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	106	10	0	116	39	8	0	47	4	95	0	99	262
05:15 PM	111	11	0	122	40	9	0	49	2	114	0	116	287
05:30 PM	101	8	0	109	43	10	0	53	3	111	0	114	276
05:45 PM	118	8	0	126	36	5	0	41	10	95	0	105	272
Total Volume	436	37	0	473	158	32	0	190	19	415	0	434	1097
% App. Total	92.2	7.8	0		83.2	16.8	0		4.4	95.6	0		
PHF	.924	.841	.000	.938	.919	.800	.000	.896	.475	.910	.000	.935	.956
Cars	428	34	0	462	154	32	0	186	19	408	0	427	1075
% Cars	98.2	91.9	0	97.7	97.5	100	0	97.9	100	98.3	0	98.4	98.0
Heavy Vehicles	8	3	0	11	4	0	0	4	0	7	0	7	22
% Heavy Vehicles	1.8	8.1	0	2.3	2.5	0	0	2.1	0	1.7	0	1.6	2.0

S: Prescott Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 EE
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	Highland Avenue From East			**Prescott Street From South**			**Highland Avenue From West**			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	86	9	0	35	8	0	3	96	0	237
04:15 PM	86	11	0	38	5	0	2	99	0	241
04:30 PM	119	7	0	21	6	0	4	81	0	238
04:45 PM	105	7	0	22	7	0	5	96	0	242
Total	396	34	0	116	26	0	14	372	0	958
05:00 PM	103	10	0	37	8	0	4	94	0	256
05:15 PM	110	9	0	39	9	0	2	111	0	280
05:30 PM	99	7	0	42	10	0	3	109	0	270
05:45 PM	116	8	0	36	5	0	10	94	0	269
Total	428	34	0	154	32	0	19	408	0	1075
Grand Total	824	68	0	270	58	0	33	780	0	2033
Apprch %	92.4	7.6	0	82.3	17.7	0	4.1	95.9	0	
Total %	40.5	3.3	0	13.3	2.9	0	1.6	38.4	0	

	Highland Avenue From East				**Prescott Street From South**				**Highland Avenue From West**				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	103	10	0	113	37	8	0	45	4	94	0	98	256
05:15 PM	110	9	0	119	39	9	0	48	2	111	0	113	280
05:30 PM	99	7	0	106	42	10	0	52	3	109	0	112	270
05:45 PM	116	8	0	124	36	5	0	41	10	94	0	104	269
Total Volume	428	34	0	462	154	32	0	186	19	408	0	427	1075
% App. Total	92.6	7.4	0		82.8	17.2	0		4.4	95.6	0		
PHF	.922	.850	.000	.931	.917	.800	.000	.894	.475	.919	.000	.945	.960

S: Prescott Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 EE
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Highland Avenue From East			Prescott Street From South			Highland Avenue From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	3	0	0	1	0	0	0	3	0	7
04:15 PM	4	0	0	0	0	0	0	5	0	9
04:30 PM	2	0	0	0	0	0	0	0	0	2
04:45 PM	1	0	0	1	0	0	0	3	0	5
Total	10	0	0	2	0	0	0	11	0	23
05:00 PM	3	0	0	2	0	0	0	1	0	6
05:15 PM	1	2	0	1	0	0	0	3	0	7
05:30 PM	2	1	0	1	0	0	0	2	0	6
05:45 PM	2	0	0	0	0	0	0	1	0	3
Total	8	3	0	4	0	0	0	7	0	22
Grand Total	18	3	0	6	0	0	0	18	0	45
Apprch %	85.7	14.3	0	100	0	0	0	100	0	
Total %	40	6.7	0	13.3	0	0	0	40	0	

	Highland Avenue From East				Prescott Street From South				Highland Avenue From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	1	0	0	1	1	0	0	1	0	3	0	3	5
05:00 PM	3	0	0	3	2	0	0	2	0	1	0	1	6
05:15 PM	1	2	0	3	1	0	0	1	0	3	0	3	7
05:30 PM	2	1	0	3	1	0	0	1	0	2	0	2	6
Total Volume	7	3	0	10	5	0	0	5	0	9	0	9	24
% App. Total	70	30	0		100	0	0		0	100	0		
PHF	.583	.375	.000	.833	.625	.000	.000	.625	.000	.750	.000	.750	.857

S: Prescott Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 EE
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Groups Printed- Peds and Bikes

	Highland Avenue From East				**Prescott Street From South**				**Highland Avenue From West**				
Start Time	Thru	Left	Peds SB	Peds NB	Right	Left	Peds WB	Peds EB	Right	Thru	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	0	1	0	7	2	0	0	0	0	10
04:15 PM	0	0	0	0	0	0	4	6	0	1	0	0	11
04:30 PM	0	0	0	0	0	0	3	6	0	0	0	0	9
04:45 PM	0	0	0	0	0	0	3	7	0	0	1	0	11
Total	0	0	0	0	1	0	17	21	0	1	1	0	41
05:00 PM	0	0	0	3	0	1	1	3	0	0	1	0	9
05:15 PM	0	0	0	0	0	0	4	2	0	1	3	0	10
05:30 PM	0	0	0	1	0	0	7	4	0	0	1	0	13
05:45 PM	0	0	0	0	0	3	3	8	0	0	2	0	16
Total	0	0	0	4	0	4	15	17	0	1	7	0	48
Grand Total	0	0	0	4	1	4	32	38	0	2	8	0	89
Apprch %	0	0	0	100	1.3	5.3	42.7	50.7	0	20	80	0	
Total %	0	0	0	4.5	1.1	4.5	36	42.7	0	2.2	9	0	

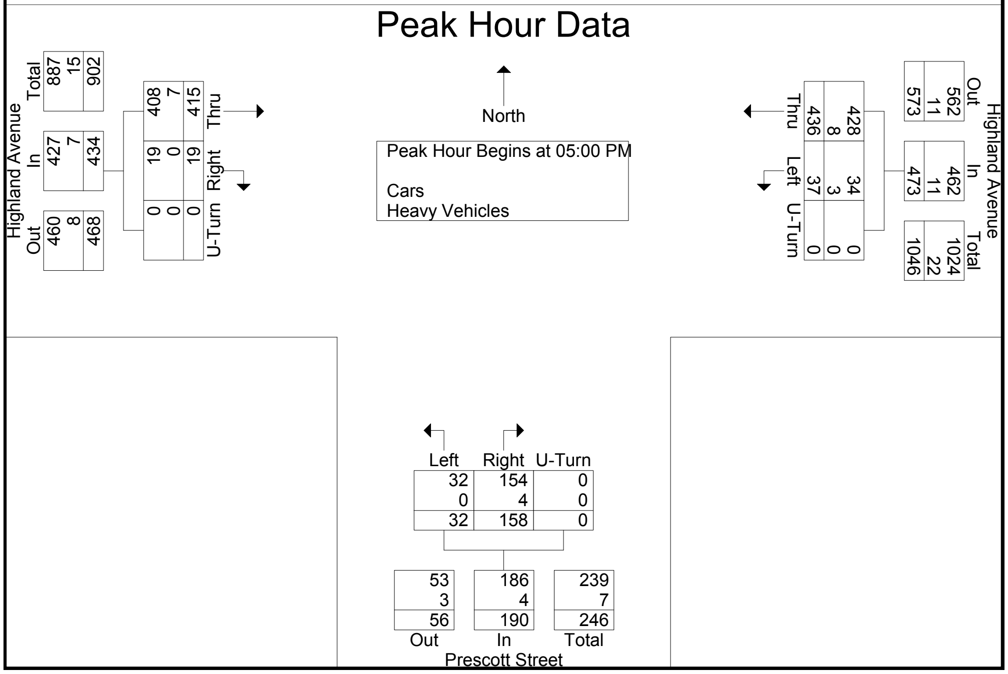
	Highland Avenue From East					**Prescott Street From South**					**Highland Avenue From West**					
Start Time	Thru	Left	Peds SB	Peds NB	App. Total	Right	Left	Peds WB	Peds EB	App. Total	Right	Thru	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 05:00 PM																
05:00 PM	0	0	0	3	3	0	1	1	3	5	0	0	1	0	1	9
05:15 PM	0	0	0	0	0	0	0	4	2	6	0	1	3	0	4	10
05:30 PM	0	0	0	1	1	0	0	7	4	11	0	0	1	0	1	13
05:45 PM	0	0	0	0	0	0	3	3	8	14	0	0	2	0	2	16
Total Volume	0	0	0	4	4	0	4	15	17	36	0	1	7	0	8	48
% App. Total	0	0	0	100		0	11.1	41.7	47.2		0	12.5	87.5	0		
PHF	.000	.000	.000	.333	.333	.000	.333	.536	.531	.643	.000	.250	.583	.000	.500	.750

S: Prescott Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 EE
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

	Highland Avenue From East				Prescott Street From South				Highland Avenue From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	106	10	0	116	39	8	0	47	4	95	0	99	262
05:15 PM	111	11	0	122	40	9	0	49	2	114	0	116	287
05:30 PM	101	8	0	109	43	10	0	53	3	111	0	114	276
05:45 PM	118	8	0	126	36	5	0	41	10	95	0	105	272
Total Volume	436	37	0	473	158	32	0	190	19	415	0	434	1097
% App. Total	92.2	7.8	0		83.2	16.8	0		4.4	95.6	0		
PHF	.924	.841	.000	.938	.919	.800	.000	.896	.475	.910	.000	.935	.956
Cars	428	34	0	462	154	32	0	186	19	408	0	427	1075
% Cars	98.2	91.9	0	97.7	97.5	100	0	97.9	100	98.3	0	98.4	98.0
Heavy Vehicles	8	3	0	11	4	0	0	4	0	7	0	7	22
% Heavy Vehicles	1.8	8.1	0	2.3	2.5	0	0	2.1	0	1.7	0	1.6	2.0



N/S: High School Driveway/ Putnam Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 F
Site Code : 2015-069
Start Date : 11/18/2015

Groups Printed- Cars - Heavy Vehicles

	High School Driveway From North				Highland Avenue From East				Putnam Street From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	18	2	2	0	0	44	0	0	15	0	1	0	3	153	0	0	238
07:15 AM	18	3	9	0	0	53	0	0	32	0	2	0	2	134	0	0	253
07:30 AM	34	6	20	0	0	62	0	0	45	0	4	0	2	117	0	0	290
07:45 AM	28	11	19	0	0	82	0	0	73	0	0	0	4	96	0	0	313
Total	98	22	50	0	0	241	0	0	165	0	7	0	11	500	0	0	1094
08:00 AM	4	0	3	0	0	52	3	0	61	0	1	0	2	132	0	0	258
08:15 AM	3	1	2	0	0	50	0	0	47	0	2	0	2	161	0	0	268
08:30 AM	2	2	1	0	0	74	2	0	60	1	2	0	5	160	0	0	309
08:45 AM	3	0	2	0	0	63	5	0	65	2	4	0	3	140	0	1	288
Total	12	3	8	0	0	239	10	0	233	3	9	0	12	593	0	1	1123
Grand Total	110	25	58	0	0	480	10	0	398	3	16	0	23	1093	0	1	2217
Apprch %	57	13	30.1	0	0	98	2	0	95.4	0.7	3.8	0	2.1	97.9	0	0.1	
Total %	5	1.1	2.6	0	0	21.7	0.5	0	18	0.1	0.7	0	1	49.3	0	0	
Cars	108	25	57	0	0	463	10	0	395	3	15	0	23	1067	0	1	2167
% Cars	98.2	100	98.3	0	0	96.5	100	0	99.2	100	93.8	0	100	97.6	0	100	97.7
Heavy Vehicles	2	0	1	0	0	17	0	0	3	0	1	0	0	26	0	0	50
% Heavy Vehicles	1.8	0	1.7	0	0	3.5	0	0	0.8	0	6.2	0	0	2.4	0	0	2.3

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45 AM

	High School Driveway From North					Highland Avenue From East					Putnam Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:45 AM	28	11	19	0	58	0	82	0	0	82	73	0	0	0	73	4	96	0	0	100	313
08:00 AM	4	0	3	0	7	0	52	3	0	55	61	0	1	0	62	2	132	0	0	134	258
08:15 AM	3	1	2	0	6	0	50	0	0	50	47	0	2	0	49	2	161	0	0	163	268
08:30 AM	2	2	1	0	5	0	74	2	0	76	60	1	2	0	63	5	160	0	0	165	309
Total Volume	37	14	25	0	76	0	258	5	0	263	241	1	5	0	247	13	549	0	0	562	1148
% App. Total	48.7	18.4	32.9	0		0	98.1	1.9	0		97.6	0.4	2	0		2.3	97.7	0	0		
PHF	.330	.318	.329	.000	.328	.000	.787	.417	.000	.802	.825	.250	.625	.000	.846	.650	.852	.000	.000	.852	.917
Cars	37	14	25	0	76	0	250	5	0	255	239	1	5	0	245	13	534	0	0	547	1123
% Cars	100	100	100	0	100	0	96.9	100	0	97.0	99.2	100	100	0	99.2	100	97.3	0	0	97.3	97.8
Heavy Vehicles	0	0	0	0	0	0	8	0	0	8	2	0	0	0	2	0	15	0	0	15	25
% Heavy Vehicles	0	0	0	0	0	0	3.1	0	0	3.0	0.8	0	0	0	0.8	0	2.7	0	0	2.7	2.2

N/S: High School Driveway/ Putnam Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 F
Site Code : 2015-069
Start Date : 11/18/2015
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Groups Printed- Cars

	High School Driveway From North				Highland Avenue From East				Putnam Street From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	18	2	2	0	0	41	0	0	15	0	1	0	3	150	0	0	232
07:15 AM	17	3	9	0	0	53	0	0	32	0	1	0	2	130	0	0	247
07:30 AM	34	6	20	0	0	58	0	0	45	0	4	0	2	117	0	0	286
07:45 AM	28	11	19	0	0	80	0	0	73	0	0	0	4	91	0	0	306
Total	97	22	50	0	0	232	0	0	165	0	6	0	11	488	0	0	1071
08:00 AM	4	0	3	0	0	50	3	0	61	0	1	0	2	128	0	0	252
08:15 AM	3	1	2	0	0	48	0	0	46	0	2	0	2	159	0	0	263
08:30 AM	2	2	1	0	0	72	2	0	59	1	2	0	5	156	0	0	302
08:45 AM	2	0	1	0	0	61	5	0	64	2	4	0	3	136	0	1	279
Total	11	3	7	0	0	231	10	0	230	3	9	0	12	579	0	1	1096
Grand Total	108	25	57	0	0	463	10	0	395	3	15	0	23	1067	0	1	2167
Apprch %	56.8	13.2	30	0	0	97.9	2.1	0	95.6	0.7	3.6	0	2.1	97.8	0	0.1	
Total %	5	1.2	2.6	0	0	21.4	0.5	0	18.2	0.1	0.7	0	1.1	49.2	0	0	

	High School Driveway From North					Highland Avenue From East					Putnam Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	28	11	19	0	58	0	80	0	0	80	73	0	0	0	73	4	91	0	0	95	306
08:00 AM	4	0	3	0	7	0	50	3	0	53	61	0	1	0	62	2	128	0	0	130	252
08:15 AM	3	1	2	0	6	0	48	0	0	48	46	0	2	0	48	2	159	0	0	161	263
08:30 AM	2	2	1	0	5	0	72	2	0	74	59	1	2	0	62	5	156	0	0	161	302
Total Volume	37	14	25	0	76	0	250	5	0	255	239	1	5	0	245	13	534	0	0	547	1123
% App. Total	48.7	18.4	32.9	0		0	98	2	0		97.6	0.4	2	0		2.4	97.6	0	0		
PHF	.330	.318	.329	.000	.328	.000	.781	.417	.000	.797	.818	.250	.625	.000	.839	.650	.840	.000	.000	.849	.917

N/S: High School Driveway/ Putnam Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 F
Site Code : 2015-069
Start Date : 11/18/2015

Groups Printed- Heavy Vehicles

	High School Driveway From North				Highland Avenue From East				Putnam Street From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0	6
07:15 AM	1	0	0	0	0	0	0	0	0	0	1	0	0	4	0	0	6
07:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
07:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	5	0	0	7
Total	1	0	0	0	0	9	0	0	0	0	1	0	0	12	0	0	23
08:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	4	0	0	6
08:15 AM	0	0	0	0	0	2	0	0	1	0	0	0	0	2	0	0	5
08:30 AM	0	0	0	0	0	2	0	0	1	0	0	0	0	4	0	0	7
08:45 AM	1	0	1	0	0	2	0	0	1	0	0	0	0	4	0	0	9
Total	1	0	1	0	0	8	0	0	3	0	0	0	0	14	0	0	27
Grand Total	2	0	1	0	0	17	0	0	3	0	1	0	0	26	0	0	50
Apprch %	66.7	0	33.3	0	0	100	0	0	75	0	25	0	0	100	0	0	
Total %	4	0	2	0	0	34	0	0	6	0	2	0	0	52	0	0	

	High School Driveway From North					Highland Avenue From East					Putnam Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	6
08:15 AM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	2	0	0	2	5
08:30 AM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	4	0	0	4	7
08:45 AM	1	0	1	0	2	0	2	0	0	2	1	0	0	0	1	0	4	0	0	4	9
Total Volume	1	0	1	0	2	0	8	0	0	8	3	0	0	0	3	0	14	0	0	14	27
% App. Total	50	0	50	0		0	100	0	0		100	0	0	0		0	100	0	0		
PHF	.250	.000	.250	.000	.250	.000	1.00	.000	.000	1.00	.750	.000	.000	.000	.750	.000	.875	.000	.000	.875	.750

N/S: High School Driveway/ Putnam Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 F
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Peds and Bikes

	High School Driveway From North					Highland Avenue From East					Putnam Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	3	1	0	0	0	0	0	0	0	0	7	3	0	0	0	0	0	14
07:15 AM	0	0	0	4	2	0	0	0	0	0	0	0	0	1	6	0	0	0	1	0	14
07:30 AM	0	0	0	4	5	0	0	0	0	1	0	0	0	4	4	0	1	0	4	0	23
07:45 AM	0	0	0	2	7	0	1	0	0	0	0	0	1	2	3	0	3	0	5	0	24
Total	0	0	0	13	15	0	1	0	0	1	0	0	1	14	16	0	4	0	10	0	75
08:00 AM	0	0	0	2	6	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	14
08:15 AM	0	0	0	3	4	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	12
08:30 AM	0	0	0	4	2	0	1	0	0	0	0	0	0	6	1	0	0	0	0	0	14
08:45 AM	0	0	0	2	2	0	1	0	3	0	0	0	0	1	0	0	0	0	1	0	10
Total	0	0	0	11	14	0	2	0	3	0	0	0	0	9	10	0	0	0	1	0	50
Grand Total	0	0	0	24	29	0	3	0	3	1	0	0	1	23	26	0	4	0	11	0	125
Apprch %	0	0	0	45.3	54.7	0	42.9	0	42.9	14.3	0	0	2	46	52	0	26.7	0	73.3	0	
Total %	0	0	0	19.2	23.2	0	2.4	0	2.4	0.8	0	0	0.8	18.4	20.8	0	3.2	0	8.8	0	

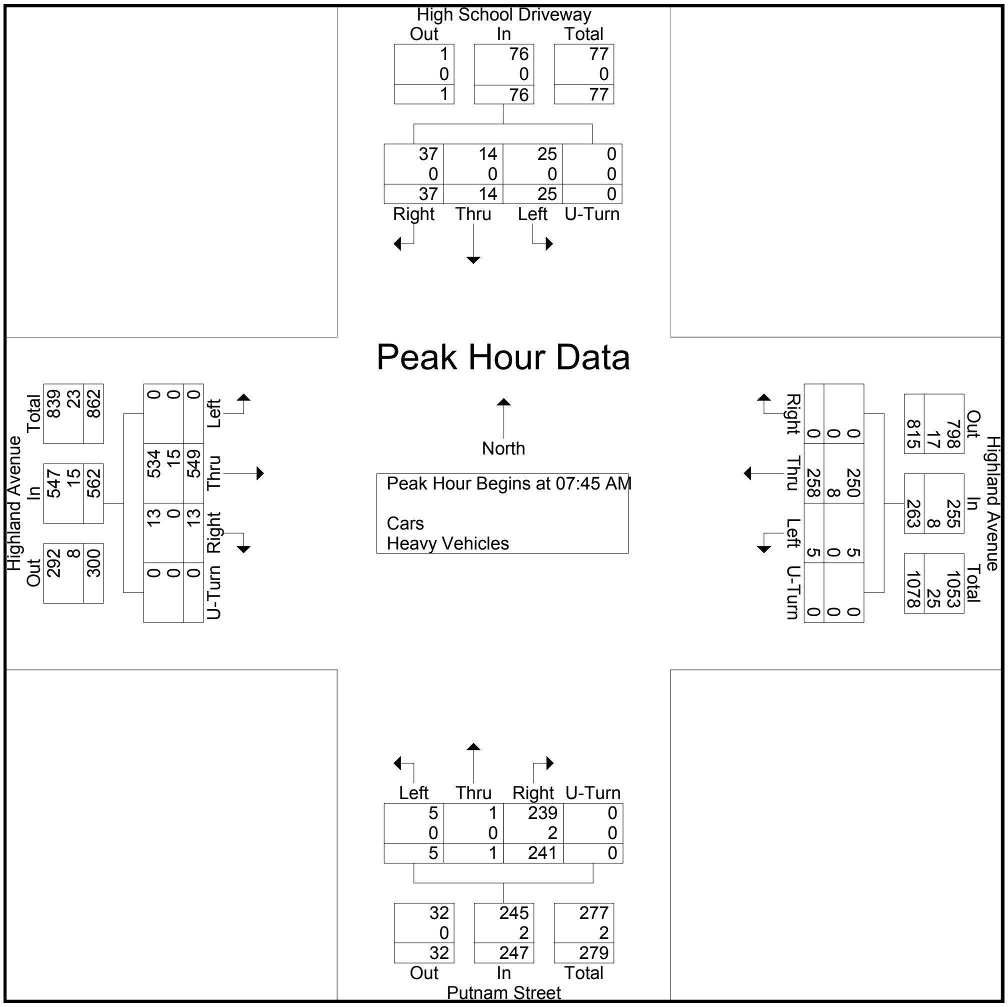
	High School Driveway From North						Highland Avenue From East						Putnam Street From South						Highland Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:00 AM																									
07:00 AM	0	0	0	3	1	4	0	0	0	0	0	0	0	0	0	7	3	10	0	0	0	0	0	0	14
07:15 AM	0	0	0	4	2	6	0	0	0	0	0	0	0	0	0	1	6	7	0	0	0	1	0	1	14
07:30 AM	0	0	0	4	5	9	0	0	0	0	1	1	0	0	0	4	4	8	0	1	0	4	0	5	23
07:45 AM	0	0	0	2	7	9	0	1	0	0	0	1	0	0	1	2	3	6	0	3	0	5	0	8	24
Total Volume	0	0	0	13	15	28	0	1	0	0	1	2	0	0	1	14	16	31	0	4	0	10	0	14	75
% App. Total	0	0	0	46.4	53.6		0	50	0	0	50		0	0	3.2	45.2	51.6		0	28.6	0	71.4	0		
PHF	.000	.000	.000	.813	.536	.778	.000	.250	.000	.000	.250	.500	.000	.000	.250	.500	.667	.775	.000	.333	.000	.500	.000	.438	.781

N/S: High School Driveway/ Putnam Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 F
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

	High School Driveway From North					Highland Avenue From East					Putnam Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	28	11	19	0	58	0	82	0	0	82	73	0	0	0	73	4	96	0	0	100	313
08:00 AM	4	0	3	0	7	0	52	3	0	55	61	0	1	0	62	2	132	0	0	134	258
08:15 AM	3	1	2	0	6	0	50	0	0	50	47	0	2	0	49	2	161	0	0	163	268
08:30 AM	2	2	1	0	5	0	74	2	0	76	60	1	2	0	63	5	160	0	0	165	309
Total Volume	37	14	25	0	76	0	258	5	0	263	241	1	5	0	247	13	549	0	0	562	1148
% App. Total	48.7	18.4	32.9	0		0	98.1	1.9	0		97.6	0.4	2	0		2.3	97.7	0	0		
PHF	.330	.318	.329	.000	.328	.000	.787	.417	.000	.802	.825	.250	.625	.000	.846	.650	.852	.000	.000	.852	.917
Cars	37	14	25	0	76	0	250	5	0	255	239	1	5	0	245	13	534	0	0	547	1123
% Cars	100	100	100	0	100	0	96.9	100	0	97.0	99.2	100	100	0	99.2	100	97.3	0	0	97.3	97.8
Heavy Vehicles	0	0	0	0	0	0	8	0	0	8	2	0	0	0	2	0	15	0	0	15	25
% Heavy Vehicles	0	0	0	0	0	0	3.1	0	0	3.0	0.8	0	0	0	0.8	0	2.7	0	0	2.7	2.2



N/S: High School Driveway/ Putnam Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

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INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 FF
Site Code : 2015-069
Start Date : 11/18/2015
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Groups Printed- Cars - Heavy Vehicles

	High School Driveway From North				Highland Avenue From East				Putnam Street From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	8	0	4	0	0	87	6	0	22	0	2	0	6	127	0	0	262
04:15 PM	3	0	3	0	0	96	4	0	13	0	6	0	8	142	0	0	275
04:30 PM	13	1	13	0	0	113	8	0	15	0	4	0	3	99	0	0	269
04:45 PM	5	1	6	0	0	110	6	0	15	0	3	0	3	117	0	0	266
Total	29	2	26	0	0	406	24	0	65	0	15	0	20	485	0	0	1072
05:00 PM	3	0	4	0	0	104	4	0	21	0	2	0	4	128	0	0	270
05:15 PM	4	0	2	0	0	118	7	0	26	0	3	0	5	147	1	0	313
05:30 PM	2	1	1	0	0	108	5	0	20	0	4	0	3	150	0	1	295
05:45 PM	5	1	0	0	0	112	12	0	27	0	2	0	4	124	1	1	289
Total	14	2	7	0	0	442	28	0	94	0	11	0	16	549	2	2	1167
Grand Total	43	4	33	0	0	848	52	0	159	0	26	0	36	1034	2	2	2239
Apprch %	53.8	5	41.2	0	0	94.2	5.8	0	85.9	0	14.1	0	3.4	96.3	0.2	0.2	
Total %	1.9	0.2	1.5	0	0	37.9	2.3	0	7.1	0	1.2	0	1.6	46.2	0.1	0.1	
Cars	43	4	33	0	0	830	50	0	156	0	24	0	36	1009	2	2	2189
% Cars	100	100	100	0	0	97.9	96.2	0	98.1	0	92.3	0	100	97.6	100	100	97.8
Heavy Vehicles	0	0	0	0	0	18	2	0	3	0	2	0	0	25	0	0	50
% Heavy Vehicles	0	0	0	0	0	2.1	3.8	0	1.9	0	7.7	0	0	2.4	0	0	2.2

	High School Driveway From North					Highland Avenue From East					Putnam Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	3	0	4	0	7	0	104	4	0	108	21	0	2	0	23	4	128	0	0	132	270
05:15 PM	4	0	2	0	6	0	118	7	0	125	26	0	3	0	29	5	147	1	0	153	313
05:30 PM	2	1	1	0	4	0	108	5	0	113	20	0	4	0	24	3	150	0	1	154	295
05:45 PM	5	1	0	0	6	0	112	12	0	124	27	0	2	0	29	4	124	1	1	130	289
Total Volume	14	2	7	0	23	0	442	28	0	470	94	0	11	0	105	16	549	2	2	569	1167
% App. Total	60.9	8.7	30.4	0		0	94	6	0		89.5	0	10.5	0		2.8	96.5	0.4	0.4		
PHF	.700	.500	.438	.000	.821	.000	.936	.583	.000	.940	.870	.000	.688	.000	.905	.800	.915	.500	.500	.924	.932
Cars	14	2	7	0	23	0	432	28	0	460	92	0	10	0	102	16	539	2	2	559	1144
% Cars	100	100	100	0	100	0	97.7	100	0	97.9	97.9	0	90.9	0	97.1	100	98.2	100	100	98.2	98.0
Heavy Vehicles	0	0	0	0	0	0	10	0	0	10	2	0	1	0	3	0	10	0	0	10	23
% Heavy Vehicles	0	0	0	0	0	0	2.3	0	0	2.1	2.1	0	9.1	0	2.9	0	1.8	0	0	1.8	2.0

N/S: High School Driveway/ Putnam Street
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D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
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Page No : 1

Groups Printed- Cars

	High School Driveway From North				Highland Avenue From East				Putnam Street From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	8	0	4	0	0	85	4	0	21	0	2	0	6	124	0	0	254
04:15 PM	3	0	3	0	0	93	4	0	13	0	6	0	8	135	0	0	265
04:30 PM	13	1	13	0	0	111	8	0	15	0	4	0	3	99	0	0	267
04:45 PM	5	1	6	0	0	109	6	0	15	0	2	0	3	112	0	0	259
Total	29	2	26	0	0	398	22	0	64	0	14	0	20	470	0	0	1045
05:00 PM	3	0	4	0	0	101	4	0	21	0	2	0	4	125	0	0	264
05:15 PM	4	0	2	0	0	115	7	0	25	0	3	0	5	144	1	0	306
05:30 PM	2	1	1	0	0	106	5	0	20	0	3	0	3	147	0	1	289
05:45 PM	5	1	0	0	0	110	12	0	26	0	2	0	4	123	1	1	285
Total	14	2	7	0	0	432	28	0	92	0	10	0	16	539	2	2	1144
Grand Total	43	4	33	0	0	830	50	0	156	0	24	0	36	1009	2	2	2189
Apprch %	53.8	5	41.2	0	0	94.3	5.7	0	86.7	0	13.3	0	3.4	96.2	0.2	0.2	
Total %	2	0.2	1.5	0	0	37.9	2.3	0	7.1	0	1.1	0	1.6	46.1	0.1	0.1	

	High School Driveway From North					Highland Avenue From East					Putnam Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	3	0	4	0	7	0	101	4	0	105	21	0	2	0	23	4	125	0	0	129	264
05:15 PM	4	0	2	0	6	0	115	7	0	122	25	0	3	0	28	5	144	1	0	150	306
05:30 PM	2	1	1	0	4	0	106	5	0	111	20	0	3	0	23	3	147	0	1	151	289
05:45 PM	5	1	0	0	6	0	110	12	0	122	26	0	2	0	28	4	123	1	1	129	285
Total Volume	14	2	7	0	23	0	432	28	0	460	92	0	10	0	102	16	539	2	2	559	1144
% App. Total	60.9	8.7	30.4	0		0	93.9	6.1	0		90.2	0	9.8	0		2.9	96.4	0.4	0.4		
PHF	.700	.500	.438	.000	.821	.000	.939	.583	.000	.943	.885	.000	.833	.000	.911	.800	.917	.500	.500	.925	.935

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P.O. Box 301 Berlin, MA 01503
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Groups Printed- Heavy Vehicles

	High School Driveway From North				Highland Avenue From East				Putnam Street From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	0	2	2	0	1	0	0	0	0	3	0	0	8
04:15 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	7	0	0	10
04:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	5	0	0	7
Total	0	0	0	0	0	8	2	0	1	0	1	0	0	15	0	0	27
05:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0	6
05:15 PM	0	0	0	0	0	3	0	0	1	0	0	0	0	3	0	0	7
05:30 PM	0	0	0	0	0	2	0	0	0	0	1	0	0	3	0	0	6
05:45 PM	0	0	0	0	0	2	0	0	1	0	0	0	0	1	0	0	4
Total	0	0	0	0	0	10	0	0	2	0	1	0	0	10	0	0	23
Grand Total	0	0	0	0	0	18	2	0	3	0	2	0	0	25	0	0	50
Apprch %	0	0	0	0	0	90	10	0	60	0	40	0	0	100	0	0	
Total %	0	0	0	0	0	36	4	0	6	0	4	0	0	50	0	0	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

	High School Driveway From North					Highland Avenue From East					Putnam Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	2	2	0	4	1	0	0	0	1	0	3	0	0	3	8
04:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	7	0	0	7	10
04:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	5	0	0	5	7
Total Volume	0	0	0	0	0	0	8	2	0	10	1	0	1	0	2	0	15	0	0	15	27
% App. Total	0	0	0	0		0	80	20	0		50	0	50	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.667	.250	.000	.625	.250	.000	.250	.000	.500	.000	.536	.000	.000	.536	.675

N/S: High School Driveway/ Putnam Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 FF
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Peds and Bikes

	High School Driveway From North					Highland Avenue From East					Putnam Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	5	8	0	1	0	1	0	0	0	0	2	1	0	1	0	1	0	20
04:15 PM	0	0	0	4	7	0	1	0	1	0	0	0	0	4	8	0	1	0	0	3	29
04:30 PM	0	0	0	5	5	0	0	0	0	0	0	0	0	4	8	0	0	0	0	0	22
04:45 PM	0	0	0	4	7	0	1	0	0	0	0	0	1	6	5	0	1	0	0	0	25
Total	0	0	0	18	27	0	3	0	2	0	0	0	1	16	22	0	3	0	1	3	96
05:00 PM	0	0	0	7	5	0	2	0	2	1	0	0	0	4	3	0	0	0	1	1	26
05:15 PM	0	0	0	6	8	0	3	0	0	1	0	0	0	3	3	0	1	0	0	0	25
05:30 PM	0	0	0	5	9	0	2	0	0	0	0	0	1	3	2	0	1	0	0	1	24
05:45 PM	0	0	0	5	6	0	1	0	0	2	1	0	3	3	6	0	0	0	1	1	29
Total	0	0	0	23	28	0	8	0	2	4	1	0	4	13	14	0	2	0	2	3	104
Grand Total	0	0	0	41	55	0	11	0	4	4	1	0	5	29	36	0	5	0	3	6	200
Apprch %	0	0	0	42.7	57.3	0	57.9	0	21.1	21.1	1.4	0	7	40.8	50.7	0	35.7	0	21.4	42.9	
Total %	0	0	0	20.5	27.5	0	5.5	0	2	2	0.5	0	2.5	14.5	18	0	2.5	0	1.5	3	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

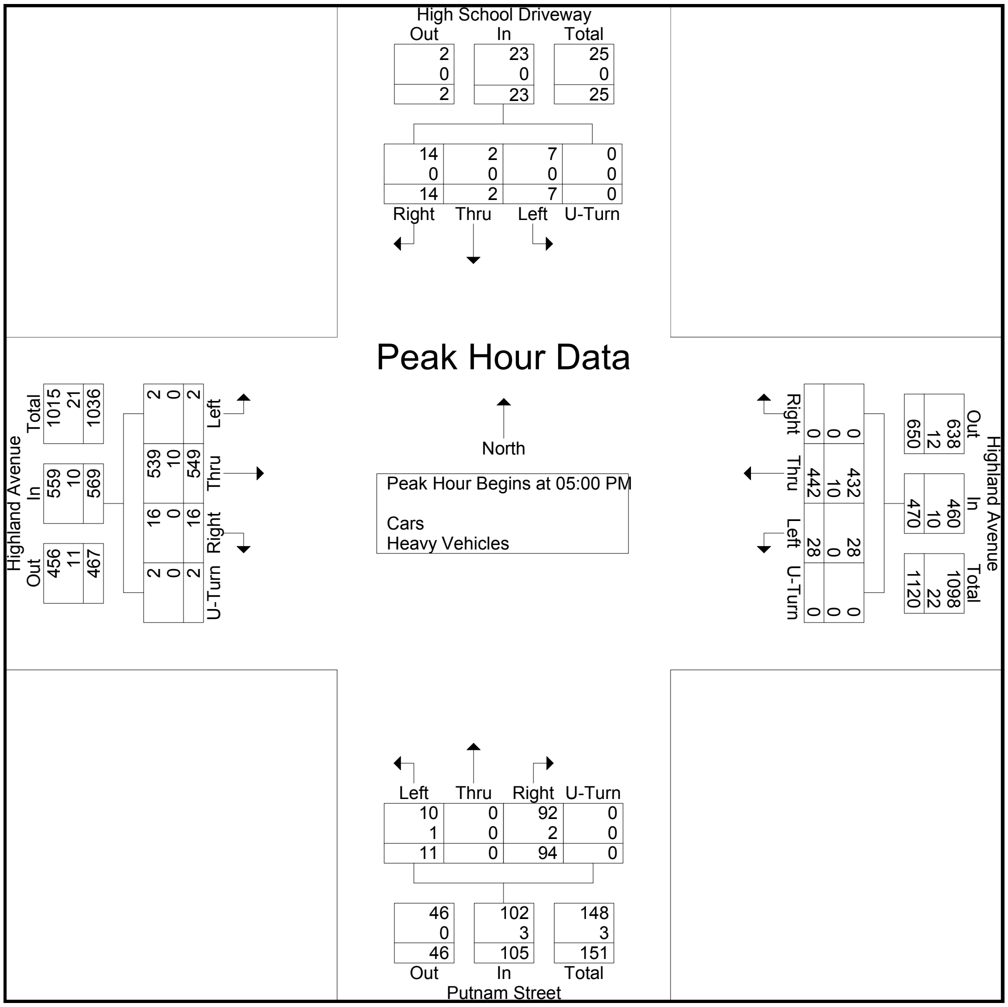
	High School Driveway From North						Highland Avenue From East						Putnam Street From South						Highland Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
05:00 PM	0	0	0	7	5	12	0	2	0	2	1	5	0	0	0	4	3	7	0	0	0	1	1	2	26
05:15 PM	0	0	0	6	8	14	0	3	0	0	1	4	0	0	0	3	3	6	0	1	0	0	0	1	25
05:30 PM	0	0	0	5	9	14	0	2	0	0	0	2	0	0	1	3	2	6	0	1	0	0	1	2	24
05:45 PM	0	0	0	5	6	11	0	1	0	0	2	3	1	0	3	3	6	13	0	0	0	1	1	2	29
Total Volume	0	0	0	23	28	51	0	8	0	2	4	14	1	0	4	13	14	32	0	2	0	2	3	7	104
% App. Total	0	0	0	45.1	54.9		0	57.1	0	14.3	28.6		3.1	0	12.5	40.6	43.8		0	28.6	0	28.6	42.9		
PHF	.000	.000	.000	.821	.778	.911	.000	.667	.000	.250	.500	.700	.250	.000	.333	.813	.583	.615	.000	.500	.000	.500	.750	.875	.897

N/S: High School Driveway/ Putnam Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 FF
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

	High School Driveway From North					Highland Avenue From East					Putnam Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	3	0	4	0	7	0	104	4	0	108	21	0	2	0	23	4	128	0	0	132	270
05:15 PM	4	0	2	0	6	0	118	7	0	125	26	0	3	0	29	5	147	1	0	153	313
05:30 PM	2	1	1	0	4	0	108	5	0	113	20	0	4	0	24	3	150	0	1	154	295
05:45 PM	5	1	0	0	6	0	112	12	0	124	27	0	2	0	29	4	124	1	1	130	289
Total Volume	14	2	7	0	23	0	442	28	0	470	94	0	11	0	105	16	549	2	2	569	1167
% App. Total	60.9	8.7	30.4	0		0	94	6	0		89.5	0	10.5	0		2.8	96.5	0.4	0.4		
PHF	.700	.500	.438	.000	.821	.000	.936	.583	.000	.940	.870	.000	.688	.000	.905	.800	.915	.500	.500	.924	.932
Cars	14	2	7	0	23	0	432	28	0	460	92	0	10	0	102	16	539	2	2	559	1144
% Cars	100	100	100	0	100	0	97.7	100	0	97.9	97.9	0	90.9	0	97.1	100	98.2	100	100	98.2	98.0
Heavy Vehicles	0	0	0	0	0	0	10	0	0	10	2	0	1	0	3	0	10	0	0	10	23
% Heavy Vehicles	0	0	0	0	0	0	2.3	0	0	2.1	2.1	0	9.1	0	2.9	0	1.8	0	0	1.8	2.0



N/S: Walnut Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

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DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 G
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Walnut Street From North				Highland Avenue From East				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	1	46	0	0	11	27	9	0	0	134	14	0	242
07:15 AM	0	0	0	0	1	60	0	0	7	40	15	0	0	143	16	0	282
07:30 AM	0	0	0	0	3	75	0	0	18	30	21	0	0	129	21	0	297
07:45 AM	0	0	0	0	1	93	0	0	20	41	17	0	0	114	32	0	318
Total	0	0	0	0	6	274	0	0	56	138	62	0	0	520	83	0	1139
08:00 AM	0	0	0	0	1	63	0	0	11	32	4	0	0	137	20	0	268
08:15 AM	0	0	0	0	2	65	0	0	20	45	7	0	0	147	18	0	304
08:30 AM	0	0	0	0	3	64	0	0	20	23	11	0	0	152	16	0	289
08:45 AM	0	0	0	0	1	71	0	0	12	28	9	0	0	156	13	0	290
Total	0	0	0	0	7	263	0	0	63	128	31	0	0	592	67	0	1151
Grand Total	0	0	0	0	13	537	0	0	119	266	93	0	0	1112	150	0	2290
Apprch %	0	0	0	0	2.4	97.6	0	0	24.9	55.6	19.5	0	0	88.1	11.9	0	
Total %	0	0	0	0	0.6	23.4	0	0	5.2	11.6	4.1	0	0	48.6	6.6	0	
Cars	0	0	0	0	12	511	0	0	117	264	93	0	0	1088	148	0	2233
% Cars	0	0	0	0	92.3	95.2	0	0	98.3	99.2	100	0	0	97.8	98.7	0	97.5
Heavy Vehicles	0	0	0	0	1	26	0	0	2	2	0	0	0	24	2	0	57
% Heavy Vehicles	0	0	0	0	7.7	4.8	0	0	1.7	0.8	0	0	0	2.2	1.3	0	2.5

	Walnut Street From North					Highland Avenue From East					Walnut Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	3	75	0	0	78	18	30	21	0	69	0	129	21	0	150	297
07:45 AM	0	0	0	0	0	1	93	0	0	94	20	41	17	0	78	0	114	32	0	146	318
08:00 AM	0	0	0	0	0	1	63	0	0	64	11	32	4	0	47	0	137	20	0	157	268
08:15 AM	0	0	0	0	0	2	65	0	0	67	20	45	7	0	72	0	147	18	0	165	304
Total Volume	0	0	0	0	0	7	296	0	0	303	69	148	49	0	266	0	527	91	0	618	1187
% App. Total	0	0	0	0		2.3	97.7	0	0		25.9	55.6	18.4	0		0	85.3	14.7	0		
PHF	.000	.000	.000	.000	.000	.583	.796	.000	.000	.806	.863	.822	.583	.000	.853	.000	.896	.711	.000	.936	.933
Cars	0	0	0	0	0	6	280	0	0	286	68	148	49	0	265	0	518	90	0	608	1159
% Cars	0	0	0	0	0	85.7	94.6	0	0	94.4	98.6	100	100	0	99.6	0	98.3	98.9	0	98.4	97.6
Heavy Vehicles	0	0	0	0	0	1	16	0	0	17	1	0	0	0	1	0	9	1	0	10	28
% Heavy Vehicles	0	0	0	0	0	14.3	5.4	0	0	5.6	1.4	0	0	0	0.4	0	1.7	1.1	0	1.6	2.4

N/S: Walnut Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
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INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 G
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	Walnut Street From North				Highland Avenue From East				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	1	43	0	0	11	25	9	0	0	132	14	0	235
07:15 AM	0	0	0	0	1	59	0	0	7	40	15	0	0	139	16	0	277
07:30 AM	0	0	0	0	3	70	0	0	18	30	21	0	0	129	21	0	292
07:45 AM	0	0	0	0	1	91	0	0	20	41	17	0	0	111	32	0	313
Total	0	0	0	0	6	263	0	0	56	136	62	0	0	511	83	0	1117
08:00 AM	0	0	0	0	1	59	0	0	10	32	4	0	0	134	19	0	259
08:15 AM	0	0	0	0	1	60	0	0	20	45	7	0	0	144	18	0	295
08:30 AM	0	0	0	0	3	60	0	0	20	23	11	0	0	149	16	0	282
08:45 AM	0	0	0	0	1	69	0	0	11	28	9	0	0	150	12	0	280
Total	0	0	0	0	6	248	0	0	61	128	31	0	0	577	65	0	1116
Grand Total	0	0	0	0	12	511	0	0	117	264	93	0	0	1088	148	0	2233
Apprch %	0	0	0	0	2.3	97.7	0	0	24.7	55.7	19.6	0	0	88	12	0	
Total %	0	0	0	0	0.5	22.9	0	0	5.2	11.8	4.2	0	0	48.7	6.6	0	

	Walnut Street From North					Highland Avenue From East					Walnut Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

07:30 AM	0	0	0	0	0	3	70	0	0	73	18	30	21	0	69	0	129	21	0	150	292
07:45 AM	0	0	0	0	0	1	91	0	0	92	20	41	17	0	78	0	111	32	0	143	313
08:00 AM	0	0	0	0	0	1	59	0	0	60	10	32	4	0	46	0	134	19	0	153	259
08:15 AM	0	0	0	0	0	1	60	0	0	61	20	45	7	0	72	0	144	18	0	162	295
Total Volume	0	0	0	0	0	6	280	0	0	286	68	148	49	0	265	0	518	90	0	608	1159
% App. Total	0	0	0	0		2.1	97.9	0	0		25.7	55.8	18.5	0		0	85.2	14.8	0		
PHF	.000	.000	.000	.000	.000	.500	.769	.000	.000	.777	.850	.822	.583	.000	.849	.000	.899	.703	.000	.938	.926

N/S: Walnut Street
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Office: 508.481.3999 Fax: 508.545.1234
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Page No : 1

Groups Printed- Heavy Vehicles

	Walnut Street From North				**Highland Avenue From East**				**Walnut Street From South**				**Highland Avenue From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	0	3	0	0	0	2	0	0	0	2	0	0	7
07:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0	5
07:30 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	5
07:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0	5
Total	0	0	0	0	0	11	0	0	0	2	0	0	0	9	0	0	22
08:00 AM	0	0	0	0	0	4	0	0	1	0	0	0	0	3	1	0	9
08:15 AM	0	0	0	0	1	5	0	0	0	0	0	0	0	3	0	0	9
08:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0	7
08:45 AM	0	0	0	0	0	2	0	0	1	0	0	0	0	6	1	0	10
Total	0	0	0	0	1	15	0	0	2	0	0	0	0	15	2	0	35
Grand Total	0	0	0	0	1	26	0	0	2	2	0	0	0	24	2	0	57
Apprch %	0	0	0	0	3.7	96.3	0	0	50	50	0	0	0	92.3	7.7	0	
Total %	0	0	0	0	1.8	45.6	0	0	3.5	3.5	0	0	0	42.1	3.5	0	

	Walnut Street From North					**Highland Avenue From East**					**Walnut Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	0	4	0	0	4	1	0	0	0	1	0	3	1	0	4	9
08:15 AM	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	3	0	0	3	9
08:30 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7
08:45 AM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	6	1	0	7	10
Total Volume	0	0	0	0	0	1	15	0	0	16	2	0	0	0	2	0	15	2	0	17	35
% App. Total	0	0	0	0		6.2	93.8	0	0		100	0	0	0		0	88.2	11.8	0		
PHF	.000	.000	.000	.000	.000	.250	.750	.000	.000	.667	.500	.000	.000	.000	.500	.000	.625	.500	.000	.607	.875

N/S: Walnut Street
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D A T A
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Office: 508.481.3999 Fax: 508.545.1234
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Groups Printed- Peds and Bikes

	Walnut Street From North					Highland Avenue From East					Walnut Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	0	2	0	0	0	4	1	0	0	0	5	3	0	0	0	3	5	23
07:15 AM	0	0	0	4	7	0	0	0	4	2	0	0	0	4	3	0	1	0	5	5	35
07:30 AM	0	0	0	2	16	0	0	0	4	5	0	0	0	4	2	0	0	0	11	4	48
07:45 AM	0	0	0	0	24	0	0	0	9	6	0	0	0	3	7	0	0	0	14	5	68
Total	0	0	0	6	49	0	0	0	21	14	0	0	0	16	15	0	1	0	33	19	174
08:00 AM	1	0	0	1	4	0	0	0	3	4	0	2	0	2	3	0	2	0	9	3	34
08:15 AM	0	0	0	0	1	0	1	0	7	2	0	1	0	5	2	0	0	0	5	3	27
08:30 AM	0	0	0	1	0	0	0	0	3	1	0	0	1	7	1	0	1	0	1	6	22
08:45 AM	1	0	0	0	0	0	0	0	8	1	0	1	0	1	1	0	2	0	5	2	22
Total	2	0	0	2	5	0	1	0	21	8	0	4	1	15	7	0	5	0	20	14	105
Grand Total	2	0	0	8	54	0	1	0	42	22	0	4	1	31	22	0	6	0	53	33	279
Apprch %	3.1	0	0	12.5	84.4	0	1.5	0	64.6	33.8	0	6.9	1.7	53.4	37.9	0	6.5	0	57.6	35.9	
Total %	0.7	0	0	2.9	19.4	0	0.4	0	15.1	7.9	0	1.4	0.4	11.1	7.9	0	2.2	0	19	11.8	

	Walnut Street From North						Highland Avenue From East						Walnut Street From South						Highland Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

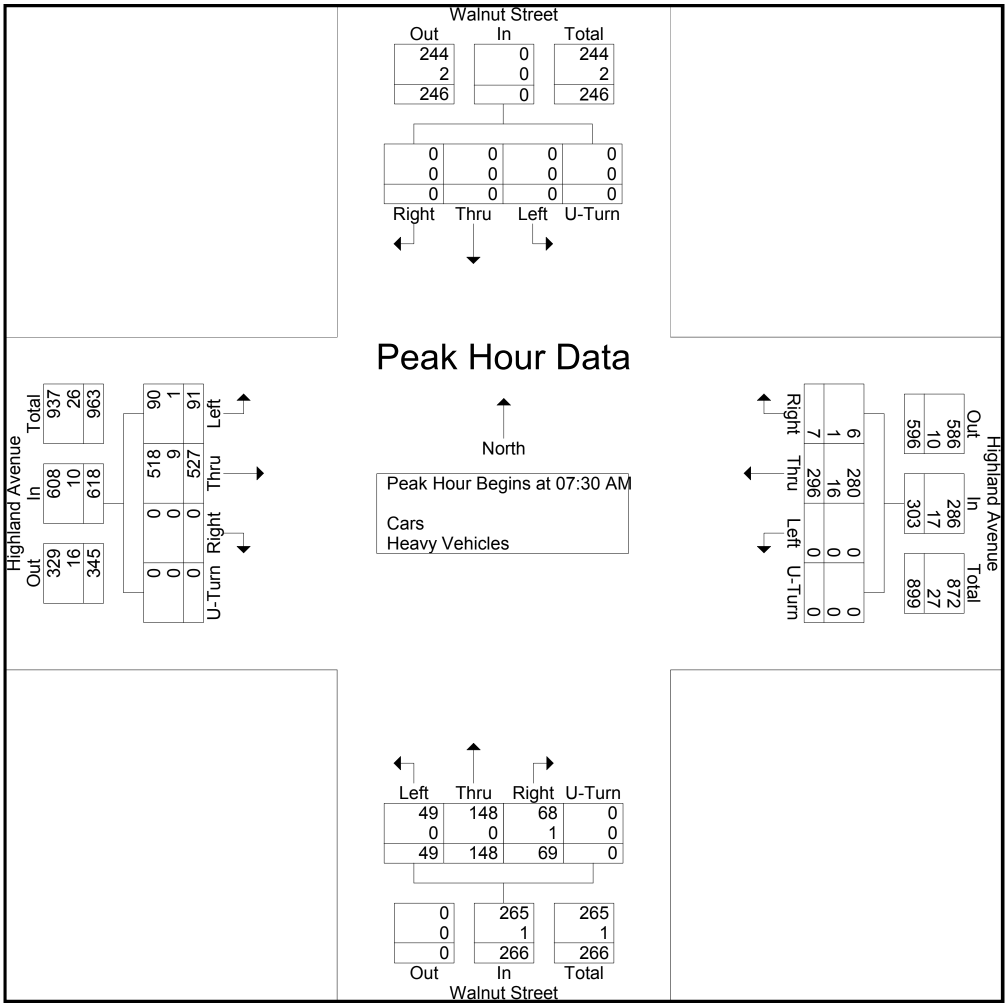
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
07:15 AM	0	0	0	4	7	11	0	0	0	4	2	6	0	0	0	4	3	7	0	1	0	5	5	11	35
07:30 AM	0	0	0	2	16	18	0	0	0	4	5	9	0	0	0	4	2	6	0	0	0	11	4	15	48
07:45 AM	0	0	0	0	24	24	0	0	0	9	6	15	0	0	0	3	7	10	0	0	0	14	5	19	68
08:00 AM	1	0	0	1	4	6	0	0	0	3	4	7	0	2	0	2	3	7	0	2	0	9	3	14	34
Total Volume	1	0	0	7	51	59	0	0	0	20	17	37	0	2	0	13	15	30	0	3	0	39	17	59	185
% App. Total	1.7	0	0	11.9	86.4		0	0	0	54.1	45.9		0	6.7	0	43.3	50		0	5.1	0	66.1	28.8		
PHF	.250	.000	.000	.438	.531	.615	.000	.000	.000	.556	.708	.617	.000	.250	.000	.813	.536	.750	.000	.375	.000	.696	.850	.776	.680

N/S: Walnut Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 G
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

	Walnut Street From North					Highland Avenue From East					Walnut Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	3	75	0	0	78	18	30	21	0	69	0	129	21	0	150	297
07:45 AM	0	0	0	0	0	1	93	0	0	94	20	41	17	0	78	0	114	32	0	146	318
08:00 AM	0	0	0	0	0	1	63	0	0	64	11	32	4	0	47	0	137	20	0	157	268
08:15 AM	0	0	0	0	0	2	65	0	0	67	20	45	7	0	72	0	147	18	0	165	304
Total Volume	0	0	0	0	0	7	296	0	0	303	69	148	49	0	266	0	527	91	0	618	1187
% App. Total	0	0	0	0		2.3	97.7	0	0		25.9	55.6	18.4	0		0	85.3	14.7	0		
PHF	.000	.000	.000	.000	.000	.583	.796	.000	.000	.806	.863	.822	.583	.000	.853	.000	.896	.711	.000	.936	.933
Cars	0	0	0	0	0	6	280	0	0	286	68	148	49	0	265	0	518	90	0	608	1159
% Cars	0	0	0	0	0	85.7	94.6	0	0	94.4	98.6	100	100	0	99.6	0	98.3	98.9	0	98.4	97.6
Heavy Vehicles	0	0	0	0	0	1	16	0	0	17	1	0	0	0	1	0	9	1	0	10	28
% Heavy Vehicles	0	0	0	0	0	14.3	5.4	0	0	5.6	1.4	0	0	0	0.4	0	1.7	1.1	0	1.6	2.4



N/S: Walnut Street
E/W: Highland Avenue
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

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D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
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File Name : 154724 GG
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Groups Printed- Cars - Heavy Vehicles

	Walnut Street From North				Highland Avenue From East				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	7	106	0	0	13	57	12	0	0	94	37	0	326
04:15 PM	0	0	0	0	1	108	0	0	18	71	9	0	0	97	33	0	337
04:30 PM	0	0	0	0	3	136	0	0	12	71	17	0	0	88	35	0	362
04:45 PM	0	0	0	0	2	122	0	0	8	82	10	0	0	96	28	0	348
Total	0	0	0	0	13	472	0	0	51	281	48	0	0	375	133	0	1373
05:00 PM	0	0	0	0	4	118	0	0	16	67	10	0	0	96	35	0	346
05:15 PM	0	0	0	0	4	139	0	0	12	74	18	0	0	119	29	0	395
05:30 PM	0	0	0	0	1	126	0	0	14	64	21	0	0	113	28	0	367
05:45 PM	0	0	0	0	4	127	0	0	19	63	9	0	0	82	38	0	342
Total	0	0	0	0	13	510	0	0	61	268	58	0	0	410	130	0	1450
Grand Total	0	0	0	0	26	982	0	0	112	549	106	0	0	785	263	0	2823
Apprch %	0	0	0	0	2.6	97.4	0	0	14.6	71.6	13.8	0	0	74.9	25.1	0	
Total %	0	0	0	0	0.9	34.8	0	0	4	19.4	3.8	0	0	27.8	9.3	0	
Cars	0	0	0	0	26	960	0	0	109	542	106	0	0	760	262	0	2765
% Cars	0	0	0	0	100	97.8	0	0	97.3	98.7	100	0	0	96.8	99.6	0	97.9
Heavy Vehicles	0	0	0	0	0	22	0	0	3	7	0	0	0	25	1	0	58
% Heavy Vehicles	0	0	0	0	0	2.2	0	0	2.7	1.3	0	0	0	3.2	0.4	0	2.1

	Walnut Street From North					Highland Avenue From East					Walnut Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	2	122	0	0	124	8	82	10	0	100	0	96	28	0	124	348
05:00 PM	0	0	0	0	0	4	118	0	0	122	16	67	10	0	93	0	96	35	0	131	346
05:15 PM	0	0	0	0	0	4	139	0	0	143	12	74	18	0	104	0	119	29	0	148	395
05:30 PM	0	0	0	0	0	1	126	0	0	127	14	64	21	0	99	0	113	28	0	141	367
Total Volume	0	0	0	0	0	11	505	0	0	516	50	287	59	0	396	0	424	120	0	544	1456
% App. Total	0	0	0	0		2.1	97.9	0	0		12.6	72.5	14.9	0		0	77.9	22.1	0		
PHF	.000	.000	.000	.000	.000	.688	.908	.000	.000	.902	.781	.875	.702	.000	.952	.000	.891	.857	.000	.919	.922
Cars	0	0	0	0	0	11	495	0	0	506	49	287	59	0	395	0	410	120	0	530	1431
% Cars	0	0	0	0	0	100	98.0	0	0	98.1	98.0	100	100	0	99.7	0	96.7	100	0	97.4	98.3
Heavy Vehicles	0	0	0	0	0	0	10	0	0	10	1	0	0	0	1	0	14	0	0	14	25
% Heavy Vehicles	0	0	0	0	0	0	2.0	0	0	1.9	2.0	0	0	0	0.3	0	3.3	0	0	2.6	1.7

N/S: Walnut Street
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PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 GG
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	Walnut Street From North				Highland Avenue From East				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	7	101	0	0	12	57	12	0	0	91	36	0	316
04:15 PM	0	0	0	0	1	105	0	0	18	67	9	0	0	91	33	0	324
04:30 PM	0	0	0	0	3	134	0	0	11	68	17	0	0	88	35	0	356
04:45 PM	0	0	0	0	2	120	0	0	8	82	10	0	0	93	28	0	343
Total	0	0	0	0	13	460	0	0	49	274	48	0	0	363	132	0	1339
05:00 PM	0	0	0	0	4	115	0	0	15	67	10	0	0	93	35	0	339
05:15 PM	0	0	0	0	4	135	0	0	12	74	18	0	0	117	29	0	389
05:30 PM	0	0	0	0	1	125	0	0	14	64	21	0	0	107	28	0	360
05:45 PM	0	0	0	0	4	125	0	0	19	63	9	0	0	80	38	0	338
Total	0	0	0	0	13	500	0	0	60	268	58	0	0	397	130	0	1426
Grand Total	0	0	0	0	26	960	0	0	109	542	106	0	0	760	262	0	2765
Apprch %	0	0	0	0	2.6	97.4	0	0	14.4	71.6	14	0	0	74.4	25.6	0	
Total %	0	0	0	0	0.9	34.7	0	0	3.9	19.6	3.8	0	0	27.5	9.5	0	

	Walnut Street From North					Highland Avenue From East					Walnut Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	2	120	0	0	122	8	82	10	0	100	0	93	28	0	121	343
05:00 PM	0	0	0	0	0	4	115	0	0	119	15	67	10	0	92	0	93	35	0	128	339
05:15 PM	0	0	0	0	0	4	135	0	0	139	12	74	18	0	104	0	117	29	0	146	389
05:30 PM	0	0	0	0	0	1	125	0	0	126	14	64	21	0	99	0	107	28	0	135	360
Total Volume	0	0	0	0	0	11	495	0	0	506	49	287	59	0	395	0	410	120	0	530	1431
% App. Total	0	0	0	0		2.2	97.8	0	0		12.4	72.7	14.9	0		0	77.4	22.6	0		
PHF	.000	.000	.000	.000	.000	.688	.917	.000	.000	.910	.817	.875	.702	.000	.950	.000	.876	.857	.000	.908	.920

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Office: 508.481.3999 Fax: 508.545.1234
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Page No : 1

Groups Printed- Heavy Vehicles

	Walnut Street From North				Highland Avenue From East				Walnut Street From South				Highland Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	0	5	0	0	1	0	0	0	0	3	1	0	10
04:15 PM	0	0	0	0	0	3	0	0	0	4	0	0	0	6	0	0	13
04:30 PM	0	0	0	0	0	2	0	0	1	3	0	0	0	0	0	0	6
04:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0	5
Total	0	0	0	0	0	12	0	0	2	7	0	0	0	12	1	0	34
05:00 PM	0	0	0	0	0	3	0	0	1	0	0	0	0	3	0	0	7
05:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0	6
05:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	0	7
05:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	4
Total	0	0	0	0	0	10	0	0	1	0	0	0	0	13	0	0	24
Grand Total	0	0	0	0	0	22	0	0	3	7	0	0	0	25	1	0	58
Apprch %	0	0	0	0	0	100	0	0	30	70	0	0	0	96.2	3.8	0	
Total %	0	0	0	0	0	37.9	0	0	5.2	12.1	0	0	0	43.1	1.7	0	

	Walnut Street From North					Highland Avenue From East					Walnut Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	5	0	0	5	1	0	0	0	1	0	3	1	0	4	10
04:15 PM	0	0	0	0	0	0	3	0	0	3	0	4	0	0	4	0	6	0	0	6	13
04:30 PM	0	0	0	0	0	0	2	0	0	2	1	3	0	0	4	0	0	0	0	0	6
04:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
Total Volume	0	0	0	0	0	0	12	0	0	12	2	7	0	0	9	0	12	1	0	13	34
% App. Total	0	0	0	0		0	100	0	0		22.2	77.8	0	0		0	92.3	7.7	0		
PHF	.000	.000	.000	.000	.000	.000	.600	.000	.000	.600	.500	.438	.000	.000	.563	.000	.500	.250	.000	.542	.654

N/S: Walnut Street
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D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 GG
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Peds and Bikes

	Walnut Street From North					**Highland Avenue From East**					**Walnut Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	4	6	0	0	0	3	3	0	2	1	2	4	0	0	0	5	3	33
04:15 PM	0	0	0	5	5	0	0	0	3	4	0	2	0	4	5	0	0	0	7	10	45
04:30 PM	0	0	0	2	5	0	1	0	1	8	0	0	0	0	5	0	0	0	3	3	28
04:45 PM	0	0	0	7	1	0	0	0	3	5	0	1	2	6	5	0	1	0	4	6	41
Total	0	0	0	18	17	0	1	0	10	20	0	5	3	12	19	0	1	0	19	22	147
05:00 PM	0	0	0	5	1	0	0	0	3	10	0	2	1	2	4	0	0	1	5	4	38
05:15 PM	0	0	0	3	1	0	3	0	5	4	0	2	0	4	4	0	0	0	8	2	36
05:30 PM	0	0	0	1	1	0	0	0	1	4	0	2	2	2	0	0	0	0	2	2	17
05:45 PM	0	0	0	5	2	0	1	0	8	3	0	2	0	4	3	0	0	0	4	3	35
Total	0	0	0	14	5	0	4	0	17	21	0	8	3	12	11	0	0	1	19	11	126
Grand Total	0	0	0	32	22	0	5	0	27	41	0	13	6	24	30	0	1	1	38	33	273
Apprch %	0	0	0	59.3	40.7	0	6.8	0	37	56.2	0	17.8	8.2	32.9	41.1	0	1.4	1.4	52.1	45.2	
Total %	0	0	0	11.7	8.1	0	1.8	0	9.9	15	0	4.8	2.2	8.8	11	0	0.4	0.4	13.9	12.1	

	Walnut Street From North						**Highland Avenue From East**						**Walnut Street From South**						**Highland Avenue From West**						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 04:15 PM																									
04:15 PM	0	0	0	5	5	10	0	0	0	3	4	7	0	2	0	4	5	11	0	0	0	7	10	17	45
04:30 PM	0	0	0	2	5	7	0	1	0	1	8	10	0	0	0	0	5	5	0	0	0	3	3	6	28
04:45 PM	0	0	0	7	1	8	0	0	0	3	5	8	0	1	2	6	5	14	0	1	0	4	6	11	41
05:00 PM	0	0	0	5	1	6	0	0	0	3	10	13	0	2	1	2	4	9	0	0	1	5	4	10	38
Total Volume	0	0	0	19	12	31	0	1	0	10	27	38	0	5	3	12	19	39	0	1	1	19	23	44	152
% App. Total	0	0	0	61.3	38.7		0	2.6	0	26.3	71.1		0	12.8	7.7	30.8	48.7		0	2.3	2.3	43.2	52.3		
PHF	.000	.000	.000	.679	.600	.775	.000	.250	.000	.833	.675	.731	.000	.625	.375	.500	.950	.696	.000	.250	.250	.679	.575	.647	.844

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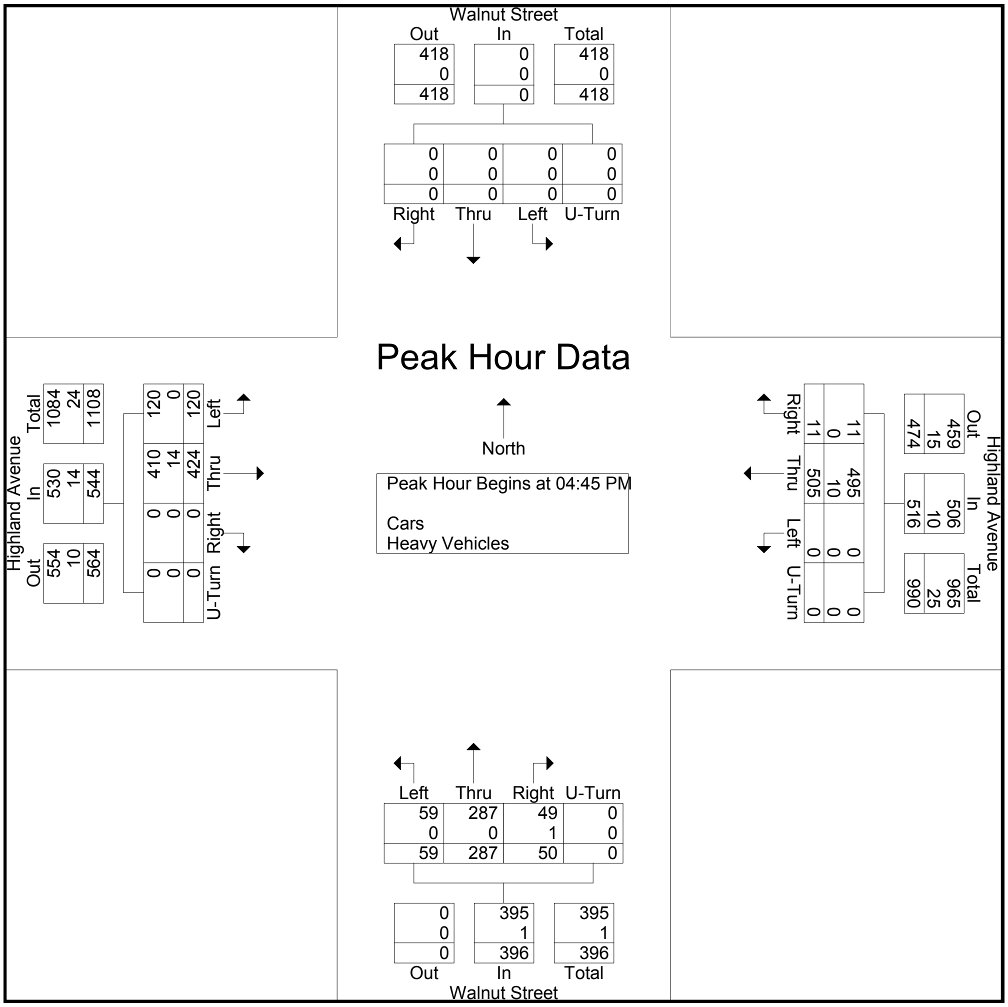
	Walnut Street From North					Highland Avenue From East					Walnut Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	2	122	0	0	124	8	82	10	0	100	0	96	28	0	124	348
05:00 PM	0	0	0	0	0	4	118	0	0	122	16	67	10	0	93	0	96	35	0	131	346
05:15 PM	0	0	0	0	0	4	139	0	0	143	12	74	18	0	104	0	119	29	0	148	395
05:30 PM	0	0	0	0	0	1	126	0	0	127	14	64	21	0	99	0	113	28	0	141	367
Total Volume	0	0	0	0	0	11	505	0	0	516	50	287	59	0	396	0	424	120	0	544	1456
% App. Total	0	0	0	0		2.1	97.9	0	0		12.6	72.5	14.9	0		0	77.9	22.1	0		
PHF	.000	.000	.000	.000	.000	.688	.908	.000	.000	.902	.781	.875	.702	.000	.952	.000	.891	.857	.000	.919	.922
Cars	0	0	0	0	0	11	495	0	0	506	49	287	59	0	395	0	410	120	0	530	1431
% Cars	0	0	0	0	0	100	98.0	0	0	98.1	98.0	100	100	0	99.7	0	96.7	100	0	97.4	98.3
Heavy Vehicles	0	0	0	0	0	0	10	0	0	10	1	0	0	0	1	0	14	0	0	14	25
% Heavy Vehicles	0	0	0	0	0	0	2.0	0	0	1.9	2.0	0	0	0	0.3	0	3.3	0	0	2.6	1.7



N/S: Walnut Street
E/W: Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 H
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Walnut Street From North				**Medford Street From East**				**Walnut Street From South**				**Medford Street From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	5	20	0	0	1	32	12	0	0	0	0	0	70
07:15 AM	0	0	0	0	1	19	0	0	0	42	15	0	0	1	0	0	78
07:30 AM	0	0	0	0	0	18	0	0	3	32	20	0	0	1	0	0	74
07:45 AM	0	0	0	0	0	21	0	0	4	55	15	0	0	2	0	0	97
Total	0	0	0	0	6	78	0	0	8	161	62	0	0	4	0	0	319
08:00 AM	0	0	0	0	0	16	0	0	4	43	12	0	0	2	1	0	78
08:15 AM	0	0	0	0	0	15	0	0	4	47	12	0	0	0	0	0	78
08:30 AM	0	0	0	0	2	14	0	0	6	28	9	0	0	0	0	0	59
08:45 AM	0	0	0	0	1	23	0	0	2	25	14	0	0	2	1	0	68
Total	0	0	0	0	3	68	0	0	16	143	47	0	0	4	2	0	283
Grand Total	0	0	0	0	9	146	0	0	24	304	109	0	0	8	2	0	602
Apprch %	0	0	0	0	5.8	94.2	0	0	5.5	69.6	24.9	0	0	80	20	0	
Total %	0	0	0	0	1.5	24.3	0	0	4	50.5	18.1	0	0	1.3	0.3	0	
Cars	0	0	0	0	9	139	0	0	22	302	108	0	0	6	2	0	588
% Cars	0	0	0	0	100	95.2	0	0	91.7	99.3	99.1	0	0	75	100	0	97.7
Heavy Vehicles	0	0	0	0	0	7	0	0	2	2	1	0	0	2	0	0	14
% Heavy Vehicles	0	0	0	0	0	4.8	0	0	8.3	0.7	0.9	0	0	25	0	0	2.3

	Walnut Street From North					**Medford Street From East**					**Walnut Street From South**					**Medford Street From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	1	19	0	0	20	0	42	15	0	57	0	1	0	0	1	78
07:30 AM	0	0	0	0	0	0	18	0	0	18	3	32	20	0	55	0	1	0	0	1	74
07:45 AM	0	0	0	0	0	0	21	0	0	21	4	55	15	0	74	0	2	0	0	2	97
08:00 AM	0	0	0	0	0	0	16	0	0	16	4	43	12	0	59	0	2	1	0	3	78
Total Volume	0	0	0	0	0	1	74	0	0	75	11	172	62	0	245	0	6	1	0	7	327
% App. Total	0	0	0	0		1.3	98.7	0	0		4.5	70.2	25.3	0		0	85.7	14.3	0		
PHF	.000	.000	.000	.000	.000	.250	.881	.000	.000	.893	.688	.782	.775	.000	.828	.000	.750	.250	.000	.583	.843
Cars	0	0	0	0	0	1	71	0	0	72	11	172	61	0	244	0	4	1	0	5	321
% Cars	0	0	0	0	0	100	95.9	0	0	96.0	100	100	98.4	0	99.6	0	66.7	100	0	71.4	98.2
Heavy Vehicles	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	0	2	0	0	2	6
% Heavy Vehicles	0	0	0	0	0	0	4.1	0	0	4.0	0	0	1.6	0	0.4	0	33.3	0	0	28.6	1.8

N/S: Walnut Street
E/W: Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 H
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	Walnut Street From North				**Medford Street From East**				**Walnut Street From South**				**Medford Street From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	5	19	0	0	1	30	12	0	0	0	0	0	67
07:15 AM	0	0	0	0	1	19	0	0	0	42	15	0	0	1	0	0	78
07:30 AM	0	0	0	0	0	18	0	0	3	32	20	0	0	1	0	0	74
07:45 AM	0	0	0	0	0	21	0	0	4	55	15	0	0	1	0	0	96
Total	0	0	0	0	6	77	0	0	8	159	62	0	0	3	0	0	315
08:00 AM	0	0	0	0	0	13	0	0	4	43	11	0	0	1	1	0	73
08:15 AM	0	0	0	0	0	13	0	0	3	47	12	0	0	0	0	0	75
08:30 AM	0	0	0	0	2	13	0	0	6	28	9	0	0	0	0	0	58
08:45 AM	0	0	0	0	1	23	0	0	1	25	14	0	0	2	1	0	67
Total	0	0	0	0	3	62	0	0	14	143	46	0	0	3	2	0	273
Grand Total	0	0	0	0	9	139	0	0	22	302	108	0	0	6	2	0	588
Apprch %	0	0	0	0	6.1	93.9	0	0	5.1	69.9	25	0	0	75	25	0	
Total %	0	0	0	0	1.5	23.6	0	0	3.7	51.4	18.4	0	0	1	0.3	0	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

	Walnut Street From North					**Medford Street From East**					**Walnut Street From South**					**Medford Street From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:15 AM	0	0	0	0	0	1	19	0	0	20	0	42	15	0	57	0	1	0	0	1	78
07:30 AM	0	0	0	0	0	0	18	0	0	18	3	32	20	0	55	0	1	0	0	1	74
07:45 AM	0	0	0	0	0	0	21	0	0	21	4	55	15	0	74	0	1	0	0	1	96
08:00 AM	0	0	0	0	0	0	13	0	0	13	4	43	11	0	58	0	1	1	0	2	73
Total Volume	0	0	0	0	0	1	71	0	0	72	11	172	61	0	244	0	4	1	0	5	321
% App. Total	0	0	0	0		1.4	98.6	0	0		4.5	70.5	25	0		0	80	20	0		
PHF	.000	.000	.000	.000	.000	.250	.845	.000	.000	.857	.688	.782	.763	.000	.824	.000	1.00	.250	.000	.625	.836

N/S: Walnut Street
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City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 H
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Walnut Street From North				**Medford Street From East**				**Walnut Street From South**				**Medford Street From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	3
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Total	0	0	0	0	0	1	0	0	0	2	0	0	0	1	0	0	4
08:00 AM	0	0	0	0	0	3	0	0	0	0	1	0	0	1	0	0	5
08:15 AM	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	3
08:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	6	0	0	2	0	1	0	0	1	0	0	10
Grand Total	0	0	0	0	0	7	0	0	2	2	1	0	0	2	0	0	14
Apprch %	0	0	0	0	0	100	0	0	40	40	20	0	0	100	0	0	
Total %	0	0	0	0	0	50	0	0	14.3	14.3	7.1	0	0	14.3	0	0	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45 AM

	Walnut Street From North					**Medford Street From East**					**Walnut Street From South**					**Medford Street From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
08:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	0	1	0	0	1	5
08:15 AM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	3
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	6	0	0	6	1	0	1	0	2	0	2	0	0	2	10
% App. Total	0	0	0	0		0	100	0	0		50	0	50	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.250	.000	.250	.000	.500	.000	.500	.000	.000	.500	.500

N/S: Walnut Street
E/W: Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 H
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Peds and Bikes

	Walnut Street From North					Medford Street From East					Walnut Street From South					Medford Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	2	0	0	0	0	3	2	0	0	0	0	2	0	2	0	0	7	18
07:15 AM	0	0	0	3	5	0	0	0	4	3	0	0	0	0	0	0	0	0	2	13	30
07:30 AM	0	0	0	1	3	0	0	0	11	4	0	0	0	2	0	0	2	0	5	35	63
07:45 AM	0	0	0	5	2	0	0	0	12	6	0	0	0	4	0	0	6	0	3	28	66
Total	0	0	0	11	10	0	0	0	30	15	0	0	0	6	2	0	10	0	10	83	177
08:00 AM	0	0	0	8	0	0	0	0	2	1	0	1	0	0	0	0	2	0	4	8	26
08:15 AM	0	0	0	5	0	0	0	0	9	3	0	2	0	1	0	0	0	0	1	4	25
08:30 AM	0	0	0	2	0	0	0	0	4	0	0	0	0	0	0	0	0	0	1	9	16
08:45 AM	0	2	0	1	1	0	0	0	7	4	0	2	0	0	1	0	0	0	1	1	20
Total	0	2	0	16	1	0	0	0	22	8	0	5	0	1	1	0	2	0	7	22	87
Grand Total	0	2	0	27	11	0	0	0	52	23	0	5	0	7	3	0	12	0	17	105	264
Apprch %	0	5	0	67.5	27.5	0	0	0	69.3	30.7	0	33.3	0	46.7	20	0	9	0	12.7	78.4	
Total %	0	0.8	0	10.2	4.2	0	0	0	19.7	8.7	0	1.9	0	2.7	1.1	0	4.5	0	6.4	39.8	

	Walnut Street From North						Medford Street From East						Walnut Street From South						Medford Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:15 AM																									
07:15 AM	0	0	0	3	5	8	0	0	0	4	3	7	0	0	0	0	0	0	0	0	0	2	13	15	30
07:30 AM	0	0	0	1	3	4	0	0	0	11	4	15	0	0	0	2	0	2	0	2	0	5	35	42	63
07:45 AM	0	0	0	5	2	7	0	0	0	12	6	18	0	0	0	4	0	4	0	6	0	3	28	37	66
08:00 AM	0	0	0	8	0	8	0	0	0	2	1	3	0	1	0	0	0	1	0	2	0	4	8	14	26
Total Volume	0	0	0	17	10	27	0	0	0	29	14	43	0	1	0	6	0	7	0	10	0	14	84	108	185
% App. Total	0	0	0	63	37		0	0	0	67.4	32.6		0	14.3	0	85.7	0		0	9.3	0	13	77.8		
PHF	.000	.000	.000	.531	.500	.844	.000	.000	.000	.604	.583	.597	.000	.250	.000	.375	.000	.438	.000	.417	.000	.700	.600	.643	.701

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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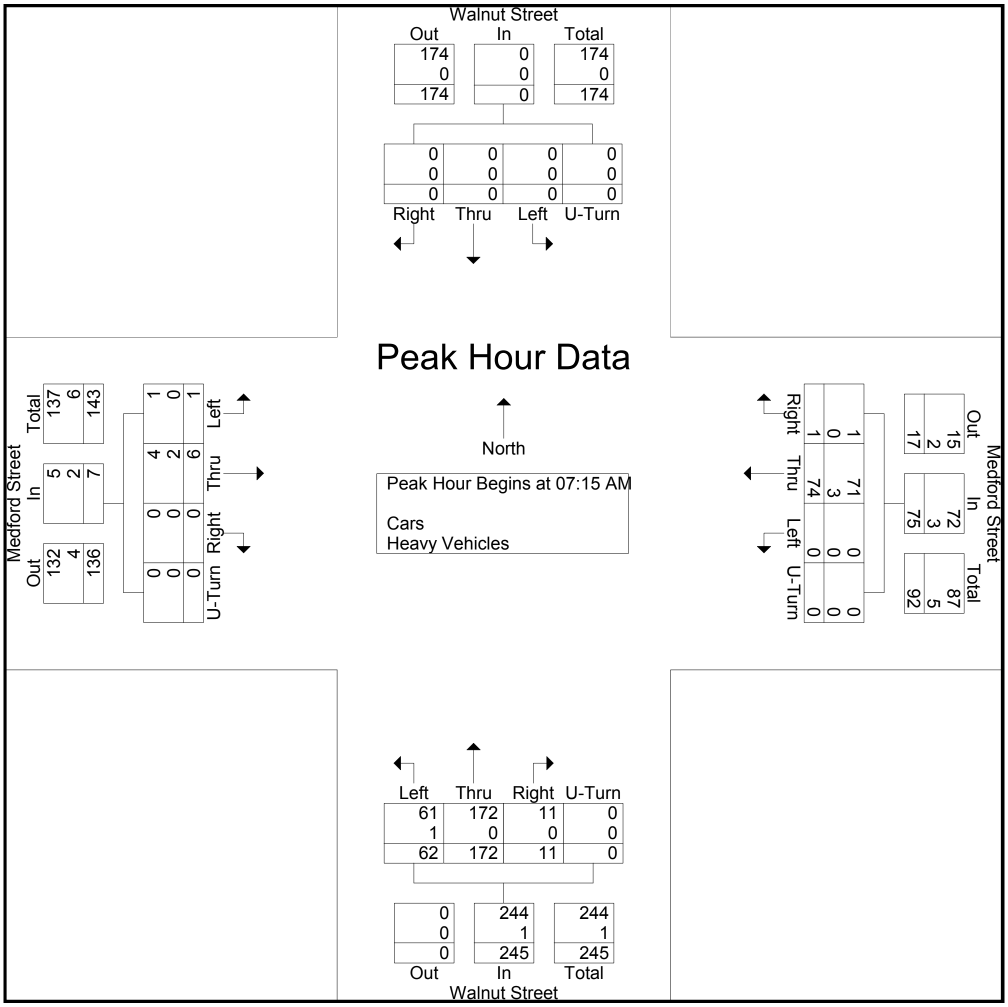
N/S: Walnut Street
E/W: Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 H
Site Code : 2015-069
Start Date : 11/18/2015

	Walnut Street From North					**Medford Street From East**					**Walnut Street From South**					**Medford Street From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	1	19	0	0	20	0	42	15	0	57	0	1	0	0	1	78
07:30 AM	0	0	0	0	0	0	18	0	0	18	3	32	20	0	55	0	1	0	0	1	74
07:45 AM	0	0	0	0	0	0	21	0	0	21	4	55	15	0	74	0	2	0	0	2	97
08:00 AM	0	0	0	0	0	0	16	0	0	16	4	43	12	0	59	0	2	1	0	3	78
Total Volume	0	0	0	0	0	1	74	0	0	75	11	172	62	0	245	0	6	1	0	7	327
% App. Total	0	0	0	0		1.3	98.7	0	0		4.5	70.2	25.3	0		0	85.7	14.3	0		
PHF	.000	.000	.000	.000	.000	.250	.881	.000	.000	.893	.688	.782	.775	.000	.828	.000	.750	.250	.000	.583	.843
Cars	0	0	0	0	0	1	71	0	0	72	11	172	61	0	244	0	4	1	0	5	321
% Cars	0	0	0	0	0	100	95.9	0	0	96.0	100	100	98.4	0	99.6	0	66.7	100	0	71.4	98.2
Heavy Vehicles	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	0	2	0	0	2	6
% Heavy Vehicles	0	0	0	0	0	0	4.1	0	0	4.0	0	0	1.6	0	0.4	0	33.3	0	0	28.6	1.8



N/S: Walnut Street
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City, State: Somerville, MA
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PRECISION
DATA
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 HH
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Walnut Street From North				**Medford Street From East**				**Walnut Street From South**				**Medford Street From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	10	72	0	0	2	75	26	0	0	0	3	0	188
04:15 PM	0	0	0	0	8	89	0	0	2	90	22	0	0	2	0	0	213
04:30 PM	0	0	0	0	9	83	0	0	2	80	21	0	0	0	0	0	195
04:45 PM	0	0	0	0	12	75	0	0	1	88	25	0	0	1	0	0	202
Total	0	0	0	0	39	319	0	0	7	333	94	0	0	3	3	0	798
05:00 PM	0	0	0	0	9	95	0	1	2	77	32	0	0	2	0	0	218
05:15 PM	0	0	0	0	17	57	0	0	3	80	18	0	0	1	0	0	176
05:30 PM	0	0	0	0	8	75	0	0	2	77	22	0	0	1	3	0	188
05:45 PM	0	0	0	0	11	75	0	1	1	77	24	0	0	0	1	0	190
Total	0	0	0	0	45	302	0	2	8	311	96	0	0	4	4	0	772
Grand Total	0	0	0	0	84	621	0	2	15	644	190	0	0	7	7	0	1570
Apprch %	0	0	0	0	11.9	87.8	0	0.3	1.8	75.9	22.4	0	0	50	50	0	
Total %	0	0	0	0	5.4	39.6	0	0.1	1	41	12.1	0	0	0.4	0.4	0	
Cars	0	0	0	0	81	610	0	2	15	631	188	0	0	7	7	0	1541
% Cars	0	0	0	0	96.4	98.2	0	100	100	98	98.9	0	0	100	100	0	98.2
Heavy Vehicles	0	0	0	0	3	11	0	0	0	13	2	0	0	0	0	0	29
% Heavy Vehicles	0	0	0	0	3.6	1.8	0	0	0	2	1.1	0	0	0	0	0	1.8

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:15 PM

	Walnut Street From North					**Medford Street From East**					**Walnut Street From South**					**Medford Street From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
04:15 PM	0	0	0	0	0	8	89	0	0	97	2	90	22	0	114	0	2	0	0	2	213
04:30 PM	0	0	0	0	0	9	83	0	0	92	2	80	21	0	103	0	0	0	0	0	195
04:45 PM	0	0	0	0	0	12	75	0	0	87	1	88	25	0	114	0	1	0	0	1	202
05:00 PM	0	0	0	0	0	9	95	0	1	105	2	77	32	0	111	0	2	0	0	2	218
Total Volume	0	0	0	0	0	38	342	0	1	381	7	335	100	0	442	0	5	0	0	5	828
% App. Total	0	0	0	0		10	89.8	0	0.3		1.6	75.8	22.6	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.792	.900	.000	.250	.907	.875	.931	.781	.000	.969	.000	.625	.000	.000	.625	.950
Cars	0	0	0	0	0	37	336	0	1	374	7	325	98	0	430	0	5	0	0	5	809
% Cars	0	0	0	0	0	97.4	98.2	0	100	98.2	100	97.0	98.0	0	97.3	0	100	0	0	100	97.7
Heavy Vehicles	0	0	0	0	0	1	6	0	0	7	0	10	2	0	12	0	0	0	0	0	19
% Heavy Vehicles	0	0	0	0	0	2.6	1.8	0	0	1.8	0	3.0	2.0	0	2.7	0	0	0	0	0	2.3

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N/S: Walnut Street
E/W: Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 HH
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	Walnut Street From North				**Medford Street From East**				**Walnut Street From South**				**Medford Street From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	9	69	0	0	2	73	26	0	0	0	3	0	182
04:15 PM	0	0	0	0	8	87	0	0	2	85	21	0	0	2	0	0	205
04:30 PM	0	0	0	0	8	82	0	0	2	76	20	0	0	0	0	0	188
04:45 PM	0	0	0	0	12	74	0	0	1	88	25	0	0	1	0	0	201
Total	0	0	0	0	37	312	0	0	7	322	92	0	0	3	3	0	776
05:00 PM	0	0	0	0	9	93	0	1	2	76	32	0	0	2	0	0	215
05:15 PM	0	0	0	0	16	56	0	0	3	80	18	0	0	1	0	0	174
05:30 PM	0	0	0	0	8	75	0	0	2	77	22	0	0	1	3	0	188
05:45 PM	0	0	0	0	11	74	0	1	1	76	24	0	0	0	1	0	188
Total	0	0	0	0	44	298	0	2	8	309	96	0	0	4	4	0	765
Grand Total	0	0	0	0	81	610	0	2	15	631	188	0	0	7	7	0	1541
Apprch %	0	0	0	0	11.7	88	0	0.3	1.8	75.7	22.5	0	0	50	50	0	
Total %	0	0	0	0	5.3	39.6	0	0.1	1	40.9	12.2	0	0	0.5	0.5	0	

	Walnut Street From North					**Medford Street From East**					**Walnut Street From South**					**Medford Street From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	0	0	0	0	8	87	0	0	95	2	85	21	0	108	0	2	0	0	2	205
04:30 PM	0	0	0	0	0	8	82	0	0	90	2	76	20	0	98	0	0	0	0	0	188
04:45 PM	0	0	0	0	0	12	74	0	0	86	1	88	25	0	114	0	1	0	0	1	201
05:00 PM	0	0	0	0	0	9	93	0	1	103	2	76	32	0	110	0	2	0	0	2	215
Total Volume	0	0	0	0	0	37	336	0	1	374	7	325	98	0	430	0	5	0	0	5	809
% App. Total	0	0	0	0		9.9	89.8	0	0.3		1.6	75.6	22.8	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.771	.903	.000	.250	.908	.875	.923	.766	.000	.943	.000	.625	.000	.000	.625	.941

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PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 HH
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Walnut Street From North				Medford Street From East				Walnut Street From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	1	3	0	0	0	2	0	0	0	0	0	0	6
04:15 PM	0	0	0	0	0	2	0	0	0	5	1	0	0	0	0	0	8
04:30 PM	0	0	0	0	1	1	0	0	0	4	1	0	0	0	0	0	7
04:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	2	7	0	0	0	11	2	0	0	0	0	0	22
05:00 PM	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	3
05:15 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
Total	0	0	0	0	1	4	0	0	0	2	0	0	0	0	0	0	7
Grand Total	0	0	0	0	3	11	0	0	0	13	2	0	0	0	0	0	29
Apprch %	0	0	0	0	21.4	78.6	0	0	0	86.7	13.3	0	0	0	0	0	
Total %	0	0	0	0	10.3	37.9	0	0	0	44.8	6.9	0	0	0	0	0	

	Walnut Street From North					Medford Street From East					Walnut Street From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	1	3	0	0	4	0	2	0	0	2	0	0	0	0	0	6
04:15 PM	0	0	0	0	0	0	2	0	0	2	0	5	1	0	6	0	0	0	0	0	8
04:30 PM	0	0	0	0	0	1	1	0	0	2	0	4	1	0	5	0	0	0	0	0	7
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	2	7	0	0	9	0	11	2	0	13	0	0	0	0	0	22
% App. Total	0	0	0	0		22.2	77.8	0	0		0	84.6	15.4	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.500	.583	.000	.000	.563	.000	.550	.500	.000	.542	.000	.000	.000	.000	.000	.688

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PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 HH
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Page No : 1

Groups Printed- Peds and Bikes

	Walnut Street From North					Medford Street From East					Walnut Street From South					Medford Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	0	0	0	1	0	4	3	0	0	2	1	1	0	0	0	1	2	15
04:15 PM	0	0	0	2	2	0	0	0	5	2	0	0	2	0	0	0	0	0	5	4	22
04:30 PM	0	1	0	5	2	0	1	0	3	10	0	0	0	1	1	0	0	0	6	4	34
04:45 PM	0	0	0	0	3	1	2	0	2	5	0	0	0	0	0	0	1	0	7	3	24
Total	0	1	0	7	7	1	4	0	14	20	0	0	4	2	2	0	1	0	19	13	95
05:00 PM	0	0	0	2	6	0	3	0	4	6	0	3	0	0	1	0	0	0	6	0	31
05:15 PM	0	0	0	2	3	0	0	0	1	2	0	1	1	0	0	0	1	0	6	5	22
05:30 PM	0	0	0	0	2	0	1	0	2	3	0	2	0	0	0	0	0	0	7	5	22
05:45 PM	0	0	0	0	3	0	0	0	11	5	0	0	1	4	0	0	0	0	2	5	31
Total	0	0	0	4	14	0	4	0	18	16	0	6	2	4	1	0	1	0	21	15	106
Grand Total	0	1	0	11	21	1	8	0	32	36	0	6	6	6	3	0	2	0	40	28	201
Apprch %	0	3	0	33.3	63.6	1.3	10.4	0	41.6	46.8	0	28.6	28.6	28.6	14.3	0	2.9	0	57.1	40	
Total %	0	0.5	0	5.5	10.4	0.5	4	0	15.9	17.9	0	3	3	3	1.5	0	1	0	19.9	13.9	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:15 PM

	Walnut Street From North						Medford Street From East						Walnut Street From South						Medford Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
04:15 PM	0	0	0	2	2	4	0	0	0	5	2	7	0	0	2	0	0	2	0	0	0	5	4	9	22
04:30 PM	0	1	0	5	2	8	0	1	0	3	10	14	0	0	0	1	1	2	0	0	0	6	4	10	34
04:45 PM	0	0	0	0	3	3	1	2	0	2	5	10	0	0	0	0	0	0	0	1	0	7	3	11	24
05:00 PM	0	0	0	2	6	8	0	3	0	4	6	13	0	3	0	0	1	4	0	0	0	6	0	6	31
Total Volume	0	1	0	9	13	23	1	6	0	14	23	44	0	3	2	1	2	8	0	1	0	24	11	36	111
% App. Total	0	4.3	0	39.1	56.5		2.3	13.6	0	31.8	52.3		0	37.5	25	12.5	25		0	2.8	0	66.7	30.6		
PHF	.000	.250	.000	.450	.542	.719	.250	.500	.000	.700	.575	.786	.000	.250	.250	.250	.500	.500	.000	.250	.000	.857	.688	.818	.816

N/S: Walnut Street
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Client: Design Consultants/ D/ Caiazzo

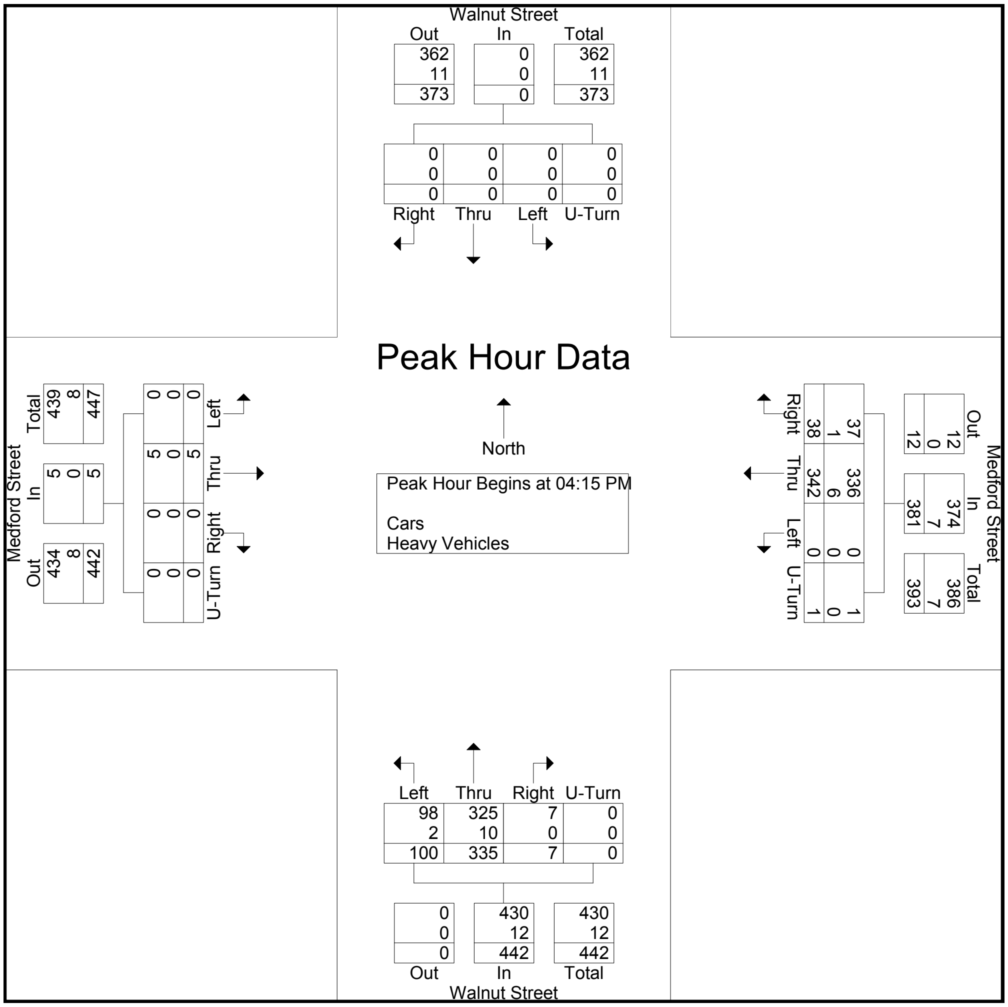
PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 HH
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:15 PM

	Walnut Street From North					**Medford Street From East**					**Walnut Street From South**					**Medford Street From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
04:15 PM	0	0	0	0	0	8	89	0	0	97	2	90	22	0	114	0	2	0	0	2	213
04:30 PM	0	0	0	0	0	9	83	0	0	92	2	80	21	0	103	0	0	0	0	0	195
04:45 PM	0	0	0	0	0	12	75	0	0	87	1	88	25	0	114	0	1	0	0	1	202
05:00 PM	0	0	0	0	0	9	95	0	1	105	2	77	32	0	111	0	2	0	0	2	218
Total Volume	0	0	0	0	0	38	342	0	1	381	7	335	100	0	442	0	5	0	0	5	828
% App. Total	0	0	0	0		10	89.8	0	0.3		1.6	75.8	22.6	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.792	.900	.000	.250	.907	.875	.931	.781	.000	.969	.000	.625	.000	.000	.625	.950
Cars	0	0	0	0	0	37	336	0	1	374	7	325	98	0	430	0	5	0	0	5	809
% Cars	0	0	0	0	0	97.4	98.2	0	100	98.2	100	97.0	98.0	0	97.3	0	100	0	0	100	97.7
Heavy Vehicles	0	0	0	0	0	1	6	0	0	7	0	10	2	0	12	0	0	0	0	0	19
% Heavy Vehicles	0	0	0	0	0	2.6	1.8	0	0	1.8	0	3.0	2.0	0	2.7	0	0	0	0	0	2.3



N/S: Medford Street/ Hamlet Street
E/W: Medford Street/ Highland Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 I
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Medford Street From North				**Medford Street From East**				**Hamlet Street From South**				**Highland Avenue From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	1	2	3	0	23	37	8	0	8	0	0	0	3	160	3	0	248
07:15 AM	4	0	1	2	30	56	6	0	9	0	0	0	0	143	7	0	258
07:30 AM	1	0	5	1	27	72	7	0	7	0	2	0	1	168	2	0	293
07:45 AM	2	1	16	0	34	84	7	0	9	2	0	0	1	138	7	0	301
Total	8	3	25	3	114	249	28	0	33	2	2	0	5	609	19	0	1100
08:00 AM	3	2	7	2	17	54	8	0	12	0	0	0	6	145	4	0	260
08:15 AM	0	0	3	3	19	61	6	0	7	0	0	0	2	158	0	0	259
08:30 AM	2	0	7	3	18	60	11	0	6	3	0	0	1	169	5	0	285
08:45 AM	5	0	8	0	18	70	7	1	4	2	0	0	1	164	2	0	282
Total	10	2	25	8	72	245	32	1	29	5	0	0	10	636	11	0	1086
Grand Total	18	5	50	11	186	494	60	1	62	7	2	0	15	1245	30	0	2186
Apprch %	21.4	6	59.5	13.1	25.1	66.7	8.1	0.1	87.3	9.9	2.8	0	1.2	96.5	2.3	0	
Total %	0.8	0.2	2.3	0.5	8.5	22.6	2.7	0	2.8	0.3	0.1	0	0.7	57	1.4	0	
Cars	18	3	33	0	148	494	58	1	39	0	2	0	14	1228	0	0	2038
% Cars	100	60	66	0	79.6	100	96.7	100	62.9	0	100	0	93.3	98.6	0	0	93.2
Heavy Vehicles	0	2	17	11	38	0	2	0	23	7	0	0	1	17	30	0	148
% Heavy Vehicles	0	40	34	100	20.4	0	3.3	0	37.1	100	0	0	6.7	1.4	100	0	6.8

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

	Medford Street From North					**Medford Street From East**					**Hamlet Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:30 AM	1	0	5	1	7	27	72	7	0	106	7	0	2	0	9	1	168	2	0	171	293
07:45 AM	2	1	16	0	19	34	84	7	0	125	9	2	0	0	11	1	138	7	0	146	301
08:00 AM	3	2	7	2	14	17	54	8	0	79	12	0	0	0	12	6	145	4	0	155	260
08:15 AM	0	0	3	3	6	19	61	6	0	86	7	0	0	0	7	2	158	0	0	160	259
Total Volume	6	3	31	6	46	97	271	28	0	396	35	2	2	0	39	10	609	13	0	632	1113
% App. Total	13	6.5	67.4	13		24.5	68.4	7.1	0		89.7	5.1	5.1	0		1.6	96.4	2.1	0		
PHF	.500	.375	.484	.500	.605	.713	.807	.875	.000	.792	.729	.250	.250	.000	.813	.417	.906	.464	.000	.924	.924
Cars	6	2	21	0	29	67	271	27	0	365	22	0	2	0	24	9	599	0	0	608	1026
% Cars	100	66.7	67.7	0	63.0	69.1	100	96.4	0	92.2	62.9	0	100	0	61.5	90.0	98.4	0	0	96.2	92.2
Heavy Vehicles	0	1	10	6	17	30	0	1	0	31	13	2	0	0	15	1	10	13	0	24	87
% Heavy Vehicles	0	33.3	32.3	100	37.0	30.9	0	3.6	0	7.8	37.1	100	0	0	38.5	10.0	1.6	100	0	3.8	7.8

N/S: Medford Street/ Hamlet Street
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Client: Design Consultants/ D/ Caiazzo

File Name : 154724 I
Site Code : 2015-069
Start Date : 11/18/2015

Groups Printed- Cars

	Medford Street From North				**Medford Street From East**				**Hamlet Street From South**				**Highland Avenue From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	1	1	2	0	22	37	8	0	4	0	0	0	3	156	0	0	234
07:15 AM	4	0	1	0	23	56	6	0	6	0	0	0	0	142	0	0	238
07:30 AM	1	0	4	0	16	72	7	0	5	0	2	0	1	164	0	0	272
07:45 AM	2	0	10	0	20	84	6	0	7	0	0	0	0	135	0	0	264
Total	8	1	17	0	81	249	27	0	22	0	2	0	4	597	0	0	1008
08:00 AM	3	2	4	0	15	54	8	0	6	0	0	0	6	144	0	0	242
08:15 AM	0	0	3	0	16	61	6	0	4	0	0	0	2	156	0	0	248
08:30 AM	2	0	3	0	18	60	11	0	3	0	0	0	1	169	0	0	267
08:45 AM	5	0	6	0	18	70	6	1	4	0	0	0	1	162	0	0	273
Total	10	2	16	0	67	245	31	1	17	0	0	0	10	631	0	0	1030
Grand Total	18	3	33	0	148	494	58	1	39	0	2	0	14	1228	0	0	2038
Apprch %	33.3	5.6	61.1	0	21.1	70.5	8.3	0.1	95.1	0	4.9	0	1.1	98.9	0	0	
Total %	0.9	0.1	1.6	0	7.3	24.2	2.8	0	1.9	0	0.1	0	0.7	60.3	0	0	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 08:00 AM

	Medford Street From North					**Medford Street From East**					**Hamlet Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
08:00 AM	3	2	4	0	9	15	54	8	0	77	6	0	0	0	6	6	144	0	0	150	242
08:15 AM	0	0	3	0	3	16	61	6	0	83	4	0	0	0	4	2	156	0	0	158	248
08:30 AM	2	0	3	0	5	18	60	11	0	89	3	0	0	0	3	1	169	0	0	170	267
08:45 AM	5	0	6	0	11	18	70	6	1	95	4	0	0	0	4	1	162	0	0	163	273
Total Volume	10	2	16	0	28	67	245	31	1	344	17	0	0	0	17	10	631	0	0	641	1030
% App. Total	35.7	7.1	57.1	0		19.5	71.2	9	0.3		100	0	0	0		1.6	98.4	0	0		
PHF	.500	.250	.667	.000	.636	.931	.875	.705	.250	.905	.708	.000	.000	.000	.708	.417	.933	.000	.000	.943	.943

N/S: Medford Street/ Hamlet Street
E/W: Medford Street/ Highland Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 I
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Medford Street From North				**Medford Street From East**				**Hamlet Street From South**				**Highland Avenue From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	1	1	0	1	0	0	0	4	0	0	0	0	4	3	0	14
07:15 AM	0	0	0	2	7	0	0	0	3	0	0	0	0	1	7	0	20
07:30 AM	0	0	1	1	11	0	0	0	2	0	0	0	0	4	2	0	21
07:45 AM	0	1	6	0	14	0	1	0	2	2	0	0	1	3	7	0	37
Total	0	2	8	3	33	0	1	0	11	2	0	0	1	12	19	0	92
08:00 AM	0	0	3	2	2	0	0	0	6	0	0	0	0	1	4	0	18
08:15 AM	0	0	0	3	3	0	0	0	3	0	0	0	0	2	0	0	11
08:30 AM	0	0	4	3	0	0	0	0	3	3	0	0	0	0	5	0	18
08:45 AM	0	0	2	0	0	0	1	0	0	2	0	0	0	2	2	0	9
Total	0	0	9	8	5	0	1	0	12	5	0	0	0	5	11	0	56
Grand Total	0	2	17	11	38	0	2	0	23	7	0	0	1	17	30	0	148
Apprch %	0	6.7	56.7	36.7	95	0	5	0	76.7	23.3	0	0	2.1	35.4	62.5	0	
Total %	0	1.4	11.5	7.4	25.7	0	1.4	0	15.5	4.7	0	0	0.7	11.5	20.3	0	

	Medford Street From North					**Medford Street From East**					**Hamlet Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	2	2	7	0	0	0	7	3	0	0	0	3	0	1	7	0	8	20
07:30 AM	0	0	1	1	2	11	0	0	0	11	2	0	0	0	2	0	4	2	0	6	21
07:45 AM	0	1	6	0	7	14	0	1	0	15	2	2	0	0	4	1	3	7	0	11	37
08:00 AM	0	0	3	2	5	2	0	0	0	2	6	0	0	0	6	0	1	4	0	5	18
Total Volume	0	1	10	5	16	34	0	1	0	35	13	2	0	0	15	1	9	20	0	30	96
% App. Total	0	6.2	62.5	31.2		97.1	0	2.9	0		86.7	13.3	0	0		3.3	30	66.7	0		
PHF	.000	.250	.417	.625	.571	.607	.000	.250	.000	.583	.542	.250	.000	.000	.625	.250	.563	.714	.000	.682	.649

N/S: Medford Street/ Hamlet Street
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City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 I
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Peds and Bikes

	Medford Street From North					Medford Street From East					Hamlet Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	1	1	0	1	0	0	0	4	0	0	0	0	4	3	0	0	0	0	0	14
07:15 AM	0	0	0	2	7	0	0	0	3	0	0	0	0	1	7	0	1	0	2	0	23
07:30 AM	0	0	1	1	11	0	0	0	2	0	0	0	0	4	2	0	0	0	0	1	22
07:45 AM	0	1	6	0	14	0	1	0	2	2	0	0	1	3	7	0	1	0	0	0	38
Total	0	2	8	3	33	0	1	0	11	2	0	0	1	12	19	0	2	0	2	1	97
08:00 AM	0	0	3	2	2	0	0	0	6	0	0	0	0	1	4	0	5	0	0	2	25
08:15 AM	0	0	0	3	3	0	0	0	3	0	0	0	0	2	0	0	2	0	0	1	14
08:30 AM	0	0	4	3	0	0	0	0	3	3	0	0	0	0	5	0	1	0	0	2	21
08:45 AM	0	0	2	0	0	0	1	0	0	2	0	0	0	2	2	0	1	0	0	0	10
Total	0	0	9	8	5	0	1	0	12	5	0	0	0	5	11	0	9	0	0	5	70
Grand Total	0	2	17	11	38	0	2	0	23	7	0	0	1	17	30	0	11	0	2	6	167
Apprch %	0	2.9	25	16.2	55.9	0	6.2	0	71.9	21.9	0	0	2.1	35.4	62.5	0	57.9	0	10.5	31.6	
Total %	0	1.2	10.2	6.6	22.8	0	1.2	0	13.8	4.2	0	0	0.6	10.2	18	0	6.6	0	1.2	3.6	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

	Medford Street From North						Medford Street From East						Hamlet Street From South						Highland Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
07:15 AM	0	0	0	2	7	9	0	0	0	3	0	3	0	0	0	1	7	8	0	1	0	2	0	3	23
07:30 AM	0	0	1	1	11	13	0	0	0	2	0	2	0	0	0	4	2	6	0	0	0	0	1	1	22
07:45 AM	0	1	6	0	14	21	0	1	0	2	2	5	0	0	1	3	7	11	0	1	0	0	0	1	38
08:00 AM	0	0	3	2	2	7	0	0	0	6	0	6	0	0	0	1	4	5	0	5	0	0	2	7	25
Total Volume	0	1	10	5	34	50	0	1	0	13	2	16	0	0	1	9	20	30	0	7	0	2	3	12	108
% App. Total	0	2	20	10	68		0	6.2	0	81.2	12.5		0	0	3.3	30	66.7		0	58.3	0	16.7	25		
PHF	.000	.250	.417	.625	.607	.595	.000	.250	.000	.542	.250	.667	.000	.000	.250	.563	.714	.682	.000	.350	.000	.250	.375	.429	.711

N/S: Medford Street/ Hamlet Street
E/W: Medford Street/ Highland Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
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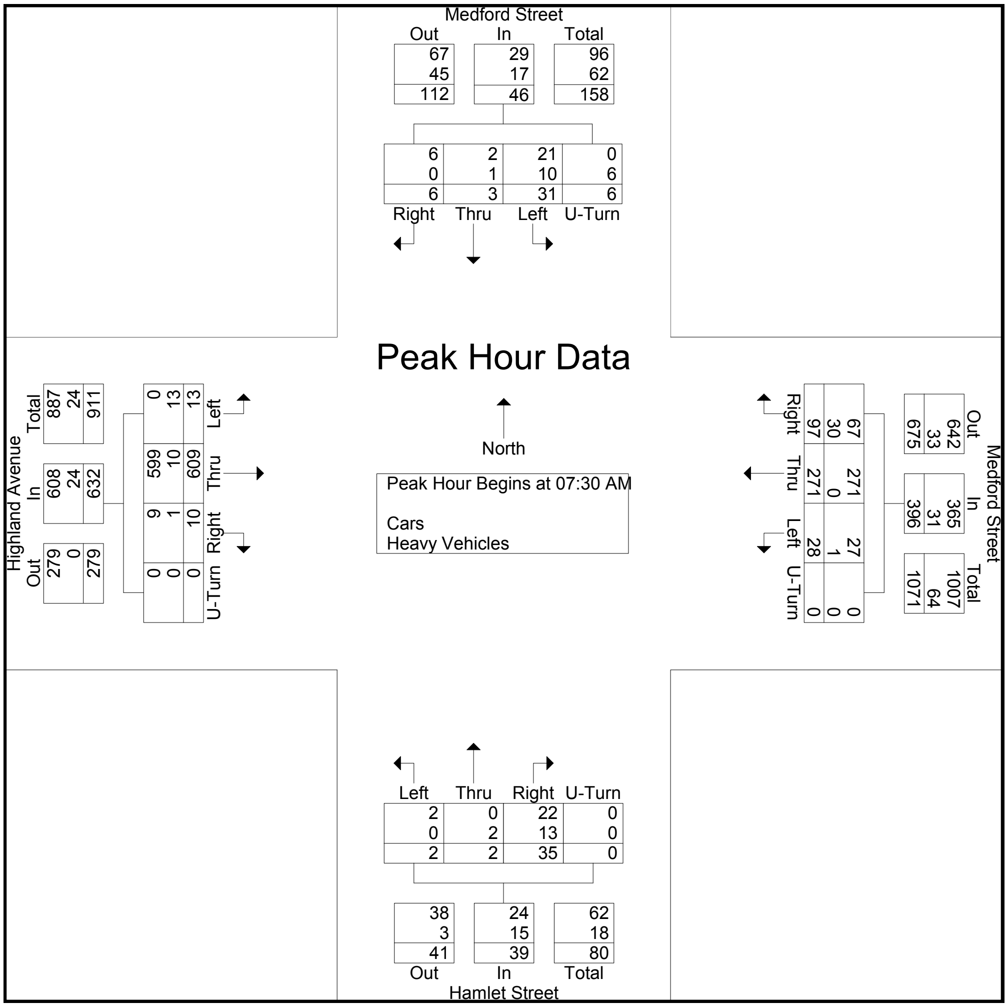
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 I
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

	Medford Street From North					**Medford Street From East**					**Hamlet Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:30 AM	1	0	5	1	7	27	72	7	0	106	7	0	2	0	9	1	168	2	0	171	293
07:45 AM	2	1	16	0	19	34	84	7	0	125	9	2	0	0	11	1	138	7	0	146	301
08:00 AM	3	2	7	2	14	17	54	8	0	79	12	0	0	0	12	6	145	4	0	155	260
08:15 AM	0	0	3	3	6	19	61	6	0	86	7	0	0	0	7	2	158	0	0	160	259
Total Volume	6	3	31	6	46	97	271	28	0	396	35	2	2	0	39	10	609	13	0	632	1113
% App. Total	13	6.5	67.4	13		24.5	68.4	7.1	0		89.7	5.1	5.1	0		1.6	96.4	2.1	0		
PHF	.500	.375	.484	.500	.605	.713	.807	.875	.000	.792	.729	.250	.250	.000	.813	.417	.906	.464	.000	.924	.924
Cars	6	2	21	0	29	67	271	27	0	365	22	0	2	0	24	9	599	0	0	608	1026
% Cars	100	66.7	67.7	0	63.0	69.1	100	96.4	0	92.2	62.9	0	100	0	61.5	90.0	98.4	0	0	96.2	92.2
Heavy Vehicles	0	1	10	6	17	30	0	1	0	31	13	2	0	0	15	1	10	13	0	24	87
% Heavy Vehicles	0	33.3	32.3	100	37.0	30.9	0	3.6	0	7.8	37.1	100	0	0	38.5	10.0	1.6	100	0	3.8	7.8



N/S: Medford Street/ Hamlet Street
E/W: Medford Street/ Highland Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

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INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 II
Site Code : 2015-069
Start Date : 11/18/2015

Groups Printed- Cars - Heavy Vehicles

	Medford Street From North				**Medford Street From East**				**Hamlet Street From South**				**Highland Avenue From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	2	1	75	105	7	0	7	2	2	0	5	98	3	0	307
04:15 PM	0	1	5	2	101	116	7	0	4	0	0	0	3	116	5	0	360
04:30 PM	0	1	2	1	89	133	4	0	3	3	0	0	2	109	4	0	351
04:45 PM	1	0	3	1	84	123	10	0	5	0	0	0	3	100	4	0	334
Total	1	2	12	5	349	477	28	0	19	5	2	0	13	423	16	0	1352
05:00 PM	1	0	1	2	99	127	5	1	8	3	3	0	4	108	3	0	365
05:15 PM	1	0	6	0	85	128	8	1	6	0	2	1	4	130	3	0	375
05:30 PM	2	1	2	0	78	134	8	1	7	1	0	0	4	119	2	0	359
05:45 PM	2	0	1	1	82	119	16	0	0	0	1	0	2	102	3	0	329
Total	6	1	10	3	344	508	37	3	21	4	6	1	14	459	11	0	1428
Grand Total	7	3	22	8	693	985	65	3	40	9	8	1	27	882	27	0	2780
Apprch %	17.5	7.5	55	20	39.7	56.4	3.7	0.2	69	15.5	13.8	1.7	2.9	94.2	2.9	0	
Total %	0.3	0.1	0.8	0.3	24.9	35.4	2.3	0.1	1.4	0.3	0.3	0	1	31.7	1	0	
Cars	7	3	22	0	690	981	63	3	37	1	8	0	26	846	2	0	2689
% Cars	100	100	100	0	99.6	99.6	96.9	100	92.5	11.1	100	0	96.3	95.9	7.4	0	96.7
Heavy Vehicles	0	0	0	8	3	4	2	0	3	8	0	1	1	36	25	0	91
% Heavy Vehicles	0	0	0	100	0.4	0.4	3.1	0	7.5	88.9	0	100	3.7	4.1	92.6	0	3.3

	Medford Street From North					**Medford Street From East**					**Hamlet Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	1	0	3	1	5	84	123	10	0	217	5	0	0	0	5	3	100	4	0	107	334
05:00 PM	1	0	1	2	4	99	127	5	1	232	8	3	3	0	14	4	108	3	0	115	365
05:15 PM	1	0	6	0	7	85	128	8	1	222	6	0	2	1	9	4	130	3	0	137	375
05:30 PM	2	1	2	0	5	78	134	8	1	221	7	1	0	0	8	4	119	2	0	125	359
Total Volume	5	1	12	3	21	346	512	31	3	892	26	4	5	1	36	15	457	12	0	484	1433
% App. Total	23.8	4.8	57.1	14.3		38.8	57.4	3.5	0.3		72.2	11.1	13.9	2.8		3.1	94.4	2.5	0		
PHF	.625	.250	.500	.375	.750	.874	.955	.775	.750	.961	.813	.333	.417	.250	.643	.938	.879	.750	.000	.883	.955
Cars	5	1	12	0	18	344	511	30	3	888	25	1	5	0	31	14	441	1	0	456	1393
% Cars	100	100	100	0	85.7	99.4	99.8	96.8	100	99.6	96.2	25.0	100	0	86.1	93.3	96.5	8.3	0	94.2	97.2
Heavy Vehicles	0	0	0	3	3	2	1	1	0	4	1	3	0	1	5	1	16	11	0	28	40
% Heavy Vehicles	0	0	0	100	14.3	0.6	0.2	3.2	0	0.4	3.8	75.0	0	100	13.9	6.7	3.5	91.7	0	5.8	2.8

N/S: Medford Street/ Hamlet Street
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File Name : 154724 II
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Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	Medford Street From North				**Medford Street From East**				**Hamlet Street From South**				**Highland Avenue From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	2	0	75	103	7	0	6	0	2	0	5	95	0	0	295
04:15 PM	0	1	5	0	100	116	7	0	3	0	0	0	3	110	0	0	345
04:30 PM	0	1	2	0	89	132	4	0	3	0	0	0	2	102	1	0	336
04:45 PM	1	0	3	0	84	123	10	0	4	0	0	0	3	92	1	0	321
Total	1	2	12	0	348	474	28	0	16	0	2	0	13	399	2	0	1297
05:00 PM	1	0	1	0	99	126	5	1	8	1	3	0	4	106	0	0	355
05:15 PM	1	0	6	0	84	128	7	1	6	0	2	0	3	128	0	0	366
05:30 PM	2	1	2	0	77	134	8	1	7	0	0	0	4	115	0	0	351
05:45 PM	2	0	1	0	82	119	15	0	0	0	1	0	2	98	0	0	320
Total	6	1	10	0	342	507	35	3	21	1	6	0	13	447	0	0	1392
Grand Total	7	3	22	0	690	981	63	3	37	1	8	0	26	846	2	0	2689
Apprch %	21.9	9.4	68.8	0	39.7	56.5	3.6	0.2	80.4	2.2	17.4	0	3	96.8	0.2	0	
Total %	0.3	0.1	0.8	0	25.7	36.5	2.3	0.1	1.4	0	0.3	0	1	31.5	0.1	0	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM

	Medford Street From North					**Medford Street From East**					**Hamlet Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
04:45 PM	1	0	3	0	4	84	123	10	0	217	4	0	0	0	4	3	92	1	0	96	321
05:00 PM	1	0	1	0	2	99	126	5	1	231	8	1	3	0	12	4	106	0	0	110	355
05:15 PM	1	0	6	0	7	84	128	7	1	220	6	0	2	0	8	3	128	0	0	131	366
05:30 PM	2	1	2	0	5	77	134	8	1	220	7	0	0	0	7	4	115	0	0	119	351
Total Volume	5	1	12	0	18	344	511	30	3	888	25	1	5	0	31	14	441	1	0	456	1393
% App. Total	27.8	5.6	66.7	0		38.7	57.5	3.4	0.3		80.6	3.2	16.1	0		3.1	96.7	0.2	0		
PHF	.625	.250	.500	.000	.643	.869	.953	.750	.750	.961	.781	.250	.417	.000	.646	.875	.861	.250	.000	.870	.952

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PRECISION
DATA
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P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

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Groups Printed- Heavy Vehicles

	Medford Street From North				**Medford Street From East**				**Hamlet Street From South**				**Highland Avenue From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	1	0	2	0	0	1	2	0	0	0	3	3	0	12
04:15 PM	0	0	0	2	1	0	0	0	1	0	0	0	0	6	5	0	15
04:30 PM	0	0	0	1	0	1	0	0	0	3	0	0	0	7	3	0	15
04:45 PM	0	0	0	1	0	0	0	0	1	0	0	0	0	8	3	0	13
Total	0	0	0	5	1	3	0	0	3	5	0	0	0	24	14	0	55
05:00 PM	0	0	0	2	0	1	0	0	0	2	0	0	0	2	3	0	10
05:15 PM	0	0	0	0	1	0	1	0	0	0	0	1	1	2	3	0	9
05:30 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	4	2	0	8
05:45 PM	0	0	0	1	0	0	1	0	0	0	0	0	0	4	3	0	9
Total	0	0	0	3	2	1	2	0	0	3	0	1	1	12	11	0	36
Grand Total	0	0	0	8	3	4	2	0	3	8	0	1	1	36	25	0	91
Apprch %	0	0	0	100	33.3	44.4	22.2	0	25	66.7	0	8.3	1.6	58.1	40.3	0	
Total %	0	0	0	8.8	3.3	4.4	2.2	0	3.3	8.8	0	1.1	1.1	39.6	27.5	0	

	Medford Street From North					**Medford Street From East**					**Hamlet Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	1	1	0	2	0	0	2	1	2	0	0	3	0	3	3	0	6	12
04:15 PM	0	0	0	2	2	1	0	0	0	1	1	0	0	0	1	0	6	5	0	11	15
04:30 PM	0	0	0	1	1	0	1	0	0	1	0	3	0	0	3	0	7	3	0	10	15
04:45 PM	0	0	0	1	1	0	0	0	0	0	1	0	0	0	1	0	8	3	0	11	13
Total Volume	0	0	0	5	5	1	3	0	0	4	3	5	0	0	8	0	24	14	0	38	55
% App. Total	0	0	0	100		25	75	0	0		37.5	62.5	0	0		0	63.2	36.8	0		
PHF	.000	.000	.000	.625	.625	.250	.375	.000	.000	.500	.750	.417	.000	.000	.667	.000	.750	.700	.000	.864	.917

N/S: Medford Street/ Hamlet Street
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D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 II
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Peds and Bikes

	Medford Street From North					Medford Street From East					Hamlet Street From South					Highland Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	1	0	2	0	0	1	2	0	0	0	3	3	0	0	0	0	0	12
04:15 PM	0	0	0	2	1	0	0	0	1	0	0	0	0	6	5	0	1	0	0	4	20
04:30 PM	0	0	0	1	0	1	0	0	0	3	0	0	0	7	3	0	0	0	0	0	15
04:45 PM	0	0	0	1	0	0	0	0	1	0	0	0	0	8	3	0	0	0	1	0	14
Total	0	0	0	5	1	3	0	0	3	5	0	0	0	24	14	0	1	0	1	4	61
05:00 PM	0	0	0	2	0	1	0	0	0	2	0	0	0	2	3	0	0	0	1	0	11
05:15 PM	0	0	0	0	1	0	1	0	0	0	0	1	1	2	3	0	0	0	1	0	10
05:30 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	4	2	0	0	0	0	1	9
05:45 PM	0	0	0	1	0	0	1	0	0	0	0	0	0	4	3	0	0	0	0	1	10
Total	0	0	0	3	2	1	2	0	0	3	0	1	1	12	11	0	0	0	2	2	40
Grand Total	0	0	0	8	3	4	2	0	3	8	0	1	1	36	25	0	1	0	3	6	101
Apprch %	0	0	0	72.7	27.3	23.5	11.8	0	17.6	47.1	0	1.6	1.6	57.1	39.7	0	10	0	30	60	
Total %	0	0	0	7.9	3	4	2	0	3	7.9	0	1	1	35.6	24.8	0	1	0	3	5.9	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

	Medford Street From North						Medford Street From East						Hamlet Street From South						Highland Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
04:00 PM	0	0	0	1	0	1	2	0	0	1	2	5	0	0	0	3	3	6	0	0	0	0	0	0	12
04:15 PM	0	0	0	2	1	3	0	0	0	1	0	1	0	0	0	6	5	11	0	1	0	0	4	5	20
04:30 PM	0	0	0	1	0	1	1	0	0	0	3	4	0	0	0	7	3	10	0	0	0	0	0	0	15
04:45 PM	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	8	3	11	0	0	0	1	0	1	14
Total Volume	0	0	0	5	1	6	3	0	0	3	5	11	0	0	0	24	14	38	0	1	0	1	4	6	61
% App. Total	0	0	0	83.3	16.7		27.3	0	0	27.3	45.5		0	0	0	63.2	36.8		0	16.7	0	16.7	66.7		
PHF	.000	.000	.000	.625	.250	.500	.375	.000	.000	.750	.417	.550	.000	.000	.000	.750	.700	.864	.000	.250	.000	.250	.250	.300	.763

N/S: Medford Street/ Hamlet Street
E/W: Medford Street/ Highland Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

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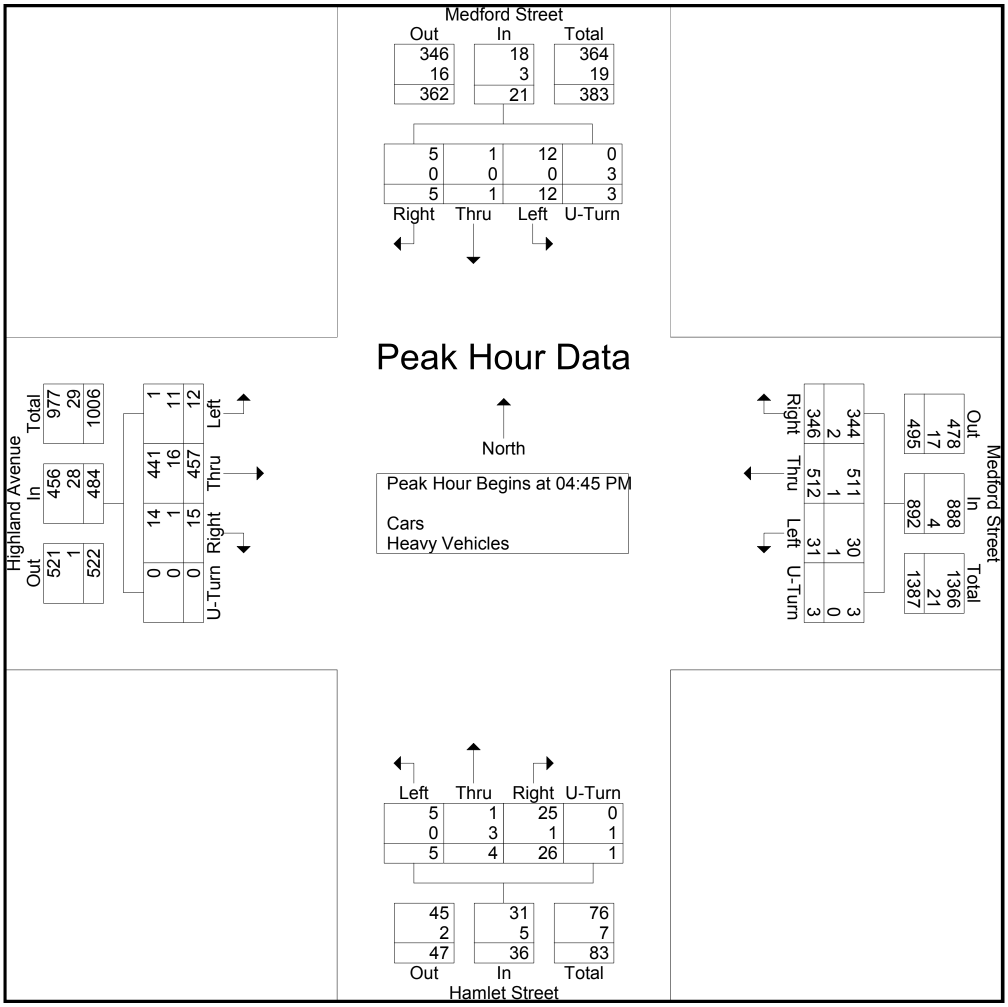
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM

	Medford Street From North					**Medford Street From East**					**Hamlet Street From South**					**Highland Avenue From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
04:45 PM	1	0	3	1	5	84	123	10	0	217	5	0	0	0	5	3	100	4	0	107	334
05:00 PM	1	0	1	2	4	99	127	5	1	232	8	3	3	0	14	4	108	3	0	115	365
05:15 PM	1	0	6	0	7	85	128	8	1	222	6	0	2	1	9	4	130	3	0	137	375
05:30 PM	2	1	2	0	5	78	134	8	1	221	7	1	0	0	8	4	119	2	0	125	359
Total Volume	5	1	12	3	21	346	512	31	3	892	26	4	5	1	36	15	457	12	0	484	1433
% App. Total	23.8	4.8	57.1	14.3		38.8	57.4	3.5	0.3		72.2	11.1	13.9	2.8		3.1	94.4	2.5	0		
PHF	.625	.250	.500	.375	.750	.874	.955	.775	.750	.961	.813	.333	.417	.250	.643	.938	.879	.750	.000	.883	.955
Cars	5	1	12	0	18	344	511	30	3	888	25	1	5	0	31	14	441	1	0	456	1393
% Cars	100	100	100	0	85.7	99.4	99.8	96.8	100	99.6	96.2	25.0	100	0	86.1	93.3	96.5	8.3	0	94.2	97.2
Heavy Vehicles	0	0	0	3	3	2	1	1	0	4	1	3	0	1	5	1	16	11	0	28	40
% Heavy Vehicles	0	0	0	100	14.3	0.6	0.2	3.2	0	0.4	3.8	75.0	0	100	13.9	6.7	3.5	91.7	0	5.8	2.8



N/S: McGrath Highway (Route 28)
E/W: Chester Avenue/ Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

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Page No : 1

Groups Printed- Cars - Heavy Vehicles

	McGrath Highway (Route 28) From North				Chester Avenue From East				McGrath Highway (Route 28) From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	19	487	0	0	1	0	0	0	0	109	56	0	120	0	51	0	843
07:15 AM	20	490	0	0	1	0	0	0	0	144	64	4	110	0	38	0	871
07:30 AM	26	396	0	0	0	0	0	0	0	141	86	6	124	0	51	0	830
07:45 AM	19	469	0	1	0	0	0	0	0	168	90	11	99	0	48	0	905
Total	84	1842	0	1	2	0	0	0	0	562	296	21	453	0	188	0	3449
08:00 AM	18	394	0	0	3	0	0	0	0	158	69	13	129	0	44	0	828
08:15 AM	19	469	0	0	1	0	0	0	0	145	73	13	122	0	29	0	871
08:30 AM	24	425	0	0	2	0	0	0	0	141	79	11	152	0	38	0	872
08:45 AM	18	495	0	0	1	0	0	0	0	120	76	8	137	0	33	0	888
Total	79	1783	0	0	7	0	0	0	0	564	297	45	540	0	144	0	3459
Grand Total	163	3625	0	1	9	0	0	0	0	1126	593	66	993	0	332	0	6908
Apprch %	4.3	95.7	0	0	100	0	0	0	0	63.1	33.2	3.7	74.9	0	25.1	0	
Total %	2.4	52.5	0	0	0.1	0	0	0	0	16.3	8.6	1	14.4	0	4.8	0	
Cars	160	3534	0	1	9	0	0	0	0	1060	563	65	969	0	326	0	6687
% Cars	98.2	97.5	0	100	100	0	0	0	0	94.1	94.9	98.5	97.6	0	98.2	0	96.8
Heavy Vehicles	3	91	0	0	0	0	0	0	0	66	30	1	24	0	6	0	221
% Heavy Vehicles	1.8	2.5	0	0	0	0	0	0	0	5.9	5.1	1.5	2.4	0	1.8	0	3.2

	McGrath Highway (Route 28) From North					Chester Avenue From East					McGrath Highway (Route 28) From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	19	469	0	1	489	0	0	0	0	0	0	168	90	11	269	99	0	48	0	147	905
08:00 AM	18	394	0	0	412	3	0	0	0	3	0	158	69	13	240	129	0	44	0	173	828
08:15 AM	19	469	0	0	488	1	0	0	0	1	0	145	73	13	231	122	0	29	0	151	871
08:30 AM	24	425	0	0	449	2	0	0	0	2	0	141	79	11	231	152	0	38	0	190	872
Total Volume	80	1757	0	1	1838	6	0	0	0	6	0	612	311	48	971	502	0	159	0	661	3476
% App. Total	4.4	95.6	0	0.1		100	0	0	0		0	63	32	4.9		75.9	0	24.1	0		
PHF	.833	.937	.000	.250	.940	.500	.000	.000	.000	.500	.000	.911	.864	.923	.902	.826	.000	.828	.000	.870	.960
Cars	79	1711	0	1	1791	6	0	0	0	6	0	572	293	47	912	491	0	155	0	646	3355
% Cars	98.8	97.4	0	100	97.4	100	0	0	0	100	0	93.5	94.2	97.9	93.9	97.8	0	97.5	0	97.7	96.5
Heavy Vehicles	1	46	0	0	47	0	0	0	0	0	0	40	18	1	59	11	0	4	0	15	121
% Heavy Vehicles	1.3	2.6	0	0	2.6	0	0	0	0	0	0	6.5	5.8	2.1	6.1	2.2	0	2.5	0	2.3	3.5

N/S: McGrath Highway (Route 28)
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Groups Printed- Cars

	McGrath Highway (Route 28) From North				Chester Avenue From East				McGrath Highway (Route 28) From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	19	475	0	0	1	0	0	0	0	105	51	0	119	0	50	0	820
07:15 AM	20	476	0	0	1	0	0	0	0	139	63	4	106	0	38	0	847
07:30 AM	25	393	0	0	0	0	0	0	0	131	82	6	124	0	51	0	812
07:45 AM	19	454	0	1	0	0	0	0	0	157	89	11	97	0	47	0	875
Total	83	1798	0	1	2	0	0	0	0	532	285	21	446	0	186	0	3354
08:00 AM	18	380	0	0	3	0	0	0	0	145	64	13	126	0	42	0	791
08:15 AM	18	458	0	0	1	0	0	0	0	139	65	12	119	0	29	0	841
08:30 AM	24	419	0	0	2	0	0	0	0	131	75	11	149	0	37	0	848
08:45 AM	17	479	0	0	1	0	0	0	0	113	74	8	129	0	32	0	853
Total	77	1736	0	0	7	0	0	0	0	528	278	44	523	0	140	0	3333
Grand Total	160	3534	0	1	9	0	0	0	0	1060	563	65	969	0	326	0	6687
Apprch %	4.3	95.6	0	0	100	0	0	0	0	62.8	33.4	3.9	74.8	0	25.2	0	
Total %	2.4	52.8	0	0	0.1	0	0	0	0	15.9	8.4	1	14.5	0	4.9	0	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45 AM

	McGrath Highway (Route 28) From North					Chester Avenue From East					McGrath Highway (Route 28) From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:45 AM	19	454	0	1	474	0	0	0	0	0	0	157	89	11	257	97	0	47	0	144	875
08:00 AM	18	380	0	0	398	3	0	0	0	3	0	145	64	13	222	126	0	42	0	168	791
08:15 AM	18	458	0	0	476	1	0	0	0	1	0	139	65	12	216	119	0	29	0	148	841
08:30 AM	24	419	0	0	443	2	0	0	0	2	0	131	75	11	217	149	0	37	0	186	848
Total Volume	79	1711	0	1	1791	6	0	0	0	6	0	572	293	47	912	491	0	155	0	646	3355
% App. Total	4.4	95.5	0	0.1		100	0	0	0		0	62.7	32.1	5.2		76	0	24	0		
PHF	.823	.934	.000	.250	.941	.500	.000	.000	.000	.500	.000	.911	.823	.904	.887	.824	.000	.824	.000	.868	.959

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Groups Printed- Heavy Vehicles

	McGrath Highway (Route 28) From North				Chester Avenue From East				McGrath Highway (Route 28) From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	12	0	0	0	0	0	0	0	4	5	0	1	0	1	0	23
07:15 AM	0	14	0	0	0	0	0	0	0	5	1	0	4	0	0	0	24
07:30 AM	1	3	0	0	0	0	0	0	0	10	4	0	0	0	0	0	18
07:45 AM	0	15	0	0	0	0	0	0	0	11	1	0	2	0	1	0	30
Total	1	44	0	0	0	0	0	0	0	30	11	0	7	0	2	0	95
08:00 AM	0	14	0	0	0	0	0	0	0	13	5	0	3	0	2	0	37
08:15 AM	1	11	0	0	0	0	0	0	0	6	8	1	3	0	0	0	30
08:30 AM	0	6	0	0	0	0	0	0	0	10	4	0	3	0	1	0	24
08:45 AM	1	16	0	0	0	0	0	0	0	7	2	0	8	0	1	0	35
Total	2	47	0	0	0	0	0	0	0	36	19	1	17	0	4	0	126
Grand Total	3	91	0	0	0	0	0	0	0	66	30	1	24	0	6	0	221
Apprch %	3.2	96.8	0	0	0	0	0	0	0	68	30.9	1	80	0	20	0	
Total %	1.4	41.2	0	0	0	0	0	0	0	29.9	13.6	0.5	10.9	0	2.7	0	

	McGrath Highway (Route 28) From North					Chester Avenue From East					McGrath Highway (Route 28) From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	14	0	0	14	0	0	0	0	0	0	13	5	0	18	3	0	2	0	5	37
08:15 AM	1	11	0	0	12	0	0	0	0	0	0	6	8	1	15	3	0	0	0	3	30
08:30 AM	0	6	0	0	6	0	0	0	0	0	0	10	4	0	14	3	0	1	0	4	24
08:45 AM	1	16	0	0	17	0	0	0	0	0	0	7	2	0	9	8	0	1	0	9	35
Total Volume	2	47	0	0	49	0	0	0	0	0	0	36	19	1	56	17	0	4	0	21	126
% App. Total	4.1	95.9	0	0		0	0	0	0		0	64.3	33.9	1.8		81	0	19	0		
PHF	.500	.734	.000	.000	.721	.000	.000	.000	.000	.000	.000	.692	.594	.250	.778	.531	.000	.500	.000	.583	.851

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	McGrath Highway (Route 28) From North					Chester Avenue From East					McGrath Highway (Route 28) From South					Medford Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	2	7
07:15 AM	0	0	0	2	5	0	0	0	2	4	0	0	0	0	1	1	0	0	0	2	17
07:30 AM	0	0	0	1	14	0	0	0	2	14	0	0	0	1	0	1	0	0	0	3	36
07:45 AM	2	1	0	1	12	0	0	0	0	12	0	0	0	0	1	4	0	0	0	3	36
Total	2	1	0	4	33	0	0	0	4	33	0	0	0	1	2	6	0	0	0	10	96
08:00 AM	0	3	0	6	3	0	0	0	5	2	0	1	0	0	1	8	0	0	0	0	29
08:15 AM	0	0	0	2	3	0	0	0	4	1	0	0	0	0	0	2	0	0	2	3	17
08:30 AM	0	5	0	0	3	0	0	0	1	4	0	0	0	0	0	4	0	0	0	2	19
08:45 AM	0	3	0	0	1	0	0	0	1	2	0	1	0	0	0	4	0	0	0	1	13
Total	0	11	0	8	10	0	0	0	11	9	0	2	0	0	1	18	0	0	2	6	78
Grand Total	2	12	0	12	43	0	0	0	15	42	0	2	0	1	3	24	0	0	2	16	174
Apprch %	2.9	17.4	0	17.4	62.3	0	0	0	26.3	73.7	0	33.3	0	16.7	50	57.1	0	0	4.8	38.1	
Total %	1.1	6.9	0	6.9	24.7	0	0	0	8.6	24.1	0	1.1	0	0.6	1.7	13.8	0	0	1.1	9.2	

	McGrath Highway (Route 28) From North						Chester Avenue From East						McGrath Highway (Route 28) From South						Medford Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:15 AM																									
07:15 AM	0	0	0	2	5	7	0	0	0	2	4	6	0	0	0	0	1	1	1	0	0	0	2	3	17
07:30 AM	0	0	0	1	14	15	0	0	0	2	14	16	0	0	0	1	0	1	1	0	0	0	3	4	36
07:45 AM	2	1	0	1	12	16	0	0	0	0	12	12	0	0	0	0	1	1	4	0	0	0	3	7	36
08:00 AM	0	3	0	6	3	12	0	0	0	5	2	7	0	1	0	0	1	2	8	0	0	0	0	8	29
Total Volume	2	4	0	10	34	50	0	0	0	9	32	41	0	1	0	1	3	5	14	0	0	0	8	22	118
% App. Total	4	8	0	20	68		0	0	0	22	78		0	20	0	20	60		63.6	0	0	0	36.4		
PHF	.250	.333	.000	.417	.607	.781	.000	.000	.000	.450	.571	.641	.000	.250	.000	.250	.750	.625	.438	.000	.000	.000	.667	.688	.819

N/S: McGrath Highway (Route 28)
E/W: Chester Avenue/ Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

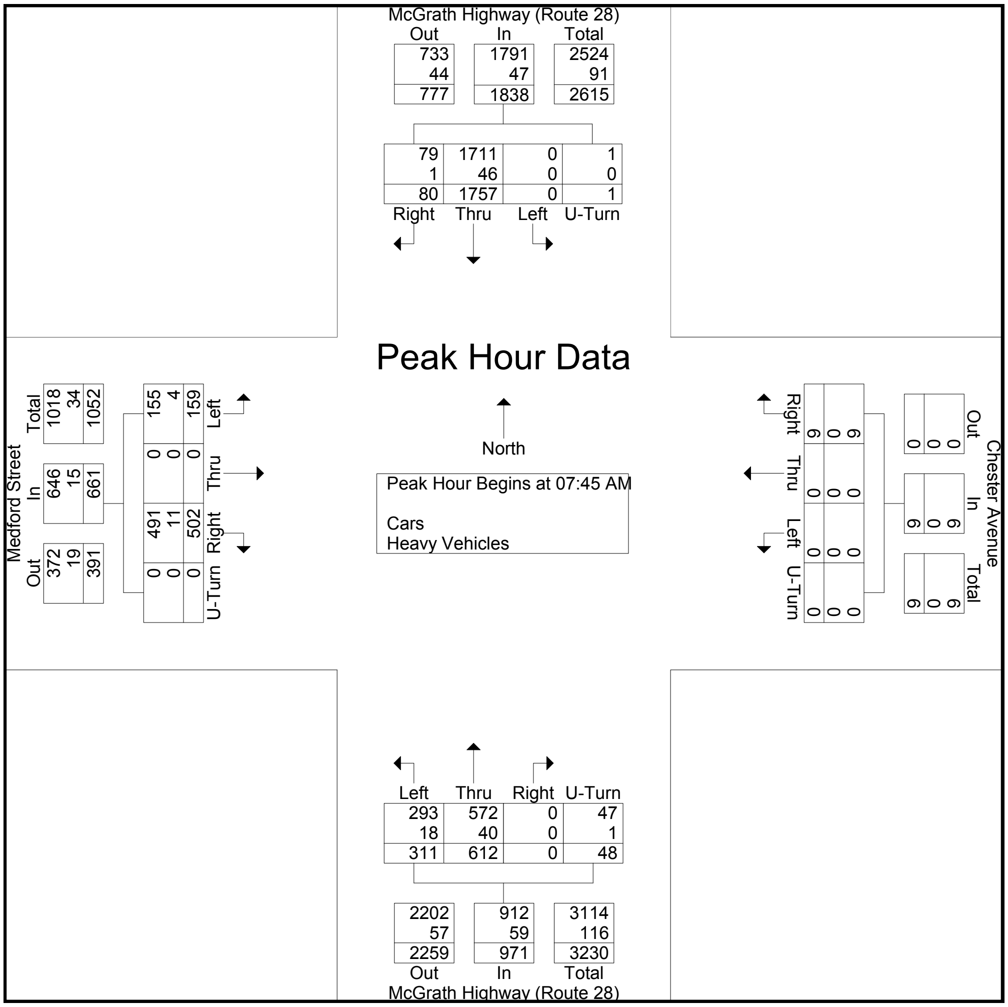
PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 J
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45 AM

	McGrath Highway (Route 28) From North					Chester Avenue From East					McGrath Highway (Route 28) From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:45 AM	19	469	0	1	489	0	0	0	0	0	0	168	90	11	269	99	0	48	0	147	905
08:00 AM	18	394	0	0	412	3	0	0	0	3	0	158	69	13	240	129	0	44	0	173	828
08:15 AM	19	469	0	0	488	1	0	0	0	1	0	145	73	13	231	122	0	29	0	151	871
08:30 AM	24	425	0	0	449	2	0	0	0	2	0	141	79	11	231	152	0	38	0	190	872
Total Volume	80	1757	0	1	1838	6	0	0	0	6	0	612	311	48	971	502	0	159	0	661	3476
% App. Total	4.4	95.6	0	0.1		100	0	0	0		0	63	32	4.9		75.9	0	24.1	0		
PHF	.833	.937	.000	.250	.940	.500	.000	.000	.000	.500	.000	.911	.864	.923	.902	.826	.000	.828	.000	.870	.960
Cars	79	1711	0	1	1791	6	0	0	0	6	0	572	293	47	912	491	0	155	0	646	3355
% Cars	98.8	97.4	0	100	97.4	100	0	0	0	100	0	93.5	94.2	97.9	93.9	97.8	0	97.5	0	97.7	96.5
Heavy Vehicles	1	46	0	0	47	0	0	0	0	0	0	40	18	1	59	11	0	4	0	15	121
% Heavy Vehicles	1.3	2.6	0	0	2.6	0	0	0	0	0	0	6.5	5.8	2.1	6.1	2.2	0	2.5	0	2.3	3.5



N/S: McGrath Highway (Route 28)
E/W: Chester Avenue/ Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

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D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 JJ
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	McGrath Highway (Route 28) From North				Chester Avenue From East				McGrath Highway (Route 28) From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	42	256	0	0	1	0	0	0	0	409	147	2	54	0	51	0	962
04:15 PM	37	231	0	0	1	0	0	0	0	398	202	5	68	0	60	0	1002
04:30 PM	39	261	0	0	0	0	0	0	0	441	181	5	60	0	52	0	1039
04:45 PM	37	221	0	0	0	0	0	0	0	395	194	4	59	0	39	0	949
Total	155	969	0	0	2	0	0	0	0	1643	724	16	241	0	202	0	3952
05:00 PM	36	257	0	0	0	0	0	0	0	402	185	6	58	0	57	0	1001
05:15 PM	39	218	0	0	1	0	0	0	1	418	188	11	81	0	65	0	1022
05:30 PM	34	284	0	0	0	0	0	0	0	451	174	7	78	0	48	0	1076
05:45 PM	35	233	0	0	0	0	0	0	0	391	197	4	66	0	40	0	966
Total	144	992	0	0	1	0	0	0	1	1662	744	28	283	0	210	0	4065
Grand Total	299	1961	0	0	3	0	0	0	1	3305	1468	44	524	0	412	0	8017
Apprch %	13.2	86.8	0	0	100	0	0	0	0	68.6	30.5	0.9	56	0	44	0	
Total %	3.7	24.5	0	0	0	0	0	0	0	41.2	18.3	0.5	6.5	0	5.1	0	
Cars	297	1919	0	0	3	0	0	0	1	3275	1445	43	509	0	406	0	7898
% Cars	99.3	97.9	0	0	100	0	0	0	100	99.1	98.4	97.7	97.1	0	98.5	0	98.5
Heavy Vehicles	2	42	0	0	0	0	0	0	0	30	23	1	15	0	6	0	119
% Heavy Vehicles	0.7	2.1	0	0	0	0	0	0	0	0.9	1.6	2.3	2.9	0	1.5	0	1.5

	McGrath Highway (Route 28) From North					Chester Avenue From East					McGrath Highway (Route 28) From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	36	257	0	0	293	0	0	0	0	0	0	402	185	6	593	58	0	57	0	115	1001
05:15 PM	39	218	0	0	257	1	0	0	0	1	1	418	188	11	618	81	0	65	0	146	1022
05:30 PM	34	284	0	0	318	0	0	0	0	0	0	451	174	7	632	78	0	48	0	126	1076
05:45 PM	35	233	0	0	268	0	0	0	0	0	0	391	197	4	592	66	0	40	0	106	966
Total Volume	144	992	0	0	1136	1	0	0	0	1	1	1662	744	28	2435	283	0	210	0	493	4065
% App. Total	12.7	87.3	0	0		100	0	0	0		0	68.3	30.6	1.1		57.4	0	42.6	0		
PHF	.923	.873	.000	.000	.893	.250	.000	.000	.000	.250	.250	.921	.944	.636	.963	.873	.000	.808	.000	.844	.944
Cars	143	980	0	0	1123	1	0	0	0	1	1	1648	734	28	2411	274	0	208	0	482	4017
% Cars	99.3	98.8	0	0	98.9	100	0	0	0	100	100	99.2	98.7	100	99.0	96.8	0	99.0	0	97.8	98.8
Heavy Vehicles	1	12	0	0	13	0	0	0	0	0	0	14	10	0	24	9	0	2	0	11	48
% Heavy Vehicles	0.7	1.2	0	0	1.1	0	0	0	0	0	0	0.8	1.3	0	1.0	3.2	0	1.0	0	2.2	1.2

N/S: McGrath Highway (Route 28)
E/W: Chester Avenue/ Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 JJ
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	McGrath Highway (Route 28) From North				Chester Avenue From East				McGrath Highway (Route 28) From South				Medford Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	41	244	0	0	1	0	0	0	0	404	143	2	53	0	50	0	938
04:15 PM	37	228	0	0	1	0	0	0	0	394	199	5	66	0	58	0	988
04:30 PM	39	250	0	0	0	0	0	0	0	438	179	5	59	0	52	0	1022
04:45 PM	37	217	0	0	0	0	0	0	0	391	190	3	57	0	38	0	933
Total	154	939	0	0	2	0	0	0	0	1627	711	15	235	0	198	0	3881
05:00 PM	36	254	0	0	0	0	0	0	0	395	183	6	56	0	57	0	987
05:15 PM	38	218	0	0	1	0	0	0	1	414	184	11	79	0	64	0	1010
05:30 PM	34	280	0	0	0	0	0	0	0	448	174	7	74	0	47	0	1064
05:45 PM	35	228	0	0	0	0	0	0	0	391	193	4	65	0	40	0	956
Total	143	980	0	0	1	0	0	0	1	1648	734	28	274	0	208	0	4017
Grand Total	297	1919	0	0	3	0	0	0	1	3275	1445	43	509	0	406	0	7898
Apprch %	13.4	86.6	0	0	100	0	0	0	0	68.7	30.3	0.9	55.6	0	44.4	0	
Total %	3.8	24.3	0	0	0	0	0	0	0	41.5	18.3	0.5	6.4	0	5.1	0	

	McGrath Highway (Route 28) From North					Chester Avenue From East					McGrath Highway (Route 28) From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	36	254	0	0	290	0	0	0	0	0	0	395	183	6	584	56	0	57	0	113	987
05:15 PM	38	218	0	0	256	1	0	0	0	1	1	414	184	11	610	79	0	64	0	143	1010
05:30 PM	34	280	0	0	314	0	0	0	0	0	0	448	174	7	629	74	0	47	0	121	1064
05:45 PM	35	228	0	0	263	0	0	0	0	0	0	391	193	4	588	65	0	40	0	105	956
Total Volume	143	980	0	0	1123	1	0	0	0	1	1	1648	734	28	2411	274	0	208	0	482	4017
% App. Total	12.7	87.3	0	0		100	0	0	0		0	68.4	30.4	1.2		56.8	0	43.2	0		
PHF	.941	.875	.000	.000	.894	.250	.000	.000	.000	.250	.250	.920	.951	.636	.958	.867	.000	.813	.000	.843	.944

N/S: McGrath Highway (Route 28)
E/W: Chester Avenue/ Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 JJ
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Heavy Vehicles

	McGrath Highway (Route 28) From North				**Chester Avenue From East**				**McGrath Highway (Route 28) From South**				**Medford Street From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	1	12	0	0	0	0	0	0	0	5	4	0	1	0	1	0	24
04:15 PM	0	3	0	0	0	0	0	0	0	4	3	0	2	0	2	0	14
04:30 PM	0	11	0	0	0	0	0	0	0	3	2	0	1	0	0	0	17
04:45 PM	0	4	0	0	0	0	0	0	0	4	4	1	2	0	1	0	16
Total	1	30	0	0	0	0	0	0	0	16	13	1	6	0	4	0	71
05:00 PM	0	3	0	0	0	0	0	0	0	7	2	0	2	0	0	0	14
05:15 PM	1	0	0	0	0	0	0	0	0	4	4	0	2	0	1	0	12
05:30 PM	0	4	0	0	0	0	0	0	0	3	0	0	4	0	1	0	12
05:45 PM	0	5	0	0	0	0	0	0	0	0	4	0	1	0	0	0	10
Total	1	12	0	0	0	0	0	0	0	14	10	0	9	0	2	0	48
Grand Total	2	42	0	0	0	0	0	0	0	30	23	1	15	0	6	0	119
Apprch %	4.5	95.5	0	0	0	0	0	0	0	55.6	42.6	1.9	71.4	0	28.6	0	
Total %	1.7	35.3	0	0	0	0	0	0	0	25.2	19.3	0.8	12.6	0	5	0	

	McGrath Highway (Route 28) From North					**Chester Avenue From East**					**McGrath Highway (Route 28) From South**					**Medford Street From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	1	12	0	0	13	0	0	0	0	0	0	5	4	0	9	1	0	1	0	2	24
04:15 PM	0	3	0	0	3	0	0	0	0	0	0	4	3	0	7	2	0	2	0	4	14
04:30 PM	0	11	0	0	11	0	0	0	0	0	0	3	2	0	5	1	0	0	0	1	17
04:45 PM	0	4	0	0	4	0	0	0	0	0	0	4	4	1	9	2	0	1	0	3	16
Total Volume	1	30	0	0	31	0	0	0	0	0	0	16	13	1	30	6	0	4	0	10	71
% App. Total	3.2	96.8	0	0		0	0	0	0		0	53.3	43.3	3.3		60	0	40	0		
PHF	.250	.625	.000	.000	.596	.000	.000	.000	.000	.000	.000	.800	.813	.250	.833	.750	.000	.500	.000	.625	.740

N/S: McGrath Highway (Route 28)
E/W: Chester Avenue/ Medford Street
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 JJ
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Peds and Bikes

	McGrath Highway (Route 28) From North					Chester Avenue From East					McGrath Highway (Route 28) From South					Medford Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	1	0	0	0	0	2	0	0	0	2	1	0	1	0	0	0	1	8
04:15 PM	0	1	0	2	1	0	0	0	2	2	0	1	0	0	0	1	0	0	1	1	12
04:30 PM	0	0	0	1	0	0	0	0	1	0	0	0	0	1	1	0	0	0	1	2	7
04:45 PM	0	0	0	1	1	0	0	0	2	0	0	0	1	1	1	1	0	0	0	0	8
Total	0	1	0	5	2	0	0	0	7	2	0	1	3	3	2	3	0	0	2	4	35
05:00 PM	0	0	0	3	3	0	0	0	2	0	0	0	0	0	0	0	0	1	3	0	12
05:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	5	0	9
05:30 PM	0	0	0	2	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	6
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3
Total	0	1	0	5	5	0	0	0	3	0	0	0	1	1	1	1	0	1	10	1	30
Grand Total	0	2	0	10	7	0	0	0	10	2	0	1	4	4	3	4	0	1	12	5	65
Apprch %	0	10.5	0	52.6	36.8	0	0	0	83.3	16.7	0	8.3	33.3	33.3	25	18.2	0	4.5	54.5	22.7	
Total %	0	3.1	0	15.4	10.8	0	0	0	15.4	3.1	0	1.5	6.2	6.2	4.6	6.2	0	1.5	18.5	7.7	

	McGrath Highway (Route 28) From North						Chester Avenue From East						McGrath Highway (Route 28) From South						Medford Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 04:15 PM																									
04:15 PM	0	1	0	2	1	4	0	0	0	2	2	4	0	1	0	0	0	1	1	0	0	1	1	3	12
04:30 PM	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	1	1	2	0	0	0	1	2	3	7
04:45 PM	0	0	0	1	1	2	0	0	0	2	0	2	0	0	1	1	1	3	1	0	0	0	0	1	8
05:00 PM	0	0	0	3	3	6	0	0	0	2	0	2	0	0	0	0	0	0	0	0	1	3	0	4	12
Total Volume	0	1	0	7	5	13	0	0	0	7	2	9	0	1	1	2	2	6	2	0	1	5	3	11	39
% App. Total	0	7.7	0	53.8	38.5		0	0	0	77.8	22.2		0	16.7	16.7	33.3	33.3		18.2	0	9.1	45.5	27.3		
PHF	.000	.250	.000	.583	.417	.542	.000	.000	.000	.875	.250	.563	.000	.250	.250	.500	.500	.500	.500	.000	.250	.417	.375	.688	.813

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

	McGrath Highway (Route 28) From North					Chester Avenue From East					McGrath Highway (Route 28) From South					Medford Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
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Peak Hour for Entire Intersection Begins at 05:00 PM																					
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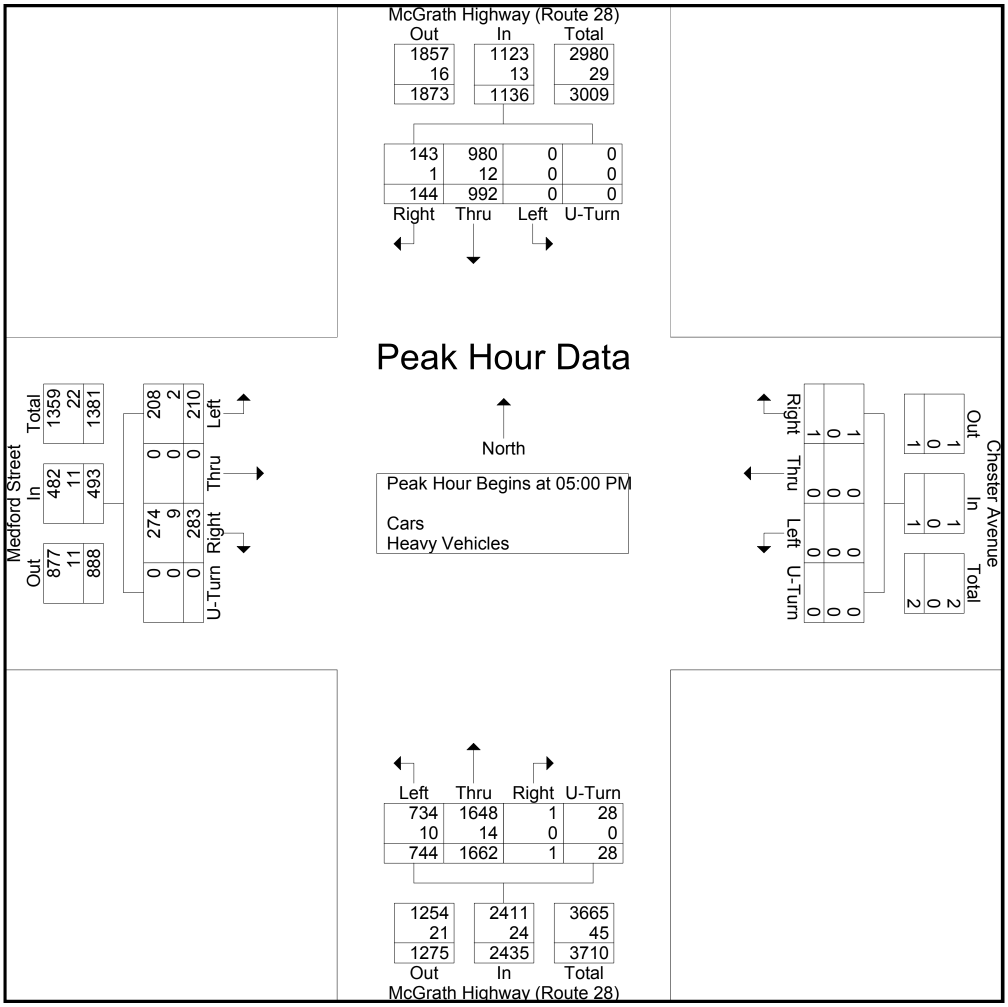
05:15 PM	39	218	0	0	257	1	0	0	0	1	1	418	188	11	618	81	0	65	0	146	1022
05:30 PM	34	284	0	0	318	0	0	0	0	0	0	451	174	7	632	78	0	48	0	126	1076
05:45 PM	35	233	0	0	268	0	0	0	0	0	0	391	197	4	592	66	0	40	0	106	966
Total Volume	144	992	0	0	1136	1	0	0	0	1	1	1662	744	28	2435	283	0	210	0	493	4065
% App. Total	12.7	87.3	0	0		100	0	0	0		0	68.3	30.6	1.1		57.4	0	42.6	0		
PHF	.923	.873	.000	.000	.893	.250	.000	.000	.000	.250	.250	.921	.944	.636	.963	.873	.000	.808	.000	.844	.944
Cars	143	980	0	0	1123	1	0	0	0	1	1	1648	734	28	2411	274	0	208	0	482	4017
% Cars	99.3	98.8	0	0	98.9	100	0	0	0	100	100	99.2	98.7	100	99.0	96.8	0	99.0	0	97.8	98.8
Heavy Vehicles	1	12	0	0	13	0	0	0	0	0	0	14	10	0	24	9	0	2	0	11	48
% Heavy Vehicles	0.7	1.2	0	0	1.1	0	0	0	0	0	0	0.8	1.3	0	1.0	3.2	0	1.0	0	2.2	1.2



N/S: McGrath Highway (Route 28)
E/W: Broadway
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

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DATA
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 K
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	McGrath Highway (Route 28) From North				Broadway From East				McGrath Highway (Route 28) From South				Broadway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	16	421	11	2	36	42	15	3	11	159	14	0	39	68	88	0	925
07:15 AM	11	338	26	4	31	54	16	4	7	162	23	0	71	82	123	0	952
07:30 AM	24	280	11	1	40	73	26	2	9	184	16	2	71	86	93	0	918
07:45 AM	5	203	7	0	40	82	30	2	9	190	19	0	72	129	121	0	909
Total	56	1242	55	7	147	251	87	11	36	695	72	2	253	365	425	0	3704
08:00 AM	14	282	10	3	39	73	37	4	8	208	24	2	57	96	88	0	945
08:15 AM	14	260	24	4	36	48	43	2	9	163	27	1	75	83	109	0	898
08:30 AM	11	246	9	4	37	46	26	0	5	160	20	2	81	77	100	0	824
08:45 AM	17	225	10	1	39	43	18	1	6	133	8	0	123	94	147	0	865
Total	56	1013	53	12	151	210	124	7	28	664	79	5	336	350	444	0	3532
Grand Total	112	2255	108	19	298	461	211	18	64	1359	151	7	589	715	869	0	7236
Apprch %	4.5	90.4	4.3	0.8	30.2	46.7	21.4	1.8	4	86	9.6	0.4	27.1	32.9	40	0	
Total %	1.5	31.2	1.5	0.3	4.1	6.4	2.9	0.2	0.9	18.8	2.1	0.1	8.1	9.9	12	0	
Cars	109	2191	100	19	293	420	204	17	58	1284	146	7	576	669	850	0	6943
% Cars	97.3	97.2	92.6	100	98.3	91.1	96.7	94.4	90.6	94.5	96.7	100	97.8	93.6	97.8	0	96
Heavy Vehicles	3	64	8	0	5	41	7	1	6	75	5	0	13	46	19	0	293
% Heavy Vehicles	2.7	2.8	7.4	0	1.7	8.9	3.3	5.6	9.4	5.5	3.3	0	2.2	6.4	2.2	0	4

	McGrath Highway (Route 28) From North					Broadway From East					McGrath Highway (Route 28) From South					Broadway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	11	338	26	4	379	31	54	16	4	105	7	162	23	0	192	71	82	123	0	276	952
07:30 AM	24	280	11	1	316	40	73	26	2	141	9	184	16	2	211	71	86	93	0	250	918
07:45 AM	5	203	7	0	215	40	82	30	2	154	9	190	19	0	218	72	129	121	0	322	909
08:00 AM	14	282	10	3	309	39	73	37	4	153	8	208	24	2	242	57	96	88	0	241	945
Total Volume	54	1103	54	8	1219	150	282	109	12	553	33	744	82	4	863	271	393	425	0	1089	3724
% App. Total	4.4	90.5	4.4	0.7		27.1	51	19.7	2.2		3.8	86.2	9.5	0.5		24.9	36.1	39	0		
PHF	.563	.816	.519	.500	.804	.938	.860	.736	.750	.898	.917	.894	.854	.500	.892	.941	.762	.864	.000	.845	.978
Cars	53	1073	52	8	1186	148	259	104	11	522	31	699	80	4	814	263	365	416	0	1044	3566
% Cars	98.1	97.3	96.3	100	97.3	98.7	91.8	95.4	91.7	94.4	93.9	94.0	97.6	100	94.3	97.0	92.9	97.9	0	95.9	95.8
Heavy Vehicles	1	30	2	0	33	2	23	5	1	31	2	45	2	0	49	8	28	9	0	45	158
% Heavy Vehicles	1.9	2.7	3.7	0	2.7	1.3	8.2	4.6	8.3	5.6	6.1	6.0	2.4	0	5.7	3.0	7.1	2.1	0	4.1	4.2

N/S: McGrath Highway (Route 28)
E/W: Broadway
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 K
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	McGrath Highway (Route 28) From North				**Broadway From East**				**McGrath Highway (Route 28) From South**				**Broadway From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	16	411	9	2	35	35	15	3	10	153	13	0	39	66	86	0	893
07:15 AM	11	329	25	4	30	49	15	4	7	158	22	0	69	78	121	0	922
07:30 AM	23	275	11	1	39	63	26	2	8	171	16	2	69	81	89	0	876
07:45 AM	5	195	6	0	40	78	27	1	9	178	19	0	71	121	119	0	869
Total	55	1210	51	7	144	225	83	10	34	660	70	2	248	346	415	0	3560
08:00 AM	14	274	10	3	39	69	36	4	7	192	23	2	54	85	87	0	899
08:15 AM	14	253	22	4	36	43	43	2	7	154	25	1	74	78	109	0	865
08:30 AM	10	239	9	4	36	42	25	0	5	151	20	2	81	75	97	0	796
08:45 AM	16	215	8	1	38	41	17	1	5	127	8	0	119	85	142	0	823
Total	54	981	49	12	149	195	121	7	24	624	76	5	328	323	435	0	3383
Grand Total	109	2191	100	19	293	420	204	17	58	1284	146	7	576	669	850	0	6943
Apprch %	4.5	90.6	4.1	0.8	31.4	45	21.8	1.8	3.9	85.9	9.8	0.5	27.5	31.9	40.6	0	
Total %	1.6	31.6	1.4	0.3	4.2	6	2.9	0.2	0.8	18.5	2.1	0.1	8.3	9.6	12.2	0	

	McGrath Highway (Route 28) From North					**Broadway From East**					**McGrath Highway (Route 28) From South**					**Broadway From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	11	329	25	4	369	30	49	15	4	98	7	158	22	0	187	69	78	121	0	268	922
07:30 AM	23	275	11	1	310	39	63	26	2	130	8	171	16	2	197	69	81	89	0	239	876
07:45 AM	5	195	6	0	206	40	78	27	1	146	9	178	19	0	206	71	121	119	0	311	869
08:00 AM	14	274	10	3	301	39	69	36	4	148	7	192	23	2	224	54	85	87	0	226	899
Total Volume	53	1073	52	8	1186	148	259	104	11	522	31	699	80	4	814	263	365	416	0	1044	3566
% App. Total	4.5	90.5	4.4	0.7		28.4	49.6	19.9	2.1		3.8	85.9	9.8	0.5		25.2	35	39.8	0		
PHF	.576	.815	.520	.500	.804	.925	.830	.722	.688	.882	.861	.910	.870	.500	.908	.926	.754	.860	.000	.839	.967

N/S: McGrath Highway (Route 28)
E/W: Broadway
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 K
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Heavy Vehicles

	McGrath Highway (Route 28) From North				Broadway From East				McGrath Highway (Route 28) From South				Broadway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	10	2	0	1	7	0	0	1	6	1	0	0	2	2	0	32
07:15 AM	0	9	1	0	1	5	1	0	0	4	1	0	2	4	2	0	30
07:30 AM	1	5	0	0	1	10	0	0	1	13	0	0	2	5	4	0	42
07:45 AM	0	8	1	0	0	4	3	1	0	12	0	0	1	8	2	0	40
Total	1	32	4	0	3	26	4	1	2	35	2	0	5	19	10	0	144
08:00 AM	0	8	0	0	0	4	1	0	1	16	1	0	3	11	1	0	46
08:15 AM	0	7	2	0	0	5	0	0	2	9	2	0	1	5	0	0	33
08:30 AM	1	7	0	0	1	4	1	0	0	9	0	0	0	2	3	0	28
08:45 AM	1	10	2	0	1	2	1	0	1	6	0	0	4	9	5	0	42
Total	2	32	4	0	2	15	3	0	4	40	3	0	8	27	9	0	149
Grand Total	3	64	8	0	5	41	7	1	6	75	5	0	13	46	19	0	293
Apprch %	4	85.3	10.7	0	9.3	75.9	13	1.9	7	87.2	5.8	0	16.7	59	24.4	0	
Total %	1	21.8	2.7	0	1.7	14	2.4	0.3	2	25.6	1.7	0	4.4	15.7	6.5	0	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

	McGrath Highway (Route 28) From North					Broadway From East					McGrath Highway (Route 28) From South					Broadway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
07:30 AM	1	5	0	0	6	1	10	0	0	11	1	13	0	0	14	2	5	4	0	11	42
07:45 AM	0	8	1	0	9	0	4	3	1	8	0	12	0	0	12	1	8	2	0	11	40
08:00 AM	0	8	0	0	8	0	4	1	0	5	1	16	1	0	18	3	11	1	0	15	46
08:15 AM	0	7	2	0	9	0	5	0	0	5	2	9	2	0	13	1	5	0	0	6	33
Total Volume	1	28	3	0	32	1	23	4	1	29	4	50	3	0	57	7	29	7	0	43	161
% App. Total	3.1	87.5	9.4	0		3.4	79.3	13.8	3.4		7	87.7	5.3	0		16.3	67.4	16.3	0		
PHF	.250	.875	.375	.000	.889	.250	.575	.333	.250	.659	.500	.781	.375	.000	.792	.583	.659	.438	.000	.717	.875

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Groups Printed- Peds and Bikes

	McGrath Highway (Route 28) From North					Broadway From East					McGrath Highway (Route 28) From South					Broadway From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	2	1	0	0	0	0	1	0	0	0	5	2	0	2	0	2	1	16
07:15 AM	0	0	0	5	1	0	0	0	4	1	0	0	0	0	9	1	1	0	0	1	23
07:30 AM	0	0	0	7	3	0	0	0	9	0	0	0	0	5	8	1	0	0	0	3	36
07:45 AM	0	0	0	11	0	0	0	0	5	1	0	1	0	5	9	0	2	0	3	0	37
Total	0	0	0	25	5	0	0	0	18	3	0	1	0	15	28	2	5	0	5	5	112
08:00 AM	0	1	0	9	0	0	0	0	8	0	0	1	0	3	7	0	2	0	2	1	34
08:15 AM	0	0	0	6	3	0	0	0	2	1	0	0	0	4	12	0	2	0	3	0	33
08:30 AM	0	4	0	8	2	0	0	0	4	2	0	0	0	2	6	0	2	0	3	3	36
08:45 AM	0	0	0	3	5	0	1	0	0	1	0	0	0	3	9	0	2	0	1	1	26
Total	0	5	0	26	10	0	1	0	14	4	0	1	0	12	34	0	8	0	9	5	129
Grand Total	0	5	0	51	15	0	1	0	32	7	0	2	0	27	62	2	13	0	14	10	241
Apprch %	0	7	0	71.8	21.1	0	2.5	0	80	17.5	0	2.2	0	29.7	68.1	5.1	33.3	0	35.9	25.6	
Total %	0	2.1	0	21.2	6.2	0	0.4	0	13.3	2.9	0	0.8	0	11.2	25.7	0.8	5.4	0	5.8	4.1	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

	McGrath Highway (Route 28) From North						Broadway From East						McGrath Highway (Route 28) From South						Broadway From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
07:30 AM	0	0	0	7	3	10	0	0	0	9	0	9	0	0	0	5	8	13	1	0	0	0	3	4	36
07:45 AM	0	0	0	11	0	11	0	0	0	5	1	6	0	1	0	5	9	15	0	2	0	3	0	5	37
08:00 AM	0	1	0	9	0	10	0	0	0	8	0	8	0	1	0	3	7	11	0	2	0	2	1	5	34
08:15 AM	0	0	0	6	3	9	0	0	0	2	1	3	0	0	0	4	12	16	0	2	0	3	0	5	33
Total Volume	0	1	0	33	6	40	0	0	0	24	2	26	0	2	0	17	36	55	1	6	0	8	4	19	140
% App. Total	0	2.5	0	82.5	15		0	0	0	92.3	7.7		0	3.6	0	30.9	65.5		5.3	31.6	0	42.1	21.1		
PHF	.000	.250	.000	.750	.500	.909	.000	.000	.000	.667	.500	.722	.000	.500	.000	.850	.750	.859	.250	.750	.000	.667	.333	.950	.946

N/S: McGrath Highway (Route 28)
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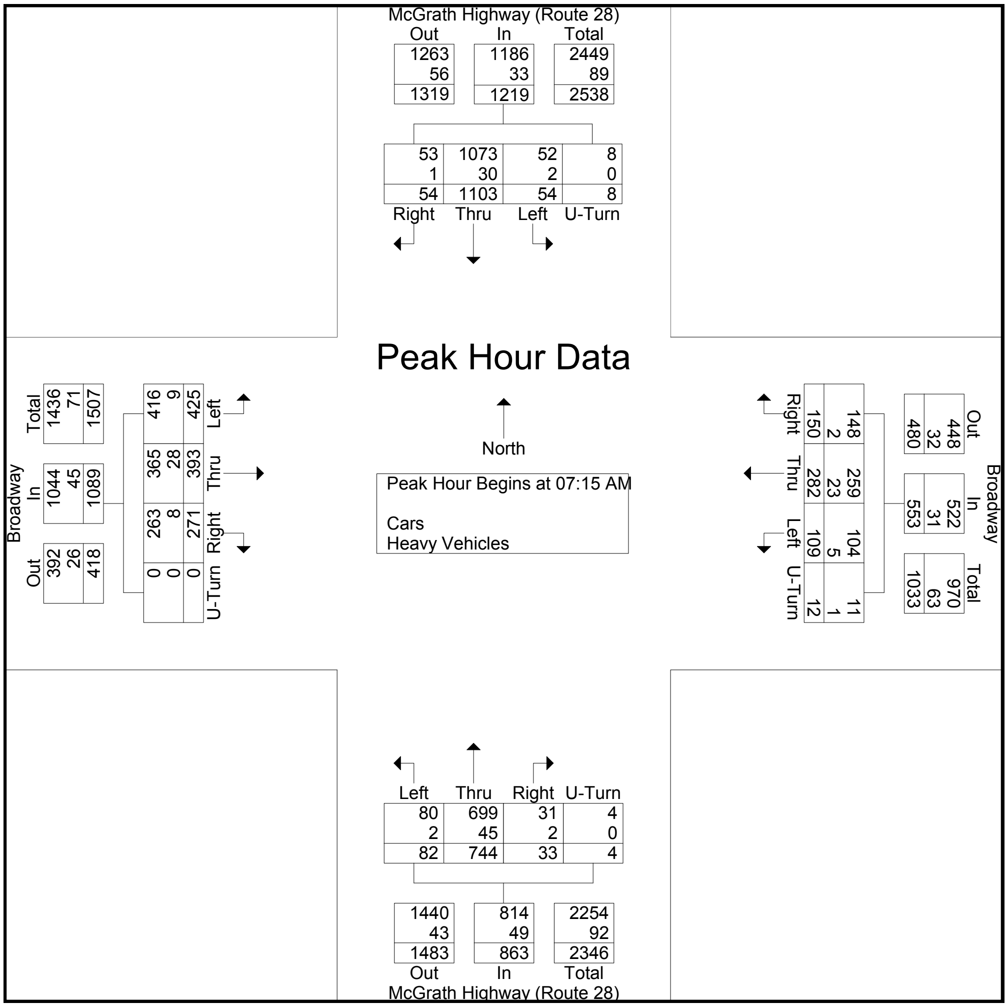
	McGrath Highway (Route 28) From North					Broadway From East					McGrath Highway (Route 28) From South					Broadway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	11	338	26	4	379	31	54	16	4	105	7	162	23	0	192	71	82	123	0	276	952
07:30 AM	24	280	11	1	316	40	73	26	2	141	9	184	16	2	211	71	86	93	0	250	918
07:45 AM	5	203	7	0	215	40	82	30	2	154	9	190	19	0	218	72	129	121	0	322	909
08:00 AM	14	282	10	3	309	39	73	37	4	153	8	208	24	2	242	57	96	88	0	241	945
Total Volume	54	1103	54	8	1219	150	282	109	12	553	33	744	82	4	863	271	393	425	0	1089	3724
% App. Total	4.4	90.5	4.4	0.7		27.1	51	19.7	2.2		3.8	86.2	9.5	0.5		24.9	36.1	39	0		
PHF	.563	.816	.519	.500	.804	.938	.860	.736	.750	.898	.917	.894	.854	.500	.892	.941	.762	.864	.000	.845	.978
Cars	53	1073	52	8	1186	148	259	104	11	522	31	699	80	4	814	263	365	416	0	1044	3566
% Cars	98.1	97.3	96.3	100	97.3	98.7	91.8	95.4	91.7	94.4	93.9	94.0	97.6	100	94.3	97.0	92.9	97.9	0	95.9	95.8
Heavy Vehicles	1	30	2	0	33	2	23	5	1	31	2	45	2	0	49	8	28	9	0	45	158
% Heavy Vehicles	1.9	2.7	3.7	0	2.7	1.3	8.2	4.6	8.3	5.6	6.1	6.0	2.4	0	5.7	3.0	7.1	2.1	0	4.1	4.2



N/S: McGrath Highway (Route 28)
E/W: Broadway
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
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Groups Printed- Cars - Heavy Vehicles

	McGrath Highway (Route 28) From North				Broadway From East				McGrath Highway (Route 28) From South				Broadway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	39	266	19	8	46	78	31	2	13	422	29	1	27	54	111	1	1147
04:15 PM	47	251	21	6	53	90	31	1	16	397	33	2	37	74	133	0	1192
04:30 PM	44	229	14	7	63	64	21	2	12	483	27	0	26	55	122	0	1169
04:45 PM	54	238	31	3	49	89	37	3	16	370	44	0	43	62	127	0	1166
Total	184	984	85	24	211	321	120	8	57	1672	133	3	133	245	493	1	4674
05:00 PM	45	273	18	7	57	62	27	2	22	420	30	2	31	58	102	0	1156
05:15 PM	49	257	21	8	60	94	48	6	10	351	38	3	41	86	103	0	1175
05:30 PM	69	280	33	12	55	68	30	5	19	365	41	1	23	67	114	1	1183
05:45 PM	52	223	35	13	55	84	37	3	11	322	43	0	42	71	108	2	1101
Total	215	1033	107	40	227	308	142	16	62	1458	152	6	137	282	427	3	4615
Grand Total	399	2017	192	64	438	629	262	24	119	3130	285	9	270	527	920	4	9289
Apprch %	14.9	75.5	7.2	2.4	32.4	46.5	19.4	1.8	3.4	88.3	8	0.3	15.7	30.6	53.5	0.2	
Total %	4.3	21.7	2.1	0.7	4.7	6.8	2.8	0.3	1.3	33.7	3.1	0.1	2.9	5.7	9.9	0	
Cars	395	1987	191	64	428	602	259	23	118	3098	285	9	270	504	909	4	9146
% Cars	99	98.5	99.5	100	97.7	95.7	98.9	95.8	99.2	99	100	100	100	95.6	98.8	100	98.5
Heavy Vehicles	4	30	1	0	10	27	3	1	1	32	0	0	0	23	11	0	143
% Heavy Vehicles	1	1.5	0.5	0	2.3	4.3	1.1	4.2	0.8	1	0	0	0	4.4	1.2	0	1.5

	McGrath Highway (Route 28) From North					Broadway From East					McGrath Highway (Route 28) From South					Broadway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:15 PM

04:15 PM	47	251	21	6	325	53	90	31	1	175	16	397	33	2	448	37	74	133	0	244	1192
04:30 PM	44	229	14	7	294	63	64	21	2	150	12	483	27	0	522	26	55	122	0	203	1169
04:45 PM	54	238	31	3	326	49	89	37	3	178	16	370	44	0	430	43	62	127	0	232	1166
05:00 PM	45	273	18	7	343	57	62	27	2	148	22	420	30	2	474	31	58	102	0	191	1156
Total Volume	190	991	84	23	1288	222	305	116	8	651	66	1670	134	4	1874	137	249	484	0	870	4683
% App. Total	14.8	76.9	6.5	1.8		34.1	46.9	17.8	1.2		3.5	89.1	7.2	0.2		15.7	28.6	55.6	0		
PHF	.880	.908	.677	.821	.939	.881	.847	.784	.667	.914	.750	.864	.761	.500	.898	.797	.841	.910	.000	.891	.982
Cars	188	973	83	23	1267	217	290	115	8	630	65	1653	134	4	1856	137	238	475	0	850	4603
% Cars	98.9	98.2	98.8	100	98.4	97.7	95.1	99.1	100	96.8	98.5	99.0	100	100	99.0	100	95.6	98.1	0	97.7	98.3
Heavy Vehicles	2	18	1	0	21	5	15	1	0	21	1	17	0	0	18	0	11	9	0	20	80
% Heavy Vehicles	1.1	1.8	1.2	0	1.6	2.3	4.9	0.9	0	3.2	1.5	1.0	0	0	1.0	0	4.4	1.9	0	2.3	1.7

N/S: McGrath Highway (Route 28)
E/W: Broadway
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 KK
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	McGrath Highway (Route 28) From North				Broadway From East				McGrath Highway (Route 28) From South				Broadway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	38	260	19	8	42	78	29	2	13	414	29	1	27	52	111	1	1124
04:15 PM	46	250	21	6	48	85	30	1	16	392	33	2	37	70	127	0	1164
04:30 PM	44	216	14	7	63	61	21	2	12	480	27	0	26	53	120	0	1146
04:45 PM	54	235	30	3	49	86	37	3	15	366	44	0	43	60	127	0	1152
Total	182	961	84	24	202	310	117	8	56	1652	133	3	133	235	485	1	4586
05:00 PM	44	272	18	7	57	58	27	2	22	415	30	2	31	55	101	0	1141
05:15 PM	48	257	21	8	59	93	48	6	10	347	38	3	41	82	102	0	1163
05:30 PM	69	275	33	12	55	65	30	5	19	363	41	1	23	64	114	1	1170
05:45 PM	52	222	35	13	55	76	37	2	11	321	43	0	42	68	107	2	1086
Total	213	1026	107	40	226	292	142	15	62	1446	152	6	137	269	424	3	4560
Grand Total	395	1987	191	64	428	602	259	23	118	3098	285	9	270	504	909	4	9146
Apprch %	15	75.4	7.2	2.4	32.6	45.9	19.7	1.8	3.4	88.3	8.1	0.3	16	29.9	53.9	0.2	
Total %	4.3	21.7	2.1	0.7	4.7	6.6	2.8	0.3	1.3	33.9	3.1	0.1	3	5.5	9.9	0	

	McGrath Highway (Route 28) From North					Broadway From East					McGrath Highway (Route 28) From South					Broadway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	54	235	30	3	322	49	86	37	3	175	15	366	44	0	425	43	60	127	0	230	1152
05:00 PM	44	272	18	7	341	57	58	27	2	144	22	415	30	2	469	31	55	101	0	187	1141
05:15 PM	48	257	21	8	334	59	93	48	6	206	10	347	38	3	398	41	82	102	0	225	1163
05:30 PM	69	275	33	12	389	55	65	30	5	155	19	363	41	1	424	23	64	114	1	202	1170
Total Volume	215	1039	102	30	1386	220	302	142	16	680	66	1491	153	6	1716	138	261	444	1	844	4626
% App. Total	15.5	75	7.4	2.2		32.4	44.4	20.9	2.4		3.8	86.9	8.9	0.3		16.4	30.9	52.6	0.1		
PHF	.779	.945	.773	.625	.891	.932	.812	.740	.667	.825	.750	.898	.869	.500	.915	.802	.796	.874	.250	.917	.988

N/S: McGrath Highway (Route 28)
E/W: Broadway
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 KK
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Heavy Vehicles

	McGrath Highway (Route 28) From North				**Broadway From East**				**McGrath Highway (Route 28) From South**				**Broadway From West**				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	1	6	0	0	4	0	2	0	0	8	0	0	0	2	0	0	23
04:15 PM	1	1	0	0	5	5	1	0	0	5	0	0	0	4	6	0	28
04:30 PM	0	13	0	0	0	3	0	0	0	3	0	0	0	2	2	0	23
04:45 PM	0	3	1	0	0	3	0	0	1	4	0	0	0	2	0	0	14
Total	2	23	1	0	9	11	3	0	1	20	0	0	0	10	8	0	88
05:00 PM	1	1	0	0	0	4	0	0	0	5	0	0	0	3	1	0	15
05:15 PM	1	0	0	0	1	1	0	0	0	4	0	0	0	4	1	0	12
05:30 PM	0	5	0	0	0	3	0	0	0	2	0	0	0	3	0	0	13
05:45 PM	0	1	0	0	0	8	0	1	0	1	0	0	0	3	1	0	15
Total	2	7	0	0	1	16	0	1	0	12	0	0	0	13	3	0	55
Grand Total	4	30	1	0	10	27	3	1	1	32	0	0	0	23	11	0	143
Apprch %	11.4	85.7	2.9	0	24.4	65.9	7.3	2.4	3	97	0	0	0	67.6	32.4	0	
Total %	2.8	21	0.7	0	7	18.9	2.1	0.7	0.7	22.4	0	0	0	16.1	7.7	0	

	McGrath Highway (Route 28) From North					**Broadway From East**					**McGrath Highway (Route 28) From South**					**Broadway From West**					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	1	6	0	0	7	4	0	2	0	6	0	8	0	0	8	0	2	0	0	2	23
04:15 PM	1	1	0	0	2	5	5	1	0	11	0	5	0	0	5	0	4	6	0	10	28
04:30 PM	0	13	0	0	13	0	3	0	0	3	0	3	0	0	3	0	2	2	0	4	23
04:45 PM	0	3	1	0	4	0	3	0	0	3	1	4	0	0	5	0	2	0	0	2	14
Total Volume	2	23	1	0	26	9	11	3	0	23	1	20	0	0	21	0	10	8	0	18	88
% App. Total	7.7	88.5	3.8	0		39.1	47.8	13	0		4.8	95.2	0	0		0	55.6	44.4	0		
PHF	.500	.442	.250	.000	.500	.450	.550	.375	.000	.523	.250	.625	.000	.000	.656	.000	.625	.333	.000	.450	.786

N/S: McGrath Highway (Route 28)
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D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 KK
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Peds and Bikes

	McGrath Highway (Route 28) From North					Broadway From East					McGrath Highway (Route 28) From South					Broadway From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	13	4	0	4	0	2	2	0	0	0	6	4	0	1	0	2	1	39
04:15 PM	0	0	0	7	12	0	1	0	0	0	0	1	0	5	2	0	1	0	2	1	32
04:30 PM	1	0	0	2	7	0	1	0	3	1	0	0	0	5	4	0	0	0	0	2	26
04:45 PM	0	0	0	6	5	0	1	0	3	0	0	0	0	15	3	0	0	0	1	0	34
Total	1	0	0	28	28	0	7	0	8	3	0	1	0	31	13	0	2	0	5	4	131
05:00 PM	0	0	0	8	5	0	3	0	3	3	0	0	0	3	0	0	0	0	0	0	25
05:15 PM	0	1	0	4	5	0	1	1	1	4	0	0	0	22	4	0	1	0	1	0	45
05:30 PM	0	0	0	3	9	0	0	0	1	6	0	1	1	14	5	0	0	0	1	1	42
05:45 PM	0	0	0	6	9	0	4	0	3	6	0	0	0	10	3	0	1	0	0	2	44
Total	0	1	0	21	28	0	8	1	8	19	0	1	1	49	12	0	2	0	2	3	156
Grand Total	1	1	0	49	56	0	15	1	16	22	0	2	1	80	25	0	4	0	7	7	287
Apprch %	0.9	0.9	0	45.8	52.3	0	27.8	1.9	29.6	40.7	0	1.9	0.9	74.1	23.1	0	22.2	0	38.9	38.9	
Total %	0.3	0.3	0	17.1	19.5	0	5.2	0.3	5.6	7.7	0	0.7	0.3	27.9	8.7	0	1.4	0	2.4	2.4	

	McGrath Highway (Route 28) From North						Broadway From East						McGrath Highway (Route 28) From South						Broadway From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 05:00 PM																									
05:00 PM	0	0	0	8	5	13	0	3	0	3	3	9	0	0	0	3	0	3	0	0	0	0	0	0	25
05:15 PM	0	1	0	4	5	10	0	1	1	1	4	7	0	0	0	22	4	26	0	1	0	1	0	2	45
05:30 PM	0	0	0	3	9	12	0	0	0	1	6	7	0	1	1	14	5	21	0	0	0	1	1	2	42
05:45 PM	0	0	0	6	9	15	0	4	0	3	6	13	0	0	0	10	3	13	0	1	0	0	2	3	44
Total Volume	0	1	0	21	28	50	0	8	1	8	19	36	0	1	1	49	12	63	0	2	0	2	3	7	156
% App. Total	0	2	0	42	56		0	22.2	2.8	22.2	52.8		0	1.6	1.6	77.8	19		0	28.6	0	28.6	42.9		
PHF	.000	.250	.000	.656	.778	.833	.000	.500	.250	.667	.792	.692	.000	.250	.250	.557	.600	.606	.000	.500	.000	.500	.375	.583	.867

N/S: McGrath Highway (Route 28)
E/W: Broadway
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

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Site Code : 2015-069
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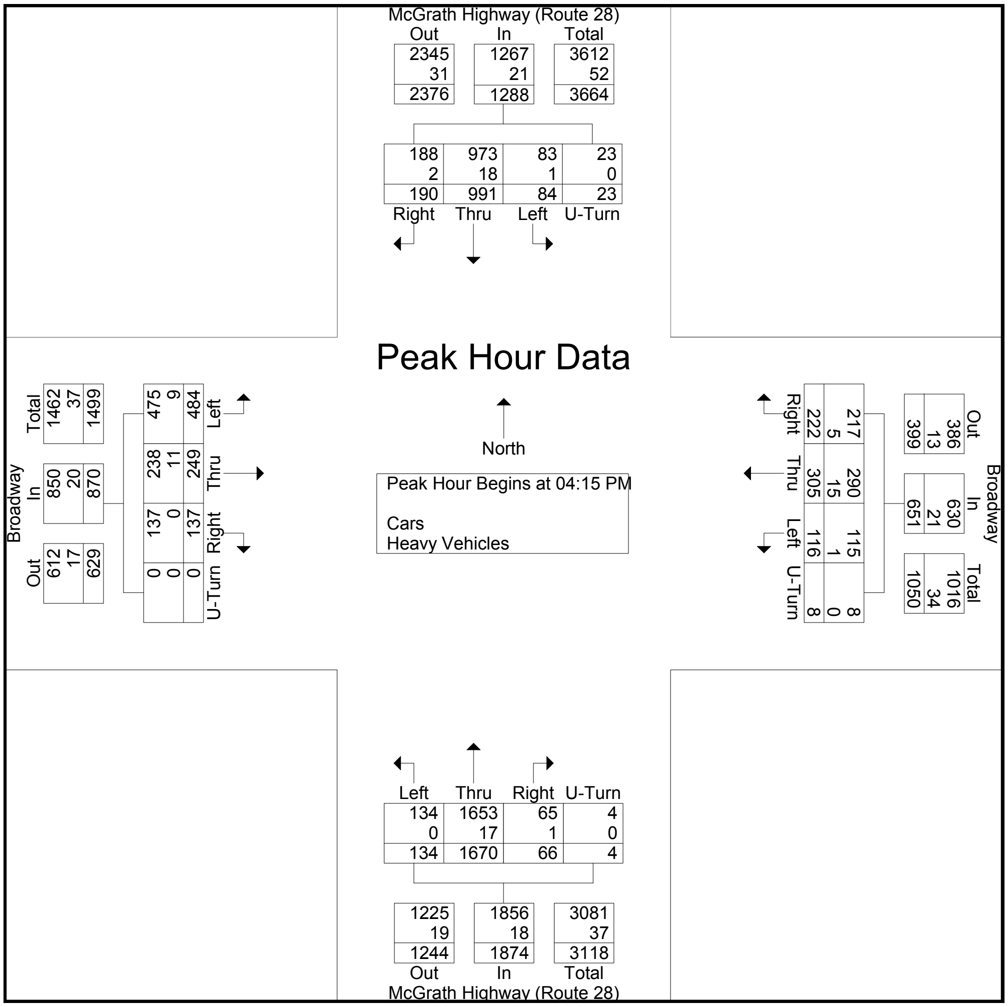
Page No : 1

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:15 PM

	McGrath Highway (Route 28) From North					Broadway From East					McGrath Highway (Route 28) From South					Broadway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
04:15 PM	47	251	21	6	325	53	90	31	1	175	16	397	33	2	448	37	74	133	0	244	1192
04:30 PM	44	229	14	7	294	63	64	21	2	150	12	483	27	0	522	26	55	122	0	203	1169
04:45 PM	54	238	31	3	326	49	89	37	3	178	16	370	44	0	430	43	62	127	0	232	1166
05:00 PM	45	273	18	7	343	57	62	27	2	148	22	420	30	2	474	31	58	102	0	191	1156
Total Volume	190	991	84	23	1288	222	305	116	8	651	66	1670	134	4	1874	137	249	484	0	870	4683
% App. Total	14.8	76.9	6.5	1.8		34.1	46.9	17.8	1.2		3.5	89.1	7.2	0.2		15.7	28.6	55.6	0		
PHF	.880	.908	.677	.821	.939	.881	.847	.784	.667	.914	.750	.864	.761	.500	.898	.797	.841	.910	.000	.891	.982
Cars	188	973	83	23	1267	217	290	115	8	630	65	1653	134	4	1856	137	238	475	0	850	4603
% Cars	98.9	98.2	98.8	100	98.4	97.7	95.1	99.1	100	96.8	98.5	99.0	100	100	99.0	100	95.6	98.1	0	97.7	98.3
Heavy Vehicles	2	18	1	0	21	5	15	1	0	21	1	17	0	0	18	0	11	9	0	20	80
% Heavy Vehicles	1.1	1.8	1.2	0	1.6	2.3	4.9	0.9	0	3.2	1.5	1.0	0	0	1.0	0	4.4	1.9	0	2.3	1.7



S: School Street
E/W: Broadway
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 L
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Broadway From East			School Street From South			Broadway From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	136	43	1	11	5	0	33	169	0	398
07:15 AM	130	51	2	16	8	0	42	174	1	424
07:30 AM	154	51	0	29	10	0	27	203	0	474
07:45 AM	194	48	1	30	8	0	22	198	0	501
Total	614	193	4	86	31	0	124	744	1	1797
08:00 AM	174	45	1	23	12	0	16	185	0	456
08:15 AM	134	44	0	23	7	0	26	193	0	427
08:30 AM	126	54	1	31	9	0	34	160	0	415
08:45 AM	135	48	1	24	4	0	23	177	0	412
Total	569	191	3	101	32	0	99	715	0	1710
Grand Total	1183	384	7	187	63	0	223	1459	1	3507
Apprch %	75.2	24.4	0.4	74.8	25.2	0	13.3	86.7	0.1	
Total %	33.7	10.9	0.2	5.3	1.8	0	6.4	41.6	0	
Cars	1115	375	7	185	63	0	220	1395	1	3361
% Cars	94.3	97.7	100	98.9	100	0	98.7	95.6	100	95.8
Heavy Vehicles	68	9	0	2	0	0	3	64	0	146
% Heavy Vehicles	5.7	2.3	0	1.1	0	0	1.3	4.4	0	4.2

	Broadway From East				School Street From South				Broadway From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	154	51	0	205	29	10	0	39	27	203	0	230	474
07:45 AM	194	48	1	243	30	8	0	38	22	198	0	220	501
08:00 AM	174	45	1	220	23	12	0	35	16	185	0	201	456
08:15 AM	134	44	0	178	23	7	0	30	26	193	0	219	427
Total Volume	656	188	2	846	105	37	0	142	91	779	0	870	1858
% App. Total	77.5	22.2	0.2		73.9	26.1	0		10.5	89.5	0		
PHF	.845	.922	.500	.870	.875	.771	.000	.910	.843	.959	.000	.946	.927
Cars	627	185	2	814	105	37	0	142	90	745	0	835	1791
% Cars	95.6	98.4	100	96.2	100	100	0	100	98.9	95.6	0	96.0	96.4
Heavy Vehicles	29	3	0	32	0	0	0	0	1	34	0	35	67
% Heavy Vehicles	4.4	1.6	0	3.8	0	0	0	0	1.1	4.4	0	4.0	3.6

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
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S: School Street
E/W: Broadway
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 L
Site Code : 2015-069
Start Date : 11/18/2015
Page No : 1

Groups Printed- Cars

	Broadway From East			**School Street From South**			**Broadway From West**			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	120	42	1	11	5	0	32	163	0	374
07:15 AM	124	50	2	16	8	0	42	167	1	410
07:30 AM	141	51	0	29	10	0	26	193	0	450
07:45 AM	190	46	1	30	8	0	22	192	0	489
Total	575	189	4	86	31	0	122	715	1	1723
08:00 AM	166	44	1	23	12	0	16	173	0	435
08:15 AM	130	44	0	23	7	0	26	187	0	417
08:30 AM	115	54	1	31	9	0	33	154	0	397
08:45 AM	129	44	1	22	4	0	23	166	0	389
Total	540	186	3	99	32	0	98	680	0	1638
Grand Total	1115	375	7	185	63	0	220	1395	1	3361
Apprch %	74.5	25.1	0.5	74.6	25.4	0	13.6	86.3	0.1	
Total %	33.2	11.2	0.2	5.5	1.9	0	6.5	41.5	0	

	Broadway From East				**School Street From South**				**Broadway From West**				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	141	51	0	192	29	10	0	39	26	193	0	219	450
07:45 AM	190	46	1	237	30	8	0	38	22	192	0	214	489
08:00 AM	166	44	1	211	23	12	0	35	16	173	0	189	435
08:15 AM	130	44	0	174	23	7	0	30	26	187	0	213	417
Total Volume	627	185	2	814	105	37	0	142	90	745	0	835	1791
% App. Total	77	22.7	0.2		73.9	26.1	0		10.8	89.2	0		
PHF	.825	.907	.500	.859	.875	.771	.000	.910	.865	.965	.000	.953	.916

S: School Street
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D A T A
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Groups Printed- Heavy Vehicles

	Broadway From East			**School Street From South**			**Broadway From West**			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	16	1	0	0	0	0	1	6	0	24
07:15 AM	6	1	0	0	0	0	0	7	0	14
07:30 AM	13	0	0	0	0	0	1	10	0	24
07:45 AM	4	2	0	0	0	0	0	6	0	12
Total	39	4	0	0	0	0	2	29	0	74
08:00 AM	8	1	0	0	0	0	0	12	0	21
08:15 AM	4	0	0	0	0	0	0	6	0	10
08:30 AM	11	0	0	0	0	0	1	6	0	18
08:45 AM	6	4	0	2	0	0	0	11	0	23
Total	29	5	0	2	0	0	1	35	0	72
Grand Total	68	9	0	2	0	0	3	64	0	146
Apprch %	88.3	11.7	0	100	0	0	4.5	95.5	0	
Total %	46.6	6.2	0	1.4	0	0	2.1	43.8	0	

	Broadway From East				**School Street From South**				**Broadway From West**				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	16	1	0	17	0	0	0	0	1	6	0	7	24
07:15 AM	6	1	0	7	0	0	0	0	0	7	0	7	14
07:30 AM	13	0	0	13	0	0	0	0	1	10	0	11	24
07:45 AM	4	2	0	6	0	0	0	0	0	6	0	6	12
Total Volume	39	4	0	43	0	0	0	0	2	29	0	31	74
% App. Total	90.7	9.3	0		0	0	0		6.5	93.5	0		
PHF	.609	.500	.000	.632	.000	.000	.000	.000	.500	.725	.000	.705	.771

S: School Street
E/W: Broadway
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

PRECISION
DATA
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154724 L
Site Code : 2015-069
Start Date : 11/18/2015

Groups Printed- Peds and Bikes

	Broadway From East				School Street From South				Broadway From West				
Start Time	Thru	Left	Peds SB	Peds NB	Right	Left	Peds WB	Peds EB	Right	Thru	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	3	1	0	0	0	3	0	0	0	1	8
07:15 AM	0	0	2	0	0	0	1	4	0	0	1	1	9
07:30 AM	0	0	7	0	0	0	3	2	0	4	1	11	28
07:45 AM	2	2	10	1	0	0	0	1	0	5	2	5	28
Total	2	2	22	2	0	0	4	10	0	9	4	18	73
08:00 AM	0	0	5	0	0	0	2	9	0	1	0	3	20
08:15 AM	0	1	1	4	0	0	2	4	0	1	2	2	17
08:30 AM	0	1	1	2	0	0	0	1	1	2	2	2	12
08:45 AM	0	2	0	0	0	0	2	8	1	2	1	2	18
Total	0	4	7	6	0	0	6	22	2	6	5	9	67
Grand Total	2	6	29	8	0	0	10	32	2	15	9	27	140
Apprch %	4.4	13.3	64.4	17.8	0	0	23.8	76.2	3.8	28.3	17	50.9	
Total %	1.4	4.3	20.7	5.7	0	0	7.1	22.9	1.4	10.7	6.4	19.3	

	Broadway From East					School Street From South					Broadway From West					
Start Time	Thru	Left	Peds SB	Peds NB	App. Total	Right	Left	Peds WB	Peds EB	App. Total	Right	Thru	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:30 AM																
07:30 AM	0	0	7	0	7	0	0	3	2	5	0	4	1	11	16	28
07:45 AM	2	2	10	1	15	0	0	0	1	1	0	5	2	5	12	28
08:00 AM	0	0	5	0	5	0	0	2	9	11	0	1	0	3	4	20
08:15 AM	0	1	1	4	6	0	0	2	4	6	0	1	2	2	5	17
Total Volume	2	3	23	5	33	0	0	7	16	23	0	11	5	21	37	93
% App. Total	6.1	9.1	69.7	15.2		0	0	30.4	69.6		0	29.7	13.5	56.8		
PHF	.250	.375	.575	.313	.550	.000	.000	.583	.444	.523	.000	.550	.625	.477	.578	.830

S: School Street
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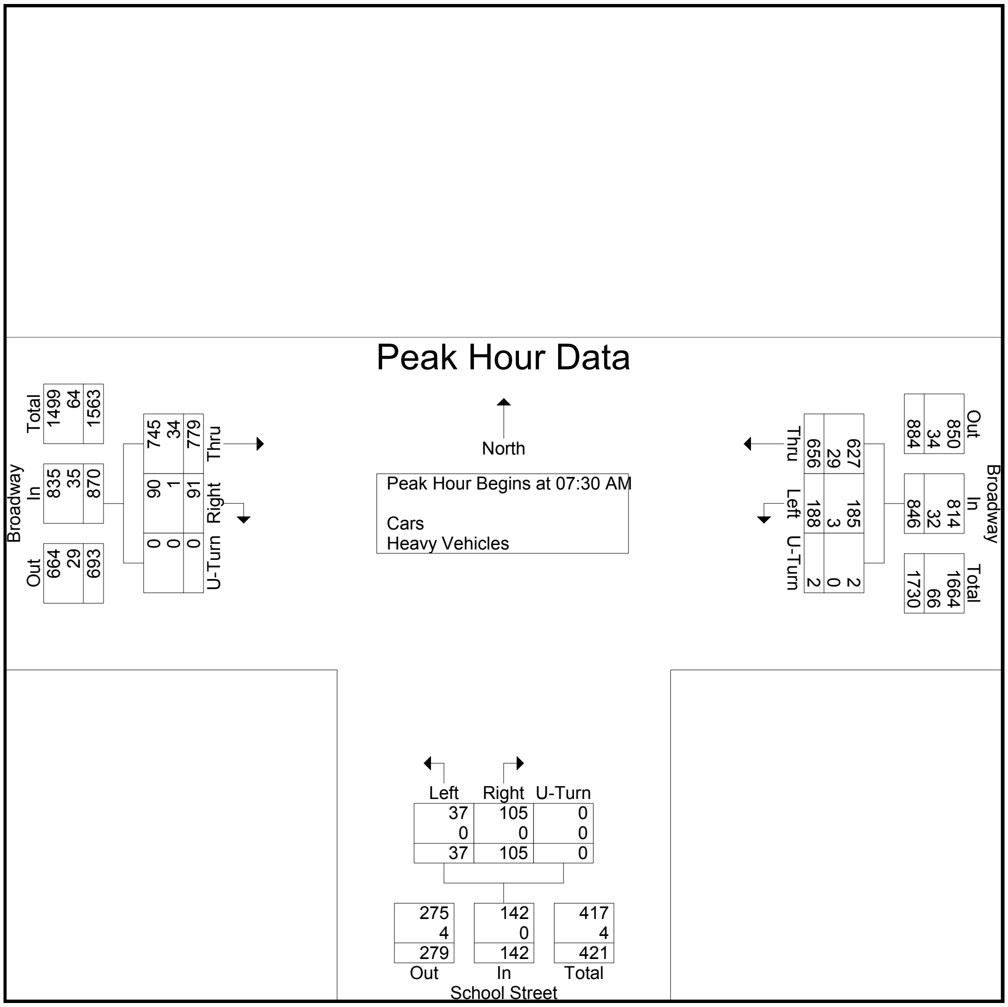
	Broadway From East				**School Street From South**				**Broadway From West**				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	154	51	0	205	29	10	0	39	27	203	0	230	474
07:45 AM	194	48	1	243	30	8	0	38	22	198	0	220	501
08:00 AM	174	45	1	220	23	12	0	35	16	185	0	201	456
08:15 AM	134	44	0	178	23	7	0	30	26	193	0	219	427
Total Volume	656	188	2	846	105	37	0	142	91	779	0	870	1858
% App. Total	77.5	22.2	0.2		73.9	26.1	0		10.5	89.5	0		
PHF	.845	.922	.500	.870	.875	.771	.000	.910	.843	.959	.000	.946	.927
Cars	627	185	2	814	105	37	0	142	90	745	0	835	1791
% Cars	95.6	98.4	100	96.2	100	100	0	100	98.9	95.6	0	96.0	96.4
Heavy Vehicles	29	3	0	32	0	0	0	0	1	34	0	35	67
% Heavy Vehicles	4.4	1.6	0	3.8	0	0	0	0	1.1	4.4	0	4.0	3.6



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File Name : 154724 LL
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Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Broadway From East			**School Street From South**			**Broadway From West**			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	163	48	3	18	23	0	10	144	0	409
04:15 PM	171	46	3	19	20	0	12	148	0	419
04:30 PM	163	54	2	15	16	0	12	160	0	422
04:45 PM	192	50	4	23	25	0	21	163	0	478
Total	689	198	12	75	84	0	55	615	0	1728
05:00 PM	177	60	1	11	16	0	16	154	0	435
05:15 PM	206	54	2	14	12	0	18	162	0	468
05:30 PM	196	57	3	16	10	0	18	142	0	442
05:45 PM	189	63	0	13	16	0	10	129	0	420
Total	768	234	6	54	54	0	62	587	0	1765
Grand Total	1457	432	18	129	138	0	117	1202	0	3493
Apprch %	76.4	22.7	0.9	48.3	51.7	0	8.9	91.1	0	
Total %	41.7	12.4	0.5	3.7	4	0	3.3	34.4	0	
Cars	1431	430	18	128	138	0	117	1171	0	3433
% Cars	98.2	99.5	100	99.2	100	0	100	97.4	0	98.3
Heavy Vehicles	26	2	0	1	0	0	0	31	0	60
% Heavy Vehicles	1.8	0.5	0	0.8	0	0	0	2.6	0	1.7

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM

	Broadway From East				**School Street From South**				**Broadway From West**				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
04:45 PM	192	50	4	246	23	25	0	48	21	163	0	184	478
05:00 PM	177	60	1	238	11	16	0	27	16	154	0	170	435
05:15 PM	206	54	2	262	14	12	0	26	18	162	0	180	468
05:30 PM	196	57	3	256	16	10	0	26	18	142	0	160	442
Total Volume	771	221	10	1002	64	63	0	127	73	621	0	694	1823
% App. Total	76.9	22.1	1		50.4	49.6	0		10.5	89.5	0		
PHF	.936	.921	.625	.956	.696	.630	.000	.661	.869	.952	.000	.943	.953
Cars	760	220	10	990	64	63	0	127	73	607	0	680	1797
% Cars	98.6	99.5	100	98.8	100	100	0	100	100	97.7	0	98.0	98.6
Heavy Vehicles	11	1	0	12	0	0	0	0	0	14	0	14	26
% Heavy Vehicles	1.4	0.5	0	1.2	0	0	0	0	0	2.3	0	2.0	1.4

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Client: Design Consultants/ D/ Caiazzo

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INDUSTRIES, LLC
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File Name : 154724 LL
Site Code : 2015-069
Start Date : 11/18/2015
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Groups Printed- Cars

	Broadway **From East**			**School Street** **From South**			**Broadway** **From West**			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	161	48	3	17	23	0	10	137	0	399
04:15 PM	166	45	3	19	20	0	12	142	0	407
04:30 PM	159	54	2	15	16	0	12	158	0	416
04:45 PM	189	49	4	23	25	0	21	160	0	471
Total	675	196	12	74	84	0	55	597	0	1693
05:00 PM	171	60	1	11	16	0	16	150	0	425
05:15 PM	206	54	2	14	12	0	18	157	0	463
05:30 PM	194	57	3	16	10	0	18	140	0	438
05:45 PM	185	63	0	13	16	0	10	127	0	414
Total	756	234	6	54	54	0	62	574	0	1740
Grand Total	1431	430	18	128	138	0	117	1171	0	3433
Apprch %	76.2	22.9	1	48.1	51.9	0	9.1	90.9	0	
Total %	41.7	12.5	0.5	3.7	4	0	3.4	34.1	0	

	Broadway **From East**				**School Street** **From South**				**Broadway** **From West**				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	189	49	4	242	23	25	0	48	21	160	0	181	471
05:00 PM	171	60	1	232	11	16	0	27	16	150	0	166	425
05:15 PM	206	54	2	262	14	12	0	26	18	157	0	175	463
05:30 PM	194	57	3	254	16	10	0	26	18	140	0	158	438
Total Volume	760	220	10	990	64	63	0	127	73	607	0	680	1797
% App. Total	76.8	22.2	1		50.4	49.6	0		10.7	89.3	0		
PHF	.922	.917	.625	.945	.696	.630	.000	.661	.869	.948	.000	.939	.954

S: School Street
E/W: Broadway
City, State: Somerville, MA
Client: Design Consultants/ D/ Caiazzo

File Name : 154724 LL
Site Code : 2015-069
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Groups Printed- Heavy Vehicles

	Broadway **From East**			**School Street** **From South**			**Broadway** **From West**			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	2	0	0	1	0	0	0	7	0	10
04:15 PM	5	1	0	0	0	0	0	6	0	12
04:30 PM	4	0	0	0	0	0	0	2	0	6
04:45 PM	3	1	0	0	0	0	0	3	0	7
Total	14	2	0	1	0	0	0	18	0	35
05:00 PM	6	0	0	0	0	0	0	4	0	10
05:15 PM	0	0	0	0	0	0	0	5	0	5
05:30 PM	2	0	0	0	0	0	0	2	0	4
05:45 PM	4	0	0	0	0	0	0	2	0	6
Total	12	0	0	0	0	0	0	13	0	25
Grand Total	26	2	0	1	0	0	0	31	0	60
Apprch %	92.9	7.1	0	100	0	0	0	100	0	
Total %	43.3	3.3	0	1.7	0	0	0	51.7	0	

	Broadway **From East**				**School Street** **From South**				**Broadway** **From West**				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	2	0	0	2	1	0	0	1	0	7	0	7	10
04:15 PM	5	1	0	6	0	0	0	0	0	6	0	6	12
04:30 PM	4	0	0	4	0	0	0	0	0	2	0	2	6
04:45 PM	3	1	0	4	0	0	0	0	0	3	0	3	7
Total Volume	14	2	0	16	1	0	0	1	0	18	0	18	35
% App. Total	87.5	12.5	0		100	0	0		0	100	0		
PHF	.700	.500	.000	.667	.250	.000	.000	.250	.000	.643	.000	.643	.729

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DATA
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Office: 508.481.3999 Fax: 508.545.1234
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Groups Printed- Peds and Bikes

	Broadway From East				**School Street From South**				**Broadway From West**				
Start Time	Thru	Left	Peds SB	Peds NB	Right	Left	Peds WB	Peds EB	Right	Thru	Peds NB	Peds SB	Int. Total
04:00 PM	3	0	1	4	0	1	3	6	0	0	0	0	18
04:15 PM	1	0	2	2	0	0	1	5	0	3	0	1	15
04:30 PM	1	0	1	5	0	0	0	7	0	0	9	6	29
04:45 PM	0	0	1	0	1	0	1	2	0	0	0	2	7
Total	5	0	5	11	1	1	5	20	0	3	9	9	69
05:00 PM	2	0	2	3	0	0	7	6	0	0	0	1	21
05:15 PM	0	0	0	2	0	1	3	4	0	0	3	3	16
05:30 PM	1	1	0	1	0	0	6	2	0	0	0	0	11
05:45 PM	0	0	5	3	0	0	5	7	0	0	0	6	26
Total	3	1	7	9	0	1	21	19	0	0	3	10	74
Grand Total	8	1	12	20	1	2	26	39	0	3	12	19	143
Apprch %	19.5	2.4	29.3	48.8	1.5	2.9	38.2	57.4	0	8.8	35.3	55.9	
Total %	5.6	0.7	8.4	14	0.7	1.4	18.2	27.3	0	2.1	8.4	13.3	

	Broadway From East					**School Street From South**					**Broadway From West**					
Start Time	Thru	Left	Peds SB	Peds NB	App. Total	Right	Left	Peds WB	Peds EB	App. Total	Right	Thru	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 05:00 PM																
05:00 PM	2	0	2	3	7	0	0	7	6	13	0	0	0	1	1	21
05:15 PM	0	0	0	2	2	0	1	3	4	8	0	0	3	3	6	16
05:30 PM	1	1	0	1	3	0	0	6	2	8	0	0	0	0	0	11
05:45 PM	0	0	5	3	8	0	0	5	7	12	0	0	0	6	6	26
Total Volume	3	1	7	9	20	0	1	21	19	41	0	0	3	10	13	74
% App. Total	15	5	35	45		0	2.4	51.2	46.3		0	0	23.1	76.9		
PHF	.375	.250	.350	.750	.625	.000	.250	.750	.679	.788	.000	.000	.250	.417	.542	.712

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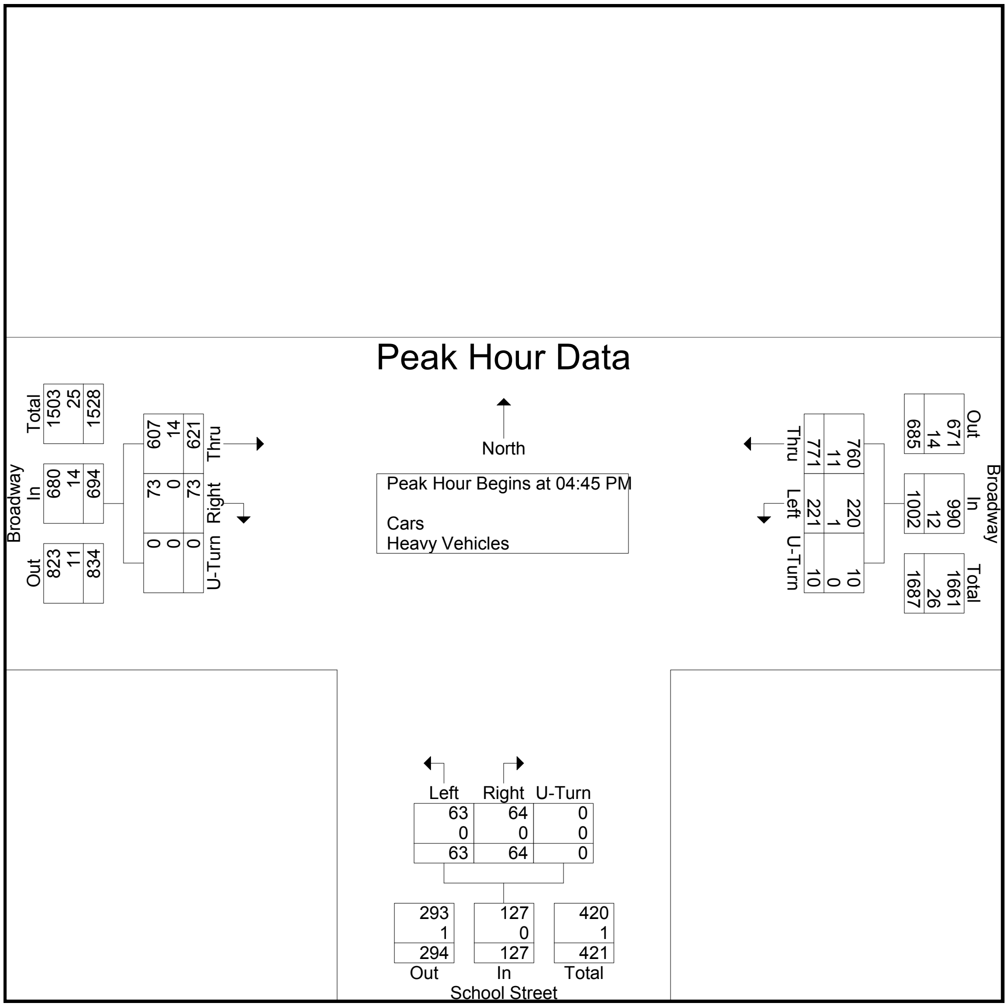
	Broadway From East				School Street From South				Broadway From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:45 PM

Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
04:45 PM	192	50	4	246	23	25	0	48	21	163	0	184	478
05:00 PM	177	60	1	238	11	16	0	27	16	154	0	170	435
05:15 PM	206	54	2	262	14	12	0	26	18	162	0	180	468
05:30 PM	196	57	3	256	16	10	0	26	18	142	0	160	442
Total Volume	771	221	10	1002	64	63	0	127	73	621	0	694	1823
% App. Total	76.9	22.1	1		50.4	49.6	0		10.5	89.5	0		
PHF	.936	.921	.625	.956	.696	.630	.000	.661	.869	.952	.000	.943	.953
Cars	760	220	10	990	64	63	0	127	73	607	0	680	1797
% Cars	98.6	99.5	100	98.8	100	100	0	100	100	97.7	0	98.0	98.6
Heavy Vehicles	11	1	0	12	0	0	0	0	0	14	0	14	26
% Heavy Vehicles	1.4	0.5	0	1.2	0	0	0	0	0	2.3	0	2.0	1.4



APPENDIX II – HISTORICAL DATA

Design Consultants, Inc
Somerville High School project

DESIGN CONSULTANTS, INC.

MassDOT Permanent Counting Station
COUNT STATION 8098 I-93 AT MEDFORD

Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	
December	November	October	September	August	July	June	May	April	March	February	January	Avg
163,742	142571	150268	149561	149642	147641	150258	148550	147803	142847	128899	126062	145654

COUNT STATION 8099 RAMP-RT 93 SB TO MYSTIC AVE

Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	Year 2014	
December	November	October	September	August	July	June	May	April	March	February	January	Avg
143,350	164,478	173,963	172,924	172,705	170,675	174,511	172,359	171,355	165,379	150,292	148,624	165,051

307,048	310,705
November	
0.9882306	
1.2%	

APPENDIX III – CRASH DATA SHEETS

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE : Nov-15

DISTRICT : 4

UNSIGNALIZED : ☐

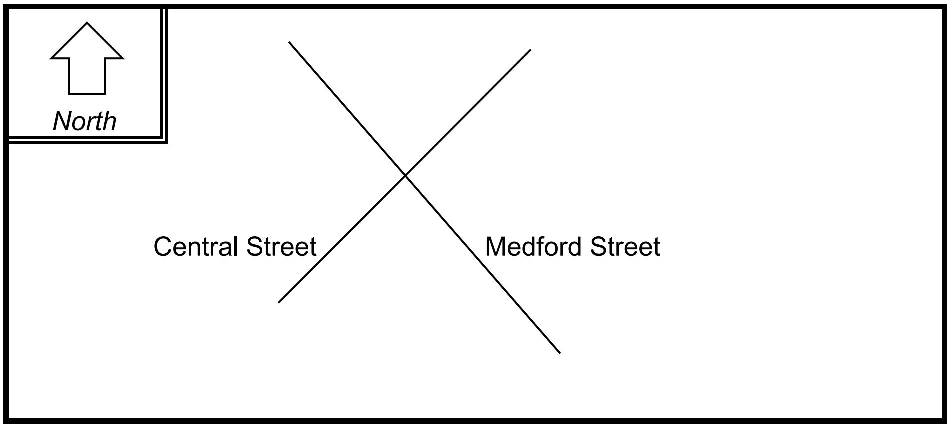
SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Medford Street

MINOR STREET(S) : Central Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM) :	522	266	265	300		**1,353**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **15,033**

TOTAL # OF CRASHES : 8

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **2.67**

CRASH RATE CALCULATION : **0.49**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments :

Project Title & Date: Somerville High School, November 2015

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE : Nov-15

DISTRICT : 4

UNSIGNALIZED : ☐

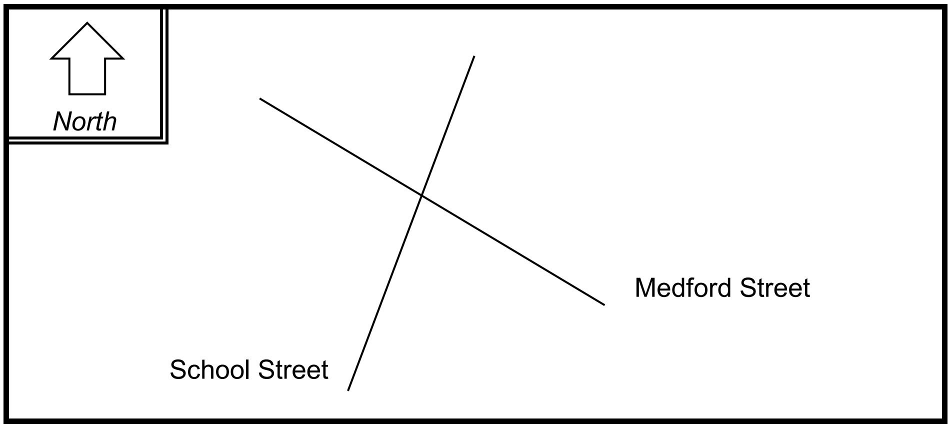
SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Medford Street

MINOR STREET(S) : School Street

INTERSECTION DIAGRAM
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	SB			
PEAK HOURLY VOLUMES (AM) :	517	400	367			1,284

" K " FACTOR :	0.090	INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME :	14,267
TOTAL # OF CRASHES :	6	# OF YEARS : 3	AVERAGE # OF CRASHES PER YEAR (**A**) : 2.00

CRASH RATE CALCULATION : **0.38**

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments :

Project Title & Date: Somerville High School, October 2015

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE : Nov-15

DISTRICT : 4

UNSIGNALIZED : ☐

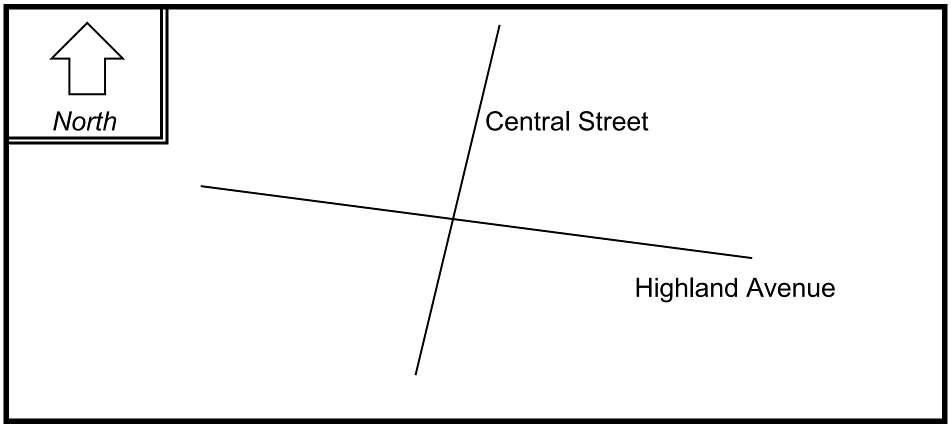
SIGNALIZED : X

~ INTERSECTION DATA ~

MAJOR STREET : Highland Avenue

MINOR STREET(S) : Central Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (PM) :	377	460	424	211		1,472

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **16,356**

TOTAL # OF CRASHES : 13

\# OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **4.33**

CRASH RATE CALCULATION : **0.73**

RATE = $\frac{(A * 1,000,000)}{(V * 365)}$

Comments :

Project Title & Date: Somerville High School, October 2015

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE : Nov-15

DISTRICT : 4

UNSIGNALIZED : ☐

SIGNALIZED : X

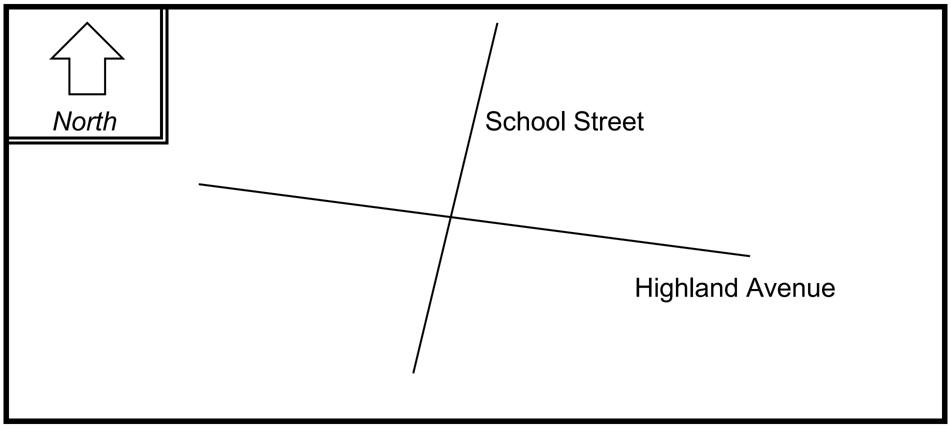
~ INTERSECTION DATA ~

MAJOR STREET : Highland Avenue

MINOR STREET(S) : School Street

INTERSECTION DIAGRAM

(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	SB			
PEAK HOURLY VOLUMES (AM) :	371	287	746			1,404

" K " FACTOR :	0.090	INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME :			15,600
TOTAL # OF CRASHES :	10	# OF YEARS :	3	AVERAGE # OF CRASHES PER YEAR (**A**) :	3.33

CRASH RATE CALCULATION : 0.59

RATE = $\frac{(A * 1,000,000)}{(V * 365)}$

Comments :

Project Title & Date: Somerville High School, October 2015

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE : Nov-15

DISTRICT : 4

UNSIGNALIZED : ☒

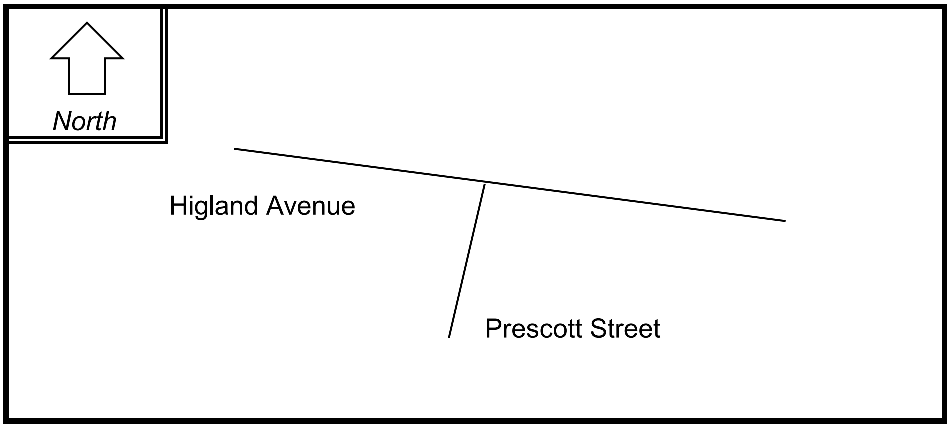
SIGNALIZED : ☐

~ INTERSECTION DATA ~

MAJOR STREET : Highland Avenue

MINOR STREET(S) : Prescott Street

INTERSECTION DIAGRAM
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	**Total Peak Hourly Approach Volume**
DIRECTION :	EB	WB	NB			
PEAK HOURLY VOLUMES (AM) :	508	344	128			**980**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **10,889**

TOTAL # OF CRASHES : 3

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **1.00**

CRASH RATE CALCULATION : **0.25**

RATE = $\frac{(A * 1,000,000)}{(V * 365)}$

Comments :

Project Title & Date: Somerville High School, October 2015

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE : Nov-15

DISTRICT : 4

UNSIGNALIZED : ☒

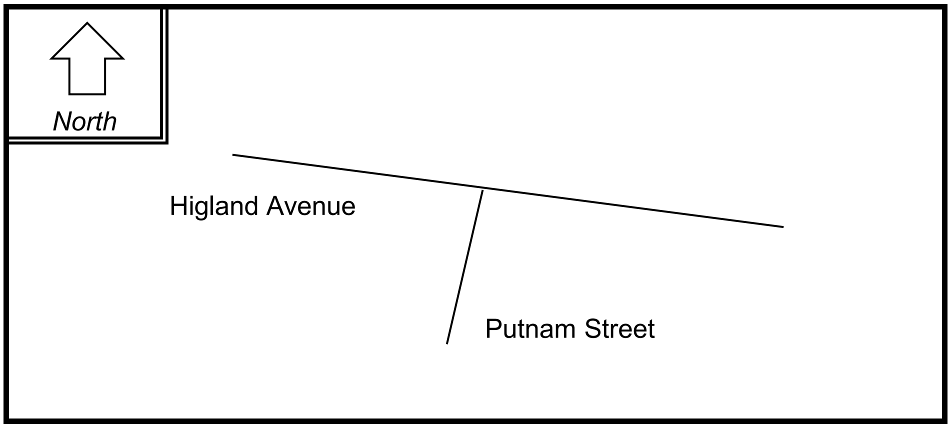
SIGNALIZED : ☐

~ INTERSECTION DATA ~

MAJOR STREET : Highland Avenue

MINOR STREET(S) : Putnam Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	EB	WB	NB			
PEAK HOURLY VOLUMES (AM) :	569	266	249			**1,084**

" K " FACTOR :	**0.090**	INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME :	**12,044**

TOTAL # OF CRASHES :	2	# OF YEARS :	3	AVERAGE # OF CRASHES PER YEAR (**A**) :	**0.67**

CRASH RATE CALCULATION : **0.15**

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments :

Project Title & Date: Somerville High School, October 2015

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE : Nov-15

DISTRICT : 4

UNSIGNALIZED : ☐

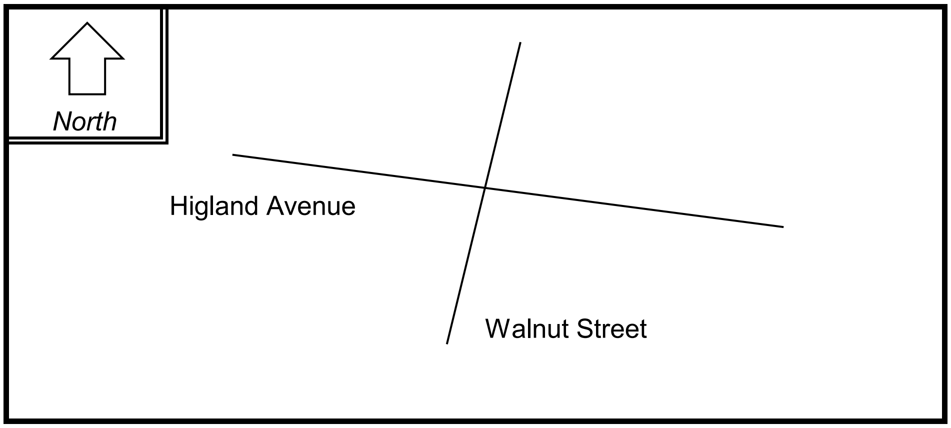
SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Highland Avenue

MINOR STREET(S) : Walnut Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	EB	WB	NB			
PEAK HOURLY VOLUMES (PM) :	550	522	401			**1,473**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **16,367**

TOTAL # OF CRASHES : 12

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **4.00**

CRASH RATE CALCULATION : **0.67**

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments :

Project Title & Date: Somerville High School, October 2015

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE : Nov-15

DISTRICT : 4

UNSIGNALIZED : ☐

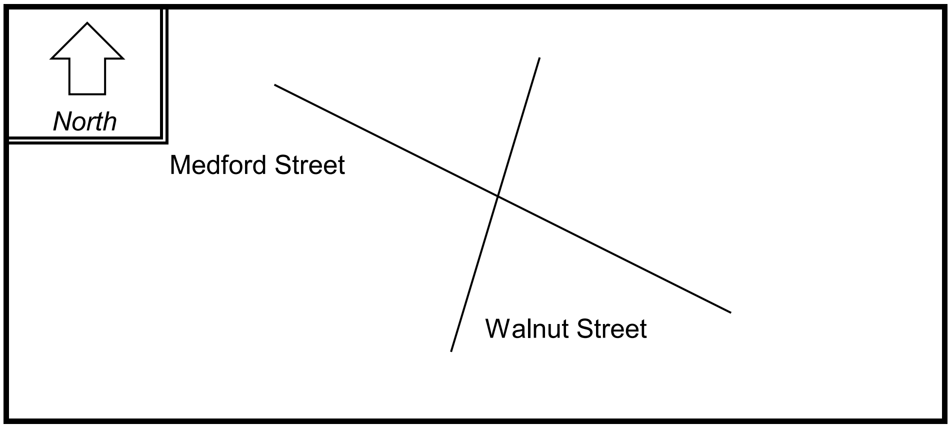
SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Medford Street

MINOR STREET(S) : Walnut Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB			
PEAK HOURLY VOLUMES (PM) :	5	384	447			**836**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **9,289**

TOTAL # OF CRASHES : 5

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **1.67**

CRASH RATE CALCULATION : **0.49**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments :

Project Title & Date: Somerville High School, October 2015

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE : Nov-15

DISTRICT : 4

UNSIGNALIZED : ☐

SIGNALIZED : ☒

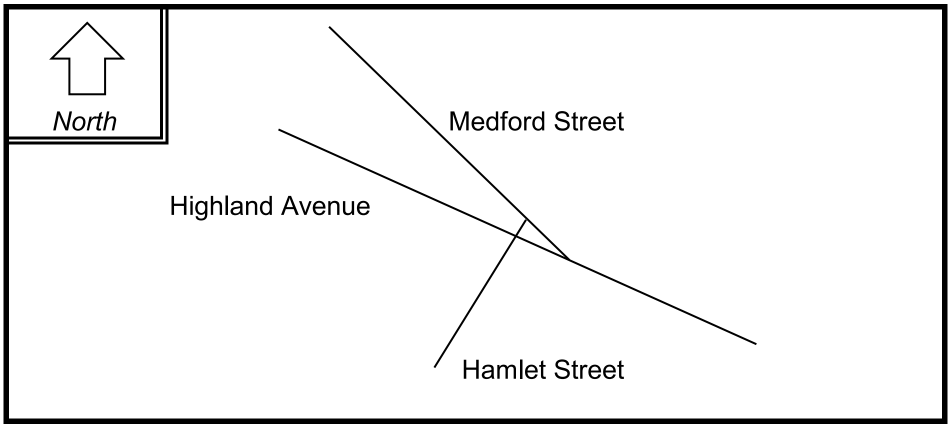
~ INTERSECTION DATA ~

MAJOR STREET : Medford Street

MINOR STREET(S) : Highland Avenue

Hamlet Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM) :	477	302	37			**816**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **9,067**

TOTAL # OF CRASHES : 6

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **2.00**

CRASH RATE CALCULATION : **0.60**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments :

Project Title & Date: Somerville High School, October 2015

massDOT Highway — Moving Massachusetts Forward.

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE : Nov-15

DISTRICT : 4

UNSIGNALIZED : ☐

SIGNALIZED : ☒

~ INTERSECTION DATA ~

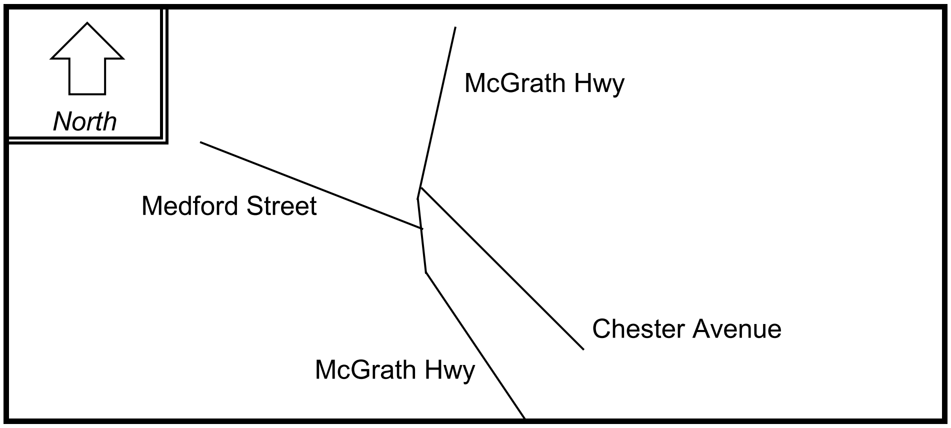
MAJOR STREET : McGrath Highway

MINOR STREET(S) : Medford Street

Chester Avenue

INTERSECTION DIAGRAM

(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM) :	669	6	934	1,859		3,468

" K " FACTOR :	0.090	INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME :	38,533
TOTAL # OF CRASHES :	17	# OF YEARS : 3	AVERAGE # OF CRASHES PER YEAR (**A**) : 5.67

CRASH RATE CALCULATION : 0.40

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments :

Project Title & Date: Somerville High School, October 2015

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE : Nov-15

DISTRICT : 4

UNSIGNALIZED : ☐

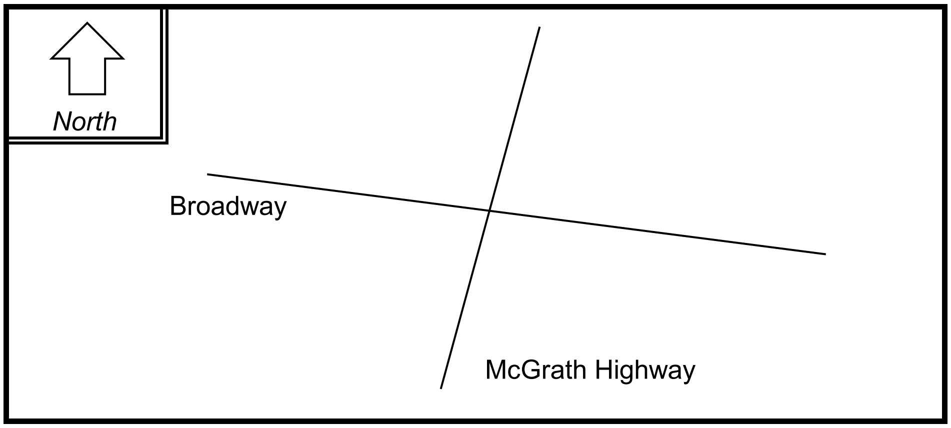
SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : McGrath Highway

MINOR STREET(S) : Broadway

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (PM) :	881	651	1,893	1,280		4,705

" K " FACTOR : 0.090

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : 52,278

TOTAL # OF CRASHES : 36

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : 12.00

CRASH RATE CALCULATION : **0.63**

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments :

Project Title & Date: Somerville High School, October 2015

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE : Nov-15

DISTRICT : 4

UNSIGNALIZED : ☐

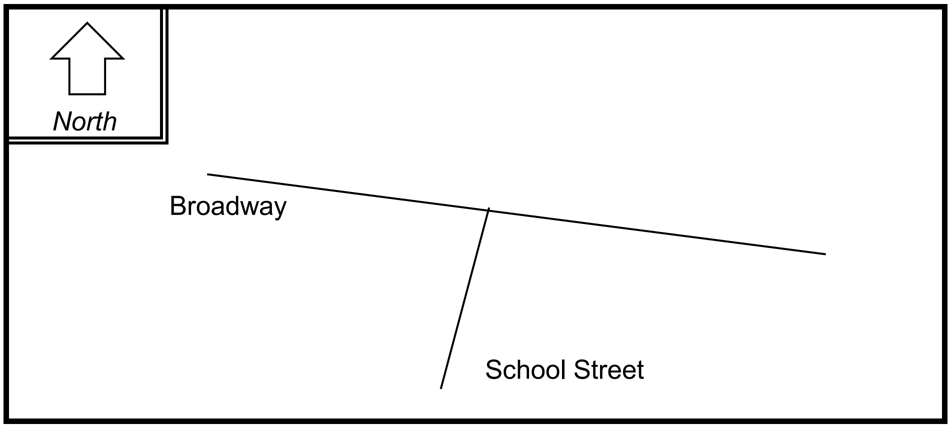
SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Broadway

MINOR STREET(S) : School Street

INTERSECTION DIAGRAM
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	EB	WB	NB			
PEAK HOURLY VOLUMES (AM/PM) :	880	854	143			**1,877**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **20,856**

TOTAL # OF CRASHES : 6

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **2.00**

CRASH RATE CALCULATION : **0.26**

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments :

Project Title & Date: Somerville High School, November 2015

APPENDIX IV – SYNCHRO REPORTS

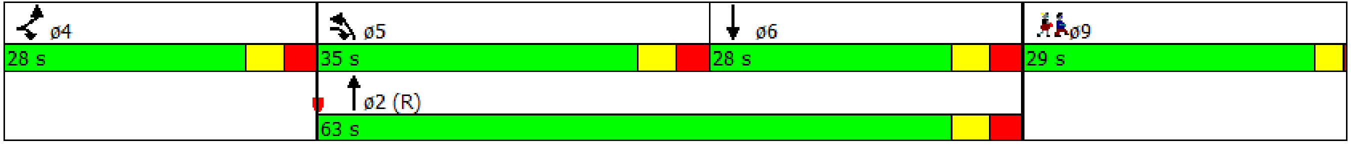
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
Lane Configurations	↰	↱↱	↰↰	↑↑↑	↑↑↱		
Volume (vph)	161	508	315	619	1778	81	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	0.88	0.97	0.91	0.91	0.91	
Frt		0.850			0.993		
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	2787	3433	5085	5050	0	
Flt Permitted	0.950		0.950				
Satd. Flow (perm)	1770	2787	3433	5085	5050	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		552			5		
Link Speed (mph)	30			30	30		
Link Distance (ft)	107			265	127		
Travel Time (s)	2.4			6.0	2.9		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	175	552	342	673	1933	88	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	175	552	342	673	2021	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			24	24		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1	1	1	2	2		
Detector Template	Left	Right	Left	Thru	Thru		
Leading Detector (ft)	20	20	20	100	100		
Trailing Detector (ft)	0	0	0	0	0		
Detector 1 Position(ft)	0	0	0	0	0		
Detector 1 Size(ft)	20	20	20	6	6		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Prot	pt+ov	Prot	NA	NA		
Protected Phases	4	4 5	5	2	6		9
Permitted Phases							
Detector Phase	4	4 5	5	2	6		
Switch Phase							
Minimum Initial (s)	6.0		6.0	12.0	12.0		4.0
Minimum Split (s)	22.5		12.5	22.5	22.5		8.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
Total Split (s)	28.0		35.0	63.0	28.0		29.0
Total Split (%)	23.3%		29.2%	52.5%	23.3%		24%
Maximum Green (s)	21.5		28.5	56.5	21.5		26.0
Yellow Time (s)	3.5		3.5	3.5	3.5		2.5
All-Red Time (s)	3.0		3.0	3.0	3.0		0.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0		
Total Lost Time (s)	6.5		6.5	6.5	6.5		
Lead/Lag			Lead		Lag		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	2.0		2.0	2.0	2.0		2.0
Recall Mode	None		None	C-Min	Min		None
Act Effct Green (s)	16.1	39.3	16.7	90.9	67.7		
Actuated g/C Ratio	0.13	0.33	0.14	0.76	0.56		
v/c Ratio	0.74	0.43	0.72	0.17	0.71		
Control Delay	67.5	3.0	57.8	4.5	22.1		
Queue Delay	0.6	0.3	0.0	0.0	0.0		
Total Delay	68.1	3.3	57.8	4.5	22.1		
LOS	E	A	E	A	C		
Approach Delay	18.9			22.5	22.1		
Approach LOS	B			C	C		

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 93 (78%), Referenced to phase 2:NBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 21.6 Intersection LOS: C
Intersection Capacity Utilization 70.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: McGrath Highway & Medford Street



	↗	↘	↖	↑	↓
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	175	552	342	673	2021
v/c Ratio	0.74	0.43	0.72	0.17	0.71
Control Delay	67.5	3.0	57.8	4.5	22.1
Queue Delay	0.6	0.3	0.0	0.0	0.0
Total Delay	68.1	3.3	57.8	4.5	22.1
Queue Length 50th (ft)	132	0	132	45	393
Queue Length 95th (ft)	199	35	174	72	560
Internal Link Dist (ft)	27			185	47
Turn Bay Length (ft)					
Base Capacity (vph)	319	1486	815	3850	2849
Starvation Cap Reductn	25	400	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.51	0.42	0.17	0.71

Intersection Summary

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱↱	↰↰	↑↑↑	↑↑↱	
Volume (vph)	161	508	315	619	1778	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	
Lane Util. Factor	1.00	0.88	0.97	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	2787	3433	5085	5052	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	2787	3433	5085	5052	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	175	552	342	673	1933	88
RTOR Reduction (vph)	0	371	0	0	2	0
Lane Group Flow (vph)	175	181	342	673	2019	0
Turn Type	Prot	pt+ov	Prot	NA	NA	
Protected Phases	4	4 5	5	2	6	
Permitted Phases						
Actuated Green, G (s)	16.1	39.3	16.7	90.9	67.7	
Effective Green, g (s)	16.1	39.3	16.7	90.9	67.7	
Actuated g/C Ratio	0.13	0.33	0.14	0.76	0.56	
Clearance Time (s)	6.5		6.5	6.5	6.5	
Vehicle Extension (s)	2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)	237	912	477	3851	2850	
v/s Ratio Prot	c0.10	0.06	c0.10	0.13	c0.40	
v/s Ratio Perm						
v/c Ratio	0.74	0.20	0.72	0.17	0.71	
Uniform Delay, d1	49.9	29.0	49.4	4.1	19.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.9	0.0	4.3	0.1	0.7	
Delay (s)	59.8	29.1	53.6	4.2	19.7	
Level of Service	E	C	D	A	B	
Approach Delay (s)	36.5			20.8	19.7	
Approach LOS	D			C	B	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

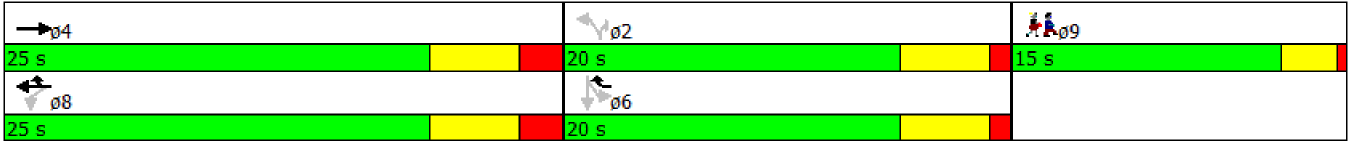
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱			↰	↱	↰		↱		✣	
Volume (vph)	0	616	10	28	274	98	2	0	35	31	3	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	12	12	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850			0.850		0.979	
Flt Protected					0.995		0.950				0.963	
Satd. Flow (prot)	0	2107	0	0	1853	1583	1770	0	1583	0	1756	0
Flt Permitted					0.729		0.728				0.963	
Satd. Flow (perm)	0	2107	0	0	1358	1583	1356	0	1583	0	1756	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				107			109		7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		586			193			385			676	
Travel Time (s)		13.3			4.4			8.8			15.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)			0									
Adj. Flow (vph)	0	670	11	30	298	107	2	0	38	34	3	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	681	0	0	328	107	2	0	38	0	44	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2	1	1		1	1	2	
Detector Template		Thru		Left	Thru	Right	Left		Right	Left	Thru	
Leading Detector (ft)		100		20	100	20	20		20	20	100	
Trailing Detector (ft)		0		0	0	0	0		0	0	0	
Detector 1 Position(ft)		0		0	0	0	0		0	0	0	
Detector 1 Size(ft)		6		20	6	20	20		20	20	6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Perm	NA	custom	Perm		Perm	custom	NA	
Protected Phases		4			8	8 6						
Permitted Phases				8		6	2		2	6	6	
Detector Phase		4		8	8	8 6	2		2	6	6	
Switch Phase												

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		8.0		8.0	8.0		8.0		8.0	8.0	8.0	
Minimum Split (s)		20.0		20.0	20.0		20.0		20.0	20.0	20.0	
Total Split (s)		25.0		25.0	25.0		20.0		20.0	20.0	20.0	
Total Split (%)		41.7%		41.7%	41.7%		33.3%		33.3%	33.3%	33.3%	
Maximum Green (s)		19.0		19.0	19.0		15.0		15.0	15.0	15.0	
Yellow Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	
All-Red Time (s)		2.0		2.0	2.0		1.0		1.0	1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0		0.0		0.0	
Total Lost Time (s)		6.0			6.0		5.0		5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	
Recall Mode		Max		Max	Max		Max		Max	Max	Max	
Act Effct Green (s)		19.0			19.0	45.0	15.0		15.0		15.0	
Actuated g/C Ratio		0.42			0.42	1.00	0.33		0.33		0.33	
v/c Ratio		0.77			0.57	0.07	0.00		0.06		0.07	
Control Delay		19.0			14.8	0.1	10.0		0.2		9.6	
Queue Delay		0.0			0.0	0.0	0.0		0.0		0.0	
Total Delay		19.0			14.8	0.1	10.0		0.2		9.6	
LOS		B			B	A	A		A		A	
Approach Delay		19.0			11.2						9.6	
Approach LOS		B			B						A	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 45	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 59.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Hamlet Street & Highland Avenue & Medford Street



Lane Group	ø9
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	15.0
Total Split (%)	25%
Maximum Green (s)	12.0
Yellow Time (s)	2.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

	→	←	↖	↖	↗	↓
Lane Group	EBT	WBT	WBR	NBL	NBR	SBT
Lane Group Flow (vph)	681	328	107	2	38	44
v/c Ratio	0.77	0.57	0.07	0.00	0.06	0.07
Control Delay	19.0	14.8	0.1	10.0	0.2	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	14.8	0.1	10.0	0.2	9.6
Queue Length 50th (ft)	140	60	0	0	0	6
Queue Length 95th (ft)	#295	123	0	4	1	22
Internal Link Dist (ft)	506	113				596
Turn Bay Length (ft)						
Base Capacity (vph)	890	573	1583	452	600	590
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.57	0.07	0.00	0.06	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱			↰	↱	↰		↱		✥	
Volume (vph)	0	616	10	28	274	98	2	0	35	31	3	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		6.0			6.0	6.0	5.0		5.0		5.0	
Lane Util. Factor		1.00			1.00	1.00	1.00		1.00		1.00	
Frt		1.00			1.00	0.85	1.00		0.85		0.98	
Flt Protected		1.00			1.00	1.00	0.95		1.00		0.96	
Satd. Flow (prot)		2107			1854	1583	1770		1583		1755	
Flt Permitted		1.00			0.73	1.00	0.73		1.00		0.96	
Satd. Flow (perm)		2107			1359	1583	1357		1583		1755	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	670	11	30	298	107	2	0	38	34	3	7
RTOR Reduction (vph)	0	1	0	0	0	12	0	0	25	0	5	0
Lane Group Flow (vph)	0	680	0	0	328	95	2	0	13	0	39	0
Parking (#/hr)			0									
Turn Type		NA		Perm	NA	custom	Perm		Perm	custom	NA	
Protected Phases		4			8	8 6						
Permitted Phases				8		6	2		2	6	6	
Actuated Green, G (s)		19.0			19.0	45.0	15.0		15.0		15.0	
Effective Green, g (s)		19.0			19.0	40.0	15.0		15.0		15.0	
Actuated g/C Ratio		0.42			0.42	0.89	0.33		0.33		0.33	
Clearance Time (s)		6.0			6.0		5.0		5.0		5.0	
Vehicle Extension (s)		3.0			3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)		889			573	1407	452		527		585	
v/s Ratio Prot		c0.32				c0.06						
v/s Ratio Perm					0.24		0.00		0.01		0.02	
v/c Ratio		0.77			0.57	0.07	0.00		0.02		0.07	
Uniform Delay, d1		11.1			9.9	0.3	10.0		10.1		10.2	
Progression Factor		1.00			1.00	1.00	1.00		1.00		1.00	
Incremental Delay, d2		6.2			4.1	0.1	0.0		0.1		0.2	
Delay (s)		17.3			14.0	0.4	10.0		10.2		10.5	
Level of Service		B			B	A	B		B		B	
Approach Delay (s)		17.3			10.7			10.2			10.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑			↑↱			↰↑↱				
Volume (vph)	92	533	0	0	300	7	50	150	70	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.997			0.965				
Flt Protected		0.993						0.991				
Satd. Flow (prot)	0	2096	0	0	2105	0	0	2019	0	0	0	0
Flt Permitted		0.897						0.991				
Satd. Flow (perm)	0	1894	0	0	2105	0	0	2019	0	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)					2							
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		814			586			1057			312	
Travel Time (s)		18.5			13.3			24.0			7.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)			0			0						
Adj. Flow (vph)	100	579	0	0	326	8	54	163	76	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	679	0	0	334	0	0	293	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2				
Detector Template	Left	Thru			Thru		Left	Thru				
Leading Detector (ft)	20	100			100		20	100				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	20	6			6		20	6				
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0			8.0		6.0	6.0				
Minimum Split (s)	21.0	21.0			21.0		20.0	20.0				
Total Split (s)	30.0	30.0			30.0		20.0	20.0				
Total Split (%)	46.2%	46.2%			46.2%		30.8%	30.8%				
Maximum Green (s)	25.0	25.0			25.0		15.0	15.0				
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		5.0			5.0			5.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0			4.0		4.0	4.0				
Recall Mode	Min	Min			Min		None	None				
Act Effct Green (s)		25.8			25.8			12.5				
Actuated g/C Ratio		0.53			0.53			0.26				
v/c Ratio		0.67			0.30			0.56				
Control Delay		13.2			7.7			19.7				
Queue Delay		0.0			0.0			0.0				
Total Delay		13.2			7.7			19.7				
LOS		B			A			B				
Approach Delay		13.2			7.7			19.7				
Approach LOS		B			A			B				

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 48.3
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 13.2 Intersection LOS: B
Intersection Capacity Utilization 76.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Walnut Street & Highland Avenue

Lane Group	ø9
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	15.0
Total Split (%)	23%
Maximum Green (s)	12.0
Yellow Time (s)	2.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Queues
3: Walnut Street & Highland Avenue

	→	←	↑
Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	679	334	293
v/c Ratio	0.67	0.30	0.56
Control Delay	13.2	7.7	19.7
Queue Delay	0.0	0.0	0.0
Total Delay	13.2	7.7	19.7
Queue Length 50th (ft)	124	46	69
Queue Length 95th (ft)	246	93	127
Internal Link Dist (ft)	734	506	977
Turn Bay Length (ft)			
Base Capacity (vph)	1010	1123	626
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.67	0.30	0.47

Intersection Summary

3: Walnut Street & Highland Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	533	0	0	300	7	50	150	70	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	16	12	12	12	12
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		1.00			1.00			1.00				
Frt		1.00			1.00			0.96				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		2096			2104			2019				
Flt Permitted		0.90			1.00			0.99				
Satd. Flow (perm)		1894			2104			2019				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	579	0	0	326	8	54	163	76	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	679	0	0	333	0	0	293	0	0	0	0
Parking (#/hr)			0			0						
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		25.8			25.8			12.5				
Effective Green, g (s)		25.8			25.8			12.5				
Actuated g/C Ratio		0.53			0.53			0.26				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		1011			1123			522				
v/s Ratio Prot					0.16							
v/s Ratio Perm		c0.36						0.15				
v/c Ratio		0.67			0.30			0.56				
Uniform Delay, d1		8.2			6.2			15.5				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.9			0.2			1.7				
Delay (s)		10.1			6.4			17.2				
Level of Service		B			A			B				
Approach Delay (s)		10.1			6.4			17.2			0.0	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	48.3	Sum of lost time (s)	13.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			✥				
Volume (vph)	1	6	0	0	75	1	63	174	11	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.998			0.994				
Flt Protected		0.994						0.988				
Satd. Flow (prot)	0	2098	0	0	2107	0	0	2073	0	0	0	0
Flt Permitted		0.958						0.988				
Satd. Flow (perm)	0	2022	0	0	2107	0	0	2073	0	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)					1							
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1533			676			312			128	
Travel Time (s)		34.8			15.4			7.1			2.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	7	0	0	82	1	68	189	12	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	8	0	0	83	0	0	269	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2				
Detector Template	Left	Thru			Thru		Left	Thru				
Leading Detector (ft)	20	100			100		20	100				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	20	6			6		20	6				
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	6.0	6.0			6.0		6.0	6.0				

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	11.5	11.5			11.5		11.5	11.5				
Total Split (s)	25.0	25.0			25.0		25.0	25.0				
Total Split (%)	37.3%	37.3%			37.3%		37.3%	37.3%				
Maximum Green (s)	19.5	19.5			19.5		19.5	19.5				
Yellow Time (s)	3.5	3.5			3.5		3.5	3.5				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		5.5			5.5			5.5				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Recall Mode	Min	Min			Min		None	None				
Act Effct Green (s)		8.2			8.2			8.9				
Actuated g/C Ratio		0.29			0.29			0.32				
v/c Ratio		0.01			0.14			0.41				
Control Delay		8.1			8.7			9.2				
Queue Delay		0.0			0.0			0.0				
Total Delay		8.1			8.7			9.2				
LOS		A			A			A				
Approach Delay		8.1			8.7			9.2				
Approach LOS		A			A			A				

Intersection Summary		
Area Type:	Other	
Cycle Length: 67		
Actuated Cycle Length: 28.2		
Natural Cycle: 40		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.41		
Intersection Signal Delay: 9.1		Intersection LOS: A
Intersection Capacity Utilization 27.5%		ICU Level of Service A
Analysis Period (min) 15		

Splits and Phases: 4: Walnut Street & Medford Street

Lane Group	ø9
Minimum Split (s)	8.0
Total Split (s)	17.0
Total Split (%)	25%
Maximum Green (s)	14.0
Yellow Time (s)	2.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

4: Walnut Street & Medford Street

	→	←	↑
Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	8	83	269
v/c Ratio	0.01	0.14	0.41
Control Delay	8.1	8.7	9.2
Queue Delay	0.0	0.0	0.0
Total Delay	8.1	8.7	9.2
Queue Length 50th (ft)	1	8	25
Queue Length 95th (ft)	6	25	56
Internal Link Dist (ft)	1453	596	232
Turn Bay Length (ft)			
Base Capacity (vph)	1411	1470	1446
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.01	0.06	0.19

Intersection Summary

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			✥				
Volume (vph)	1	6	0	0	75	1	63	174	11	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	16	12	12	12	12
Total Lost time (s)		5.5			5.5			5.5				
Lane Util. Factor		1.00			1.00			1.00				
Frt		1.00			1.00			0.99				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		2098			2108			2072				
Flt Permitted		0.96			1.00			0.99				
Satd. Flow (perm)		2022			2108			2072				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	7	0	0	82	1	68	189	12	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	8	0	0	82	0	0	269	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		8.2			8.2			8.9				
Effective Green, g (s)		8.2			8.2			8.9				
Actuated g/C Ratio		0.29			0.29			0.32				
Clearance Time (s)		5.5			5.5			5.5				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		590			615			656				
v/s Ratio Prot					c0.04							
v/s Ratio Perm		0.00						0.13				
v/c Ratio		0.01			0.13			0.41				
Uniform Delay, d1		7.1			7.3			7.5				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.0			0.1			0.4				
Delay (s)		7.1			7.4			8.0				
Level of Service		A			A			A				
Approach Delay (s)		7.1			7.4			8.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	28.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	27.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↰↱	
Volume (vph)	556	13	5	261	5	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	12	16	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.867	
Flt Protected				0.999	0.999	
Satd. Flow (prot)	2105	0	0	1898	1829	0
Flt Permitted				0.999	0.999	
Satd. Flow (perm)	2105	0	0	1898	1829	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			814	1198	
Travel Time (s)	6.8			18.5	27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)		0		0		0
Adj. Flow (vph)	604	14	5	284	5	265
Shared Lane Traffic (%)						
Lane Group Flow (vph)	618	0	0	289	270	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	16	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.85	1.00	1.00	0.97	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 52.1% ICU Level of Service A

Analysis Period (min) 15

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	Y	
Volume (veh/h)	556	13	5	261	5	244
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	604	14	5	284	5	265
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	553			814		
pX, platoon unblocked			0.90		0.90	0.90
vC, conflicting volume			618		906	611
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			522		841	514
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	47
cM capacity (veh/h)			941		300	505

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	618	289	271
Volume Left	0	5	5
Volume Right	14	0	265
cSH	1700	941	498
Volume to Capacity	0.36	0.01	0.54
Queue Length 95th (ft)	0	0	80
Control Delay (s)	0.0	0.2	20.5
Lane LOS		A	C
Approach Delay (s)	0.0	0.2	20.5
Approach LOS			C

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	Y	
Volume (vph)	487	21	30	314	37	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	12	16	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.904	
Flt Protected				0.996	0.986	
Satd. Flow (prot)	2098	0	0	1892	1882	0
Flt Permitted				0.996	0.986	
Satd. Flow (perm)	2098	0	0	1892	1882	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	253			300	1042	
Travel Time (s)	5.8			6.8	23.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)		0		0		0
Adj. Flow (vph)	529	23	33	341	40	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	552	0	0	374	139	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	16	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.85	1.00	1.00	0.97	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 55.7% ICU Level of Service B

Analysis Period (min) 15

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	Y	
Volume (veh/h)	487	21	30	314	37	91
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	529	23	33	341	40	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	253			1114		
pX, platoon unblocked			0.85		0.85	0.85
vC, conflicting volume			552		947	541
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			390		853	376
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		85	83
cM capacity (veh/h)			998		272	572

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	552	374	139
Volume Left	0	33	40
Volume Right	23	0	99
cSH	1700	998	434
Volume to Capacity	0.32	0.03	0.32
Queue Length 95th (ft)	0	3	34
Control Delay (s)	0.0	1.1	17.2
Lane LOS		A	C
Approach Delay (s)	0.0	1.1	17.2
Approach LOS			C

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱			↰						✥	
Volume (vph)	0	345	26	30	257	0	0	0	0	303	386	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991									0.987	
Flt Protected					0.995						0.981	
Satd. Flow (prot)	0	2092	0	0	2101	0	0	0	0	0	2044	0
Flt Permitted					0.823						0.981	
Satd. Flow (perm)	0	2092	0	0	1737	0	0	0	0	0	2044	0
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1417			253			958			1005	
Travel Time (s)		32.2			5.8			21.8			22.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)			0			0						0
Adj. Flow (vph)	0	375	28	33	279	0	0	0	0	329	420	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	403	0	0	312	0	0	0	0	0	831	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	
Detector Template		Thru		Left	Thru					Left	Thru	
Leading Detector (ft)		100		20	100					20	100	
Trailing Detector (ft)		0		0	0					0	0	
Detector 1 Position(ft)		0		0	0					0	0	
Detector 1 Size(ft)		6		20	6					20	6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases				8						6		
Detector Phase		4		8	8					6	6	
Switch Phase												

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		8.0		8.0	8.0					6.0	6.0	
Minimum Split (s)		22.0		22.0	22.0					22.0	22.0	
Total Split (s)		40.0		40.0	40.0					30.0	30.0	
Total Split (%)		44.0%		44.0%	44.0%					33.0%	33.0%	
Maximum Green (s)		34.0		34.0	34.0					24.0	24.0	
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	
All-Red Time (s)		2.0		2.0	2.0					2.0	2.0	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		6.0			6.0						6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0					4.0	4.0	
Recall Mode		Min		Min	Min					Min	Min	
Act Effct Green (s)		15.1			15.1						24.1	
Actuated g/C Ratio		0.29			0.29						0.47	
v/c Ratio		0.66			0.61						0.86	
Control Delay		21.2			21.0						26.2	
Queue Delay		0.0			0.0						0.0	
Total Delay		21.2			21.0						26.2	
LOS		C			C						C	
Approach Delay		21.2			21.0						26.2	
Approach LOS		C			C						C	

Intersection Summary

Area Type: Other
Cycle Length: 91
Actuated Cycle Length: 51.2
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 23.8 Intersection LOS: C
Intersection Capacity Utilization 90.3% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 7: School Street & Highland Avenue

Lane Group	ø9
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	21.0
Total Split (%)	23%
Maximum Green (s)	18.0
Yellow Time (s)	2.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

7: School Street & Highland Avenue

	→	←	↓
Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	403	312	831
v/c Ratio	0.66	0.61	0.86
Control Delay	21.2	21.0	26.2
Queue Delay	0.0	0.0	0.0
Total Delay	21.2	21.0	26.2
Queue Length 50th (ft)	104	79	201
Queue Length 95th (ft)	175	142	#480
Internal Link Dist (ft)	1337	173	925
Turn Bay Length (ft)			
Base Capacity (vph)	1394	1158	962
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.29	0.27	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

7: School Street & Highland Avenue

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱			↰						✣	
Volume (vph)	0	345	26	30	257	0	0	0	0	303	386	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	16	12	12	16	12
Total Lost time (s)		6.0			6.0						6.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		0.99			1.00						0.99	
Flt Protected		1.00			0.99						0.98	
Satd. Flow (prot)		2091			2100						2043	
Flt Permitted		1.00			0.82						0.98	
Satd. Flow (perm)		2091			1738						2043	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	375	28	33	279	0	0	0	0	329	420	82
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	403	0	0	312	0	0	0	0	0	831	0
Parking (#/hr)			0			0						0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		15.1			15.1						24.1	
Effective Green, g (s)		15.1			15.1						24.1	
Actuated g/C Ratio		0.29			0.29						0.47	
Clearance Time (s)		6.0			6.0						6.0	
Vehicle Extension (s)		3.0			3.0						4.0	
Lane Grp Cap (vph)		616			512						961	
v/s Ratio Prot		c0.19										
v/s Ratio Perm					0.18						0.41	
v/c Ratio		0.65			0.61						0.86	
Uniform Delay, d1		15.8			15.5						12.1	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		2.5			2.1						8.5	
Delay (s)		18.3			17.6						20.5	
Level of Service		B			B						C	
Approach Delay (s)		18.3			17.6			0.0			20.5	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	51.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Volume (vph)	30	303	66	19	229	39	44	181	30	70	279	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	10	12	12	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.978			0.982			0.984			0.979	
Flt Protected		0.996			0.997			0.991			0.992	
Satd. Flow (prot)	0	2056	0	0	2067	0	0	1695	0	0	1749	0
Flt Permitted		0.956			0.957			0.889			0.902	
Satd. Flow (perm)	0	1974	0	0	1984	0	0	1521	0	0	1590	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		14			11			10				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1440			1417			1078			948	
Travel Time (s)		32.7			32.2			24.5			21.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	329	72	21	249	42	48	197	33	76	303	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	434	0	0	312	0	0	278	0	0	450	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.09	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		6.0	6.0		6.0	6.0	

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0

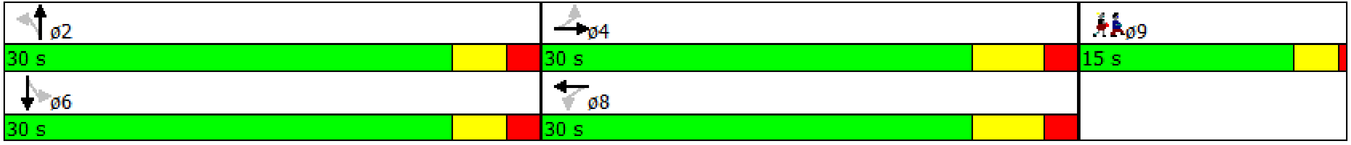
8: Central Street & Highland Avenue

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	22.0	22.0		22.0	22.0		21.0	21.0		21.0	21.0	
Total Split (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Act Effct Green (s)		24.1			24.1			22.3			22.3	
Actuated g/C Ratio		0.42			0.42			0.39			0.39	
v/c Ratio		0.52			0.37			0.47			0.73	
Control Delay		15.4			13.4			15.4			22.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		15.4			13.4			15.4			22.8	
LOS		B			B			B			C	
Approach Delay		15.4			13.4			15.4			22.8	
Approach LOS		B			B			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 57.4
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 17.3 Intersection LOS: B
Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 8: Central Street & Highland Avenue



Lane Group	ø9
Minimum Split (s)	8.0
Total Split (s)	15.0
Total Split (%)	20%
Maximum Green (s)	12.0
Yellow Time (s)	2.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Queues

8: Central Street & Highland Avenue

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	434	312	278	450
v/c Ratio	0.52	0.37	0.47	0.73
Control Delay	15.4	13.4	15.4	22.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	15.4	13.4	15.4	22.8
Queue Length 50th (ft)	112	74	66	126
Queue Length 95th (ft)	187	130	122	221
Internal Link Dist (ft)	1360	1337	998	868
Turn Bay Length (ft)				
Base Capacity (vph)	836	838	669	694
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	0.37	0.42	0.65

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Volume (vph)	30	303	66	19	229	39	44	181	30	70	279	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	10	12	12	11	12
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.98			0.98	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		2056			2066			1696			1748	
Flt Permitted		0.96			0.96			0.89			0.90	
Satd. Flow (perm)		1973			1983			1521			1590	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	329	72	21	249	42	48	197	33	76	303	71
RTOR Reduction (vph)	0	8	0	0	6	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	426	0	0	306	0	0	272	0	0	450	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.1			24.1			22.3			22.3	
Effective Green, g (s)		24.1			24.1			22.3			22.3	
Actuated g/C Ratio		0.42			0.42			0.39			0.39	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Vehicle Extension (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		828			832			590			617	
v/s Ratio Prot												
v/s Ratio Perm		c0.22			0.15			0.18			c0.28	
v/c Ratio		0.51			0.37			0.46			0.73	
Uniform Delay, d1		12.3			11.4			13.1			15.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.3			1.3			0.8			4.6	
Delay (s)		14.6			12.7			13.9			19.6	
Level of Service		B			B			B			B	
Approach Delay (s)		14.6			12.7			13.9			19.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	57.4	Sum of lost time (s)	14.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣						✣	
Volume (vph)	13	271	233	171	182	47	0	0	0	26	319	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	12	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.939			0.984						0.992	
Flt Protected		0.999			0.979						0.997	
Satd. Flow (prot)	0	1980	0	0	2034	0	0	0	0	0	2088	0
Flt Permitted		0.986			0.552						0.997	
Satd. Flow (perm)	0	1955	0	0	1147	0	0	0	0	0	2088	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		123			20							
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1552			1533			1005			241	
Travel Time (s)		35.3			34.8			27.4			6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)			0									
Adj. Flow (vph)	14	295	253	186	198	51	0	0	0	28	347	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	562	0	0	435	0	0	0	0	0	399	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases	4			8						6		
Minimum Split (s)	20.0	20.0		20.0	20.0					20.0	20.0	
Total Split (s)	20.0	20.0		20.0	20.0					20.0	20.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%					50.0%	50.0%	
Maximum Green (s)	16.0	16.0		16.0	16.0					16.0	16.0	
Yellow Time (s)	3.5	3.5		3.5	3.5					3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5					0.5	0.5	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		4.0			4.0						4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0					5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0					11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0					0	0	
Act Effct Green (s)		16.0			16.0						16.0	
Actuated g/C Ratio		0.40			0.40						0.40	
v/c Ratio		0.66			0.93						0.48	
Control Delay		12.0			43.7						11.3	
Queue Delay		0.0			0.0						0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		12.0			43.7						11.3	
LOS		B			D						B	
Approach Delay		12.0			43.7						11.3	
Approach LOS		B			D						B	

Intersection Summary

Area Type: Other

Cycle Length: 40

Actuated Cycle Length: 40

Offset: 0 (0%), Referenced to phase 2: and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Pretimed

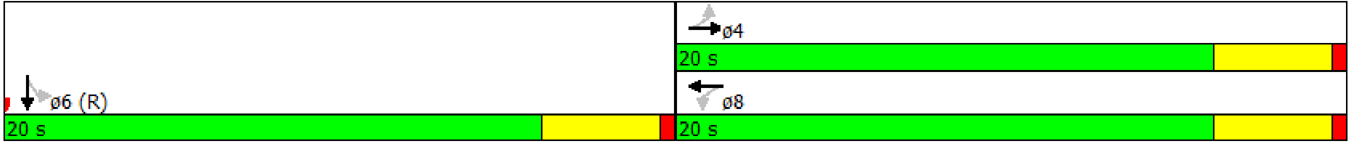
Maximum v/c Ratio: 0.93

Intersection Signal Delay: 21.6 Intersection LOS: C

Intersection Capacity Utilization 80.7% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 9: School Street & Medford Street



9: School Street & Medford Street

	→	←	↓
Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	562	435	399
v/c Ratio	0.66	0.93	0.48
Control Delay	12.0	43.7	11.3
Queue Delay	0.0	0.0	0.0
Total Delay	12.0	43.7	11.3
Queue Length 50th (ft)	71	82	62
Queue Length 95th (ft)	148	#227	116
Internal Link Dist (ft)	1472	1453	161
Turn Bay Length (ft)			
Base Capacity (vph)	855	470	835
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.66	0.93	0.48

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

9: School Street & Medford Street

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣						✣	
Volume (vph)	13	271	233	171	182	47	0	0	0	26	319	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	12	12	12	16	12
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		0.94			0.98						0.99	
Flt Protected		1.00			0.98						1.00	
Satd. Flow (prot)		1980			2034						2087	
Flt Permitted		0.99			0.55						1.00	
Satd. Flow (perm)		1956			1148						2087	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	14	295	253	186	198	51	0	0	0	28	347	24
RTOR Reduction (vph)	0	74	0	0	12	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	488	0	0	423	0	0	0	0	0	399	0
Parking (#/hr)			0									
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		16.0			16.0						16.0	
Effective Green, g (s)		16.0			16.0						16.0	
Actuated g/C Ratio		0.40			0.40						0.40	
Clearance Time (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		782			459						834	
v/s Ratio Prot												
v/s Ratio Perm		0.25			c0.37						0.19	
v/c Ratio		0.62			0.92						0.48	
Uniform Delay, d1		9.6			11.4						8.9	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		3.7			26.4						2.0	
Delay (s)		13.3			37.8						10.9	
Level of Service		B			D						B	
Approach Delay (s)		13.3			37.8			0.0			10.9	
Approach LOS		B			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Volume (vph)	13	388	121	96	162	8	45	176	44	35	247	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	15	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.969			0.996			0.977			0.992	
Flt Protected		0.999			0.982			0.992			0.994	
Satd. Flow (prot)	0	2044	0	0	2065	0	0	2046	0	0	2020	0
Flt Permitted		0.992			0.727			0.889			0.945	
Satd. Flow (perm)	0	2029	0	0	1529	0	0	1834	0	0	1921	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		27			3			13				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		604			1552			751			450	
Travel Time (s)		13.7			35.3			17.1			10.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	14	422	132	104	176	9	49	191	48	38	268	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	568	0	0	289	0	0	288	0	0	326	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	

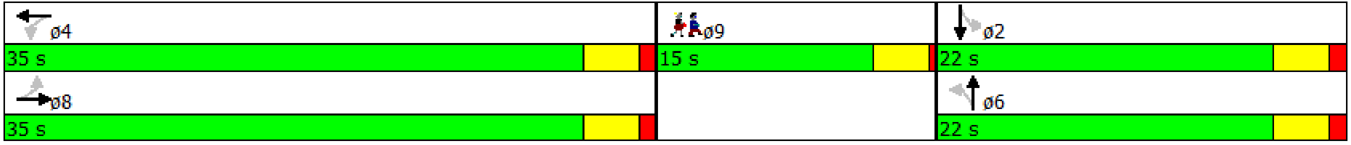
Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	35.0	35.0		35.0	35.0		22.0	22.0		22.0	22.0	
Total Split (%)	48.6%	48.6%		48.6%	48.6%		30.6%	30.6%		30.6%	30.6%	
Maximum Green (s)	31.0	31.0		31.0	31.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Act Effct Green (s)		31.1			31.1			14.9			14.9	
Actuated g/C Ratio		0.58			0.58			0.28			0.28	
v/c Ratio		0.48			0.33			0.56			0.62	
Control Delay		8.7			7.8			20.4			22.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		8.7			7.8			20.4			22.5	
LOS		A			A			C			C	
Approach Delay		8.7			7.8			20.4			22.5	
Approach LOS		A			A			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 72
Actuated Cycle Length: 54
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 74.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 10: Central Street & Medford Street



Lane Group	ø9
Minimum Split (s)	15.0
Total Split (s)	15.0
Total Split (%)	21%
Maximum Green (s)	11.5
Yellow Time (s)	3.0
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	568	289	288	326
v/c Ratio	0.48	0.33	0.56	0.62
Control Delay	8.7	7.8	20.4	22.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.7	7.8	20.4	22.5
Queue Length 50th (ft)	89	42	74	90
Queue Length 95th (ft)	173	91	136	158
Internal Link Dist (ft)	524	1472	671	370
Turn Bay Length (ft)				
Base Capacity (vph)	1179	881	621	642
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.48	0.33	0.46	0.51

Intersection Summary

10: Central Street & Medford Street

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Volume (vph)	13	388	121	96	162	8	45	176	44	35	247	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	16	12	12	15	12
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.98			0.99	
Flt Protected		1.00			0.98			0.99			0.99	
Satd. Flow (prot)		2042			2065			2046			2020	
Flt Permitted		0.99			0.73			0.89			0.95	
Satd. Flow (perm)		2028			1529			1835			1921	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	14	422	132	104	176	9	49	191	48	38	268	20
RTOR Reduction (vph)	0	11	0	0	1	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	557	0	0	288	0	0	279	0	0	326	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		31.1			31.1			14.9			14.9	
Effective Green, g (s)		31.1			31.1			14.9			14.9	
Actuated g/C Ratio		0.58			0.58			0.28			0.28	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1167			880			506			530	
v/s Ratio Prot												
v/s Ratio Perm		c0.27			0.19			0.15			c0.17	
v/c Ratio		0.48			0.33			0.55			0.62	
Uniform Delay, d1		6.7			6.0			16.7			17.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.4			1.0			1.6			2.4	
Delay (s)		8.1			7.0			18.3			19.5	
Level of Service		A			A			B			B	
Approach Delay (s)		8.1			7.0			18.3			19.5	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	54.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

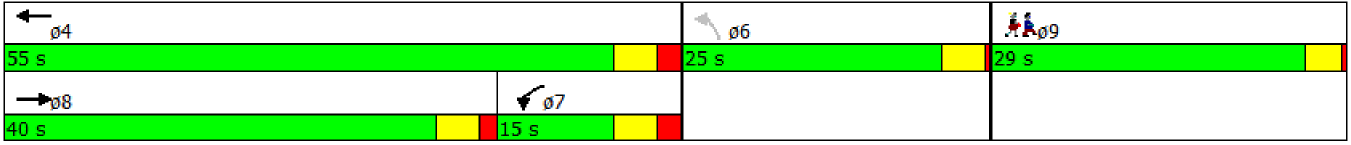
	→	↘	↙	←	↖	↗	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	ø9
Lane Configurations	↑↱		↰	↑↑	↰↱		
Volume (vph)	788	92	190	664	37	106	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		0	100		0	0	
Storage Lanes		0	1		1	0	
Taper Length (ft)			47		25		
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00	
Frt	0.984				0.900		
Flt Protected			0.950		0.987		
Satd. Flow (prot)	3483	0	1770	3539	1655	0	
Flt Permitted			0.950		0.987		
Satd. Flow (perm)	3483	0	1770	3539	1655	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	12				115		
Link Speed (mph)	30			30	30		
Link Distance (ft)	1097			1430	1406		
Travel Time (s)	24.9			32.5	32.0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	857	100	207	722	40	115	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	957	0	207	722	155	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	14			17	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)		9	15		15	9	
Number of Detectors	2		1	2	1		
Detector Template	Thru		Left	Thru	Left		
Leading Detector (ft)	100		20	100	20		
Trailing Detector (ft)	0		0	0	0		
Detector 1 Position(ft)	0		0	0	0		
Detector 1 Size(ft)	6		20	6	20		
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0		
Detector 1 Queue (s)	0.0		0.0	0.0	0.0		
Detector 1 Delay (s)	0.0		0.0	0.0	0.0		
Detector 2 Position(ft)	94			94			
Detector 2 Size(ft)	6			6			
Detector 2 Type	Cl+Ex			Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)	0.0			0.0			
Turn Type	NA		Prot	NA	Perm		
Protected Phases	8		7	4			9
Permitted Phases					6		
Detector Phase	8		7	4	6		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	ø9
Switch Phase							
Minimum Initial (s)	6.0		6.0	6.0	6.0		4.0
Minimum Split (s)	20.0		11.5	20.0	20.0		29.0
Total Split (s)	40.0		15.0	55.0	25.0		29.0
Total Split (%)	36.7%		13.8%	50.5%	22.9%		27%
Maximum Green (s)	35.0		9.5	49.5	21.0		25.5
Yellow Time (s)	3.5		3.5	3.5	3.5		3.0
All-Red Time (s)	1.5		2.0	2.0	0.5		0.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0		
Total Lost Time (s)	5.0		5.5	5.5	4.0		
Lead/Lag	Lead		Lag				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	None		None	Min	None		None
Act Effct Green (s)	23.5		9.7	38.2	7.7		
Actuated g/C Ratio	0.42		0.17	0.69	0.14		
v/c Ratio	0.65		0.67	0.30	0.47		
Control Delay	14.8		38.1	3.8	14.3		
Queue Delay	0.0		0.0	0.0	0.0		
Total Delay	14.8		38.1	3.8	14.3		
LOS	B		D	A	B		
Approach Delay	14.8			11.5	14.3		
Approach LOS	B			B	B		

Intersection Summary

Area Type: Other
Cycle Length: 109
Actuated Cycle Length: 55.6
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 13.2 Intersection LOS: B
Intersection Capacity Utilization 55.9% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 11: School Street & Broadway



Queues
11: School Street & Broadway

	→	↙	←	↖
Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	957	207	722	155
v/c Ratio	0.65	0.67	0.30	0.47
Control Delay	14.8	38.1	3.8	14.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.8	38.1	3.8	14.3
Queue Length 50th (ft)	119	63	35	12
Queue Length 95th (ft)	191	#195	68	62
Internal Link Dist (ft)	1017		1350	1326
Turn Bay Length (ft)		100		
Base Capacity (vph)	2237	308	3163	707
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.43	0.67	0.23	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

11: School Street & Broadway

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱		↰	↑↑	Y	
Volume (vph)	788	92	190	664	37	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.5	5.5	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.98		1.00	1.00	0.90	
Flt Protected	1.00		0.95	1.00	0.99	
Satd. Flow (prot)	3484		1770	3539	1655	
Flt Permitted	1.00		0.95	1.00	0.99	
Satd. Flow (perm)	3484		1770	3539	1655	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	857	100	207	722	40	115
RTOR Reduction (vph)	7	0	0	0	99	0
Lane Group Flow (vph)	950	0	207	722	56	0
Turn Type	NA		Prot	NA	Perm	
Protected Phases	8		7	4		
Permitted Phases					6	
Actuated Green, G (s)	23.5		9.7	38.2	7.7	
Effective Green, g (s)	23.5		9.7	38.2	7.7	
Actuated g/C Ratio	0.42		0.18	0.69	0.14	
Clearance Time (s)	5.0		5.5	5.5	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1477		309	2440	230	
v/s Ratio Prot	c0.27		c0.12	0.20		
v/s Ratio Perm					c0.03	
v/c Ratio	0.64		0.67	0.30	0.24	
Uniform Delay, d1	12.6		21.4	3.4	21.3	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	1.0		5.4	0.1	0.6	
Delay (s)	13.6		26.8	3.4	21.8	
Level of Service	B		C	A	C	
Approach Delay (s)	13.6			8.6	21.8	
Approach LOS	B			A	C	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	55.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑↑	↱	↰	↰↑	↱	↰	↑↑↱		↰	↑↑↱	
Volume (vph)	430	398	274	110	285	152	83	753	33	55	1116	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	247		0	165		144	307		0	272		0
Storage Lanes	2		1	1		1	1		0	1		0
Taper Length (ft)	133			25			211			195		
Lane Util. Factor	0.86	0.86	1.00	0.91	0.91	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850			0.850		0.994			0.993	
Flt Protected	0.950	0.983		0.950	0.998		0.950			0.950		
Satd. Flow (prot)	1522	4724	1583	1610	3383	1583	1770	5055	0	1770	5050	0
Flt Permitted	0.950	0.983		0.950	0.998		0.950			0.950		
Satd. Flow (perm)	1522	4724	1583	1610	3383	1583	1770	5055	0	1770	5050	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)								5			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		711			642			1329			849	
Travel Time (s)		16.2			14.6			30.2			19.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	467	433	298	120	310	165	90	818	36	60	1213	60
Shared Lane Traffic (%)	50%			10%								
Lane Group Flow (vph)	233	667	298	108	322	165	90	854	0	60	1273	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		27			26			26			25	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	custom	NA	pm+ov	Split	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases	4		4			3						
Detector Phase	4	4	5	3	3	3	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0	6.0	10.0	10.0	10.0	6.0	10.0		6.0	10.0	
Minimum Split (s)	33.0	33.0	12.5	36.0	36.0	36.0	12.5	38.5		12.5	38.5	
Total Split (s)	33.0	33.0	12.5	36.0	36.0	36.0	12.5	38.5		12.5	38.5	
Total Split (%)	27.5%	27.5%	10.4%	30.0%	30.0%	30.0%	10.4%	32.1%		10.4%	32.1%	
Maximum Green (s)	26.5	26.5	6.0	29.5	29.5	29.5	6.0	32.0		6.0	32.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None	None	Min	Min	Min	None	C-Min		None	C-Min	
Walk Time (s)	13.0	13.0		15.0	15.0	15.0		16.0			16.0	
Flash Dont Walk (s)	10.0	10.0		14.0	14.0	14.0		16.0			16.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
Act Effct Green (s)	24.3	24.3	41.7	17.8	17.8	17.8	10.9	46.7		7.7	41.0	
Actuated g/C Ratio	0.20	0.20	0.35	0.15	0.15	0.15	0.09	0.39		0.06	0.34	
v/c Ratio	0.76	0.70	0.54	0.45	0.64	0.70	0.56	0.43		0.53	0.74	
Control Delay	60.4	48.1	35.1	51.3	53.4	63.8	66.7	30.5		71.4	39.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	60.4	48.1	35.1	51.3	53.4	63.8	66.7	30.5		71.4	39.3	
LOS	E	D	D	D	D	E	E	C		E	D	
Approach Delay		47.3			55.9			34.0			40.8	
Approach LOS		D			E			C			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 120

Control Type: Actuated-Coordinated

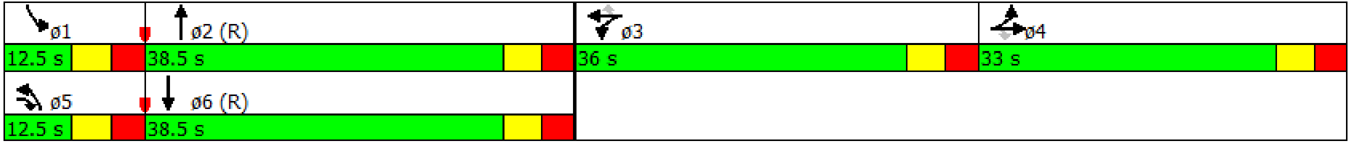
Maximum v/c Ratio: 0.76

Intersection Signal Delay: 43.3 Intersection LOS: D

Intersection Capacity Utilization 70.1% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 12: Broadway & McGrath Highway



12: Broadway & McGrath Highway

	↗	→	↘	↙	←	↖	↖	↑	↘	↓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	233	667	298	108	322	165	90	854	60	1273
v/c Ratio	0.76	0.70	0.54	0.45	0.64	0.70	0.56	0.43	0.53	0.74
Control Delay	60.4	48.1	35.1	51.3	53.4	63.8	66.7	30.5	71.4	39.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.4	48.1	35.1	51.3	53.4	63.8	66.7	30.5	71.4	39.3
Queue Length 50th (ft)	198	187	180	84	130	123	67	184	45	322
Queue Length 95th (ft)	288	219	271	138	169	186	#183	260	#117	#447
Internal Link Dist (ft)		631			562			1249		769
Turn Bay Length (ft)	247			165		144	307		272	
Base Capacity (vph)	351	1091	549	395	831	389	161	1968	113	1727
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.61	0.54	0.27	0.39	0.42	0.56	0.43	0.53	0.74

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑↑	↱	↰	↰↑	↱	↰	↑↑↱		↰	↑↑↱	
Volume (vph)	430	398	274	110	285	152	83	753	33	55	1116	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	
Lane Util. Factor	0.86	0.86	1.00	0.91	0.91	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1522	4723	1583	1610	3384	1583	1770	5053		1770	5049	
Flt Permitted	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1522	4723	1583	1610	3384	1583	1770	5053		1770	5049	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	467	433	298	120	310	165	90	818	36	60	1213	60
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	4	0
Lane Group Flow (vph)	233	667	298	108	322	165	90	851	0	60	1269	0
Turn Type	custom	NA	pm+ov	Split	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases	4		4			3						
Actuated Green, G (s)	24.3	24.3	35.2	17.8	17.8	17.8	10.9	45.4		6.5	41.0	
Effective Green, g (s)	24.3	24.3	35.2	17.8	17.8	17.8	10.9	45.4		6.5	41.0	
Actuated g/C Ratio	0.20	0.20	0.29	0.15	0.15	0.15	0.09	0.38		0.05	0.34	
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	308	956	550	238	501	234	160	1911		95	1725	
v/s Ratio Prot	c0.15	0.14	c0.05	0.07	0.10		0.05	c0.17		0.03	c0.25	
v/s Ratio Perm			0.14			c0.10						
v/c Ratio	0.76	0.70	0.54	0.45	0.64	0.71	0.56	0.45		0.63	0.74	
Uniform Delay, d1	45.1	44.4	35.6	46.7	48.1	48.6	52.3	27.9		55.6	34.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.1	1.8	0.6	0.5	2.1	7.7	2.7	0.8		9.6	2.8	
Delay (s)	54.1	46.2	36.2	47.2	50.2	56.3	54.9	28.6		65.2	37.6	
Level of Service	D	D	D	D	D	E	D	C		E	D	
Approach Delay (s)		45.3			51.3			31.1			38.8	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	40.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑↑↑			↑↑↑
Volume (vph)	0	6	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1611	5085	0	0	5085
Flt Permitted						
Satd. Flow (perm)	0	1611	5085	0	0	5085
Link Speed (mph)	30		30			30
Link Distance (ft)	135		127			884
Travel Time (s)	3.1		2.9			20.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	7	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	7	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 6.7% ICU Level of Service A

Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑↑↑			↑↑↑
Volume (veh/h)	0	6	0	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	7	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			127			
pX, platoon unblocked						
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	1023	1084			1622	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	7	0	0	0	0	0	0
Volume Left	0	0	0	0	0	0	0
Volume Right	7	0	0	0	0	0	0
cSH	1084	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0
Control Delay (s)	8.3	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	8.3	0.0			0.0		
Approach LOS	A						

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

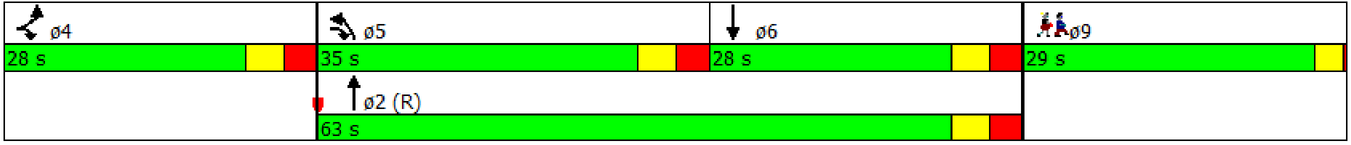
	↗	↘	↖	↑	↓	↙	
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
Lane Configurations	↰	↱↱	↰↰	↑↑↑	↑↑↱		
Volume (vph)	213	286	753	1682	1004	146	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	0.88	0.97	0.91	0.91	0.91	
Frt		0.850			0.981		
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	2787	3433	5085	4989	0	
Flt Permitted	0.950		0.950				
Satd. Flow (perm)	1770	2787	3433	5085	4989	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		311			19		
Link Speed (mph)	30			30	30		
Link Distance (ft)	107			265	153		
Travel Time (s)	2.4			6.0	3.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	232	311	818	1828	1091	159	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	232	311	818	1828	1250	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			24	24		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1	1	1	2	2		
Detector Template	Left	Right	Left	Thru	Thru		
Leading Detector (ft)	20	20	20	100	100		
Trailing Detector (ft)	0	0	0	0	0		
Detector 1 Position(ft)	0	0	0	0	0		
Detector 1 Size(ft)	20	20	20	6	6		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	Prot	pt+ov	Prot	NA	NA		
Protected Phases	4	4 5	5	2	6		9
Permitted Phases							
Detector Phase	4	4 5	5	2	6		
Switch Phase							
Minimum Initial (s)	6.0		6.0	12.0	12.0		4.0
Minimum Split (s)	22.5		12.5	22.5	22.5		8.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
Total Split (s)	28.0		35.0	63.0	28.0		29.0
Total Split (%)	23.3%		29.2%	52.5%	23.3%		24%
Maximum Green (s)	21.5		28.5	56.5	21.5		26.0
Yellow Time (s)	3.5		3.5	3.5	3.5		2.5
All-Red Time (s)	3.0		3.0	3.0	3.0		0.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0		
Total Lost Time (s)	6.5		6.5	6.5	6.5		
Lead/Lag			Lead		Lag		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	2.0		2.0	2.0	2.0		2.0
Recall Mode	None		None	C-Min	Min		None
Act Effct Green (s)	20.2	62.5	35.9	86.8	44.5		
Actuated g/C Ratio	0.17	0.52	0.30	0.72	0.37		
v/c Ratio	0.78	0.19	0.80	0.50	0.67		
Control Delay	65.4	1.5	45.2	8.2	34.5		
Queue Delay	9.7	0.6	0.0	0.0	0.0		
Total Delay	75.1	2.1	45.2	8.2	34.5		
LOS	E	A	D	A	C		
Approach Delay	33.3			19.7	34.5		
Approach LOS	C			B	C		

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 93 (78%), Referenced to phase 2:NBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 25.5 Intersection LOS: C
Intersection Capacity Utilization 72.2% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: McGrath Highway & Medford Street



	↗	↘	↖	↑	↓
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	232	311	818	1828	1250
v/c Ratio	0.78	0.19	0.80	0.50	0.67
Control Delay	65.4	1.5	45.2	8.2	34.5
Queue Delay	9.7	0.6	0.0	0.0	0.0
Total Delay	75.1	2.1	45.2	8.2	34.5
Queue Length 50th (ft)	174	0	300	198	290
Queue Length 95th (ft)	248	19	363	280	389
Internal Link Dist (ft)	27			185	73
Turn Bay Length (ft)					
Base Capacity (vph)	337	1569	1026	3679	1861
Starvation Cap Reductn	76	911	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.89	0.47	0.80	0.50	0.67

Intersection Summary

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱↱	↰↰	↑↑↑	↑↑↱	
Volume (vph)	213	286	753	1682	1004	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	
Lane Util. Factor	1.00	0.88	0.97	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	2787	3433	5085	4988	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	2787	3433	5085	4988	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	232	311	818	1828	1091	159
RTOR Reduction (vph)	0	149	0	0	12	0
Lane Group Flow (vph)	232	162	818	1828	1238	0
Turn Type	Prot	pt+ov	Prot	NA	NA	
Protected Phases	4	4 5	5	2	6	
Permitted Phases						
Actuated Green, G (s)	20.2	62.6	35.9	86.8	44.4	
Effective Green, g (s)	20.2	62.6	35.9	86.8	44.4	
Actuated g/C Ratio	0.17	0.52	0.30	0.72	0.37	
Clearance Time (s)	6.5		6.5	6.5	6.5	
Vehicle Extension (s)	2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)	297	1453	1027	3678	1845	
v/s Ratio Prot	c0.13	0.06	c0.24	0.36	c0.25	
v/s Ratio Perm						
v/c Ratio	0.78	0.11	0.80	0.50	0.67	
Uniform Delay, d1	47.8	14.6	38.7	7.2	31.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.6	0.0	4.1	0.5	0.8	
Delay (s)	59.4	14.6	42.8	7.7	32.4	
Level of Service	E	B	D	A	C	
Approach Delay (s)	33.7			18.5	32.4	
Approach LOS	C			B	C	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱			↰	↱	↰		↱		✣	
Volume (vph)	0	462	15	31	518	350	5	0	26	12	1	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	12	12	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850			0.850		0.964	
Flt Protected					0.997		0.950				0.967	
Satd. Flow (prot)	0	2103	0	0	1857	1583	1770	0	1583	0	1736	0
Flt Permitted					0.950		0.745				0.967	
Satd. Flow (perm)	0	2103	0	0	1770	1583	1388	0	1583	0	1736	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				380			109		5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		586			193			385			676	
Travel Time (s)		13.3			4.4			8.8			15.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)			0									
Adj. Flow (vph)	0	502	16	34	563	380	5	0	28	13	1	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	518	0	0	597	380	5	0	28	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2	1	1		1	1	2	
Detector Template		Thru		Left	Thru	Right	Left		Right	Left	Thru	
Leading Detector (ft)		100		20	100	20	20		20	20	100	
Trailing Detector (ft)		0		0	0	0	0		0	0	0	
Detector 1 Position(ft)		0		0	0	0	0		0	0	0	
Detector 1 Size(ft)		6		20	6	20	20		20	20	6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Perm	NA	custom	Perm		Perm	custom	NA	
Protected Phases		4			8	8 6						
Permitted Phases				8		6	2		2	6	6	
Detector Phase		4		8	8	8 6	2		2	6	6	
Switch Phase												

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		8.0		8.0	8.0		8.0		8.0	8.0	8.0	
Minimum Split (s)		20.0		20.0	20.0		20.0		20.0	20.0	20.0	
Total Split (s)		25.0		25.0	25.0		20.0		20.0	20.0	20.0	
Total Split (%)		41.7%		41.7%	41.7%		33.3%		33.3%	33.3%	33.3%	
Maximum Green (s)		19.0		19.0	19.0		15.0		15.0	15.0	15.0	
Yellow Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	
All-Red Time (s)		2.0		2.0	2.0		1.0		1.0	1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0		0.0		0.0	
Total Lost Time (s)		6.0			6.0		5.0		5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	
Recall Mode		Max		Max	Max		Max		Max	Max	Max	
Act Effct Green (s)		19.0			19.0	45.0	15.0		15.0		15.0	
Actuated g/C Ratio		0.42			0.42	1.00	0.33		0.33		0.33	
v/c Ratio		0.58			0.80	0.24	0.01		0.05		0.03	
Control Delay		13.2			22.5	0.4	10.2		0.2		9.2	
Queue Delay		0.0			2.3	0.0	0.0		0.0		0.0	
Total Delay		13.2			24.8	0.4	10.2		0.2		9.2	
LOS		B			C	A	B		A		A	
Approach Delay		13.2			15.3						9.2	
Approach LOS		B			B						A	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 45

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

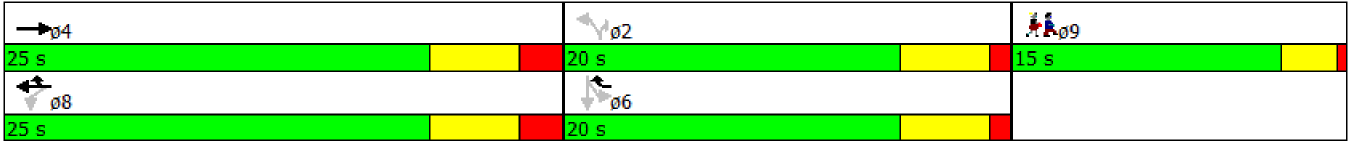
Maximum v/c Ratio: 0.80

Intersection Signal Delay: 14.2 Intersection LOS: B

Intersection Capacity Utilization 69.5% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Hamlet Street & Highland Avenue & Medford Street



Lane Group	ø9
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	15.0
Total Split (%)	25%
Maximum Green (s)	12.0
Yellow Time (s)	2.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

	→	←	↖	↖	↗	↓
Lane Group	EBT	WBT	WBR	NBL	NBR	SBT
Lane Group Flow (vph)	518	597	380	5	28	19
v/c Ratio	0.58	0.80	0.24	0.01	0.05	0.03
Control Delay	13.2	22.5	0.4	10.2	0.2	9.2
Queue Delay	0.0	2.3	0.0	0.0	0.0	0.0
Total Delay	13.2	24.8	0.4	10.2	0.2	9.2
Queue Length 50th (ft)	95	125	0	1	0	2
Queue Length 95th (ft)	167	#277	0	6	0	12
Internal Link Dist (ft)	506	113				596
Turn Bay Length (ft)						
Base Capacity (vph)	889	747	1583	462	600	582
Starvation Cap Reductn	0	65	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.88	0.24	0.01	0.05	0.03

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱			↰	↱	↰		↱		✣	
Volume (vph)	0	462	15	31	518	350	5	0	26	12	1	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		6.0			6.0	6.0	5.0		5.0		5.0	
Lane Util. Factor		1.00			1.00	1.00	1.00		1.00		1.00	
Frt		1.00			1.00	0.85	1.00		0.85		0.96	
Flt Protected		1.00			1.00	1.00	0.95		1.00		0.97	
Satd. Flow (prot)		2102			1857	1583	1770		1583		1737	
Flt Permitted		1.00			0.95	1.00	0.75		1.00		0.97	
Satd. Flow (perm)		2102			1769	1583	1388		1583		1737	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	502	16	34	563	380	5	0	28	13	1	5
RTOR Reduction (vph)	0	2	0	0	0	42	0	0	19	0	3	0
Lane Group Flow (vph)	0	516	0	0	597	338	5	0	9	0	16	0
Parking (#/hr)			0									
Turn Type		NA		Perm	NA	custom	Perm		Perm	custom	NA	
Protected Phases		4			8	8 6						
Permitted Phases				8		6	2		2	6	6	
Actuated Green, G (s)		19.0			19.0	45.0	15.0		15.0		15.0	
Effective Green, g (s)		19.0			19.0	40.0	15.0		15.0		15.0	
Actuated g/C Ratio		0.42			0.42	0.89	0.33		0.33		0.33	
Clearance Time (s)		6.0			6.0		5.0		5.0		5.0	
Vehicle Extension (s)		3.0			3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)		887			746	1407	462		527		579	
v/s Ratio Prot		0.25				c0.21						
v/s Ratio Perm					c0.34		0.00		0.01		0.01	
v/c Ratio		0.58			0.80	0.24	0.01		0.02		0.03	
Uniform Delay, d1		10.0			11.3	0.4	10.0		10.1		10.1	
Progression Factor		1.00			1.00	1.00	1.00		1.00		1.00	
Incremental Delay, d2		2.8			8.8	0.4	0.0		0.1		0.1	
Delay (s)		12.7			20.1	0.8	10.1		10.1		10.2	
Level of Service		B			C	A	B		B		B	
Approach Delay (s)		12.7			12.6			10.1			10.2	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

3: Walnut Street & Highland Avenue

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			✥				
Volume (vph)	121	429	0	0	511	11	60	290	51	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.997			0.983				
Flt Protected		0.989						0.993				
Satd. Flow (prot)	0	2088	0	0	2105	0	0	2061	0	0	0	0
Flt Permitted		0.648						0.993				
Satd. Flow (perm)	0	1368	0	0	2105	0	0	2061	0	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)					2							
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		814			586			1057			312	
Travel Time (s)		18.5			13.3			24.0			7.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)			0			0						
Adj. Flow (vph)	132	466	0	0	555	12	65	315	55	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	598	0	0	567	0	0	435	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2				
Detector Template	Left	Thru			Thru		Left	Thru				
Leading Detector (ft)	20	100			100		20	100				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	20	6			6		20	6				
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	

3: Walnut Street & Highland Avenue

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0			8.0		6.0	6.0				
Minimum Split (s)	21.0	21.0			21.0		20.0	20.0				
Total Split (s)	30.0	30.0			30.0		20.0	20.0				
Total Split (%)	46.2%	46.2%			46.2%		30.8%	30.8%				
Maximum Green (s)	25.0	25.0			25.0		15.0	15.0				
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		5.0			5.0			5.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0			4.0		4.0	4.0				
Recall Mode	Min	Min			Min		None	None				
Act Effct Green (s)		25.0			25.0			14.8				
Actuated g/C Ratio		0.50			0.50			0.30				
v/c Ratio		0.87			0.54			0.71				
Control Delay		28.7			10.8			23.7				
Queue Delay		0.0			0.0			0.0				
Total Delay		28.7			10.8			23.7				
LOS		C			B			C				
Approach Delay		28.7			10.8			23.7				
Approach LOS		C			B			C				

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 49.8
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 21.0 Intersection LOS: C
Intersection Capacity Utilization 91.0% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: Walnut Street & Highland Avenue

Lane Group	ø9
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	15.0
Total Split (%)	23%
Maximum Green (s)	12.0
Yellow Time (s)	2.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	1.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

3: Walnut Street & Highland Avenue

	→	←	↑
Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	598	567	435
v/c Ratio	0.87	0.54	0.71
Control Delay	28.7	10.8	23.7
Queue Delay	0.0	0.0	0.0
Total Delay	28.7	10.8	23.7
Queue Length 50th (ft)	141	102	111
Queue Length 95th (ft)	#322	173	#220
Internal Link Dist (ft)	734	506	977
Turn Bay Length (ft)			
Base Capacity (vph)	686	1057	620
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.87	0.54	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

3: Walnut Street & Highland Avenue

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			✥				
Volume (vph)	121	429	0	0	511	11	60	290	51	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	16	12	12	12	12
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		1.00			1.00			1.00				
Frt		1.00			1.00			0.98				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		2088			2105			2060				
Flt Permitted		0.65			1.00			0.99				
Satd. Flow (perm)		1367			2105			2060				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	466	0	0	555	12	65	315	55	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	598	0	0	566	0	0	435	0	0	0	0
Parking (#/hr)			0			0						
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		25.0			25.0			14.8				
Effective Green, g (s)		25.0			25.0			14.8				
Actuated g/C Ratio		0.50			0.50			0.30				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		686			1056			612				
v/s Ratio Prot					0.27							
v/s Ratio Perm		c0.44						0.21				
v/c Ratio		0.87			0.54			0.71				
Uniform Delay, d1		11.0			8.4			15.6				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		12.1			0.7			4.2				
Delay (s)		23.0			9.1			19.8				
Level of Service		C			A			B				
Approach Delay (s)		23.0			9.1			19.8			0.0	
Approach LOS		C			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	49.8	Sum of lost time (s)	13.0
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			✥				
Volume (vph)	0	5	0	0	346	38	101	339	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	12	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.987			0.998				
Flt Protected								0.989				
Satd. Flow (prot)	0	2111	0	0	2084	0	0	2084	0	0	0	0
Flt Permitted								0.989				
Satd. Flow (perm)	0	2111	0	0	2084	0	0	2084	0	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)					8							
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1533			676			312			128	
Travel Time (s)		34.8			15.4			7.1			2.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	5	0	0	376	41	110	368	8	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	417	0	0	486	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2				
Detector Template	Left	Thru			Thru		Left	Thru				
Leading Detector (ft)	20	100			100		20	100				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	20	6			6		20	6				
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type		NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	6.0	6.0			6.0		6.0	6.0				

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	11.5	11.5			11.5		11.5	11.5				
Total Split (s)	25.0	25.0			25.0		25.0	25.0				
Total Split (%)	37.3%	37.3%			37.3%		37.3%	37.3%				
Maximum Green (s)	19.5	19.5			19.5		19.5	19.5				
Yellow Time (s)	3.5	3.5			3.5		3.5	3.5				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		5.5			5.5			5.5				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Recall Mode	Min	Min			Min		None	None				
Act Effct Green (s)		13.7			13.7			15.7				
Actuated g/C Ratio		0.34			0.34			0.38				
v/c Ratio		0.01			0.59			0.61				
Control Delay		9.6			15.3			14.4				
Queue Delay		0.0			0.0			0.1				
Total Delay		9.6			15.3			14.6				
LOS		A			B			B				
Approach Delay		9.6			15.3			14.6				
Approach LOS		A			B			B				

Intersection Summary

Area Type: Other
Cycle Length: 67
Actuated Cycle Length: 40.8
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 14.9 Intersection LOS: B
Intersection Capacity Utilization 53.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: Walnut Street & Medford Street

Lane Group	ø9
Minimum Split (s)	8.0
Total Split (s)	17.0
Total Split (%)	25%
Maximum Green (s)	14.0
Yellow Time (s)	2.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Queues
4: Walnut Street & Medford Street

	→	←	↑
Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	5	417	486
v/c Ratio	0.01	0.59	0.61
Control Delay	9.6	15.3	14.4
Queue Delay	0.0	0.0	0.1
Total Delay	9.6	15.3	14.6
Queue Length 50th (ft)	1	77	82
Queue Length 95th (ft)	6	152	185
Internal Link Dist (ft)	1453	596	232
Turn Bay Length (ft)			
Base Capacity (vph)	1046	1037	1032
Starvation Cap Reductn	0	0	72
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.00	0.40	0.51

Intersection Summary

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↱			✥				
Volume (vph)	0	5	0	0	346	38	101	339	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	16	12	12	12	12
Total Lost time (s)		5.5			5.5			5.5				
Lane Util. Factor		1.00			1.00			1.00				
Frt		1.00			0.99			1.00				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		2111			2083			2083				
Flt Permitted		1.00			1.00			0.99				
Satd. Flow (perm)		2111			2083			2083				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	5	0	0	376	41	110	368	8	0	0	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	5	0	0	412	0	0	486	0	0	0	0
Turn Type		NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		13.7			13.7			15.7				
Effective Green, g (s)		13.7			13.7			15.7				
Actuated g/C Ratio		0.34			0.34			0.39				
Clearance Time (s)		5.5			5.5			5.5				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		715			706			809				
v/s Ratio Prot		0.00			c0.20							
v/s Ratio Perm								0.23				
v/c Ratio		0.01			0.58			0.60				
Uniform Delay, d1		8.8			11.0			9.9				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.0			1.2			1.3				
Delay (s)		8.8			12.2			11.1				
Level of Service		A			B			B				
Approach Delay (s)		8.8			12.2			11.1			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	40.4	Sum of lost time (s)	14.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	Y	
Volume (vph)	556	16	28	447	11	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	12	16	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996				0.879	
Flt Protected				0.997	0.995	
Satd. Flow (prot)	2103	0	0	1894	1846	0
Flt Permitted				0.997	0.995	
Satd. Flow (perm)	2103	0	0	1894	1846	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			814	1198	
Travel Time (s)	6.8			18.5	27.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)		0		0		0
Adj. Flow (vph)	604	17	30	486	12	103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	621	0	0	516	115	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	16	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.85	1.00	1.00	0.97	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 59.6% ICU Level of Service B

Analysis Period (min) 15

	→	↘	↙	←	↖	↗
Movement	**EBT**	**EBR**	**WBL**	**WBT**	**NBL**	**NBR**
Lane Configurations	↱			↰	↰↱	
Volume (veh/h)	556	16	28	447	11	95
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	604	17	30	486	12	103
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	553			814		
pX, platoon unblocked			0.89		0.91	0.89
vC, conflicting volume			622		1160	613
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			517		864	507
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		96	80
cM capacity (veh/h)			937		286	505

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	622	516	115
Volume Left	0	30	12
Volume Right	17	0	103
cSH	1700	937	468
Volume to Capacity	0.37	0.03	0.25
Queue Length 95th (ft)	0	3	24
Control Delay (s)	0.0	0.9	15.2
Lane LOS		A	C
Approach Delay (s)	0.0	0.9	15.2
Approach LOS			C

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	Y	
Volume (vph)	420	19	37	441	32	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	12	12	16	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.888	
Flt Protected				0.996	0.992	
Satd. Flow (prot)	2098	0	0	1892	1860	0
Flt Permitted				0.996	0.992	
Satd. Flow (perm)	2098	0	0	1892	1860	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	253			300	1042	
Travel Time (s)	5.8			6.8	23.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)		0		0		0
Adj. Flow (vph)	457	21	40	479	35	174
Shared Lane Traffic (%)						
Lane Group Flow (vph)	478	0	0	519	209	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	16	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.85	1.00	1.00	0.97	0.85	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 70.2% ICU Level of Service C

Analysis Period (min) 15

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	⋎	
Volume (veh/h)	420	19	37	441	32	160
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	457	21	40	479	35	174
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	253			1114		
pX, platoon unblocked			0.86		0.90	0.86
vC, conflicting volume			477		1027	467
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			315		810	303
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		88	73
cM capacity (veh/h)			1075		301	636

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	477	520	209
Volume Left	0	40	35
Volume Right	21	0	174
cSH	1700	1075	536
Volume to Capacity	0.28	0.04	0.39
Queue Length 95th (ft)	0	3	46
Control Delay (s)	0.0	1.1	15.9
Lane LOS		A	C
Approach Delay (s)	0.0	1.1	15.9
Approach LOS			C

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱			↰						✥	
Volume (vph)	0	303	39	34	423	0	0	0	0	162	363	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985									0.980	
Flt Protected					0.996						0.987	
Satd. Flow (prot)	0	2079	0	0	2103	0	0	0	0	0	2042	0
Flt Permitted					0.946						0.987	
Satd. Flow (perm)	0	2079	0	0	1997	0	0	0	0	0	2042	0
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1417			253			958			1005	
Travel Time (s)		32.2			5.8			21.8			22.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)			0			0						0
Adj. Flow (vph)	0	329	42	37	460	0	0	0	0	176	395	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	371	0	0	497	0	0	0	0	0	671	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	
Detector Template		Thru		Left	Thru					Left	Thru	
Leading Detector (ft)		100		20	100					20	100	
Trailing Detector (ft)		0		0	0					0	0	
Detector 1 Position(ft)		0		0	0					0	0	
Detector 1 Size(ft)		6		20	6					20	6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases				8						6		
Detector Phase		4		8	8					6	6	
Switch Phase												

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		8.0		8.0	8.0					6.0	6.0	
Minimum Split (s)		22.0		22.0	22.0					22.0	22.0	
Total Split (s)		40.0		40.0	40.0					30.0	30.0	
Total Split (%)		44.0%		44.0%	44.0%					33.0%	33.0%	
Maximum Green (s)		34.0		34.0	34.0					24.0	24.0	
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	
All-Red Time (s)		2.0		2.0	2.0					2.0	2.0	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		6.0			6.0						6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0					4.0	4.0	
Recall Mode		Min		Min	Min					Min	Min	
Act Effct Green (s)		19.0			19.0						24.2	
Actuated g/C Ratio		0.34			0.34						0.44	
v/c Ratio		0.52			0.72						0.75	
Control Delay		16.9			22.3						22.0	
Queue Delay		0.0			0.0						0.0	
Total Delay		16.9			22.3						22.0	
LOS		B			C						C	
Approach Delay		16.9			22.3						22.0	
Approach LOS		B			C						C	

Intersection Summary

Area Type: Other
Cycle Length: 91
Actuated Cycle Length: 55.3
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 91.1% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 7: School Street & Highland Avenue

Lane Group	ø9
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	21.0
Total Split (%)	23%
Maximum Green (s)	18.0
Yellow Time (s)	2.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

7: School Street & Highland Avenue

	→	←	↓
Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	371	497	671
v/c Ratio	0.52	0.72	0.75
Control Delay	16.9	22.3	22.0
Queue Delay	0.0	0.0	0.0
Total Delay	16.9	22.3	22.0
Queue Length 50th (ft)	94	138	175
Queue Length 95th (ft)	156	223	#415
Internal Link Dist (ft)	1337	173	925
Turn Bay Length (ft)			
Base Capacity (vph)	1287	1237	892
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.29	0.40	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱			↰						✥	
Volume (vph)	0	303	39	34	423	0	0	0	0	162	363	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	16	12	12	16	12
Total Lost time (s)		6.0			6.0						6.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		0.98			1.00						0.98	
Flt Protected		1.00			1.00						0.99	
Satd. Flow (prot)		2079			2103						2042	
Flt Permitted		1.00			0.95						0.99	
Satd. Flow (perm)		2079			1996						2042	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	329	42	37	460	0	0	0	0	176	395	100
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	371	0	0	497	0	0	0	0	0	671	0
Parking (#/hr)			0			0						0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases				8						6		
Actuated Green, G (s)		19.0			19.0						24.2	
Effective Green, g (s)		19.0			19.0						24.2	
Actuated g/C Ratio		0.34			0.34						0.44	
Clearance Time (s)		6.0			6.0						6.0	
Vehicle Extension (s)		3.0			3.0						4.0	
Lane Grp Cap (vph)		715			687						895	
v/s Ratio Prot		0.18										
v/s Ratio Perm					c0.25						0.33	
v/c Ratio		0.52			0.72						0.75	
Uniform Delay, d1		14.5			15.8						13.0	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		0.6			3.8						3.7	
Delay (s)		15.1			19.6						16.7	
Level of Service		B			B						B	
Approach Delay (s)		15.1			19.6			0.0			16.7	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	55.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Volume (vph)	35	315	27	23	380	57	38	311	75	18	127	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	10	12	12	11	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.983			0.976			0.958	
Flt Protected		0.995			0.998			0.996			0.996	
Satd. Flow (prot)	0	2080	0	0	2071	0	0	1690	0	0	1718	0
Flt Permitted		0.925			0.967			0.955			0.945	
Satd. Flow (perm)	0	1933	0	0	2007	0	0	1620	0	0	1630	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		5			10			16				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1440			1417			1078			948	
Travel Time (s)		32.7			32.2			24.5			21.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	342	29	25	413	62	41	338	82	20	138	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	409	0	0	500	0	0	461	0	0	230	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.09	1.00	1.00	1.04	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		6.0	6.0		6.0	6.0	

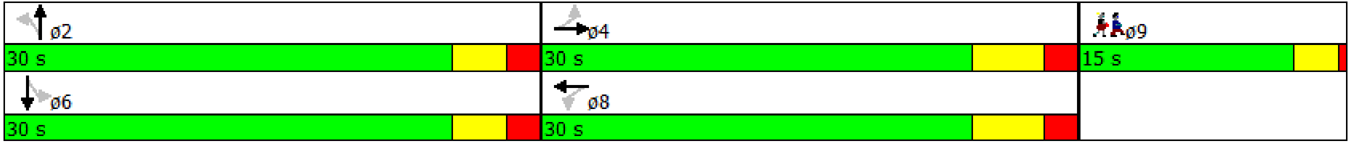
Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	22.0	22.0		22.0	22.0		21.0	21.0		21.0	21.0	
Total Split (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Act Effct Green (s)		24.1			24.1			21.5			21.5	
Actuated g/C Ratio		0.43			0.43			0.38			0.38	
v/c Ratio		0.50			0.58			0.74			0.37	
Control Delay		15.2			16.4			22.5			14.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		15.2			16.4			22.5			14.4	
LOS		B			B			C			B	
Approach Delay		15.2			16.4			22.5			14.4	
Approach LOS		B			B			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 56.7
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 17.6 Intersection LOS: B
Intersection Capacity Utilization 70.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 8: Central Street & Highland Avenue



Lane Group	ø9
Minimum Split (s)	8.0
Total Split (s)	15.0
Total Split (%)	20%
Maximum Green (s)	12.0
Yellow Time (s)	2.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

8: Central Street & Highland Avenue

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	409	500	461	230
v/c Ratio	0.50	0.58	0.74	0.37
Control Delay	15.2	16.4	22.5	14.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	15.2	16.4	22.5	14.4
Queue Length 50th (ft)	102	130	125	54
Queue Length 95th (ft)	179	224	219	100
Internal Link Dist (ft)	1360	1337	998	868
Turn Bay Length (ft)				
Base Capacity (vph)	825	859	726	722
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.50	0.58	0.63	0.32

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Volume (vph)	35	315	27	23	380	57	38	311	75	18	127	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	10	12	12	11	12
Total Lost time (s)		6.0			6.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			0.98			0.98			0.96	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		2081			2071			1689			1717	
Flt Permitted		0.93			0.97			0.96			0.95	
Satd. Flow (perm)		1935			2008			1621			1630	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	342	29	25	413	62	41	338	82	20	138	72
RTOR Reduction (vph)	0	3	0	0	6	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	406	0	0	494	0	0	451	0	0	230	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.1			24.1			21.5			21.5	
Effective Green, g (s)		24.1			24.1			21.5			21.5	
Actuated g/C Ratio		0.43			0.43			0.38			0.38	
Clearance Time (s)		6.0			6.0			5.0			5.0	
Vehicle Extension (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		823			854			615			619	
v/s Ratio Prot												
v/s Ratio Perm		0.21			c0.25			c0.28			0.14	
v/c Ratio		0.49			0.58			0.73			0.37	
Uniform Delay, d1		11.8			12.4			15.1			12.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.1			2.9			4.8			0.5	
Delay (s)		13.9			15.2			19.9			13.2	
Level of Service		B			B			B			B	
Approach Delay (s)		13.9			15.2			19.9			13.2	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	56.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

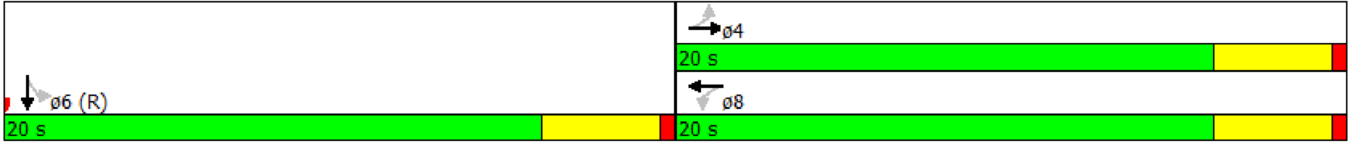
c Critical Lane Group

	⤴	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣						✣	
Volume (vph)	26	222	156	193	362	93	0	0	0	16	294	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	12	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.948			0.981						0.992	
Flt Protected		0.997			0.985						0.998	
Satd. Flow (prot)	0	1995	0	0	2040	0	0	0	0	0	2090	0
Flt Permitted		0.954			0.717						0.998	
Satd. Flow (perm)	0	1909	0	0	1485	0	0	0	0	0	2090	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		95			25							
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1552			1533			1005			241	
Travel Time (s)		35.3			34.8			27.4			6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Parking (#/hr)			0									
Adj. Flow (vph)	28	241	170	210	393	101	0	0	0	17	320	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	439	0	0	704	0	0	0	0	0	359	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases	4			8						6		
Minimum Split (s)	20.0	20.0		20.0	20.0					20.0	20.0	
Total Split (s)	20.0	20.0		20.0	20.0					20.0	20.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%					50.0%	50.0%	
Maximum Green (s)	16.0	16.0		16.0	16.0					16.0	16.0	
Yellow Time (s)	3.5	3.5		3.5	3.5					3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5					0.5	0.5	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		4.0			4.0						4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0					5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0					11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0					0	0	
Act Effct Green (s)		16.0			16.0						16.0	
Actuated g/C Ratio		0.40			0.40						0.40	
v/c Ratio		0.54			1.16						0.43	
Control Delay		10.0			106.2						10.7	
Queue Delay		0.0			0.0						0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		10.0			106.2						10.7	
LOS		A			F						B	
Approach Delay		10.0			106.2						10.7	
Approach LOS		A			F						B	

Intersection Summary	
Area Type: Other	
Cycle Length: 40	
Actuated Cycle Length: 40	
Offset: 0 (0%), Referenced to phase 2: and 6:SBTL, Start of Green	
Natural Cycle: 55	
Control Type: Pretimed	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 55.2	Intersection LOS: E
Intersection Capacity Utilization 85.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 9: School Street & Medford Street



9: School Street & Medford Street

	→	←	↓
Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	439	704	359
v/c Ratio	0.54	1.16	0.43
Control Delay	10.0	106.2	10.7
Queue Delay	0.0	0.0	0.0
Total Delay	10.0	106.2	10.7
Queue Length 50th (ft)	53	~198	54
Queue Length 95th (ft)	110	#358	103
Internal Link Dist (ft)	1472	1453	161
Turn Bay Length (ft)			
Base Capacity (vph)	820	609	836
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.54	1.16	0.43

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣						✣	
Volume (vph)	26	222	156	193	362	93	0	0	0	16	294	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	12	12	12	16	12
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						1.00	
Frt		0.95			0.98						0.99	
Flt Protected		1.00			0.99						1.00	
Satd. Flow (prot)		1994			2040						2089	
Flt Permitted		0.95			0.72						1.00	
Satd. Flow (perm)		1909			1484						2089	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	241	170	210	393	101	0	0	0	17	320	22
RTOR Reduction (vph)	0	57	0	0	15	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	382	0	0	689	0	0	0	0	0	359	0
Parking (#/hr)			0									
Turn Type	Perm	NA		Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		16.0			16.0						16.0	
Effective Green, g (s)		16.0			16.0						16.0	
Actuated g/C Ratio		0.40			0.40						0.40	
Clearance Time (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		763			593						835	
v/s Ratio Prot												
v/s Ratio Perm		0.20			c0.46						0.17	
v/c Ratio		0.50			1.16						0.43	
Uniform Delay, d1		9.0			12.0						8.7	
Progression Factor		1.00			1.00						1.00	
Incremental Delay, d2		2.3			90.4						1.6	
Delay (s)		11.3			102.4						10.3	
Level of Service		B			F						B	
Approach Delay (s)		11.3			102.4			0.0			10.3	
Approach LOS		B			F			A			B	

Intersection Summary			
HCM 2000 Control Delay	53.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Volume (vph)	14	288	58	86	269	35	84	252	71	5	150	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	16	12	12	15	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.978			0.988			0.976			0.994	
Flt Protected		0.998			0.989			0.990			0.999	
Satd. Flow (prot)	0	2061	0	0	2063	0	0	2040	0	0	2035	0
Flt Permitted		0.982			0.849			0.908			0.988	
Satd. Flow (perm)	0	2028	0	0	1771	0	0	1871	0	0	2012	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		17			9			14				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		604			1552			751			450	
Travel Time (s)		13.7			35.3			17.1			10.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	313	63	93	292	38	91	274	77	5	163	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	391	0	0	423	0	0	442	0	0	176	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Detector Phase	8	8		4	4		6	6		2	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0

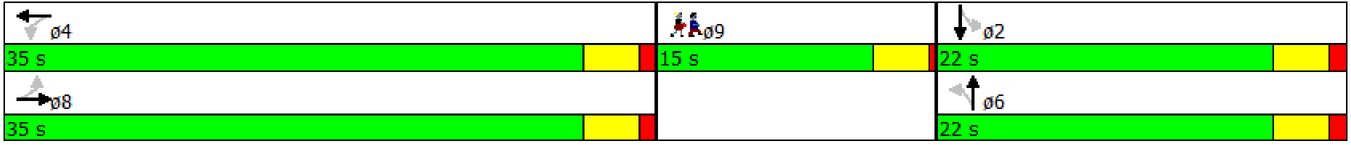
10: Central Street & Medford Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	14.0	14.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	35.0	35.0		35.0	35.0		22.0	22.0		22.0	22.0	
Total Split (%)	48.6%	48.6%		48.6%	48.6%		30.6%	30.6%		30.6%	30.6%	
Maximum Green (s)	31.0	31.0		31.0	31.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Act Effct Green (s)		31.0			31.0			18.0			18.0	
Actuated g/C Ratio		0.54			0.54			0.32			0.32	
v/c Ratio		0.35			0.44			0.74			0.28	
Control Delay		8.1			9.4			26.2			16.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		8.1			9.4			26.2			16.1	
LOS		A			A			C			B	
Approach Delay		8.1			9.4			26.2			16.1	
Approach LOS		A			A			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 72
Actuated Cycle Length: 57
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 15.0 Intersection LOS: B
Intersection Capacity Utilization 84.6% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 10: Central Street & Medford Street



Lane Group	ø9
Minimum Split (s)	15.0
Total Split (s)	15.0
Total Split (%)	21%
Maximum Green (s)	11.5
Yellow Time (s)	3.0
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	391	423	442	176
v/c Ratio	0.35	0.44	0.74	0.28
Control Delay	8.1	9.4	26.2	16.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.1	9.4	26.2	16.1
Queue Length 50th (ft)	64	75	128	44
Queue Length 95th (ft)	110	131	#252	85
Internal Link Dist (ft)	524	1472	671	370
Turn Bay Length (ft)				
Base Capacity (vph)	1110	967	600	635
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.35	0.44	0.74	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

10: Central Street & Medford Street

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Volume (vph)	14	288	58	86	269	35	84	252	71	5	150	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	12	12	16	12	12	16	12	12	15	12
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.99			0.98			0.99	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		2061			2063			2040			2034	
Flt Permitted		0.98			0.85			0.91			0.99	
Satd. Flow (perm)		2029			1771			1873			2011	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	313	63	93	292	38	91	274	77	5	163	8
RTOR Reduction (vph)	0	8	0	0	4	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	383	0	0	419	0	0	432	0	0	176	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		31.0			31.0			18.0			18.0	
Effective Green, g (s)		31.0			31.0			18.0			18.0	
Actuated g/C Ratio		0.54			0.54			0.32			0.32	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1103			963			591			635	
v/s Ratio Prot												
v/s Ratio Perm		0.19			c0.24			c0.23			0.09	
v/c Ratio		0.35			0.43			0.73			0.28	
Uniform Delay, d1		7.3			7.8			17.4			14.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.9			1.4			5.0			0.3	
Delay (s)		8.2			9.2			22.3			14.9	
Level of Service		A			A			C			B	
Approach Delay (s)		8.2			9.2			22.3			14.9	
Approach LOS		A			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	57.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

	→	↘	↙	←	↖	↗	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	ø9
Lane Configurations	↑↑↱		↰	↑↑	↰↱		
Volume (vph)	628	74	224	780	64	65	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		0	100		0	0	
Storage Lanes		0	1		1	0	
Taper Length (ft)			47		25		
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00	
Frt	0.984				0.932		
Flt Protected			0.950		0.976		
Satd. Flow (prot)	3483	0	1770	3539	1694	0	
Flt Permitted			0.950		0.976		
Satd. Flow (perm)	3483	0	1770	3539	1694	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	12				41		
Link Speed (mph)	30			30	30		
Link Distance (ft)	1097			1430	1406		
Travel Time (s)	24.9			32.5	32.0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	683	80	243	848	70	71	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	763	0	243	848	141	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	14			17	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)		9	15		15	9	
Number of Detectors	2		1	2	1		
Detector Template	Thru		Left	Thru	Left		
Leading Detector (ft)	100		20	100	20		
Trailing Detector (ft)	0		0	0	0		
Detector 1 Position(ft)	0		0	0	0		
Detector 1 Size(ft)	6		20	6	20		
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0		
Detector 1 Queue (s)	0.0		0.0	0.0	0.0		
Detector 1 Delay (s)	0.0		0.0	0.0	0.0		
Detector 2 Position(ft)	94			94			
Detector 2 Size(ft)	6			6			
Detector 2 Type	Cl+Ex			Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)	0.0			0.0			
Turn Type	NA		Prot	NA	Perm		
Protected Phases	8		7	4			9
Permitted Phases					6		
Detector Phase	8		7	4	6		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	ø9
Switch Phase							
Minimum Initial (s)	6.0		6.0	6.0	6.0		4.0
Minimum Split (s)	20.0		11.5	20.0	20.0		29.0
Total Split (s)	40.0		15.0	55.0	25.0		29.0
Total Split (%)	36.7%		13.8%	50.5%	22.9%		27%
Maximum Green (s)	35.0		9.5	49.5	21.0		25.5
Yellow Time (s)	3.5		3.5	3.5	3.5		3.0
All-Red Time (s)	1.5		2.0	2.0	0.5		0.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0		
Total Lost Time (s)	5.0		5.5	5.5	4.0		
Lead/Lag	Lead		Lag				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	None		None	Min	None		None
Act Effct Green (s)	19.4		9.9	36.0	9.2		
Actuated g/C Ratio	0.38		0.20	0.71	0.18		
v/c Ratio	0.57		0.71	0.34	0.41		
Control Delay	14.9		37.6	4.7	19.3		
Queue Delay	0.0		0.0	0.0	0.0		
Total Delay	14.9		37.6	4.7	19.3		
LOS	B		D	A	B		
Approach Delay	14.9			12.1	19.3		
Approach LOS	B			B	B		

Intersection Summary

Area Type: Other

Cycle Length: 109

Actuated Cycle Length: 50.7

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

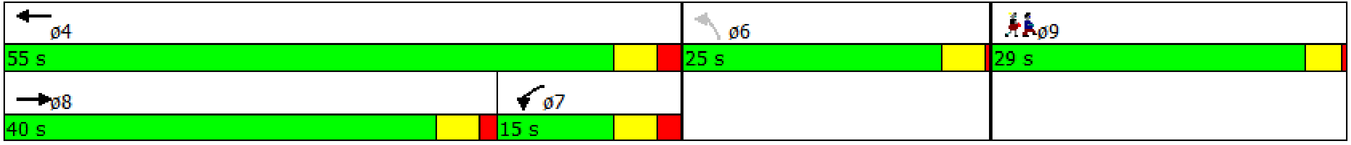
Maximum v/c Ratio: 0.71

Intersection Signal Delay: 13.7 Intersection LOS: B

Intersection Capacity Utilization 51.7% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 11: School Street & Broadway



Queues
11: School Street & Broadway

	→	↙	←	↖
Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	763	243	848	141
v/c Ratio	0.57	0.71	0.34	0.41
Control Delay	14.9	37.6	4.7	19.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.9	37.6	4.7	19.3
Queue Length 50th (ft)	94	69	51	26
Queue Length 95th (ft)	157	#214	96	77
Internal Link Dist (ft)	1017		1350	1326
Turn Bay Length (ft)		100		
Base Capacity (vph)	2498	344	3285	751
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.31	0.71	0.26	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

11: School Street & Broadway

12/1/2015

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱		↰	↑↑	↰↱	
Volume (vph)	628	74	224	780	64	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.5	5.5	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.98		1.00	1.00	0.93	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3484		1770	3539	1694	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3484		1770	3539	1694	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	683	80	243	848	70	71
RTOR Reduction (vph)	7	0	0	0	35	0
Lane Group Flow (vph)	756	0	243	848	106	0
Turn Type	NA		Prot	NA	Perm	
Protected Phases	8		7	4		
Permitted Phases					6	
Actuated Green, G (s)	19.4		10.1	34.5	7.5	
Effective Green, g (s)	19.4		10.1	34.5	7.5	
Actuated g/C Ratio	0.38		0.20	0.67	0.15	
Clearance Time (s)	5.0		5.5	5.5	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1312		347	2370	246	
v/s Ratio Prot	c0.22		c0.14	0.24		
v/s Ratio Perm					c0.06	
v/c Ratio	0.58		0.70	0.36	0.43	
Uniform Delay, d1	12.8		19.3	3.7	20.1	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.6		6.3	0.1	1.2	
Delay (s)	13.4		25.5	3.8	21.3	
Level of Service	B		C	A	C	
Approach Delay (s)	13.4			8.6	21.3	
Approach LOS	B			A	C	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	51.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑↑	↱	↰	↰↑	↱	↰	↑↑↱		↰	↑↑↱	
Volume (vph)	490	252	139	117	309	225	136	1690	67	85	1003	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	247		0	165		144	307		0	272		0
Storage Lanes	2		1	1		1	1		0	1		0
Taper Length (ft)	133			25			211			195		
Lane Util. Factor	0.86	0.86	1.00	0.91	0.91	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850			0.850		0.994			0.976	
Flt Protected	0.950	0.976		0.950	0.998		0.950			0.950		
Satd. Flow (prot)	1522	4691	1583	1610	3383	1583	1770	5055	0	1770	4963	0
Flt Permitted	0.950	0.976		0.950	0.998		0.950			0.950		
Satd. Flow (perm)	1522	4691	1583	1610	3383	1583	1770	5055	0	1770	4963	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)								5			32	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		711			642			1329			849	
Travel Time (s)		16.2			14.6			30.2			19.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	533	274	151	127	336	245	148	1837	73	92	1090	209
Shared Lane Traffic (%)	50%			10%								
Lane Group Flow (vph)	266	541	151	114	349	245	148	1910	0	92	1299	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		27			26			26			25	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	custom	NA	pm+ov	Split	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases	4		4			3						
Detector Phase	4	4	5	3	3	3	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0	6.0	10.0	10.0	10.0	6.0	10.0		6.0	10.0	
Minimum Split (s)	33.0	33.0	12.5	36.0	36.0	36.0	12.5	38.5		12.5	38.5	
Total Split (s)	33.0	33.0	12.5	36.0	36.0	36.0	12.5	38.5		12.5	38.5	
Total Split (%)	27.5%	27.5%	10.4%	30.0%	30.0%	30.0%	10.4%	32.1%		10.4%	32.1%	
Maximum Green (s)	26.5	26.5	6.0	29.5	29.5	29.5	6.0	32.0		6.0	32.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None	None	Min	Min	Min	None	C-Min		None	C-Min	
Walk Time (s)	13.0	13.0		15.0	15.0	15.0		16.0			16.0	
Flash Dont Walk (s)	10.0	10.0		14.0	14.0	14.0		16.0			16.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
Act Effct Green (s)	24.6	24.6	45.3	23.2	23.2	23.2	14.2	36.9		9.3	32.0	
Actuated g/C Ratio	0.20	0.20	0.38	0.19	0.19	0.19	0.12	0.31		0.08	0.27	
v/c Ratio	0.86	0.56	0.25	0.37	0.53	0.80	0.71	1.23		0.67	0.97	
Control Delay	70.6	44.9	28.8	43.9	45.7	64.9	72.1	144.3		78.6	60.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	70.6	44.9	28.8	43.9	45.7	64.9	72.1	144.3		78.6	60.1	
LOS	E	D	C	D	D	E	E	F		E	E	
Approach Delay		49.5			52.1			139.1			61.3	
Approach LOS		D			D			F			E	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 140

Control Type: Actuated-Coordinated

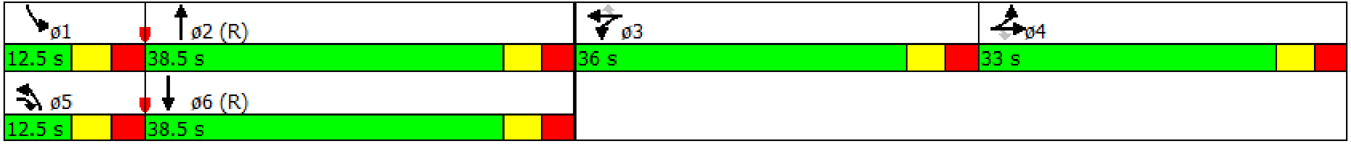
Maximum v/c Ratio: 1.23

Intersection Signal Delay: 89.1 Intersection LOS: F

Intersection Capacity Utilization 82.9% ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 12: Broadway & McGrath Highway



	↗	→	↘	↙	←	↖	↖	↑	↘	↓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	266	541	151	114	349	245	148	1910	92	1299
v/c Ratio	0.86	0.56	0.25	0.37	0.53	0.80	0.71	1.23	0.67	0.97
Control Delay	70.6	44.9	28.8	43.9	45.7	64.9	72.1	144.3	78.6	60.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.6	44.9	28.8	43.9	45.7	64.9	72.1	144.3	78.6	60.1
Queue Length 50th (ft)	224	142	80	84	134	182	116	~733	70	357
Queue Length 95th (ft)	#382	186	144	138	174	261	#303	#831	#187	#459
Internal Link Dist (ft)		631			562			1249		769
Turn Bay Length (ft)	247			165		144	307		272	
Base Capacity (vph)	343	1057	597	395	831	389	209	1557	137	1346
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.51	0.25	0.29	0.42	0.63	0.71	1.23	0.67	0.97

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑↑	↱	↰	↰↑	↱	↰	↑↑↱		↰	↑↑↱	
Volume (vph)	490	252	139	117	309	225	136	1690	67	85	1003	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	
Lane Util. Factor	0.86	0.86	1.00	0.91	0.91	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1522	4690	1583	1610	3384	1583	1770	5056		1770	4963	
Flt Permitted	0.95	0.98	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1522	4690	1583	1610	3384	1583	1770	5056		1770	4963	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	533	274	151	127	336	245	148	1837	73	92	1090	209
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	23	0
Lane Group Flow (vph)	266	541	151	114	349	245	148	1907	0	92	1276	0
Turn Type	custom	NA	pm+ov	Split	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases	4		4			3						
Actuated Green, G (s)	24.6	24.6	38.8	23.2	23.2	23.2	14.2	36.9		9.3	32.0	
Effective Green, g (s)	24.6	24.6	38.8	23.2	23.2	23.2	14.2	36.9		9.3	32.0	
Actuated g/C Ratio	0.21	0.21	0.32	0.19	0.19	0.19	0.12	0.31		0.08	0.27	
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	312	961	597	311	654	306	209	1554		137	1323	
v/s Ratio Prot	c0.17	0.12	0.03	0.07	0.10		c0.08	c0.38		0.05	0.26	
v/s Ratio Perm			0.07			c0.15						
v/c Ratio	0.85	0.56	0.25	0.37	0.53	0.80	0.71	1.23		0.67	0.96	
Uniform Delay, d1	46.0	42.9	29.9	42.0	43.5	46.2	50.9	41.5		53.9	43.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.9	0.5	0.1	0.3	0.4	13.2	8.6	108.0		9.7	17.5	
Delay (s)	64.9	43.3	30.0	42.3	44.0	59.4	59.5	149.6		63.6	61.0	
Level of Service	E	D	C	D	D	E	E	F		E	E	
Approach Delay (s)		47.2			49.0			143.1			61.1	
Approach LOS		D			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	89.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑↑↑			↑↑↑
Volume (vph)	0	1	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1611	5085	0	0	5085
Flt Permitted						
Satd. Flow (perm)	0	1611	5085	0	0	5085
Link Speed (mph)	30		30			30
Link Distance (ft)	163		153			858
Travel Time (s)	3.7		3.5			19.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 6.7% ICU Level of Service A
Analysis Period (min) 15

13: Chester Avenue & McGrath Highway

Movement	WBL	WBR	NBT	NBR	SBL	SBT
	↙	↖	↑	↗	↘	↓
Lane Configurations		↱	↑↑↑			↑↑↑
Volume (veh/h)	0	1	0	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			153			
pX, platoon unblocked						
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	1023	1084			1622	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	1	0	0	0	0	0	0
Volume Left	0	0	0	0	0	0	0
Volume Right	1	0	0	0	0	0	0
cSH	1084	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0
Control Delay (s)	8.3	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	8.3	0.0			0.0		
Approach LOS	A						

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

CDW CONSULTANTS, INC.
CIVIL & ENVIRONMENTAL ENGINEERS

PHASE I ENVIRONMENTAL SITE ASSESSMENT
(ASTM E 1527-13)

Somerville High School
81 Highland Avenue
Somerville, Massachusetts

November 30, 2015

Prepared for:

Symmes Maini and Mckee
1000 Massachusetts Avenue
Cambridge, Massachusetts

CDW Project #1491.00

40 Speen Street Suite 301, Framingham, MA 01701 508-875-2657 FAX 508-875-6617
www.cdwconsultants.com

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I EXECUTIVE SUMMARY

CDW Consultants, Inc. (CDW) conducted an investigation of the Somerville High School located at 81 Highland Avenue in Somerville, Massachusetts (the “Site”; Figure 1). The Site includes one 13.05 acres of land including roadways, parking lots, formal front lawn and landscaped areas. The Site contains one 360,000 square foot building utilized as a high school constructed between 1895 and 2014. The site is owned by the City of Somerville, and is shown on Assessors’ Map 61, Block F, Lot 2.

The Site investigation was conducted in November 2015 in accordance with the ASTM International (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM E1527-13) and the Massachusetts General Laws (MGL) Part I, Title II, Chapter 21E: Massachusetts Oil and Hazardous Material Release Prevention and Response Act.

The one Site building consists of several multi storied wings with differing building dates and construction materials. On November 3, 2015, CDW personnel performed a Site reconnaissance to conduct a general visual inspection of the Site, observe the interior of the Site building, and document existing and observable uses of the Site and adjacent properties.

The investigation conducted by CDW personnel included a review of available federal, state, and local environmental agency records to identify the presence or likely presence of Recognized Environmental Conditions (RECs), Historical Recognized Environmental Condition (HRECs) and Controlled Recognized Environmental Condition (CRECs).

No HRECs or CRECs were identified during the assessment. RECs were identified during the assessment. They were:

- Unknown contamination from the current 15,000 gallon fuel oil underground storage tanks.
- Unknown contamination from the current 1,000 gallon diesel fuel underground storage tank for the generator.
- Residual contamination from multiple releases of fuel oil in the boiler room and overfills during deliveries.
- Unknown contamination from the hydraulic fluid reservoirs and elevator fluid reservoirs.
- Unknown/undocumented floor drain discharges. Though floor drains discharge to the sewer system, the infrastructure is old and may be deteriorated.
- Unknown/undocumented grease trap discharges. Though grease traps are connected to the sewer system, the infrastructure may be deteriorated.

- Unknown/undocumented acid tank discharges. Though grease traps are connected to the sewer system, the infrastructure may be deteriorated.

- Coal ash and clinkers were observed in soil in the excavated area in the boiler room, and outside the building during a foundation coating investigation.

- Potential environmental impacts from unknown discharges or spills from activities in the automotive repair shop.

- Potential impacts to soil in the vicinity of the fuel oil burner discharge to the chimney. The brick at the discharge point is stained.

An asbestos survey was beyond the scope of this assessment. Due to the dates of construction, asbestos containing building materials (ACBMs) may be located on the property. Suspect ACBMs observed within the building included flooring, mastics, ceiling tiles, interior window glazing, exterior expansion joint, door caulk and window caulk. It is recommended that an ACM O&M Plan be implemented prior to demolition, renovation or construction activities at the subject property.

II SITE DESCRIPTION

CDW conducted an investigation of the property located at 81 Highland Avenue, in Somerville, Massachusetts (the "Site"; Figure 1). The parcel includes one 13.05 acre parcel of land with a multi-winged building utilized as a high school and is shown on Assessors' Map 61, Block F, Lot 2.

The Site is improved with one 360,000 square foot building utilized as a high school. Differing wings are summarized below:

- A Wing was constructed in 1929, and consists of wood roof and framing supported by masonry bearing walls and piers. This portion of the school contains offices and administrative space.

- B Wing was constructed in 1895, and consists of wood roof and framing supported by masonry bearing walls and piers. This portion of the school contains offices and administrative space.

- B Wing addition was constructed in 1917, and consists of a wood roof and concrete deck supported by masonry bearing walls and interior steel beams and columns. This portion of the school contains classrooms, cafeteria, kitchen and boiler room. The auditorium was added in 1929.

- C and D wings were constructed in 1929, and consist of wood roof and concrete deck supported by masonry bearing walls and interior steel beams and columns. This portion of the school is utilized as classrooms with career and technical education located on the first level of C wing.

- D Wing was constructed in 1929, and consists of a shingled metal roof and concrete deck with perimeter masonry bearing walls and interior steel columns. This portion of the school contains the library, locker rooms, TV studio and daycare.

- E Wing was constructed in 1988 and consists of a concrete and steel framed structure with masonry façade. This portion of the school contains the gym and vocational classrooms.

The Site is defined as the land and improvements within property boundaries, including the Site building, landscaped areas, parking areas and lawn. The Site building is connected to municipal water and sewer. The Site building is heated with #4 fuel oil, supplied by two 15,000-gallon underground storage tanks (USTs). There is a 1,000-gallon UST for the generator. The Site is bound by School Street to the west, railroad tracks and Medford Street to the north and Walnut Street to the east. City Hall abuts the Site to the west and Somerville public library abuts the Site to the east. Residential properties are located across Highland Avenue to the south.

The Site building is located in a portion of Somerville called Central Hill. In 1870, Central Hill was chosen to be Somerville’s civic center and the site of its first public park. City Hall was originally constructed in 1852 to be Somerville’s first high school. The central section of the current High School was built as the English High School in 1895, and the current east and west wings are located where once were the Latin High School (1872) and a library building (1885). East of the Latin School, the City erected stone battery walls in 1885 within the lines of the “French Redoubt” built by the Revolutionary Army in 1775 as part of the besieging lines of Boston. The park has been reduced in size due to the expansion of the high school in 1986-1988.

In 1956, a fire was contained to the auditorium. In July 1985, an arson fire was confined to Room 102 on the first floor of Somerville High School.

On November 3, 2015, CDW personnel performed a Site reconnaissance to observe the interior of the existing building, conduct a visual inspection of the Site, and document existing and observable land uses of the Site and adjacent properties.

The Site is located on the Boston North United States Geological Survey (USGS) 1987 Quadrangle Map at the following approximate location and elevation:

Universal Transverse Mercator (UTM) Zone 19 Coordinates	
4694684.0	UTM Y (Meters)
327379.9	UTM X (Meters)
Latitude/Longitude	
42.3872000 - 42° 23’ 19.32’’	Latitude (North)
71.0970000 - 71° 5’ 49.20’’	Longitude (West)
Elevation	
101	Feet above sea level

III USER-PROVIDED INFORMATION

Mr. Mike Bowler, Project Manager for the City of Somerville was interviewed on November 4, 2015 regarding the Site. He provided the following information:

- There are two 15,000 gallon fuel oil USTs and one 1,000 gallon diesel UST for the generator currently in use at the Site. No above ground storage tanks (ASTs) are in use at the Site. The building is also supplied with natural gas for the laboratories and kitchens for the cafeteria and culinary tech kitchen.

- The school building utilizes town water and sewer. Floor drains located in the kitchens, bathrooms and locker rooms discharge to the sewer system.

- There are no private drinking water wells or irrigation wells located at the Site.

- Mr. Bowler indicated there have not been any hazardous waste spills inside or outside of the building during his tenure (17 years).

- Mr. Bowler indicated that that there was a release of approximately 800 gallons of #4 fuel oil to the boiler room in 2006, which had been cleaned up under Massachusetts Department of Environmental Protection (MassDEP) regulations.

- Mr. Bowler reported no knowledge of contaminated fill being used at the Site.

- Mr. Bowler reported no knowledge of pits, ponds or lagoons for waste treatment at the Site, nor any hazardous waste/landfill disposal.

- The Site has been utilized as a civic center and school since the late 1800s. Mr. Bowler had no knowledge of industrial use of the Site prior to its current use.

- There is one acid neutralization tank, located in the basement for laboratory waste collection.

- There is an older hydraulic lift reservoir located within the auto shop. The remainders of the lifts are newer electric lifts with ISO 32 hydraulic oil tank attached to the lift above ground.

- There are two grease traps associated with the kitchens. They are cleaned by a contractor on a monthly basis. The grease traps are connected to the sewer line.

- Mr. Bowler reported no knowledge of environmental liens or Activity and Use Limitations on the Site.

IV SITE RECONNAISSANCE

On November 3, 2015, CDW's inspector Susan Cahalan performed a walking inspection of 81 Highland Avenue in Somerville, Massachusetts. CDW was accompanied by the head janitor. The weather conditions were mild (50s (F)) and sunny at the time of the site inspection. Access was provided to approximately 90% of the Site building and property grounds.

1.0 General Exterior Observations

The Site is improved with one 360,000 square foot building utilized as a high school with differing wings constructed from 1895 to 1988. The front of the school building has a grass strip with tress and landscaped areas, a sidewalk, a driveway and parking area and a large sloping lawn. A war memorial is located between the school and the lawn. An electrical transformer is located toward the eastern side of the lawn. The eastern side of the 1988 wing contains a walkway and stairs to a lower parking lot adjacent to the woodshop. The 1,000 gallon generator UST is located in a grassy area outside of the gym. The rear (northern) side of the Site building consists of a grassy and wooded area that slope towards Medford Street and rail road tracks. Located at the rear (northwest) side of the Site building is a grassy courtyard between the 1929 and 1895 wings, a parking area for municipal vehicles and a loading dock for kitchen deliveries. Adjacent to the loading dock are fill ports for the two 15,000-gallon USTs. There is minor staining on the concrete pad near the fill ports. A large brick chimney is located off the boiler room, with staining from the exhaust. Solid waste and recycling containers are located on the loading dock. Some milky liquid was noted on asphalt near the loading dock. A grease trap manhole is also located near the loading dock. A second loading dock is located to the northeast portion of the Site building, next to the carpentry/vocational tech area. No staining was observed at the vocational tech loading dock.

Several sewer manholes, drain manholes, and water vales were located around the building. An irrigation system was noted on the front lawn. A vehicle charging system is located in the front of the Site building. A concrete patch from the building to the charging station is from the excavation for the electric lines, according to Mr. Bowler.

No evidence of suspect waste disposal pits was observed during the Site inspection. The vegetation was healthy looking and did not appear stressed.

No ASTs, pits, or waste lagoons were observed.

2.0 General Interior Observations of Building

Observations of the inside of the building are organized by wing.

- A Wing was constructed in 1929, and contains offices and administrative space. The walls are painted gypsum board or plaster. Flooring consists of vinyl composition floor tile (VCT), wood flooring and rubber flooring. Refrigerants associated with water fountains and mercury thermostats were noted. Cleaning agents are located in the custodial closets in original containers. A solar array is located on the roof.

- B Wing was constructed in 1895 and contains offices and administrative space. There are four floors. The walls are painted gypsum board or plaster. Flooring consists of VCT, wood flooring and rubber flooring near the main entrance. Many of the floor surfaces are uneven, suggesting multiple layers exist. Refrigerants associated with water fountains and mercury thermostats were noted. Cleaning agents are located in the custodial closets in original containers. There is one elevator.

- B Wing addition, was constructed in 1917 and the auditorium in 1929, and contains classrooms, cafeteria, kitchen, boiler room and auditorium. The classrooms are world language, social studies, English and science subjects. The hallways consist of VCT flooring and the classrooms hardwood flooring. Ceilings consist of spline set ceiling tiles and the walls are plaster or sheetrock. Located in the chemistry and biology classrooms are chemical storage rooms. Hazardous chemicals, acids, bases and heavy metals are stored in original containers in locked cabinets. All chemicals were labeled with appropriate warning signs. On the day of inspection there was no evidence of leaks or spills from the chemicals. Natural gas is fed to the science rooms gas turrets. There are two fume hoods for mixing chemicals. Both fume hoods are constructed of transite with metal exhausts. Also noted were several mercury temperature gauges. The hallways in the lower levels have covered trenches with fiberglass insulated steam pipes.

  The kitchen contains gas stoves, ovens, food preparation areas, free standing and walk-in refrigerators and freezers. The fume hood is steel. Soaps and cleaning supplies are stored in original containers just inside the loading dock. There are several floor drains within the kitchen that discharge to the sewer system. No staining was noted around the floor drains on the day of inspection. A decommissioned food grinder/garbage disposal was also noted near a sink. The kitchen grease exhaust had a sign indicating the last cleaning was March 2015. Also located within the kitchen is a chemical fire suppression system with a three gallon tank attached to the wall.

  The auditorium contains a stage, seating, audio equipment and lighting. The auditorium was renovated in 2014 after it was damaged by Hurricane Sandy. The seating, finishes, ceiling and roof portion of the auditorium were replaced at that time.

  The boiler room contains a custodial office, four oil fired boilers, pumps, hot water tanks, expansion tanks, boiler breeching exhaust and fiberglass insulated piping. One drum labeled as “hazardous waste” was stored on the concrete floor near the electrical panels. There is minor staining throughout the boiler room (drips etc. from maintenance). Numerous mercury containing thermostats and gauges were noted on boilers and equipment. A room is located off the boiler room. The room was vacant except for support poles and an electric panel. The concrete floor had been cut away exposing soil. The soil contains coal clinkers and ash.

The main custodial office in the lower level of the wing contains cleaners, paints, replacement fluorescent bulbs, floor tiles and ceiling tiles. All were stored in original containers. On the day of inspection no broken light tubes (mercury) or staining from cleaners was observed. The acid neutralization tank for the science laboratories is located in a side room off the custodial office. There was no staining around the tank on the day of inspection. In another room located off the main custodial office is an old room with brick walls and curved ceiling, with a sealed off (brick infilled) access door. It is not known what this room was used for.

- C wing was constructed in 1929, and consist of classrooms, band rooms, career and technical education located on the first level of C wing. The hallways have VCT floors and the classrooms hardwood floors. The walls are sheetrock or plaster. One of the classrooms is a dental tech training center. Chemical and powders for mold impressions are stored in original containers in cabinets. The dental tech classroom also contains an x-ray machine.

- D Wing was constructed in 1929, and consists of the library, locker rooms, TV studio and daycare. The library is the largest portion of this wing, and contains books, media and computers in an open floor plan with steel beams near the ceiling. The TV studio contains cameras, audio and mixing equipment. The daycare contains toys, carpeting, and bathrooms. The locker rooms contain showers, changing areas and bathrooms. Floor drains were noted in the locker room (women's). On the day of inspection, no staining was noted around the floor drains.

- E Wing was constructed in 1988, consists of the gym and vocational classrooms. The vocational classrooms are the restaurant with kitchen, nursing, cosmetology, graphic design, electrical, auto repair and carpentry. Access was not available for nursing/health at the time of inspection, and is an addition to between the D/E Wing built in 2006. The auto shop contains a hydraulic oil reservoir from an old hydraulic lift. The remainders of the lifts are electric with ISO 32 hydraulic oil tank mounted to the lift. Also in the auto shop is a drum of used oil filters, a drum of used antifreeze and a larger plastic collection container for waste oil. Proper signage and phone numbers are located near the waste oil container in case of a spill. The waste oil container, used antifreeze and used oil filter container are stored on a pallet. There is minor staining in the garage from drips and grease. The welding classroom contains several containers of welding gases, all stored in satisfactory condition. The kitchen for culinary contains cooking equipment, a metal fume hood, free standing and walk in refrigerators and freezers. Floor drains are located within the kitchen, which discharge to the sewer. On the day of inspection there was no staining around the floor drains. Cosmetology contains typical shampoo and hair dye products, all stored in original packaging. The wood shop and metal shop contained lube oils for cutting equipment in small amounts.

3.0 Observations by Focus Area

Petroleum Products

There are two 15,000-gallon #4 fuel oil USTs located near the loading dock for the main kitchen. There is one 1,000-gallon diesel UST located in a grassy area near the gym for the generator located on the gym roof. A pump room located off the gym transfers the fuel to the generator from the UST. There are no above ground storage tanks (ASTs) located at the site. Natural gas supplies the building for the kitchens and laboratory. Waste oil is located within a container in the auto repair shop.

Hazardous Materials

Hazardous substances use is used for teaching purposes in the chemistry laboratories, auto body shop, welding, dental and health technical careers. Strong acids, bases and heavy metals are stored properly in original containers in chemistry storage. Of note are two gallon size containers of sodium hydroxide, which is highly reactive with water. Cleaning supplies, kitchen chemical fire suppression systems, lift mounted hydraulic oil, propane and welding gases are located at the Site building. The storage of these materials appeared to be satisfactory. Also present but not directly observed are refrigerants for kitchens and water fountains, an old subsurface hydraulic reservoir for auto lift and hydraulic reservoirs for building elevators and the lift in the library.

Drums or Containers

There is one drum in the boiler room with a “hazardous waste sticker” on it. The head custodian indicated it may be speedy dry oil clean up. The auto body shop contains one drum of used antifreeze, one drum of used oil filters and one larger plastic collection container for waste oil. These are labeled and stored satisfactory on a pallet. There are no indications of other drums or containers of oil or hazardous materials located on the subject property.

Underground Storage Tanks (UST’s)/Aboveground Storage Tanks (AST’s)

CDW reviewed the City of Somerville Fire Department Records and the EDR, Inc. database of underground and leaking storage tank database. At the date of this report there is a permit for (2) two 15,000-gallon fuel oil USTs and a permit for (1) one 1,000-gallon UST.

Intermodal Shipping Containers

There were no current indications of intermodal shipping containers at the subject property.

Indications of Polychlorinated Biphenyls (PCBs)

Polychlorinated biphenyls (PCBs) are a chemical component of many dielectric fluids, heat transfer fluids, hydraulic fluids, lubricating oils, paints, or coatings manufactured prior to 1979. No suspect PCB light ballasts were noted in the building. PCBs may be present in the hydraulic oil of the elevators and old hydraulic lift located within the auto shop.

Pits, Ponds & Lagoons

No evidence of pits, ponds and/or lagoons was noted on the subject property.

Odors

No significant odors were noted on the subject property.

Stained Soil or Pavement

No evidence of significantly stained soil or pavement was noted on the subject property. The exposed soil in the basement boiler room area contains coal clinkers and ash, which discolors the soil.

Pools of Liquid

No unidentified pools of liquid were noted on the subject property.

Stressed Vegetation

No evidence of stressed vegetation anticipated to be caused by contamination was noted on the subject property.

Solid Waste Disposal

No solid waste concerns were noted on the subject property.

Medical/biological wastes/X-ray or other radioactive activities

No medical or biological wastes were observed. One x-ray machine is located in the dental tech classroom.

Drains and Sumps

There are several storm drain catch basins noted on the subject property. The onsite drains are connected by an 8-inch storm drain line that discharges to 12-inch storm drain lines. The rear parking lot storm drains off E wing drain into the 10-inch line in the railroad right of way. According to maps from the City of Somerville, all storm drains discharge to storm drains in Highland Avenue, School Street and Medford Street. The storm drains discharge to Alewife Brook and the Mystic River. Subsurface roof drains discharge to unseen areas under the Site buildings. Sump pits for groundwater are located in the boiler room, which discharge into the municipal sewer.

Septic Systems

No septic systems are in use on the subject property. The property is currently serviced by the City of Somerville sewer system.

Storm/Waste Water

Wastewater generated at the site is limited to sinks and toilets and is disposed of via the municipal sewer system. Stormwater drainage may be directed to the on-site catch basins.

Wells
No evidence of drinking water wells, dry wells or monitoring wells or irrigation wells was noted on the subject property. The irrigation system for the formal front lawn is supplied by municipal water.

4.0 Records Review

4.1 Standard Environmental Record Sources

Relevant, readily available and practically reviewable documents, records, and other information were obtained and reviewed as part of this Phase I ESA. This chapter provides a list of sources of information and supporting documents.

Federal Source Records and Information

- Environmental Data Resources (EDR), Inc. federal environmental record databases search report prepared for CDW
- U.S. Geological Survey (USGS), Topographic Map of Boston North, Massachusetts, 7.5-minute series quadrangle

Commonwealth of Massachusetts Source Records and Information

- EDR, Inc. state environmental record databases search report prepared for CDW
- Records maintained by the Massachusetts Department of Environmental Protection; online database accessed at http://mass.gov/edep

Local (County and Municipal) Records and Information

- City of Somerville Assessor parcel information and ownership history
- City of Somerville Fire Prevention Division
- City of Somerville Health Department
- Historical aerial photographs of the subject property and vicinity obtained from EDR, Inc.
- Historical Sanborn Fire Insurance maps of the subject property and vicinity researched by EDR Inc.

CDW engaged EDR, Inc. to scan both federal and state environmental record databases and provide a summary of facilities that are identified on any of the lists searched. The federal databases searched, and specified search radii, are as follows:

List	Standard Search Radius (Miles)
Federal National Priority List (NPL)	1.0
Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) List	0.5
CERCLIS No Further Remedial Action Planned (NFRAP) List	0.5
Resource Conservation and Recovery Act (RCRA) Corrective Action Sites (CORRACTS)	0.5
RCRA Non-CORRACTS	0.5
RCRA Generators	0.25
Emergency Response Notification System (ERNS)	Property Only
State-Equivalent NPL	1.0
State Landfill and/or Solid Waste Disposal Site Lists	0.5
State Leaking Underground Storage Tank (UST) Lists	0.5
State Registered UST Lists	0.25

4.1 Federal CERCLIS List

Superfund or Comprehensive Environmental Response, Compensation, and Liability Act of 1980 is a United States federal law designed to clean up sites contaminated with hazardous substances as well as broadly defined "pollutants or contaminants.” There are no CERCLIS sites located within 0.5 miles of the Site.

4.2 State-and tribal-equivalent- CERCLIS

State/Tribal Sites are the states’ equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund or NPL) are identified along with sites where cleanup will be paid for by potentially responsible parties. Twenty-four State hazardous waste sites were identified within ½ miles of the Site. Information regarding hazardous waste sites, including associated Massachusetts Department of Environmental Protection (MassDEP) release tracking numbers (RTNs), is summarized below:

Name	Address	RTN/Status	Dist. (mi)/ Direction	Relative Elevation
No Location Aid	101 Highland Ave	3-0010419/ RAO	W 0 - 1/8 (0.117 mi.)	Higher

Name	**Address**	**RTN/Status**	**Dist. (mi)/ Direction**	**Relative Elevation**
No Location Aid	120 Bartlett St	3-0019547 / RAO	NNW 1/2 - 1 (0.573 mi.)	Higher
No Location Aid	219 Summer St	3-0027260 / RAO	W 1/2 - 1 (0.712 mi.)	Higher
Somerville Public Library	79 Highland Ave	3-0029996/RAO & 3-0010419/RAO	SW 0 - 1/8 (0.063 mi.)	Lower
No Location Aid	343 Medford Street	3-10851/DPS	NNE 0 - 1/8 (0.092 mi.)	Lower
Roadway Spill	Vinal Ave.	3-27737/RAO	SSE 0 - 1/8 (0.107 mi.)	Lower
Parking Lot	358 Medford Street	3-17076/RAO	N 0 - 1/8 (0.120 mi.)	Lower
Apartment Building	240 Pearl Street	3-17076/RAO	ENE 0 - 1/8 (0.121 mi.)	Lower
Somerville Extra Fuel	360 Medford Street	3-16624/RAO	N 1/8 - 1/4 (0.131 mi.)	Lower
Corner of Medford	299 Medford Street	3-21398/RAO	ESE 1/8 - 1/4 (0.180 mi.)	Lower
Industrial Property	100 Walnut Street	3-04193/RAO	E 1/8 - 1/4 (0.186 mi.)	Lower
Vacant Lot	299 Medford Street	3-04031/RAO	ESE 1/8 - 1/4 (0.190 mi.)	Lower
Residence	27 Putnam Street	3-16688/RAO	SSW 1/8 - 1/4 (0.221 mi.)	Lower
No Location Aid	31 Vinal Ave	3-22695/RAO	S 1/8 - 1/4 (0.240 mi.)	Lower
Samay Inc.	73 Summer	3-19957/RAO	SW 1/4 - ½ mi	Lower

Name	Address	RTN/Status	Dist. (mi)/ Direction	Relative Elevation
	Street			
Cedars Petroleum	180 Pearl Street	3-26091/RAO	E 1/4 - 1/2 (0.321 mi.)	Lower
Community Development	112A Central Street	3-27194/RAO	NW 1/4 - 1/2 (0.340 mi.)	Lower
No Location Aid	1 Summer Street	3-21497/RAO 3-22327/RAO	S 1/4 - 1/2 (0.372 mi.)	Lower
Substation PNU 13	Bow Street Place	3-22347/RAO	SSW 1/4 - 1/2 (0.387 mi.)	Lower
No Location Aid	25-27 Osgood Street	3-25805/URAM	SW 1/4 - 1/2 (0.393 mi.)	Lower
Blaisdale Slate Co.	27 Osgood Street	3-24660/RAO	SW 1/4 - 1/2 (0.395 mi.)	Lower
Property	55 Bow Street	3-03600/RAO	SSW 1/4 - 1/2 (0.403 mi.)	Lower
At Marshall Street	296 to 308 Broadway	3-18407/DPS	NNE 1/4 - 1/2 (0.404 mi.)	Lower
Sunoco Service Station	258 Broadway	3-17887/RAO	NE 1/4 - 1/2 (0.410 mi.)	Lower
Near 55 Columbus Avenue	Columbus Ave.	3-27074/RAO	NE 1/4 - 1/2 (0.410 mi.)	Lower
No Location Aid	324 Broadway	3-17887/RAO	NNE 1/4 - 1/2 (0.416 mi.)	Lower
No Location Aid	33 Robinson Street	3-25748/RAO	NNW 1/4 - 1/2 (0.427 mi.)	Lower
Automotive shop	444 Somerville	3-00772	SW 1/4 - 1/2	Lower

Name	Address	RTN/Status	Dist. (mi)/ Direction	Relative Elevation
	Ave.	/PENNFA	(0.448 mi.)	
No Location Aid	444 Somerville Ave.	3-18136/RAO	SW 1/4 - 1/2 (0.448 mi.)	Lower
Sunoco #0005	434 McGrath Highway	3-26058/RAO	SE 1/4 - 1/2 (0.453 mi.)	Lower
Somerville Auto Repair	453 Somerville Avenue	3-0026058/RAO	SW 1/4 - 1/2 (0.454 mi.)	Lower
Boston Edison Co.	10 Bow Place	3-02946/RAO	S 1/4 - 1/2 (0.457 mi.)	Lower
No Location Aid	460 Somerville Avenue	3-14880/RAO	SW 1/4 - 1/2 (0.462 mi.)	Lower
Goodyear Tire and Rubber	1 Bow Street	3-29668/RAO	S 1/4 - 1/2 (0.470 mi.)	Lower
Cumberland Farms #11	212 Broadway	3-037722/RAO	ENE 1/4 - 1/2 (0.483 mi.)	Lower
MWRA Drain	Rte 28 Broadway	3-10663/RAO	ENE 1/4 - 1/2 (0.490 mi.)	Lower
Tufts University	Tilton Hall	3-0017019/RAO	SE 1/4 - 1/2 (0.494 mi.)	Lower
Chrome Plating Facility	46 Cross Street	3-0000673/RAO	E 1/4 - 1/2 (0.496 mi.)	Lower

RAO = Response Action Outcome, regulatory closure
PENNFA = Pending no Further Action
URAM = Utility Release Abatement Measure
DPS = Downgradient Property Status

Based on regulatory status and/or gradient from the Site, none of the above listed sites are not considered a REC for the Site.

4.3 *State and tribal leaking storage tank lists*

The Leaking Underground Storage Tank (LUST) database is a listing of confirmed or suspected releases from underground storage tanks that have been reported to the state. The state UST database is an inventory of all regulated USTs. There are twenty-five (25) Leaking underground storage tank sites (LUST) located within a 0.5-miles of the Site. The LUSTs are summarized below:

Name	Address	RTN/Status	Dist. (mi)/ Direction	Relative Elevation
PCJ Auto Service, Inc.	345 Medford Street	3-0003191/RAO	0.095/NNE	Lower
No Location Aid	360 Medford Street	3-0015184/RAO	0.131/N	Lower
No Location Aid	360 Medford Street	3-0028903/RAO	0.131/N	Lower
Texaco Service	112 Highland Ave	3-0003944/RAO	0.154/W	Higher
Cummings School & Playground	42 Prescott Street	3-0026494/RAO	0.156/SSW	Lower
New England Telephone	111 Central Street	3-0004584/RAO	0.332/WNW	Lower
No Location Aid	28-30 Marshall Street	3-0013764/RAO	0.345/NNE	Lower
McGrath Auto Body Shop	42 Dana Street	3-0004542/RAO	0.363/E	Lower
Residential	19 Cambria Street	3-0028555/RAO	0.386/W	Lower
No Location Aid	65 ½ Bow Street	3-0017933/RAO	0.394/SSW	Lower
Blaisdale Slate Co.	27 Osgood Street	3-0004577/RAO	0.395/SW	Lower
Sunoco Service Station	258 Broadway	3-0004820/RAO	0.410/NE	Lower
Sunoco Service Station	258 Broadway	3-0012319/RAO	0.410/NE	Lower
No Location Aid	338 Broadway	3-0014538/RAO	0.423/NNE	Lower
No Location Aid	148 Sycamore Street	3-0022827/RAO	0.430/N	Lower
Latta Brothers Memorial Pool	251 Broadway	3-0015604/RAO	0.431/NE	Lower
Residence	8 Miner Street	3-0025050/RAO	0.441/NW	Lower
Sunoco Station	434 McGrath Highway	3-0004701/RAO	0.453/SE	Lower
No Location Aid	18 Temple Street	3-0031100/ RAO	0.459/NNE	Lower
No Location Aid	460 Somerville Ave	3-0014864/RAO	0.462/SW	Lower
No Location Aid	460 Somerville Ave	3-0014866/RAO	0.462/SW	Lower
Cumberland Farms #118602	212 Broadway	3-0011462/RAO	0.483/ENE	Lower

Name	Address	RTN/Status	Dist. (mi)/ Direction	Relative Elevation
Cumberland Farms #118602	212 Broadway	3-0022508/RAO	0.483/ENE	Lower
Heritage Hospital	26 Central Street	3-0015449/RAO	0.491/WSW	Lower
No Location Aid	188 Central Street	3-0020161/RAO	0.492/NNW	Higher

Based on regulatory status and/or gradient from the Site, none of the above listed sites are not considered a REC for the Site.

There is six (6) Leaking above ground storage tank site (LAST) located within a 0.5-miles of the Site. This LAST is summarized below.

Name	Address	RTN/Status	Dist. (mi)/ Direction	Relative Elevation
No Location Aid	103 Gilman Street	3-10466/RAO	ESE 1/8 - 1/4 (0.228 mi.)	Lower
No Location Aid	3 Summer Street	3-24469/RAO	S 1/4 - 1/2 (0.360 mi.)	Lower
No Location Aid	41 Gilman Street	3-22627/RAO	ESE 1/4 - 1/2 (0.365 mi.)	Lower
Former District Court	19 Walnut Street	3-26241/RAO	S 1/4 - 1/2 (0.370 mi.)	Lower
No Location Aid	1 Summer Street	3-22327/RAONR	S 1/4 - 1/2 (0.372 mi.)	Lower
No Location Aid	9 Montgomery Ave	3-26651/RAO	ENE 1/4 - 1/2 (0.413 mi.)	Lower

Based on regulatory status and/or gradient from the Site, none of the above listed sites are not considered a REC for the Site.

4.4 State and tribal institutional control / engineering control registries

Institutional Control: Activity and Use Limitations establish limits and conditions on the future use of contaminated property, and therefore allow cleanups to be tailored to these uses. A review of the Institutional Control List, as provided by EDR, has revealed that there are five (5) Institutional Control sites within approximately 0.5 miles of the target property.

Name	Address	RTN	Dist. (mi)/ Direction	Relative Elevation
Somerville Xtra Fuel	360 Medford Street	3-15184	N 1/8 - 1/4 (0.131 mi.)	Lower
Vacant lot	299 Medford Street	3-4031	ESE 1/8 - 1/4 (0.190 mi.)	Lower
Community Development	112A Central Street	3-27194	NW 1/4 - 1/2 (0.340 mi.)	Lower
No Location Aid	444 Somerville Ave	3-18136	SW 1/4 - 1/2 (0.448 mi.)	Lower
No Location Aid	460 Somerville Ave	3-14864	SW 1/4 - 1/2 (0.462 mi.)	Lower

Based on regulatory status and/or gradient from the Site, none of the above listed sites are not considered a REC for the Site.

4.5 US Historical Cleaners List

EDR US Historical Cleaners: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, Laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches. There are three (3) historical cleaner site located within 0.5 miles of the Site. Based on the surficial topography, the three (3) historical cleaner sites are downgradient from the Site. Given the distance and lack of inclusion in other databases this listing is not considered a concern with regard to the subject property.

Address	Dist. (mi)/ Direction	Relative Elevation
62 Highland Ave	0.112/SSE	Lower
211 Pearl Street	0.206/E	Lower
92 Gilman Street	0.234/ESE	Lower

4.6 Other Databases

NPL, Delisted NPL, CERCLIS & NFRAP Sites

The National Priority List (NPL) is the United States Environmental Protection Agency (USEPA) database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund program. The Delisted NPL is the database of delisted Superfund sites. The Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) List contains sites which are either proposed to be or on the NPL, and sites which are in the screening and assessment phase for possible inclusion on the NPL. No Further Remedial Action Planned (NFRAP) sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly, or the contamination was not serious enough to require federal Superfund action or NPL consideration.

No NPL, delisted NPL, CERCLIS or NFRAP sites were identified within the study radii.

RCRA Facilities

Regulated hazardous waste activity is tracked under the Resource Conservation and Recovery Information System as defined by the Resource Conservation Act (RCRA). Facilities that treat, store or dispose of hazardous waste are listed in the RCRA TSD database. Facilities that generate hazardous wastes are listed in the RCRA Generators (RCRA GEN) database. This database includes facilities that generate at least 1,000 kg/month of non-acutely hazardous waste or 1 kg/month of acutely hazardous waste, referred to as large-quantity generators, and those that generate less than 1,000 kg/month of non-acutely hazardous waste, referred to as small-quantity generators. RCRA facilities which have had a release of hazardous waste or constituents to the environment, for which the government is requiring corrective action, are tracked in the Corrective Action Tracking System (RCRA COR) database, while generators that are known to have violated RCRA regulations are tracked in the RCRA violations and enforcement (RCRA Viol). These violations can be the result of paperwork problems and are not necessarily related to releases of hazardous material.

No RCRA COR, RCRA TSD were identified. There is one (1) RCRA GEN facilities identified within a 0.25mi radius of the site that generates less than 100 kg of hazardous waste:

Name	Address	Dist. (mi)/ Direction	Relative Elevation
Back Bay Sign Co.	236 Pearl Street	ENE 1/8-1/4 (0.128 mi)	Lower

ERNS Incidents and Spills 1990 Sites

The Emergency Response and Notification System (ERNS) is a national database containing records of releases of oil and hazardous substances reported to the USEPA, U.S. Coast Guard, the National Response Center and the Department of Transportation, since 1986.

No ERNS or Spills sites were identified within the study radius.

Hazardous Waste Generator Database and Sites

Permanent generator identification numbers for all Massachusetts generators of hazardous waste and waste oil that have registered with or notified MassDEP of their hazardous waste activities. A review of the HW GEN list, as provided by EDR, has revealed that there are five (5) HW GEN sites within approximately 0.25 miles of the target property.

Name	Address	EPA ID Number	Dist. (mi)/ Direction	Relative Elevation
Good Gas	345 Medford Street	MAD040180119	NNE 0-1/8 (0.095 mi)	Lower
Back Bay Sign	236 Pearl Street	MAD001005784	ENE 1/8-1/4 (0.128 mi)	Lower
SRP Sign Corp	236 Pearl Street	MV6176236222	ENE 1/8-1/4 (0.128 mi)	Lower
Somerville Xtra Fuel	360 Medford Street	MV6176255555	N 1/8-1/4 (0.131 mi)	Lower
A Plus Auto Body	297 Medford Street	MV6177764500	ESE 1/8-1/4 (0.196)	Lower

FINDS & TRIS Database Sites

The Facility Index System (FINDS) report is a computerized inventory of all facilities that are regulated or tracked by the USEPA. These facilities are assigned an identification number that serves as a cross-reference for other databases in the USEPA's program system. The Toxic Inventory Information System (TRIS) report contains information concerning the industrial release and/or transfer of toxic chemicals, as reportable under Title III of the Superfund Amendments and Re-authorization Act of 1986 (Sara Title III). Inclusion on this database is required for facilities which release reportable amounts of chemicals into the environment.

One (1) FINDS site was found within a quarter mile of the target property.

Name	Address	Dist. (mi)/ Direction	Relative Elevation
Rays Texaco	112 Highland Ave	0.154/W	Higher

No TRIS sites were identified on the target property.

The Site is not listed on any other databases. Due to the distance and regulatory status of the identified Sites within the search radius, these Sites are not considered RECs at the time of this report.

4.7 Additional Environmental Record Sources

CDW contacted the following local agencies for information regarding any hazardous materials response incidents, chemical storage or releases, or notices of environmental violations at the subject property.

4.7.1 City of Somerville Fire Department

Permits are on file for the two #4 Fuel Oil USTs installed in 1984 and one 1,000-gallon diesel UST. Flammables permits were on file for antifreeze, motor oil, sulfuric acid, denatured alcohol, acetylene cylinders and cutting oil. A memorandum, dated March 2, 1987, from the City of Somerville Fire Department to the Chief Engineer of Somerville High School was located in the files. The memorandum referenced a release of 600-800 gallons of #6 fuel oil to the floor of the boiler room. The leak occurred in the vicinity of the #4 burner near a loose filter connection. There was no further information or record.

4.7.2 City of Somerville Board of Health

On November 4, 2015, CDW personnel visited the City of Somerville Health Department to review pertinent environmental records. Health Department personnel indicated that there were no environmental records on file with the Board for the subject Site and indicated the MassDEP had files related to the Site.

4.6.4 City of Somerville Building Department

On November 4, 2015, CDW personnel visited the City of Somerville Building Department to review pertinent building records. The Somerville Fee School, which is now City Hall was constructed in 1852. The B wing, was English High School, constructed in 1895. Additions were added to the B wing in 1917 to accommodate more students. The A and D wings were completed by 1929. In 1956 there was a fire in the auditorium. In 1988 the E wing containing the gym and tech classrooms were finished. In 2006, the health careers addition was completed in 2006 between the D and E Wings.

4.6.5 City of Somerville Water and Sewer

The Site is serviced by municipal water and sewer. Water service enters the building from Highland Avenue via an 8-inch pipe. Water pipes enter the building at the A wing, C wing and E wing. The E wing service is supplied by the water main in Medford Street. Water is supplied by the Massachusetts Water Resources Authority (MWRA).

Sewer discharges from the south side of B wing discharge into city sewer systems in Highland Avenue and Medford Street. Sewer services exiting the E wing include a grease trap, kitchen waste, acid waste and sanitary sewer. These combine onsite into an 8-inch serer main in Medford Street. The sanitary and grease trap services from the B wing near the loading dock combine with sanitary service from the A wing.

4.6.6 Massachusetts Department of Environmental Protection

Historical releases at the Site are summarized from the below reports obtained from the MassDEP.

RTN 3-17909

On January 29, 1999, the MassDEP were notified of a release of approximately 300 gallons of fuel oil during a delivery at the Site. According to the MassDEP release log form, a tanker truck driver attempted to fill the UST that was already full. The MassDEP assigned RTN 3-17909 to the release and approved an Immediate Response Actions (IRA) consisting of at the site consisting of the application of oil-sorbent material and pads, removal of impacted snow, removal of material from impacted catch basins, assessment of potential subsurface migration associated with the release and proper clean-up and disposal of impacted materials. This release is listed under the MassDEP database as having a RAO status; however the report was not scanned for review.

RTN 3-23567

On February 2, 2004, a truck tanker overfill occurred during a delivery of fuel oil to one of the schools fuel oil USTs resulting in the release of approximately 80 gallons of fuel oil to the concrete apron around the UST fill. The spilled fuel flowed toward School Street along granite curbing installed along the northeast boundary of the parking lot and entered a catch basin. The fuel oil was contained within in an adjacent manhole. No oil migrated downstream of the catch basin based on observations of a downstream catch basin located on School Street. The MassDEP was notified on February 2, 2004 and RTN 3-23567 was issued at the time of notification. Clean Harbors Environmental Services conducted the initial cleanup, including recovery of fuel oil from the catch basin manhole and deployment of granular absorbent on pavement surfaces. The impacted areas of the parking lot were then steam-cleaned. Steam cleaning fluids, degreaser and dissolved phase fuel oil were recovered utilizing a Vactor. The catch basin was also steam cleaned and fluids recovered via a Vactor. Following cleaning, absorbent booms were deployed in the catch basin and manhole as a precaution to contain any residual product.

Environmental Compliance Services (ECS) documented that the fuel oil release was contained entirely on concrete and/or pavement surfaces and the storm water drainage system between the catch basin and the adjacent manhole. No oil was observed in any of the remaining catch basins within the parking lot or the downgradient catch basin on School Street. ECS observed a few minor cracks in the pavement surface and a joint where the pavement surface met the granite curbing along the northeast border of the parking lot. ECS determined that the Disposal Site identified by RTN 3-23567 met the requirements for a Class A-1 RAO per 310 CMR 40.1036(1) because: Response actions were conducted to eliminate a Threat of Release to the environment; A Permanent Solution had been achieved as a result of Response Actions conducted to remediate the release of #4 fuel oil to the cement/pavement surfaces and the on-site storm water drainage system; and, No release to the environment occurred as a result of the spill. ECS submitted the RAO on April 2, 2004.

RTN 3-26487

On December 26, 2006, City of Somerville officials requested that Comm Tank respond to a release of fuel oil in the boiler room at the Somerville High School building. Comm Tank personnel along with City of Somerville officials and Somerville Fire Department personnel evaluated the Site and concluded that notification of a 2-hour release condition was required to the MassDEP. Fuel oil appeared to have been released from a ruptured fuel oil boiler pressurized pump line and had migrated along the floor of the building basement impacting the concrete floor and nearby groundwater sump within the boiler room area. Released fuel oil was found to have entered the sump drainage system in the basement boiler area and discharged to the Massachusetts Water Resources Authority (MWRA) system. On December 26, 2006 the MassDEP was notified of the release. The MassDEP issued Release Tracking Number (RTN) 3-26487 and orally approved an Immediate Response Action (IRA) to include the excavation, stockpiling and disposal of up to 50 cubic yards of petroleum-impacted soil and the collection of any separate phase product and impacted groundwater, if encountered, to a holding tank(s).

Comm Tank personnel removed the released fuel oil from the concrete floor in the basement at the Site, installed negative air machines to vent the building of petroleum vapors from the basement area and placed summa canisters to evaluate the impact of the release to the indoor air of the school building. Comm Tank personnel also vacuumed out the fuel oil that had migrated along the floor of the building basement impacting the concrete floor and the sump pump pits within the boiler room area. Comm Tank personnel also vacuumed out several of the exterior drainage structures which were initially impacted by the spill. Comm Tank personnel placed absorbent booms to collect any residual product which could migrate through the system piping. These drainage structures were periodically inspected by Comm Tank personnel. No additional petroleum impact was observed in these structures after the interior sump pumps were shut down. Soil borings and monitoring wells were installed to collect soil and groundwater samples for laboratory analysis. The release of fuel oil was contained and impacted media (soil) was removed and transported from the site for recycling and/or proper disposal in accordance with applicable state and/or federal regulations. Groundwater concentrations analyzed for compounds of concern were below applicable MCP Method 1

Groundwater Standards. Residual petroleum-impacted soil for RTN 3-26487 has been remediated to below applicable MCP Method 1 Soil Standards. A Class A-2 Response Action Outcome was submitted to the MassDEP on November 6, 2008.

4.7 Physical Setting Sources

CDW reviewed several sources of publications including the United States Geological Survey (USGS), the Federal Emergency Management Agency (FEMA) Maps, the United States Department of Agriculture (USDA) Soil Survey, MassGIS and EDR, Inc. to gather information pertaining to the subject property and the physical setting source.

According to the Massachusetts 21E Map, there are eight (8) MassDEP Activity and Use Limitation Sites within ½-mile. These sites are located to the north, south and east (Figure 2).

According to available information, the site is not located within an Interim Wellhead Protection Area (IWPA), a Zone II of a public water supply well, a potentially productive aquifer, nor an EPA Sole Source Aquifer. According to the Somerville Water Department there are no registered private drinking water wells within 500-feet of the site (Figure 3).

According to MassGIS, the nearest established wetland resource areas are the Mystic River, located approximately 1-mile feet east of the Site (Figure 4).

The Site is located within the FEMA Flood Zone X, an area of minimal flood hazard higher than the elevation of the 0.2-percent-annual-chance flood (MassGIS) (Figure 5).

The Site is considered an Open Space area. Other Open Spaces are located within 0.5-miles of the Site to the north, south, east and west and are defined as municipal parks (Figure 6). There are no Natural Heritage mapped areas, Priority or Rare Species Habitats, or Areas of Critical Environmental Concern (ACEC) mapped on the Site. There are certified no vernal pools or Estimated Habitat of Rare Wildlife within 0.5-miles of the Site (Figure 7).

The Site is located 101 feet above sea level, and the topography is generally hilly. The bedrock at the Site consists of Cambridge Argillite and quartzite (Proterzoic Z) (Zen et. al. 1983). There are no bedrock outcrops at the Site.

Surface soils at the Site consist of urban land according to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (USDA 2014).

The nearest surface water body to the site is the Mystic River which is located approximately 1 mile to the east/northeast. The Somerville water supply comes from the MWRA. The MWRA system obtains its water primarily from the Quabbin Reservoir in western Massachusetts and Wachusett Reservoir in Clinton Massachusetts. All of Somerville's wastewater discharges into the MWRA Sewer System.

Available information indicates that the Site's land area along Highland Avenue is identified as an Area of Critical Environmental Concern (ACEC). This ACEC designation, or open space area, likely refers to the Site's land use for school purposes.

4.8 Other Historical Use Information

CDW researched several sources of historical information to identify the approximate year of development of the subject property and to determine the past use of the subject property since its initial development. Such sources included, but were not limited to, the research and review of tax assessor records, historical aerial photographs, historical Sanborn Maps, topographic maps, deeds and chain-of-ownership records.

Sanborn Maps

1900

The 1900 Sanborn Map depicts four buildings at the Site, labeled as Somerville Latin School, English High School, Public Library and City Hall. Railroad tracks are located to the north. Residential properties are located across Highland Avenue and School Street.

1933

The 1933 Sanborn Map depicts City hall, the English High School with the A wing, B wing C wing and D Wings. Rail road tracks are located to the north. Residential properties are located across Highland Avenue and School Street.

1950

The 1950 Sanborn Map depicts City hall, the English High School with the A wing, B wing C wing and D Wings. Rail road tracks are present to the north. Residential properties are located across Highland Avenue and School Street.

1989 and 1991

Shows Somerville High School in its current configuration with A wing, B wing, C wing, D Wing and E wing. Railroad tracks are present to the north. Residential properties are located across Highland Avenue and School Street.

Aerial photographs

Aerial photographs were obtained from EDR. Based on aerial photography from 1938, 1946, 1952, 1955, 1957, 1960, 1969, 1970, 1978, 1985, 1995, 2008, 2010 and 2012, the Site is shown as a school surrounded by residential properties.

Based on historical data reviewed and limited information provided from the Somerville Assessors' office, it is CDW's opinion that a full title search would not have provided any significant additional information.

V FINDINGS

CDW has performed this Phase I Environmental Site Assessment of the Subject Property in conformance with the scope and limitations of ASTM Standard E 1527-13 of 81 Highland Avenue, in Somerville, Massachusetts. . This assessment did identify evidence of recognized environmental conditions (RECs) in connection with the Subject Property. The RECs include:

- Unknown contamination from the current 15,000 gallon fuel oil underground storage tanks.
- Unknown contamination from the current 1,000 gallon diesel underground storage tank.
- Residual contamination from multiple releases of fuel oil in the boiler room and overfills during deliveries.
- Unknown contamination from the hydraulic fluid reservoirs and elevator fluid reservoirs.
- Unknown/undocumented floor drain discharges. Though floor drains discharge to the sewer system, the infrastructure is old and may be deteriorated.
- Unknown/undocumented grease trap discharges. Though grease traps are connected to the sewer system, the infrastructure may be deteriorated.
- Unknown/undocumented acid tank discharges. Though grease traps are connected to the sewer system, the infrastructure may be deteriorated.
- Coal ash and clinkers were observed in soil in the excavated area in the boiler room, and outside the building during a foundation coating investigation.
- Potential environmental impacts from unknown discharges or spills from activities in the automotive repair shop.
- Potential impacts to soil in the vicinity of the fuel oil burner discharge to the chimney. The brick at the discharge point is stained.

CDW did identify activities at neighboring properties that would indicate a significant potential for RECs, based on the information contained in the databases reviewed. No evidence of inappropriate waste-dumping or suspect waste disposal pits was observed during the Site inspection. No areas of distressed vegetation were observed on the Site. No visible evidence of releases of oil or hazardous materials was observed at the Site. Due to the distance and regulatory status of the identified (non-DPS) MassDEP, LUST, UST, RCRA HW Gen or Drycleaners within the search radius, these sites are not considered RECs at the time of this report.

VI CONCLUSIONS

CDW has completed Phase I Environmental Site Assessment in conformance to the scope and limitations of ASTM Practice E 1527-13 of the Site at 81 Highland Avenue in Somerville, Massachusetts. As of the date of this report, there are RECs in connection with the Site.

There are no CRECs in connection with the Site. There are no AULs or engineering controls with respect to the historical release(s).

Data Gaps

Based on the information obtained during this ESA, it is the professional opinion of CDW Consultants that historical data failures, as defined in the ASTM guidelines, has occurred as follows:

- The source of coal ash and clinkers observed in the boiler room excavation and around the building is unknown.
- Residual contamination from past releases of fuel oil, unknown releases from discharges form floor drains, grease traps or acid neutralization tank at the Site.
- Unknown contamination from hydraulic fluid reservoirs in auto shop and elevators.

These data gaps cannot be resolved without subsurface exploration and land disturbance. Furthermore, no definitive conclusions can be made regarding any subsurface conditions at the Site without the completion of soil and groundwater sampling and analysis which were outside of the scope of this Phase 1 ESA.

Recommendations

No conclusions or opinions can be made regarding the subsurface conditions at the Site without the completion of soil and groundwater sampling and analysis. CDW recommends the following to further investigate the environmental condition of the Site:

CDW recommends that a Phase II subsurface investigation be conducted including the installation of monitoring wells, and comprehensive soil and groundwater analysis. The wells should be installed in areas to investigate the possible on-site presence of contaminants from USTs and drains, substandard fill, and other historic activities that may have impacted the site.

The results of the soil and groundwater analytical results should be compared with applicable standards under the Massachusetts Contingency Plan for notification and/or mitigation requirements. The outcome of the initial sampling efforts can be used to determine whether further investigation and/or remediation is warranted to mitigate potential environmental impacts prior to or during construction.

During any future excavation of the subsurface, there is potential for encountering isolated areas of suspect oil or hazardous materials. CDW recommends that a soil management plan be incorporated into future construction documents to provide guidance on the types of conditions requiring special management or mitigating measures.

National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations require sampling potential ACBM prior to demolition or extensive renovation, regardless of the date of construction; therefore, if such activities are planned, it may be required to conduct a survey of the entire facility, or that portion slated for renovation or demolition, before initiating such destructive activities. That survey should include an assessment of all subject building materials, including those in areas which are normally inaccessible. Any material found to be ACBM should be handled in accordance with applicable regulations.

VI LIMITATIONS

1.1 Purpose

CDW Consultants, Inc. (CDW) performed a Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitations of the ASTM E1527-13 Standard. The purpose of the assessment was to evaluate the Site history, observable conditions, and current Site use to identify potential presence of Recognized Environmental Conditions (RECs) at or associated with the Site. RECs are defined by ASTM as:

"The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment."

HRECs are defined by ASTM as:

"A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted residential use criteria established by a regulatory authority, without subjecting the property to any required controls (e.g., property use restrictions, AULs, institutional controls, or engineering controls). Before calling the past release an HREC, the EP must determine whether the past release is a REC at the time the Phase I ESA is conducted (e.g., if there has been a change in the regulatory criteria). If the EP considers this past release to be a REC at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the report as a REC."

CRECs are defined by ASTM as:

"A REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (e.g., as evidenced by the issuance of a NFA letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (e.g., property use restrictions, AULs, institutional controls, or engineering controls).

The conclusions are intended to help the user evaluate the "business environmental risk" associated with the Site, defined by ASTM as:

"A risk which can have a material environmental or environmentally-driven financial impact on the business associated with the current or planned use of a parcel of commercial real estate. Consideration of business environmental risk issues may involve addressing one or more non-scope

considerations."

1.2 Detailed Scope of Services

The CDW investigation consisted of the following elements: a Site reconnaissance, a review of available historical documents associated with the Site; a review of local, state, and federal environmental databases; and interviews with the Site owner, City officials, and agency employees.

1.3 Significant Assumptions

CDW assumes that all available Site information has been provided by the owner or its representative, that the information reviewed and provided by the owner, the City, and information databases are accurate, current, and complete. Where portions of the Site were inaccessible, CDW assumes that Site conditions in those areas would not contradict any observations made herein.

There is a possibility that even with the proper application of these methodologies that there may be conditions that exist on the subject property that could not be identified within the scope of the assessment or which were not reasonably identifiable from the available information. CDW believes that the information obtained from the record review and the interviews concerning the subject property is reliable. However, CDW Consultants cannot and does not warrant or guarantee that the information provided by these sources is accurate or complete. The methodologies of this assessment are not intended to produce all inclusive or comprehensive results, but rather to provide the Client with information relating to the subject property.

1.4 Limitations and Exceptions

The conclusions of this report are limited to the information available at the time of the investigation and the scope of services as defined. No subsurface exploration was performed on this Site; therefore, no conclusions can be made relative to subsurface conditions or the presence or absence of soil or groundwater contamination from either on-Site or off-Site sources.

Where access to portions of the Site was unavailable or limited, CDW renders no opinion as to the presence of oil or hazardous material or the presence of indirect evidence related to oil or hazardous material in that portion of the Site.

No other conclusions, interpretations, or recommendations are contained or implied in this report other than those expressed. CDW makes no warranty, expressed or implied, on the accuracy of the work and information completed by others and upon which CDW has relied to prepare this report. No other use of this report is warranted without the written consent of CDW.

Events occurring on the subject property after November 3, 2015, the date of the inspection, are beyond the scope of this report. CDW makes no expressed or implied representations or warranties regarding any changes in the condition of the premises after this date from on-site or off-site sources.

1.5 Special Terms and Conditions

The terms of CDW's contract for services required that the Phase I ESA be completed by the first week of December, 2015. This Phase I ESA was conducted as part of a feasibility study for future construction. There were no other special Terms or Conditions.

1.6 User Reliance

This report is intended for the use of the entities listed below, and may be relied upon for up to one year after the date issued. No other individuals or entities may rely upon the report contents, in part or in whole.

Owner: City of Somerville

Architect: Symmes Maini and McKee

1.7 Additional Services

No soil, groundwater, surface water or other media testing was conducted as part of this assessment. A wetlands survey was not performed. A comprehensive asbestos and hazardous building material survey was not included. A professional title search was not included.

VII REFERENCES

City of Somerville Assessor's Office, Department of Public Works, Board of Health, Fire Department, Water and Sewer Department and Building Department, November, 2015.

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Environmental Compliance Services, "Response Action Outcome Report." April, 2004.

United States Department of Agriculture, Web Soil Survey.

United States Geological Survey, Boston North, MA Topographic Quadrangle. 1987.

Zen et. al., Bedrock Geologic Map of Massachusetts, 1983.

XII SIGNATURE AND QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL

The investigation of the Site described in the report was performed by Ms. Susan Cahalan, Senior Project Manager, who is qualified to make investigations and formulate the opinions herein set forth. Ms. Cahalan has 19 years of experience performing environmental site assessments. She has a Bachelors of Science in Geology from Northeastern University in Boston, Massachusetts and a Masters of Liberal arts in Sustainability and Environmental Management from Harvard University in Cambridge, Massachusetts.

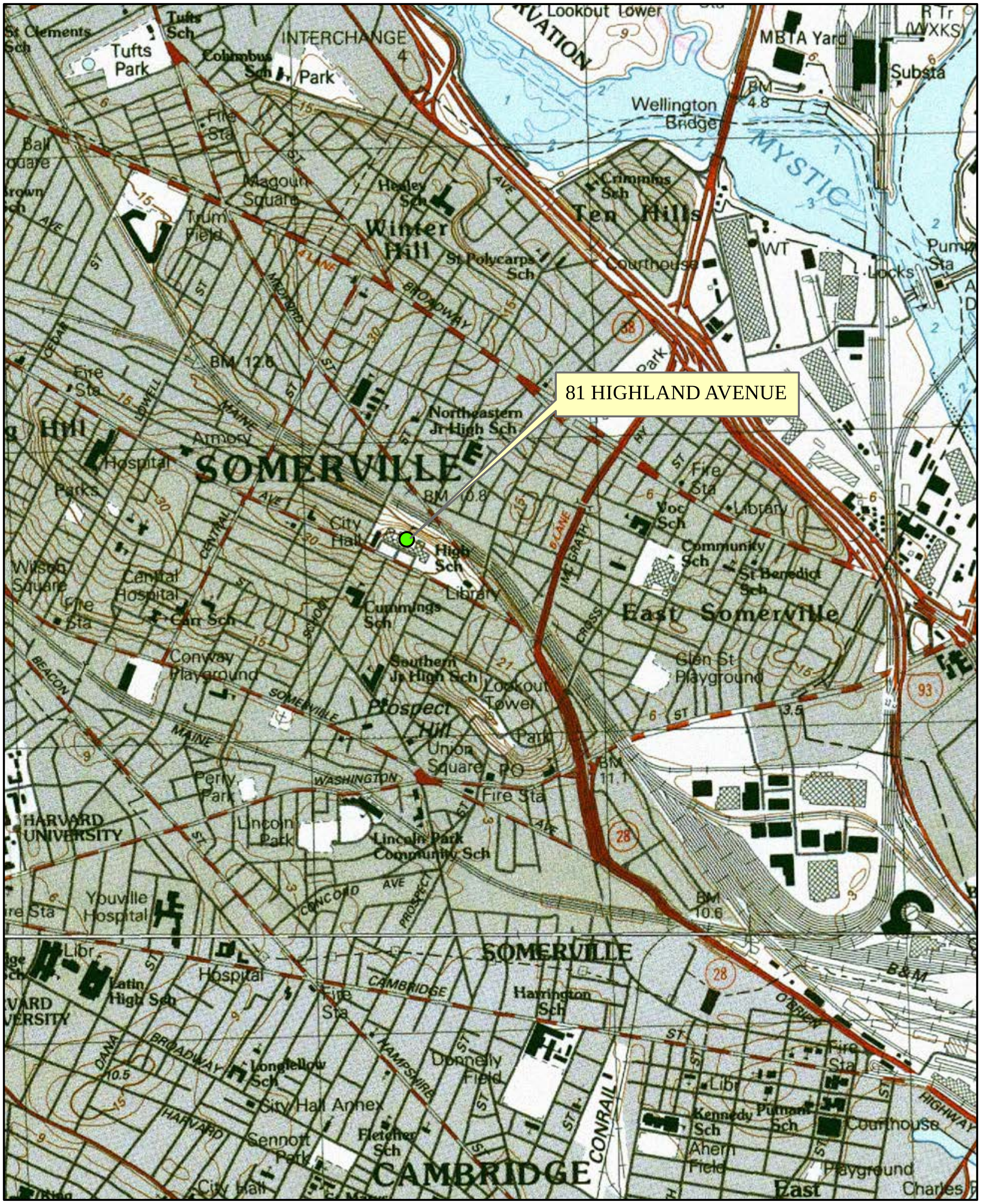
The Site Investigator is knowledgeable regarding the type of industrial, manufacturing, commercial or other processes or operations which might reasonably be expected to generate, use, treat, store or dispose of oil or hazardous material. The Site Investigator has reviewed the recent history of the Site and has considered the potential for the generation, use, treatment, storage or disposal of oil or hazardous material by (a) the uses presently associated with the Site and (b) to the extent ascertainable by inquiry, the uses previously associated with the Site.

This report is dated November 30, 2015, and is signed by individuals who are duly authorized to do so.

Susan Cahalan

Susan Cahalan, PG
Senior Environmental Specialist

FIGURES



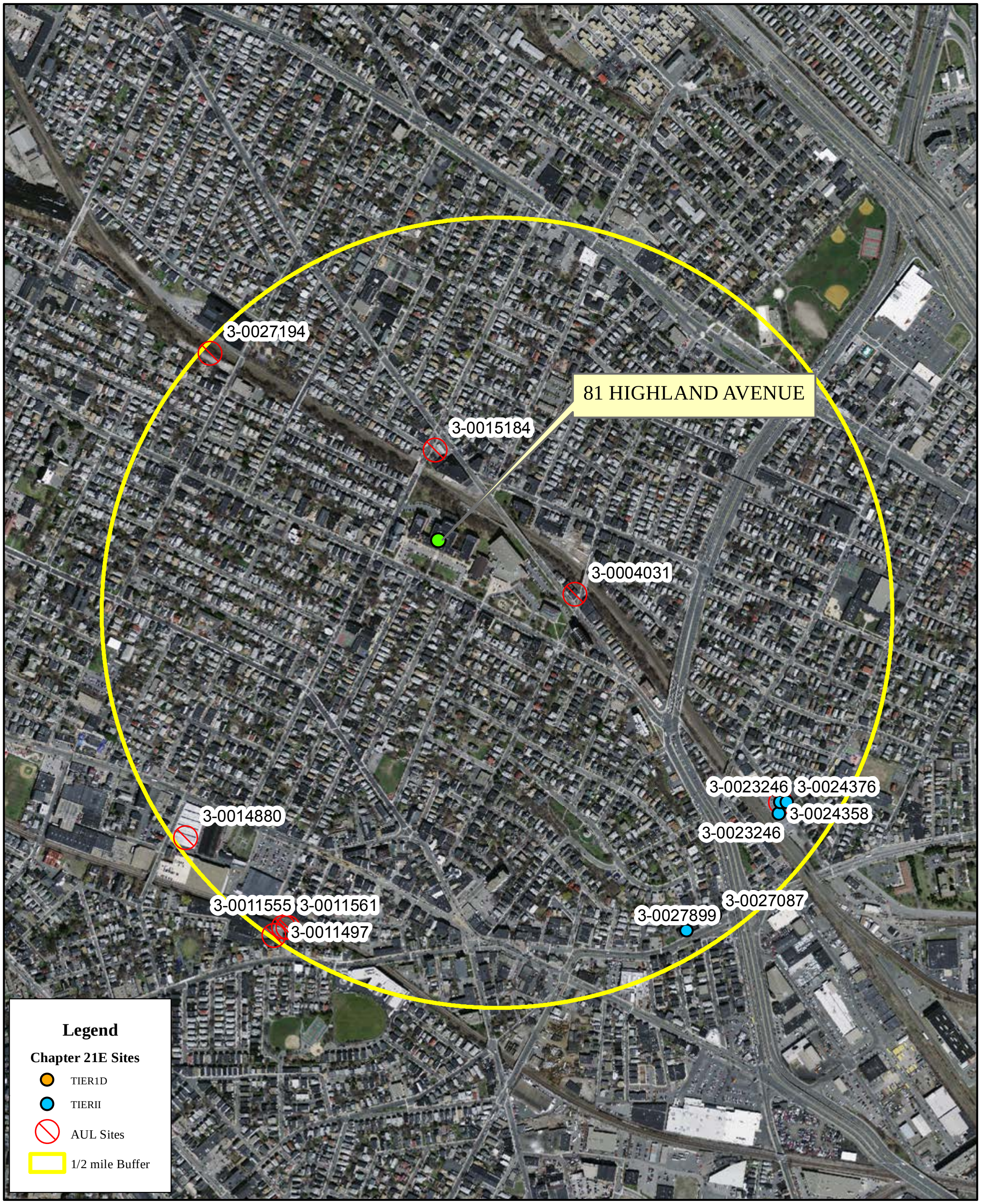
CDW CONSULTANTS, INC.

SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE
SOMERVILLE, MA

Figure 1 - Site Location

SOURCE: MASSGIS

SCALE: 1:20,000



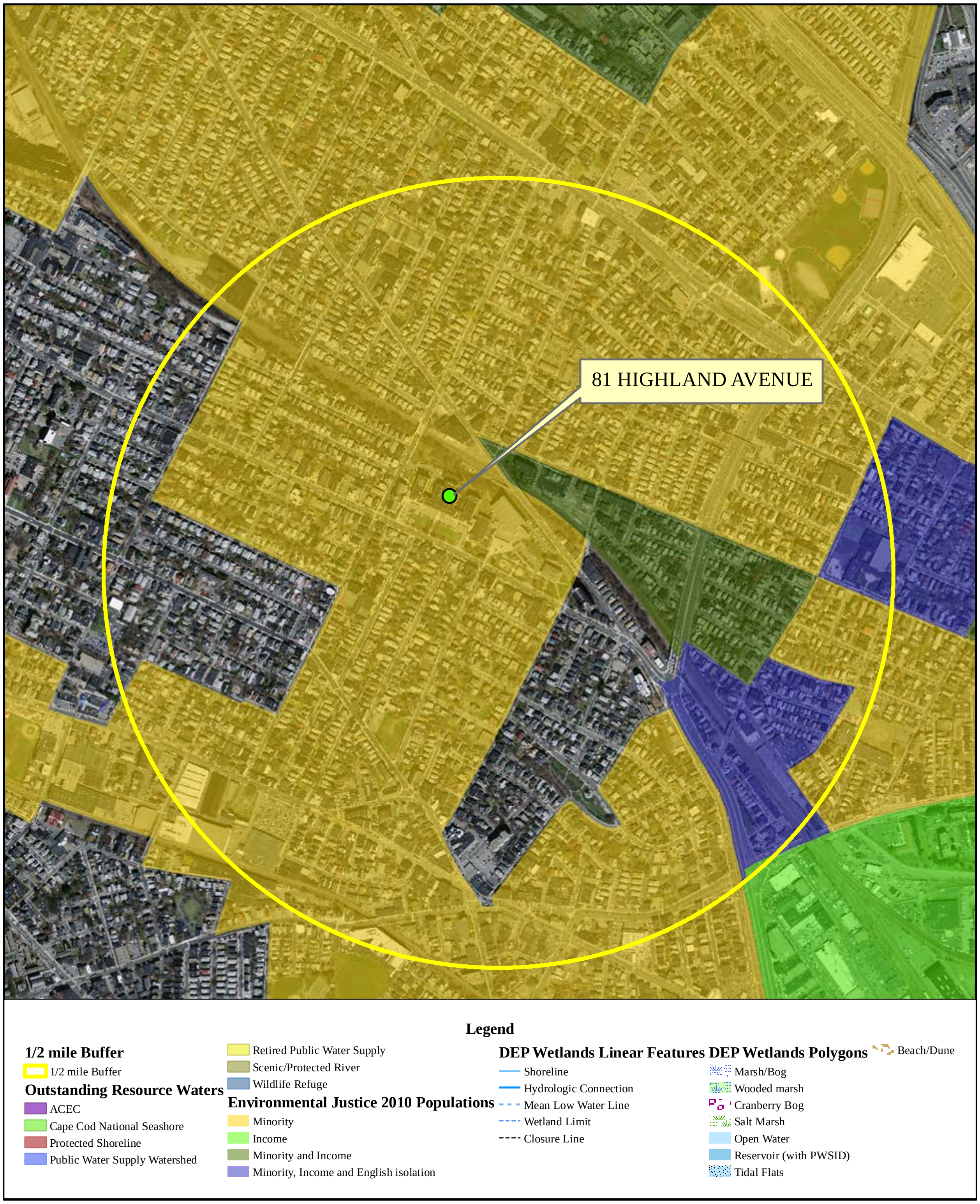
CDW CONSULTANTS, INC.

SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE
SOMERVILLE, MA

Figure 2 - Massachusetts 21E Map

SOURCE: MASSGIS

SCALE: 1:12,000



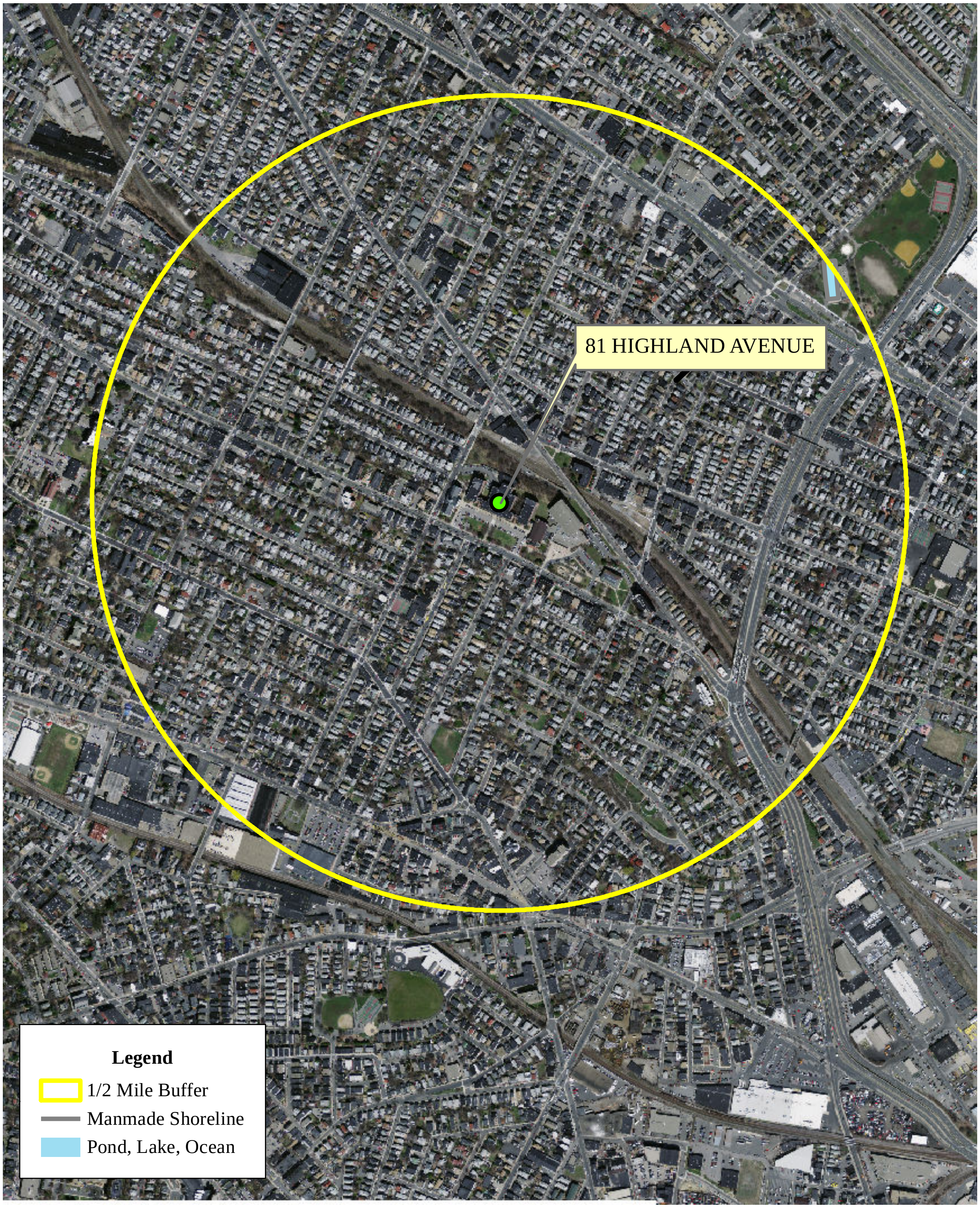
CDW CONSULTANTS, INC.

SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE
SOMERVILLE, MA

Figure 3 - Resource Areas Map

SOURCE: MASSGIS

SCALE: 1:12,000



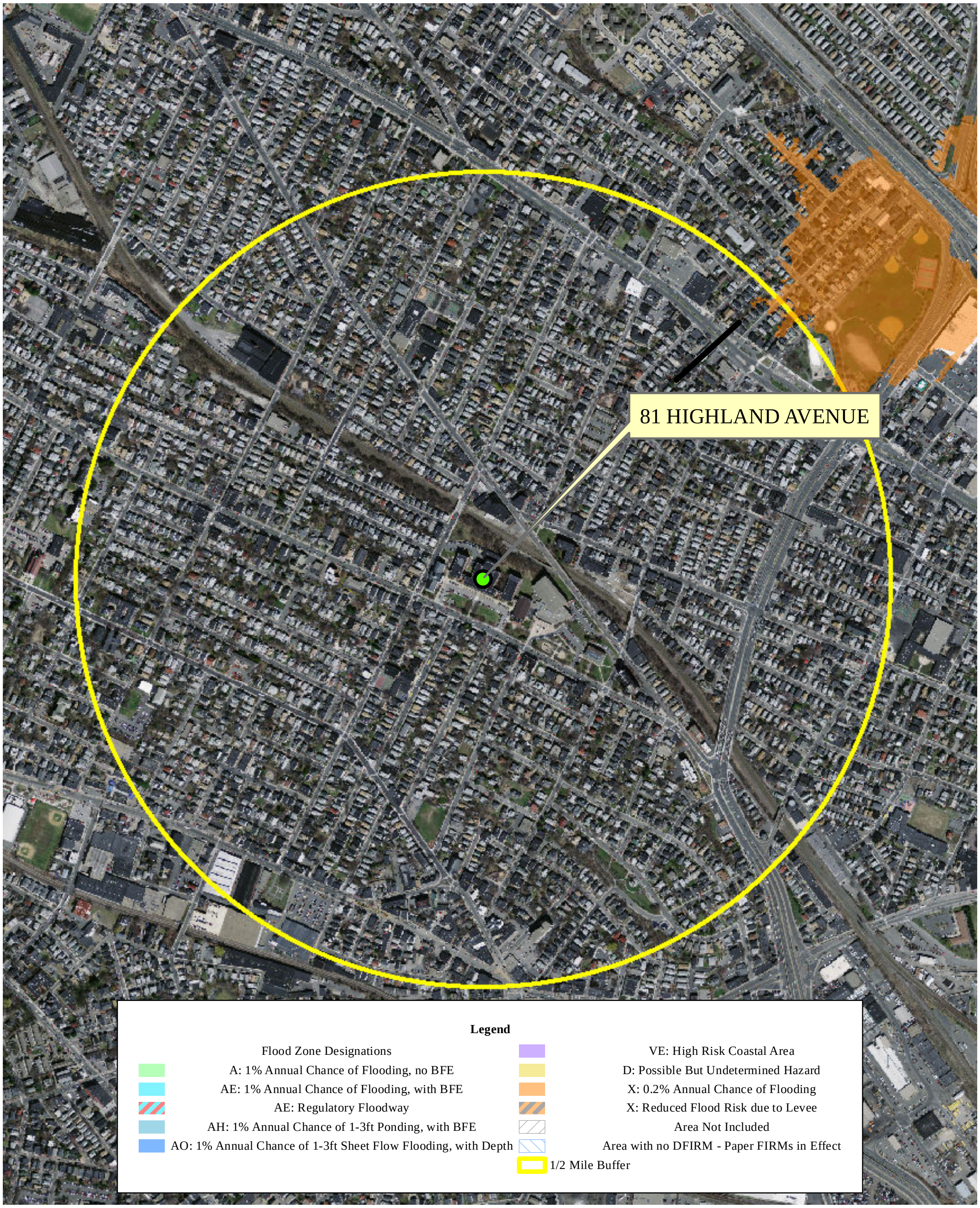
CDW CONSULTANTS, INC.

SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE
SOMERVILLE, MA

Figure 4 - Hydrography Map

SOURCE: MASSGIS

SCALE: 1:12,000



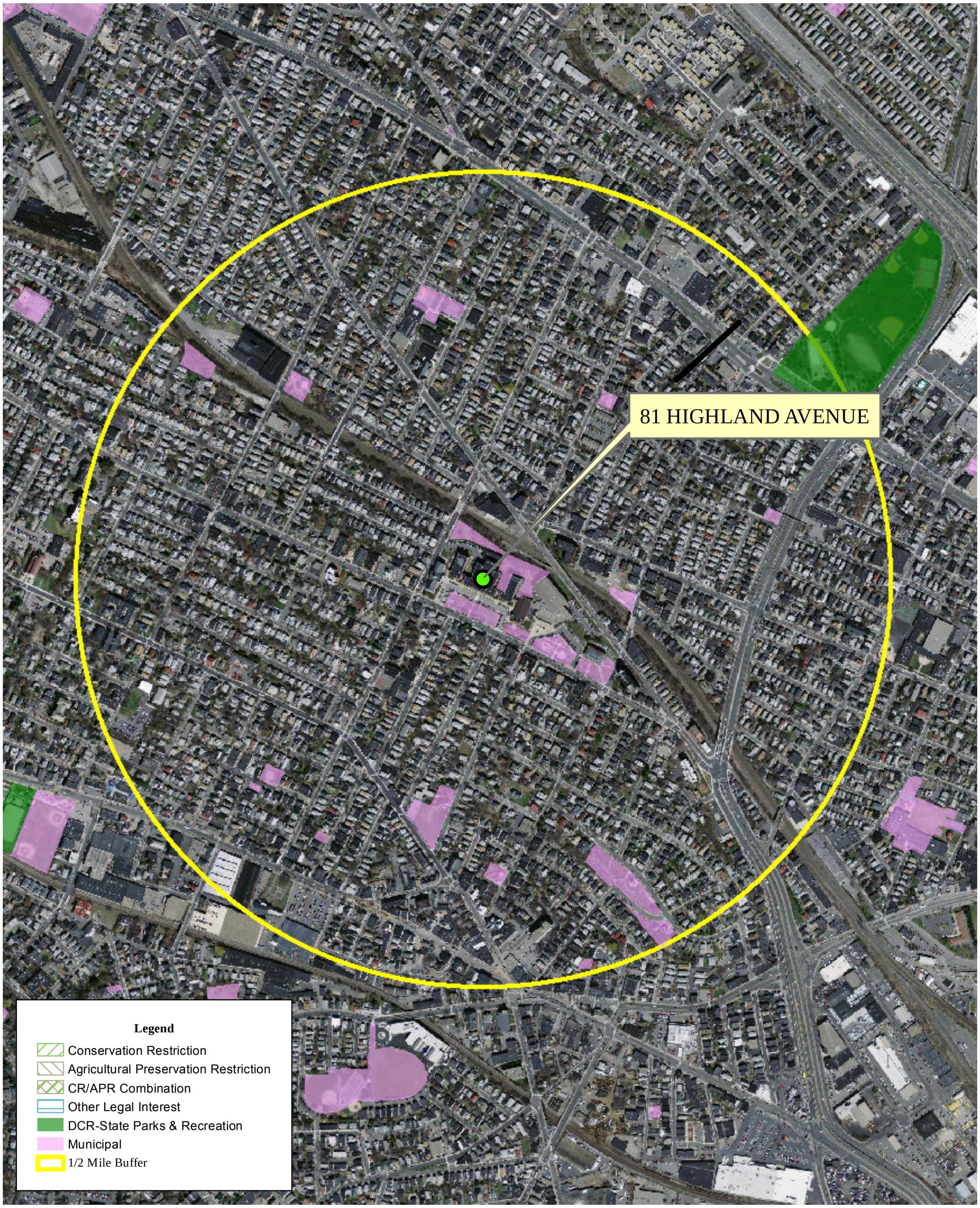
CDW CONSULTANTS, INC.

SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE
SOMERVILLE, MA

Figure 5 - FEMA Flood Zones Map

SOURCE: MASSGIS

SCALE: 1:12,000



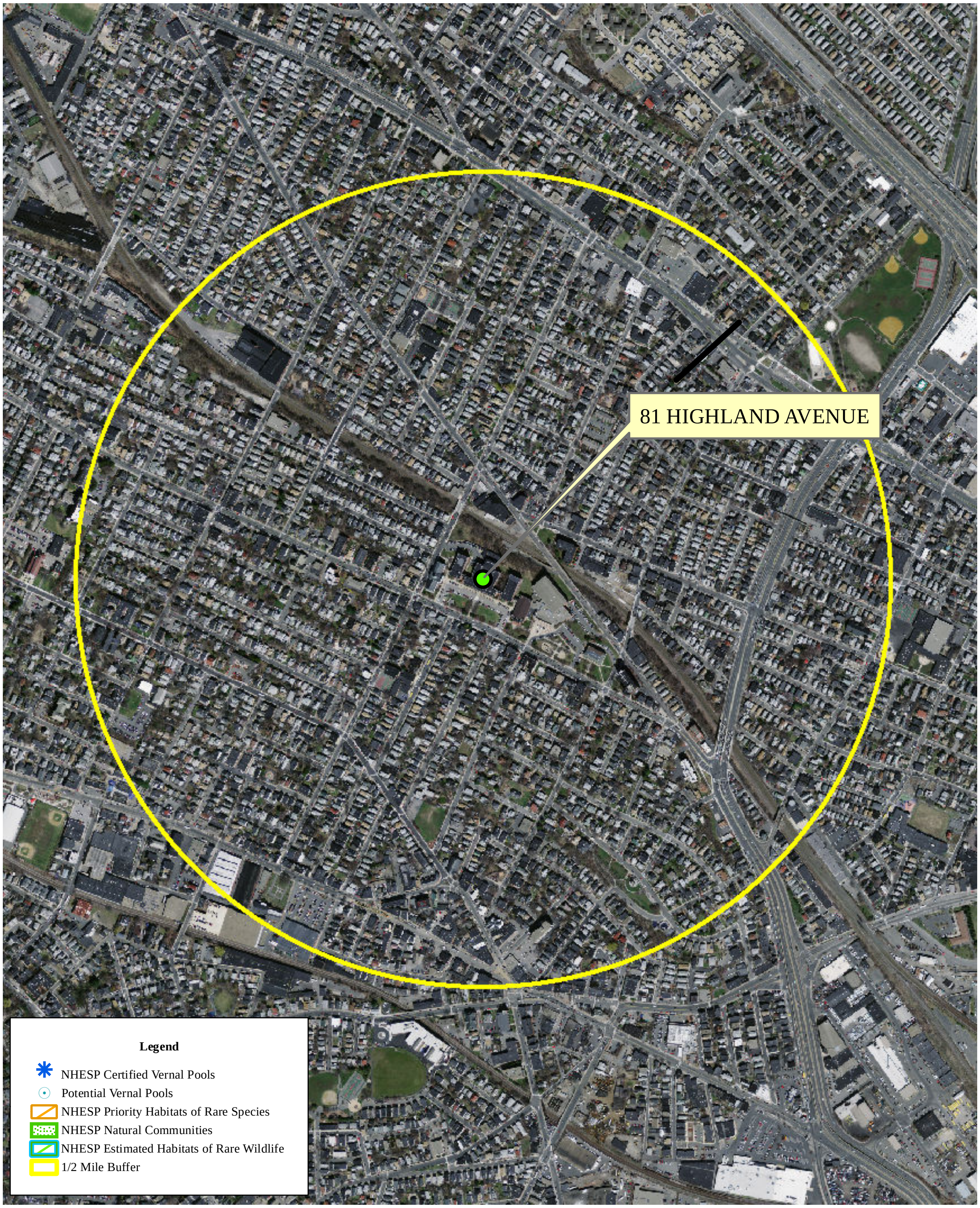
CDW CONSULTANTS, INC.

SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE
SOMERVILLE, MA

Figure 6 - Open Space Map

SOURCE: MASSGIS

SCALE: 1:12,000



CDW CONSULTANTS, INC.

SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE
SOMERVILLE, MA

Figure 7 - NHESP Map

SOURCE: MASSGIS

SCALE: 1:12,000

APPENDIX A

Environmental Database Report Executive Summary

Somerville High School
81-86 HIGHLAND AVE
Somerville, MA 02143

Inquiry Number: 4442112.2s
October 20, 2015

EDR Summary Radius Map Report

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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SECTION **PAGE**

GEOCHECK ADDENDUM

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

81-86 HIGHLAND AVE
SOMERVILLE, MA 02143

COORDINATES

Latitude (North):	42.3872000 - 42˚ 23’ 13.92’’
Longitude (West):	71.0970000 - 71˚ 5’ 49.20’’
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	327379.9
UTM Y (Meters):	4694684.0
Elevation:	101 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	TP
Source:	U.S. Geological Survey
Target Property:	S
Source:	U.S. Geological Survey

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20120710
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
81-86 HIGHLAND AVE
SOMERVILLE, MA 02143

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	SOMERVILLE HIGH SCHO	81 HIGHLAND AVE	RGA HWS		TP
A2	HOLIDAY CLEANERS	82 HIGHLAND AVE	RCRA NonGen / NLR, FINDS		TP
A3	BAY STATE	84 HIGHLAND AVE	US BROWNFIELDS, FINDS		TP
A4		86A HIGHLAND AVE	LEAD		TP
A5	SOMERVILLE HIGH SCHO	81 HIGHLAND AVENUE	US AIRS, FINDS		TP
A6		86 HIGHLAND AVE	LEAD		TP
A7	BOYNTON YARDS	84 HIGHLAND AVE	US BROWNFIELDS, FINDS		TP
A8	KEMP NUTS	84 HIGHLAND AVE	US BROWNFIELDS, FINDS		TP
A9	VERNON STREET	84 HIGHLAND AVE	US BROWNFIELDS, FINDS		TP
A10	HOLIDAY CLEANERS	82 HIGHLAND AVE	HW GEN		TP
A11		82 HIGHLAND AVE	EDR US Hist Cleaners		TP
A12	CONWELL SCHOOL	84 HIGHLAND AVE	US BROWNFIELDS, FINDS		TP
A13		86A HIGHLAND AVE	LEAD		TP
A14	SOMERVILLE HIGH SCHO	81 HIGHLAND AVE	RGA HWS		TP
A15	SOMERVILLE SCHOOL DI	81 HIGHLAND AVE.	FTTS		TP
A16	SOMERVILLE HIGH SCHO	81 HIGHLAND AVE	HW GEN		TP
A17	SOMERVILLE HIGH SCHO	81 HIGHLAND AVE	RGA LUST		TP
A18		86A HIGHLAND AVE	LEAD		TP
A19	SOMERVILLE SCHOOL DI	81 HIGHLAND AVE.	HIST FTTS		TP
A20	SOMERVILLE HIGH SCHO	81 HIGHLAND AVE	RGA LUST		TP
21	SOMERVILLE PUBLIC LI	79 HIGHLAND AVE	SHWS, RELEASE, ENF	Lower	334, 0.063, SW
B22	NO LOCATION AID	343 MEDFORD ST	SHWS, RELEASE	Lower	486, 0.092, NNE
B23		345 MEDFORD ST	EDR US Hist Auto Stat	Lower	504, 0.095, NNE
B24	GOOD GAS	345 MEDFORD ST	LUST, UST, RELEASE, Financial Assurance, HW GEN	Lower	504, 0.095, NNE
B25	PCJ AUTO SERVICE INC	345 MEDFORD ST	RCRA NonGen / NLR	Lower	504, 0.095, NNE
C26	ROADWAY SPILL ON VIN	VINAL AVE	SHWS, RELEASE	Lower	567, 0.107, SSE
C27		62 HIGHLAND AVE	EDR US Hist Cleaners	Lower	589, 0.112, SSE
28	NO LOCATION AID	101 HIGHLAND AVE	SHWS, RELEASE	Higher	617, 0.117, West
29		91 MARSHALL ST	EDR US Hist Auto Stat	Lower	629, 0.119, NE
D30	PARKING LOT	358 MEDFORD ST	SHWS, RELEASE	Lower	633, 0.120, North
E31	APARTMENT BUILDING	240 PEARL STREET	SHWS, RELEASE	Lower	640, 0.121, ENE
E32	BACK BAY SIGN CO INC	236 PEARL ST	RCRA-CESQG, FINDS	Lower	678, 0.128, ENE
E33	BACK BAY SIGN CO INC	236 PEARL ST	HW GEN	Lower	678, 0.128, ENE
E34	SRP SIGN CORP	236 PEARL ST	HW GEN	Lower	678, 0.128, ENE
D35	SOMERVILLE XTRA FUEL	360 MEDFORD ST	SHWS, LUST, UST, INST CONTROL, RELEASE, ENF,...	Lower	690, 0.131, North
D36		360 MEDFORD ST	EDR US Hist Auto Stat	Lower	690, 0.131, North
37		368 MEDFORD ST	EDR US Hist Auto Stat	Lower	806, 0.153, North
F38	RAYS TEXACO	112 HIGHLAND AVE	RCRA NonGen / NLR, FINDS	Higher	812, 0.154, West
F39	TEXACO SERVICE	112 HIGHLAND AVE	LUST, UST, RELEASE, Financial Assurance	Higher	812, 0.154, West

MAPPED SITES SUMMARY

Target Property Address:
81-86 HIGHLAND AVE
SOMERVILLE, MA 02143

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
40	CUMMINGS SCHOOL & PL	42 PRESCOTT ST	LUST, RELEASE, ENF	Lower	826, 0.156, SSW
41	SOMERVILLE HIGH SCHO	93 SCHOOL ST	RCRA NonGen / NLR, FINDS	Lower	896, 0.170, SW
G42	303 MEDFORD STREET	303 MEDFORD STREET	US BROWNFIELDS, FINDS	Lower	928, 0.176, ESE
G43	CORNER OF MEDFORD AN	299 TO 303 MEDFORD S	SHWS, RELEASE	Lower	950, 0.180, ESE
44		55 MADISON ST	EDR US Hist Auto Stat	Lower	952, 0.180, WNW
45		73 PLEASANT AVE	EDR US Hist Auto Stat	Lower	957, 0.181, SSE
46	INDUSTRIAL PROPERTY	100 WALNUT ST	SHWS, RELEASE	Lower	981, 0.186, East
G47	VACANT LOT	299-303 MEDFORD ST	SHWS, INST CONTROL, RELEASE	Lower	1002, 0.190, ESE
G48		297 MEDFORD ST	EDR US Hist Auto Stat	Lower	1035, 0.196, ESE
G49	A PLUS AUTO BODY	297 MEDFORD ST	HW GEN	Lower	1035, 0.196, ESE
G50	A & C AUTO BODY INC	297 MEDFORD ST	RCRA NonGen / NLR, FINDS	Lower	1035, 0.196, ESE
51		295 MEDFORD ST	EDR US Hist Auto Stat	Lower	1077, 0.204, ESE
52		211 PEARL ST	EDR US Hist Cleaners	Lower	1086, 0.206, East
53	RESIDENCE	27 PUTNAM ST	SHWS, RELEASE	Lower	1168, 0.221, SSW
H54	NO LOCATION AID	103 GILMAN ST	LAST, RELEASE, LEAD	Lower	1205, 0.228, ESE
H55		92 GILMAN ST	EDR US Hist Cleaners	Lower	1234, 0.234, ESE
56	NO LOCATION AID	31 VINAL AVE	SHWS, RELEASE	Lower	1266, 0.240, South
57	SAMAY INC	73 SUMMER ST	SHWS, RELEASE, SPILLS, HW GEN	Lower	1401, 0.265, SW
58	CEDARS PETROLEUM	180 PEARL ST	SHWS, UST, RELEASE, Financial Assurance, HW GEN	Lower	1694, 0.321, East
59	VERIZON MASSACHUSETT	111 CENTRAL ST	LUST, UST, RELEASE, Financial Assurance	Lower	1751, 0.332, NW
I60	SOMERVILLE COMMUNITY	112A CENTRAL STREET	US BROWNFIELDS, FINDS	Lower	1794, 0.340, NW
I61	COMMUNITY DEVELOPMEN	112A CENTRAL ST	SHWS, INST CONTROL, RELEASE	Lower	1794, 0.340, NW
62	NO LOCATION AID	28-30 MARSHALL ST	LUST, RELEASE	Lower	1822, 0.345, NNE
J63	NO LOCATION AID	3 SUMMER ST	LAST, RELEASE	Lower	1901, 0.360, South
64	MCGRATH AUTO BODY SH	42 DANA ST	LUST, RELEASE	Lower	1915, 0.363, East
65	NO LOCATION AID	41 GILMAN ST	LAST, RELEASE	Lower	1927, 0.365, ESE
66	FORMER DISTRICT COUR	19 WALNUT ST	LAST, RELEASE, ENF	Lower	1953, 0.370, South
J67	NO LOCATION AID	1 SUMMER ST	SHWS, LAST, RELEASE	Lower	1966, 0.372, South
68	RESIDENTIAL	19 CAMBRIA ST	LUST, RELEASE, LEAD	Lower	2039, 0.386, West
K69	SUBSTATION PNU 13	BOW STREET PL	SHWS, RELEASE	Lower	2045, 0.387, SSW
L70	NO LOCATION AID	25-27 OSGOOD ST	SHWS, RELEASE	Lower	2076, 0.393, SW
K71	NO LOCATION AID	65 1\2 BOW ST	LUST, RELEASE	Lower	2078, 0.394, SSW
L72	BLAISDALE SLATE CO	27 OSGOOD ST	SHWS, LUST, RELEASE, SPILLS	Lower	2088, 0.395, SW
73	PROPERTY	55 BOW ST	SHWS, RELEASE	Lower	2129, 0.403, SSW
74	AT MARSHALL ST	296 TO 308 BROADWAY	SHWS, RELEASE	Lower	2131, 0.404, NNE
M75	SUNOCO SERVICE STATI	258 BROADWAY	SHWS, LUST, RELEASE, HW GEN	Lower	2163, 0.410, NE
M76	NO LOCATION	9 MONTGOMERY AVE	LAST, RELEASE	Lower	2182, 0.413, ENE
77	NEAR 55 COLUMBUS AVE	COLUMBUS AVE	SHWS, RELEASE	Lower	2189, 0.415, SSE
78	NO LOCATION AID	324 BROADWAY	SHWS, RELEASE	Lower	2196, 0.416, NNE

MAPPED SITES SUMMARY

Target Property Address:
81-86 HIGHLAND AVE
SOMERVILLE, MA 02143

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
79	NO LOCATION AID	338 BROADWAY	LUST, RELEASE	Lower	2236, 0.423, NNE
80	NO LOCATION AID	33 ROBINSON ST	SHWS, RELEASE	Lower	2257, 0.427, NNW
81	NO LOCATION AID	148 SYCAMORE ST	LUST, RELEASE	Lower	2273, 0.430, North
82	LATTA BROTHERS MEMOR	251 BROADWAY	LUST, RELEASE	Lower	2278, 0.431, NE
83	RESIDENCE	8 MINER ST	LUST, RELEASE	Lower	2328, 0.441, NW
N84	AUTOMOTIVE SHOP	444-460 SOMERVILLE A	SHWS, RELEASE	Lower	2368, 0.448, SW
N85	NO LOCATION AID	444 SOMERVILLE AVE	SHWS, INST CONTROL, RELEASE, HW GEN	Lower	2368, 0.448, SW
86	SUNOCO #0005-2175	434 MCGRATH HWY	SHWS, LUST, UST, RELEASE, Financial Assurance, HW...	Lower	2394, 0.453, SE
O87	SOMERVILLE AUTO REPA	453 SOMERVILLE AVE	SHWS, RELEASE, HW GEN	Lower	2399, 0.454, SW
P88	BOSTON EDISON CO	10 BOW PL	SHWS, RELEASE	Lower	2412, 0.457, South
89	NO LOCATION AID	18 TEMPLE STREET	LUST, RELEASE	Lower	2425, 0.459, NNE
O90	NO LOCATION AID	460 SOMERVILLE AVE	SHWS, LUST, INST CONTROL, SPILLS, RELEASE	Lower	2438, 0.462, SW
P91	GOODYEAR TIRE & RUBB	1 BOW ST	SHWS, RELEASE, HW GEN	Lower	2479, 0.470, South
Q92	CUMBERLAND FARMS #11	212 BROADWAY	SHWS, LUST, UST, AST, RELEASE, Financial Assurance	Lower	2552, 0.483, ENE
Q93	MWRA DRAIN	RTE 28 BROADWAY	SHWS, RELEASE	Lower	2588, 0.490, ENE
94	HERITAGE HOSPITAL	26 CENTRAL ST	LUST, RELEASE	Lower	2590, 0.491, WSW
95	NO LOCATION AID	188 CENTRAL ST	LUST, RELEASE, LEAD	Higher	2596, 0.492, NNW
96	TUFTS UNIVERSITY	TILTON HALL	SHWS, RELEASE	Lower	2609, 0.494, SE
97	CHROME PLATING FACIL	46 CROSS ST	SHWS, RELEASE	Lower	2620, 0.496, East
98	PROSPECT & STONE IN	SOMERVILLE AVE	SHWS, RELEASE	Lower	2692, 0.510, South
R99	MBTA STORM DRAIN	WASHINGTON ST	SHWS, RELEASE	Lower	2752, 0.521, SE
S100	NO LOCATION AID	508 SOMERVILLE AVE	SHWS, LUST, RELEASE, ENF	Lower	2752, 0.521, SW
101	PROPERTY	24 DANE ST	SHWS, RELEASE	Lower	2798, 0.530, SW
T102	HESS STATION 21521	709 MCGRATH HIGHWAY	SHWS, LUST, RELEASE	Lower	2803, 0.531, ENE
T103	HESS CORPORATION	709 MCGRATH HWY	SHWS, LUST, RELEASE, ENF	Lower	2803, 0.531, ENE
R104	@ CROSS ST	60 TUFTS ST	SHWS, RELEASE, LEAD	Lower	2806, 0.531, SE
S105	NO LOCATION AID	515 SOMERVILLE AVE	SHWS, LAST, LUST, INST CONTROL, RELEASE, ENF	Lower	2821, 0.534, WSW
T106	LOCANN GLASS	693 MCGRATH AKA OBRI	SHWS, RELEASE	Lower	2840, 0.538, ENE
107	NO LOCATION AID	38 GLENWOOD RD	SHWS, LAST, RELEASE	Lower	2842, 0.538, NW
108	GRZEBIENIOWSKI, ANDR	38 FENWICK ST	SHWS, LUST, RELEASE, ENF	Lower	2896, 0.548, North
109	GUS SERVICE STATION	519 SOMERVILLE AVE	SHWS, RELEASE	Lower	2909, 0.551, WSW
110	JOHN DAVIS CO	50 TUFTS ST	SHWS, UST, INST CONTROL, RELEASE, ENF, Financial...	Lower	2911, 0.551, SE
U111	@ WASHINGTON STREET	BONNER ST	SHWS, RELEASE	Lower	2915, 0.552, SSE
112	4693770N 327473E	298 SOMERVILLE AVE	SHWS, RELEASE	Lower	2929, 0.555, SSE
113	PROPOSED LINCOLN PAR	290 WASHINGTON ST	SHWS, RELEASE	Lower	2935, 0.556, SSW
114	INTERSECTION WITH JA	65 TEMPLE ST	SHWS, RELEASE	Lower	2941, 0.557, NNE
115	CITGO STATION FMR	236 WASHINGTON ST	SHWS, LUST, RELEASE	Lower	2980, 0.564, SSE
116	NEAR MYSTIC AVE INTE	779 MCGRATH HWY	SHWS, LUST, INST CONTROL, RELEASE	Lower	3001, 0.568, ENE
U117	9 UNION SQUARE	9 UNION SQUARE	SHWS, INST CONTROL, RELEASE	Lower	3019, 0.572, SSE

MAPPED SITES SUMMARY

Target Property Address:
81-86 HIGHLAND AVE
SOMERVILLE, MA 02143

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
118	L BORNSTEIN CO INC	321 WASHINGTON ST	SHWS, LUST, INST CONTROL, RELEASE, ENF, HW GEN	Lower	3025, 0.573, SSW
119	NO LOCATION AID	120 BARTLETT ST	SHWS, LAST, RELEASE, SPILLS	Higher	3027, 0.573, NNW
120	COMMERCIAL PLASTICS	352 MCGRATH HWY	SHWS, RELEASE	Lower	3054, 0.578, SE
121	NO LOCATION AID	220 WASHINGTON ST	SHWS, LUST, INST CONTROL, RELEASE, ENF, HW GEN	Lower	3114, 0.590, SSE
V122	PROSPECT ST	269 SOMERVILLE AVE	SHWS, RELEASE, SPILLS	Lower	3145, 0.596, SSE
W123	FORMER KILEY BARREL	20-22 PROSPECT ST	SHWS, BROWNFIELDS, RELEASE, ENF	Lower	3151, 0.597, SSE
X124	BOYS AND GIRLS CLUB	181 WASHINGTON ST	SHWS, LUST, RELEASE, ENF	Lower	3157, 0.598, SSE
X125	NO LOCATION AID	179 WASHINGTON ST	SHWS, RELEASE, ENF	Lower	3158, 0.598, SSE
126	NO LOCATION AID	259 LOWELL ST	SHWS, LUST, INST CONTROL, RELEASE, HW GEN	Lower	3161, 0.599, NW
V127	RESIDENTIAL PROPERTY	4 MILK PLACE	SHWS, RELEASE	Lower	3186, 0.603, SSE
W128	PROPERTIES ABUTTING	9 11 13 17 ALLEN ST	SHWS, RELEASE	Lower	3187, 0.604, SSE
V129	FMR KILEY BARREL	20 TO 22 PROSPECT ST	SHWS, RELEASE	Lower	3209, 0.608, SSE
130	NO LOCATION AID	143 JACQUES ST	SHWS, RELEASE	Lower	3210, 0.608, North
W131	MAP 82, LOTS 1 AND 2	26-30 PROSPECT STREE	SHWS, RELEASE	Lower	3230, 0.612, SSE
W132	NO LOCATION AID	26-28 PROSPECT STREE	SHWS, RELEASE	Lower	3230, 0.612, SSE
133	VALVOLINE INSTANT OI	182 WASHINGTON ST	SHWS, LUST, RELEASE, HW GEN	Lower	3250, 0.616, SE
134	AMES SAFETY ENVELOPE	12 PARK ST	SHWS, RELEASE	Lower	3251, 0.616, SW
135	RESIDENCE	27 VILLAGE STREET	SHWS, LUST, RELEASE	Lower	3286, 0.622, SW
Y136	MBTA MYSTIC JUNCTION	WASHINGTON ST NEAR J	SHWS, INST CONTROL, RELEASE	Lower	3297, 0.624, SE
Y137	WASHINGTON ST OVERPA	WASHINGTON ST RR TRA	SHWS, RELEASE	Lower	3297, 0.624, SE
138	OFF PROSPECT ST	BENNETT CT	SHWS, RELEASE	Lower	3298, 0.625, SSE
139	RESIDENTIAL APARTMEN	250 SOMERVILLE AVENU	SHWS, RELEASE, ENF	Lower	3299, 0.625, SSE
140	MULTI-FAMILY RESIDEN	88 PEARL ST	SHWS, RELEASE, LEAD	Lower	3325, 0.630, ESE
Y141	HYDRAMATIC SALES & S	4 JOY ST	SHWS, LUST, UST, RELEASE, RCRA NonGen / NLR,...	Lower	3353, 0.635, SE
Z142	FOREIGN BODY WORKS	587-593 SOMERVILLE A	SHWS, RELEASE	Lower	3400, 0.644, WSW
143	THE SOMERVILLE COMMU	16 & 16R BUTLER DR	SHWS, INST CONTROL, RELEASE, ENF	Lower	3409, 0.646, NNE
144	CORNER OF WASHINGTON	120 WASHINGTON ST	SHWS, RELEASE	Lower	3420, 0.648, SE
145	130 BROADWAY	130 BROADWAY	SHWS, LUST, INST CONTROL, RELEASE, ENF	Lower	3426, 0.649, East
146	NO LOCATION AID	43 PITMAN ST	SHWS, RELEASE	Lower	3437, 0.651, WSW
AA147	NO LOCATION AID	29-31 ALLEN ST	SHWS, RELEASE	Lower	3437, 0.651, SSE
AA148	UNAS	29-33 ALLEN ST	SHWS, INST CONTROL, BROWNFIELDS, RELEASE, ENF	Lower	3437, 0.651, SSE
AB149	M & S BENNETT SERVIC	26 BENNETT ST	SHWS, INST CONTROL, RELEASE, ENF	Lower	3443, 0.652, SSE
AB150	BENNETT STREET	15 BENNETT STREET	SHWS, RELEASE	Lower	3451, 0.654, SSE
AA151	NO LOCATION AID	30 ALLEN ST	SHWS, RELEASE	Lower	3460, 0.655, SSE
AC152	A1 AUTO CLINIC	308 MCGRATH HWY	SHWS, RELEASE, HW GEN	Lower	3466, 0.656, SE
AB153	COMMERCIAL PROPERTY	40 BENNETT STREET	SHWS, RELEASE	Lower	3470, 0.657, SSE
Z154	NO LOCATION AID	15A BLEACHERY CT	SHWS, LUST, INST CONTROL, RELEASE	Lower	3473, 0.658, WSW
AB155	NO LOCATION AID	27 BENNETT STREET	SHWS, RELEASE	Lower	3475, 0.658, SSE
Z156	NO LOCATION AID	588-592 SOMERVILLE A	SHWS, INST CONTROL, RELEASE	Lower	3476, 0.658, WSW

MAPPED SITES SUMMARY

Target Property Address:
81-86 HIGHLAND AVE
SOMERVILLE, MA 02143

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
AC157	PATS AUTO BODY	306-308 MCGRATH HWY	SHWS, RELEASE	Lower	3489, 0.661, SE
Z158	NO LOCATION AID	592 SOMERVILLE AVE	SHWS, RELEASE	Lower	3492, 0.661, WSW
AA159	SOMERSET MACHINE & T	37 ALLEN ST	SHWS, INST CONTROL, RELEASE	Lower	3499, 0.663, SSE
160	FRANKLIN ST	9 PALMER AVE	SHWS, RELEASE	Lower	3508, 0.664, ESE
161	COMMERCIAL PROPERTY	50 PROSPECT STREET	SHWS, RELEASE	Lower	3528, 0.668, South
162	NO LOCATION AID	60 CROSS ST E	SHWS, LUST, INST CONTROL, RELEASE	Lower	3541, 0.671, ENE
163	WHEATLAND ST	MYSTIC AVE	SHWS, RELEASE	Lower	3548, 0.672, NE
AD164	VACANT GARAGE	49-51 ALLEN ST	SHWS, RELEASE	Lower	3569, 0.676, SSE
AD165	COMMERCIAL PROPERTY	51 ALLEN STREET	SHWS, RELEASE, SPILLS, ENF	Lower	3581, 0.678, SSE
AE166	NO LOCATION AID	45 WEBSTER AVE	SHWS, RELEASE	Lower	3593, 0.680, South
167	OFF UNION SQUARE	72 NEWTON ST	SHWS, RELEASE	Lower	3607, 0.683, South
AE168	50 WEBSTER AVENUE	50 WEBSTER AVENUE	SHWS, LUST, RELEASE, SPILLS	Lower	3633, 0.688, South
169	MYSTIC VIEW APARTMEN	5-15-25 RIVER RD	SHWS, RELEASE	Lower	3648, 0.691, NNE
170	AT TEMPLE STREET	422 MYSTIC AVE	SHWS, RELEASE	Lower	3682, 0.697, NE
171	NO LOCATION AID	100 PROPERZI WAY	SHWS, RELEASE, ENF	Lower	3720, 0.705, SW
AF172	INTERSECTION	RTE 28 AND RTE 38 UN	SHWS, RELEASE	Lower	3724, 0.705, NE
173	NO LOCATION AID	219 SUMMER ST	SHWS, RELEASE	Higher	3757, 0.712, West
AF174	AT RT 28 RAMP	RT 93 N	SHWS, RELEASE	Lower	3758, 0.712, NE
AG175	SOMERVILLE LUMBER	260 MYSTIC AVE AKA 7	SHWS, INST CONTROL, RELEASE	Lower	3769, 0.714, ENE
176	NO LOCATION AID	105 BROADWAY	SHWS, RELEASE	Lower	3770, 0.714, East
AH177	55 WEBSTER & PROSPEC	WEBSTER ST	SHWS, RELEASE	Lower	3778, 0.716, South
AG178	SOMERVILLE LUMBER CR	250 MYSTIC AVE	SHWS, INST CONTROL, RELEASE	Lower	3805, 0.721, ENE
179	SO OF EXIT 29	RTE 93N	SHWS, RELEASE	Lower	3807, 0.721, ENE
AH180	COMMERCIAL PROPERTY	70 PROSPECT STREET	SHWS, LUST, RELEASE, HW GEN	Lower	3810, 0.722, South
181	COMMERCIAL PLAZA	90 WASHINGTON ST	SHWS, RELEASE	Lower	3854, 0.730, ESE
182	RAO	84 HINCKLEY STREET	SHWS, RELEASE	Lower	3867, 0.732, NW
183	NO LOCATION AID	37 FREMONT ST	SHWS, RELEASE	Lower	3905, 0.740, North
184	U-HAUL CO OF BOSTON	151 LINWOOD ST	SHWS, LUST, UST, RELEASE, Financial Assurance	Lower	3943, 0.747, SE
AI185	TARGET CORPORATION	180 SOMERVILLE AVE	SHWS, RELEASE, ENF	Lower	3947, 0.748, SSE
AI186	TARGET DEPT. STORE	176 SOMERVILLE AVE	SHWS, RELEASE	Lower	3952, 0.748, SSE
187	NO LOCATION AID	78 PROSPECT ST	SHWS, INST CONTROL, RELEASE	Lower	3959, 0.750, South
AJ188	NO LOCATION AID	32-38 KENT ST	SHWS, RELEASE	Lower	3995, 0.757, WSW
AK189	DODAKINS AUTO SALES	81 PARK STREET	SHWS, LUST, INST CONTROL, RELEASE	Lower	4009, 0.759, SW
AK190	DODAKINS AUTO SALES	191 BEACON STREET	SHWS, LUST, INST CONTROL, RELEASE	Lower	4017, 0.761, SW
AJ191	NO LOCATION AID	17 KENT CT	SHWS, INST CONTROL, RELEASE	Lower	4025, 0.762, WSW
AL192	NO LOCATION AID	61 CLYDE ST	SHWS, RELEASE, ENF, LEAD	Lower	4028, 0.763, NW
AL193	ELHIDE CO INC, THE	56 CLYDE ST	SHWS, UST, RELEASE, Financial Assurance	Lower	4032, 0.764, NW
194	ALBERTINE SERVICE ST	646 SOMERVILLE AVE	SHWS, LAST, UST, RELEASE, Financial Assurance	Lower	4055, 0.768, WSW
AL195	42 CLYDE STREET	42 CLYDE ST	SHWS, RELEASE	Lower	4065, 0.770, NW

MAPPED SITES SUMMARY

Target Property Address:
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SOMERVILLE, MA 02143

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MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
196	BOSTON EDISON CO	68 JOY ST	SHWS, RELEASE, HW GEN	Lower	4088, 0.774, SE
197	NO LOCATION AID	844 TO 846 MCGRATH H	SHWS, INST CONTROL, RELEASE	Lower	4090, 0.775, ENE
198	MA HWY DEPT FACILITY	MYSTIC AVE (UNDER RT	SHWS, RELEASE	Lower	4124, 0.781, ENE
199	50 MIDDLESEX AVE	50 MIDDLESEX AVE	SHWS, LUST, RELEASE	Lower	4141, 0.784, ENE
200	FORMER SCRAP YARD	56 WEBSTER AVE	SHWS, INST CONTROL, RELEASE	Lower	4147, 0.785, South
201	NSTAR 300KVA PADMOUN	BEHIND 415 WASHINGTO	SHWS, RELEASE	Lower	4179, 0.791, SW
202	DURRELL PARK FORMER	245 BEACON ST	SHWS, RELEASE	Lower	4204, 0.796, WSW
203	NO LOCATION AID	SCOTT AND BRYAN STS	SHWS, RELEASE	Lower	4216, 0.798, SW
204	FIRST NATL GASOLINE	MYSTIC AVE	SHWS, RELEASE	Lower	4227, 0.801, ENE
205	HOLIDAY INN	30 WASHINGTON ST	SHWS, RELEASE	Lower	4239, 0.803, ESE
206	NO LOCATION AID	10 POPLAR ST	SHWS, SWF/LF, RELEASE, HW GEN	Lower	4260, 0.807, SE
207	BURGER KING	SOMERVILLE AVE AND M	SHWS, RELEASE	Lower	4262, 0.807, SSE
208	NO LOCATION AID	92-96 AND 97 PROSPEC	SHWS, RELEASE	Lower	4264, 0.808, South
209	FR STURTEVANT STREET	FOLEY ST	SHWS, RELEASE, ENF	Lower	4271, 0.809, ENE
210	NO LOCATION AID	86 JOY ST	SHWS, INST CONTROL, RELEASE, ENF, HW GEN	Lower	4285, 0.812, SE
AM211	NO LOCATION AID	70-80 WEBSTER AVE	SHWS, RELEASE, ENF	Lower	4316, 0.817, South
212	WINDSOR PLACE AND WI	600 WINDSOR PL	SHWS, INST CONTROL, RELEASE, ENF, HW GEN	Lower	4336, 0.821, SSE
213	NO LOCATION AID	258 BEACON ST AND 3	SHWS, RELEASE, ENF	Lower	4351, 0.824, WSW
AN214	COMMERCIAL BUILDING	260-264 BEACON ST	SHWS, RELEASE	Lower	4364, 0.827, WSW
AN215	COMMERCIAL BUILDING	260-264 BEACON STREE	SHWS, RELEASE, ENF	Lower	4364, 0.827, WSW
216	TRUM FIELD	14 CHARLES RYAN RD	SHWS, RELEASE	Lower	4380, 0.830, NW
217	NEAR RTE 38	32 SHORE DR	SHWS, RELEASE	Lower	4390, 0.831, NNE
218	SOMERVILLE SERVICE C	101 LINWOOD ST	SHWS, UST, RELEASE, Financial Assurance	Lower	4410, 0.835, SE
219	NO LOCATION AID	SOMERVILLE AVE AND M	SHWS, RELEASE	Lower	4411, 0.835, SSE
220	NO LOCATION AID	96-98 MIDDLESEX AVE	SHWS, INST CONTROL, RELEASE	Lower	4411, 0.835, ENE
221	APARTMENT BLDG	278 BEACON ST	SHWS, RELEASE, LEAD	Lower	4412, 0.836, WSW
AO222	WOBURN AUTO PARTS	511 BROADWAY	SHWS, RELEASE	Lower	4417, 0.837, NNW
223	MARTIN WILDE CO	500 COLUMBIA ST	SHWS, RELEASE, SPILLS	Lower	4437, 0.840, South
AP224	INTERSECTION OF STRE	MYRTLE AVE AT KIRKLA	SHWS, RELEASE	Lower	4441, 0.841, SW
AP225	DRY CLEANER-50' FRM	MYRTLE ST	SHWS, RELEASE, ENF	Lower	4443, 0.841, SW
AM226	WEBSTER AVE NORFOLK	79-81 WEBSTER AVE	SHWS, RELEASE	Lower	4444, 0.842, South
227	SOMERVILLE MARGINAL	271 MYSTIC AVE	SHWS, INST CONTROL, RELEASE	Lower	4445, 0.842, East
228	NO LOCATION AID	43 FOLEY ST	SHWS, LUST, RELEASE	Lower	4454, 0.844, ENE
229	CUMBERLAND FARMS CHR	701 SOMERVILLE AVE	SHWS, LUST, RELEASE, HW GEN	Lower	4485, 0.849, West
AQ230	FAULKNER BROTHERS IN	2 ALPINE ST	SHWS, INST CONTROL, RELEASE, SPILLS	Lower	4515, 0.855, WNW
AO231	NAREKIAN, THOMAS AS	525 BROADWAY	SHWS, RELEASE, ENF	Lower	4521, 0.856, NNW
AQ232	NO LOCATION AID	154 CEDAR STREET	SHWS, RELEASE	Lower	4535, 0.859, WNW
233	BETWEEN FREMONT AND	682 THRU 708 MYSTIC	SHWS, RELEASE	Lower	4545, 0.861, North
234	NO LOCATION AID	14 MURDOCK STREET	SHWS, LUST, RELEASE	Lower	4552, 0.862, NW

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AR235	NO LOCATION AID	14 CHESTNUT ST	SHWS, LUST, RELEASE, ENF	Lower	4589, 0.869, SE
236	HK PORTER	74 FOLEY ST	SHWS, LUST, LAST, INST CONTROL, RELEASE	Lower	4589, 0.869, ENE
237	MWRA CSO ESMNT BTN A	137 MIDDLESEX AVE	SHWS, RELEASE	Lower	4596, 0.870, NE
238	NO LOCATION AID	290 HIGHLAND AVENUE	SHWS, LUST, SPILLS, RELEASE, ENF, LEAD	Lower	4607, 0.873, WNW
239	NO LOCATION AID	MYRTLE AND MAGNOLIA	SHWS, RELEASE	Lower	4613, 0.874, SW
240	T C AUTO EXCHANGE	176-178 TREMONT ST	SHWS, RELEASE, ENF	Lower	4622, 0.875, South
AS241	NO LOCATION AID	481 COLUMBIA ST	SHWS, INST CONTROL, BROWNFIELDS, RELEASE, ENF	Lower	4636, 0.878, South
242	NO LOCATION AID	433 NORFOLK ST	SHWS, RELEASE	Lower	4637, 0.878, South
AS243	NISSENBAUMS AUTO PAR	480 COLUMBIA ST	SHWS, LUST, SPILLS, RELEASE, ENF	Lower	4647, 0.880, South
244	SOMERVILLE COURTHOUS	175 FELLSWAY	SHWS, RELEASE, ENF	Lower	4661, 0.883, NE
245	TAN TRAN RESIDENCE	10 LINCOLN AVE	SHWS, RELEASE	Lower	4668, 0.884, East
AT246	SUNOCO STA	541 BROADWAY	SHWS, RELEASE, SPILLS, HW GEN	Lower	4685, 0.887, NNW
AR247	AMERICAN ELECTROPLAT	26 CHESTNUT ST	SHWS, LAST, INST CONTROL, RELEASE, RCRA NonGen /...	Lower	4694, 0.889, SE
248	CITYSIDE AUTO	38 BROADWAY	SHWS, LUST, RELEASE, ENF, HW GEN	Lower	4712, 0.892, East
249	CAMBRIDGE MACHINED P	100 FOLEY STREET	CERC-NFRAP, SHWS, LUST, UST, INST CONTROL,...	Lower	4717, 0.893, ENE
AT250	NO LOCATION AID	545-547 BROADWAY	SHWS, RELEASE	Lower	4727, 0.895, NNW
AT251	NO LOCATION AID	545 BROADWAY	SHWS, LUST, RELEASE, ENF	Lower	4727, 0.895, NNW
AT252	TRUM FIELDHOUSE	546 BROADWAY	SHWS, RELEASE	Lower	4765, 0.902, NNW
253	THE HOME DEPOT STORE	75 MYSTIC AVE	SHWS, RELEASE, HW GEN, TIER 2	Lower	4790, 0.907, East
AU254	NEAR INMAN SQUARE	6-8 BEACON ST	SHWS, RELEASE, ENF	Lower	4811, 0.911, SSW
AU255	COMMERCIAL PROPERTY	6 BEACON ST	SHWS, LUST, SPILLS, RELEASE, ENF	Lower	4811, 0.911, SSW
256	WINTER HILL YACHT CL	130 FOLEY ST	SHWS, UST, INST CONTROL, RELEASE, ENF, Financial...	Lower	4853, 0.919, ENE
257	FMR SAINT POLYCARP C	100 TEMPLE ST	SHWS, LUST, RELEASE, LEAD	Lower	4874, 0.923, NE
AV258	305 WEBSTER AVE	305 WEBSTER AVE	SHWS, RELEASE	Lower	4883, 0.925, South
259	NO LOCATION AID	WENDELL ST	SHWS, RELEASE	Lower	4884, 0.925, WSW
260	CORNER OF BROADWAY A	561 BROADWAY	SHWS, RELEASE, LEAD	Lower	4898, 0.928, NW
AV261	AUTO PARTS STORE FMR	306 WEBSTER AVE	SHWS, RELEASE, HW GEN	Lower	4899, 0.928, South
262	DEPARTMENT OF PUBLIC	1 FRANEY RD	SHWS, LUST, INST CONTROL, RELEASE, ENF	Lower	4915, 0.931, NW
263	HARVARD UNIVERSITY	42 FRANCIS AVE	SHWS, RELEASE, LEAD	Lower	4921, 0.932, WSW
264	NO LOCATION AID	SCOTT ST	SHWS, RELEASE	Lower	4927, 0.933, SW
265	BOYNTON YARDS	WATER ST S ST	SHWS, RELEASE	Lower	4942, 0.936, SSE
266	KEOLIS COMMUTER SERV	26 REAR INNER BELT R	SHWS, RELEASE, HW GEN	Lower	4946, 0.937, ESE
267	NO LOCATION AID	432 COLUMBIA ST	SHWS, RELEASE	Lower	4984, 0.944, South
AW268	NO LOCATION AID	35 REAR LEXINGTON AV	SHWS, RELEASE	Lower	4992, 0.945, WNW
AW269	REAR OF LEXINGTON AV	35 LEXINGTON AVE	SHWS, INST CONTROL, RELEASE	Lower	4992, 0.945, WNW
270	ASSEMBLY SQUARE	100 STURTEVANT ST	SHWS, LUST, LAST, INST CONTROL, SPILLS, RELEASE,...	Lower	5002, 0.947, NE
271	PROPERTY	77 MEDFORD ST	SHWS, RELEASE	Lower	5013, 0.949, SSE
272	EAST CAMBRIDGE SAVIN	1310 CAMBRIDGE ST	SHWS, RELEASE	Lower	5021, 0.951, South
AX273	NO LOCATION AID	580 BROADWAY	SHWS, RELEASE	Lower	5076, 0.961, NW

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MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
AX274	HILLSIDE AUTO REPAIR	583 BROADWAY	SHWS, UST, AST, RELEASE, ENF, Financial Assurance	Lower	5081, 0.962, NW
AX275	7-ELEVEN 32473	582 BROADWAY	SHWS, LUST, RELEASE, ENF	Lower	5094, 0.965, NW
276	B&M YARD 21	FOLEY ST TENNEY CT	SHWS, INST CONTROL, RELEASE, ENF	Lower	5119, 0.970, ENE
AY277	TRIUMVIRATE ENVIRONM	191 INNER BELT RD.	SHWS, RELEASE, TIER 2	Lower	5122, 0.970, SE
AZ278	SWEETHEART CUP COMPA	30 INNERBELT RD	SHWS, LUST, LAST, RELEASE, SPILLS, AIRS	Lower	5134, 0.972, ESE
AZ279	ANGELICA TEXTILE SER	30 INNER BELT RD.	SHWS, RELEASE, HW GEN, TIER 2	Lower	5134, 0.972, ESE
280	NO LOCATION AID	2 HARDING ST	SHWS, INST CONTROL, RELEASE	Lower	5144, 0.974, SSE
AY281	B&M RAILROAD YARD 8	INNER BELT RD	SHWS, RELEASE	Lower	5147, 0.975, SE
282	ELM CORPORATION	371 BEACON ST	SHWS, LUST, UST, RELEASE, Financial Assurance	Lower	5155, 0.976, West
283	CAMBRIDGE HOSPITAL T	1493 CAMBRIDGE ST	SHWS, LUST, SPILLS, RELEASE, AIRS, HW GEN	Lower	5166, 0.978, SSW
AZ284	NO LOCATION AID	50 INNER BELT DR	SHWS, RELEASE	Lower	5172, 0.980, ESE
285	8-18 BROADWAY	8-18 BROADWAY	SHWS, RELEASE	Lower	5185, 0.982, East
BA286	NO LOCATION AID	52-56 ROLAND ST	SHWS, INST CONTROL, RELEASE	Lower	5209, 0.987, ESE
BA287	NEON COMMUNICATIONS	56 ROLAND STREET	SHWS, INST CONTROL, RELEASE, TIER 2	Lower	5209, 0.987, ESE
288	INDEPENDANT ELECTRIC	41 INNER BELT RD	SHWS, RELEASE	Lower	5234, 0.991, SE
289	NO LOCATION AID	HOVEY AVE	SHWS, RELEASE	Lower	5235, 0.991, SW
290	RESIDENTIAL PROPERTY	21-29 CALDWELL ST	SHWS, RELEASE	Lower	5258, 0.996, East
291	DRAW SEVEN PARK	FOLEY STREET EXT	SHWS, RELEASE	Lower	5261, 0.996, ENE
292	CAMBRIDGE CITY LINE	30 MEDFORD ST	SHWS, INST CONTROL, RELEASE, HW GEN	Lower	5264, 0.997, SSE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
SOMERVILLE HIGH SCHO 81 HIGHLAND AVE SOMERVILLE, MA	RGA HWS Facility ID: 3-0017909	N/A
HOLIDAY CLEANERS 82 HIGHLAND AVE SOMERVILLE, MA 02143	RCRA NonGen / NLR EPA ID:: MAD091491670 FINDS Registry ID:: 110003447422	MAD091491670
BAY STATE 84 HIGHLAND AVE SOMERVILLE, MA 02143	US BROWNFIELDS ACRES property ID: 12918 FINDS Registry ID:: 110039541662	N/A
86A HIGHLAND AVE 86A HIGHLAND AVE SOMERVILLE, MA 02143	LEAD Inspector License Number: 3757	N/A
SOMERVILLE HIGH SCHO 81 HIGHLAND AVENUE SOMERVILLE, MA 02143	US AIRS EPA plant ID:: 110002017317 FINDS Registry ID:: 110002017317	N/A
86 HIGHLAND AVE 86 HIGHLAND AVE SOMERVILLE, MA 02143	LEAD Inspector License Number: 2929	N/A
BOYNTON YARDS 84 HIGHLAND AVE SOMERVILLE, MA 02143	US BROWNFIELDS ACRES property ID: 12917 FINDS Registry ID:: 110039541626	N/A
KEMP NUTS 84 HIGHLAND AVE SOMERVILLE, MA 02143	US BROWNFIELDS ACRES property ID: 12919 FINDS Registry ID:: 110039541706	N/A
VERNON STREET 84 HIGHLAND AVE SOMERVILLE, MA 02143	US BROWNFIELDS	N/A

	ACRES property ID: 12920 FINDS Registry ID:: 110039541742	
HOLIDAY CLEANERS 82 HIGHLAND AVE SOMERVILLE, MA 02143	HW GEN EPA Id: MV6177760087	N/A
82 HIGHLAND AVE 82 HIGHLAND AVE SOMERVILLE, MA 02143	EDR US Hist Cleaners	N/A
CONWELL SCHOOL 84 HIGHLAND AVE SOMERVILLE, MA 02143	US BROWNFIELDS ACRES property ID: 12923 FINDS Registry ID:: 110039541788	N/A
86A HIGHLAND AVE 86A HIGHLAND AVE SOMERVILLE, MA 02143	LEAD Inspector License Number: 1430	N/A
SOMERVILLE HIGH SCHO 81 HIGHLAND AVE SOMERVILLE, MA	RGA HWS Facility ID: 3-0017909	N/A
SOMERVILLE SCHOOL DI 81 HIGHLAND AVE. SOMERVILLE, MA 2143	FTTS Docket Number:: 01-86-1030 Close Date:: / /	N/A
SOMERVILLE HIGH SCHO 81 HIGHLAND AVE SOMERVILLE, MA 02144	HW GEN State Generator Status: SQG-MA EPA Id: MAV000008909	N/A
SOMERVILLE HIGH SCHO 81 HIGHLAND AVE SOMERVILLE, MA	RGA LUST Facility ID: 3-0017909	N/A
86A HIGHLAND AVE 86A HIGHLAND AVE SOMERVILLE, MA 02143	LEAD Inspector License Number: 2929	N/A
SOMERVILLE SCHOOL DI 81 HIGHLAND AVE. SOMERVILLE, MA 02143	HIST FTTS	N/A

Close Date:: / /
Docket Number:: 01-86-1030

SOMERVILLE HIGH SCHO 81 HIGHLAND AVE SOMERVILLE, MA	RGA LUST Facility ID: 3-0017909	N/A

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-CESQG: A review of the RCRA-CESQG list, as provided by EDR, and dated 06/09/2015 has revealed that there is 1 RCRA-CESQG site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
BACK BAY SIGN CO INC	***236 PEARL ST***	***ENE 1/8 - 1/4 (0.128 mi.)***	***E32***	***15***

State- and tribal - equivalent CERCLIS

SHWS: A review of the SHWS list, as provided by EDR, and dated 06/30/2015 has revealed that there are 231 SHWS sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NO LOCATION AID	***101 HIGHLAND AVE***	***W 0 - 1/8 (0.117 mi.)***	***28***	***14***
Release Tracking Number / Current Status: 3-0019547 / RAO				
NO LOCATION AID	***120 BARTLETT ST***	***NNW 1/2 - 1 (0.573 mi.)***	***119***	***49***
Release Tracking Number / Current Status: 3-0010419 / RAO				
NO LOCATION AID	***219 SUMMER ST***	***W 1/2 - 1 (0.712 mi.)***	***173***	***72***
Release Tracking Number / Current Status: 3-0027260 / RAO				

Lower Elevation	Address	Direction / Distance	Map ID	Page
SOMERVILLE PUBLIC LI	***79 HIGHLAND AVE***	***SW 0 - 1/8 (0.063 mi.)***	***21***	***12***

Release Tracking Number / Current Status: 3-0029996 / RAONR				
Release Tracking Number / Current Status: 3-0027659 / RAO				
NO LOCATION AID	***343 MEDFORD ST***	***NNE 0 - 1/8 (0.092 mi.)***	***B22***	***12***
Release Tracking Number / Current Status: 3-0010851 / DPS				
ROADWAY SPILL ON VIN	***VINAL AVE***	***SSE 0 - 1/8 (0.107 mi.)***	***C26***	***14***
Release Tracking Number / Current Status: 3-0027737 / RAO				
PARKING LOT	***358 MEDFORD ST***	***N 0 - 1/8 (0.120 mi.)***	***D30***	***15***
Release Tracking Number / Current Status: 3-0017076 / RAO				
APARTMENT BUILDING	***240 PEARL STREET***	***ENE 0 - 1/8 (0.121 mi.)***	***E31***	***15***
Release Tracking Number / Current Status: 3-0031954 / RAO				
SOMERVILLE XTRA FUEL	***360 MEDFORD ST***	***N 1/8 - 1/4 (0.131 mi.)***	***D35***	***16***
Release Tracking Number / Current Status: 3-0016624 / RAO				
CORNER OF MEDFORD AN	***299 TO 303 MEDFORD S***	***ESE 1/8 - 1/4 (0.180 mi.)***	***G43***	***19***
Release Tracking Number / Current Status: 3-0021398 / RAO				
INDUSTRIAL PROPERTY	***100 WALNUT ST***	***E 1/8 - 1/4 (0.186 mi.)***	***46***	***20***
Release Tracking Number / Current Status: 3-0004193 / RAO				
VACANT LOT	***299-303 MEDFORD ST***	***ESE 1/8 - 1/4 (0.190 mi.)***	***G47***	***20***
Release Tracking Number / Current Status: 3-0004031 / RAO				
RESIDENCE	***27 PUTNAM ST***	***SSW 1/8 - 1/4 (0.221 mi.)***	***53***	***22***
Release Tracking Number / Current Status: 3-0016688 / RAO				
NO LOCATION AID	***31 VINAL AVE***	***S 1/8 - 1/4 (0.240 mi.)***	***56***	***22***
Release Tracking Number / Current Status: 3-0022695 / RAO				
SAMAY INC	***73 SUMMER ST***	***SW 1/4 - 1/2 (0.265 mi.)***	***57***	***23***
Release Tracking Number / Current Status: 3-0019957 / RAO				
CEDARS PETROLEUM	***180 PEARL ST***	***E 1/4 - 1/2 (0.321 mi.)***	***58***	***23***
Release Tracking Number / Current Status: 3-0026091 / RAO				
COMMUNITY DEVELOPMEN	***112A CENTRAL ST***	***NW 1/4 - 1/2 (0.340 mi.)***	***I61***	***25***
Release Tracking Number / Current Status: 3-0027194 / RAO				
NO LOCATION AID	***1 SUMMER ST***	***S 1/4 - 1/2 (0.372 mi.)***	***J67***	***27***
Release Tracking Number / Current Status: 3-0021497 / RAO				
Release Tracking Number / Current Status: 3-0022327 / RAONR				
SUBSTATION PNU 13	***BOW STREET PL***	***SSW 1/4 - 1/2 (0.387 mi.)***	***K69***	***28***
Release Tracking Number / Current Status: 3-0022347 / RAO				
NO LOCATION AID	***25-27 OSGOOD ST***	***SW 1/4 - 1/2 (0.393 mi.)***	***L70***	***28***
Release Tracking Number / Current Status: 3-0025805 / URAM				
BLAISDALE SLATE CO	***27 OSGOOD ST***	***SW 1/4 - 1/2 (0.395 mi.)***	***L72***	***29***
Release Tracking Number / Current Status: 3-0024660 / RAO				
PROPERTY	***55 BOW ST***	***SSW 1/4 - 1/2 (0.403 mi.)***	***73***	***29***
Release Tracking Number / Current Status: 3-0003600 / RAO				
AT MARSHALL ST	***296 TO 308 BROADWAY***	***NNE 1/4 - 1/2 (0.404 mi.)***	***74***	***29***
Release Tracking Number / Current Status: 3-0018407 / DPS				
SUNOCO SERVICE STATI	***258 BROADWAY***	***NE 1/4 - 1/2 (0.410 mi.)***	***M75***	***30***
Release Tracking Number / Current Status: 3-0022432 / RAO				
NEAR 55 COLUMBUS AVE	***COLUMBUS AVE***	***SSE 1/4 - 1/2 (0.415 mi.)***	***77***	***31***
Release Tracking Number / Current Status: 3-0027074 / RAO				
NO LOCATION AID	***324 BROADWAY***	***NNE 1/4 - 1/2 (0.416 mi.)***	***78***	***31***
Release Tracking Number / Current Status: 3-0017887 / RAO				
NO LOCATION AID	***33 ROBINSON ST***	***NNW 1/4 - 1/2 (0.427 mi.)***	***80***	***32***

EXECUTIVE SUMMARY

Release Tracking Number / Current Status: 3-0025748 / RAO				
AUTOMOTIVE SHOP	***444-460 SOMERVILLE A***	***SW 1/4 - 1/2 (0.448 mi.)***	***N84***	***33***
Release Tracking Number / Current Status: 3-0000772 / PENNFA				
NO LOCATION AID	***444 SOMERVILLE AVE***	***SW 1/4 - 1/2 (0.448 mi.)***	***N85***	***33***
Release Tracking Number / Current Status: 3-0018136 / RAO Release Tracking Number / Current Status: 3-0018349 / RAO				
SUNOCO #0005-2175	***434 MCGRATH HWY***	***SE 1/4 - 1/2 (0.453 mi.)***	***86***	***34***
Release Tracking Number / Current Status: 3-0017921 / RAO				
SOMERVILLE AUTO REPA	***453 SOMERVILLE AVE***	***SW 1/4 - 1/2 (0.454 mi.)***	***O87***	***34***
Release Tracking Number / Current Status: 3-0026058 / RAO				
BOSTON EDISON CO	***10 BOW PL***	***S 1/4 - 1/2 (0.457 mi.)***	***P88***	***35***
Release Tracking Number / Current Status: 3-0002946 / RAO				
NO LOCATION AID	***460 SOMERVILLE AVE***	***SW 1/4 - 1/2 (0.462 mi.)***	***O90***	***36***
Release Tracking Number / Current Status: 3-0014880 / RAO				
GOODYEAR TIRE & RUBB	***1 BOW ST***	***S 1/4 - 1/2 (0.470 mi.)***	***P91***	***36***
Release Tracking Number / Current Status: 3-0029668 / RAO Release Tracking Number / Current Status: 3-0029845 / RAO				
CUMBERLAND FARMS #11	***212 BROADWAY***	***ENE 1/4 - 1/2 (0.483 mi.)***	***Q92***	***37***
Release Tracking Number / Current Status: 3-0003722 / RAO				
MWRA DRAIN	***RTE 28 BROADWAY***	***ENE 1/4 - 1/2 (0.490 mi.)***	***Q93***	***37***
Release Tracking Number / Current Status: 3-0010663 / RAO				
TUFTS UNIVERSITY	***TILTON HALL***	***SE 1/4 - 1/2 (0.494 mi.)***	***96***	***39***
Release Tracking Number / Current Status: 3-0017019 / RAO				
CHROME PLATING FACIL	***46 CROSS ST***	***E 1/4 - 1/2 (0.496 mi.)***	***97***	***39***
Release Tracking Number / Current Status: 3-0000673 / RAO				
PROSPECT & STONE IN	***SOMERVILLE AVE***	***S 1/2 - 1 (0.510 mi.)***	***98***	***39***
Release Tracking Number / Current Status: 3-0018942 / RAO				
MBTA STORM DRAIN	***WASHINGTON ST***	***SE 1/2 - 1 (0.521 mi.)***	***R99***	***40***
Release Tracking Number / Current Status: 3-0028231 / RAO				
NO LOCATION AID	***508 SOMERVILLE AVE***	***SW 1/2 - 1 (0.521 mi.)***	***S100***	***40***
Release Tracking Number / Current Status: 3-0032186 / TIERII				
PROPERTY	***24 DANE ST***	***SW 1/2 - 1 (0.530 mi.)***	***101***	***40***
Release Tracking Number / Current Status: 3-0003393 / RAO				
HESS STATION 21521	***709 MCGRATH HIGHWAY***	***ENE 1/2 - 1 (0.531 mi.)***	***T102***	***41***
Release Tracking Number / Current Status: 3-0031741 / TIERI				
HESS CORPORATION	***709 MCGRATH HWY***	***ENE 1/2 - 1 (0.531 mi.)***	***T103***	***41***
Release Tracking Number / Current Status: 3-0015862 / RAONR Release Tracking Number / Current Status: 3-0000856 / INVSUB Release Tracking Number / Current Status: 3-0021247 / RAONR Release Tracking Number / Current Status: 3-0021399 / RAO Release Tracking Number / Current Status: 3-0015170 / RAONR **Additional key fields are available in the Map Findings section*				
@ CROSS ST	***60 TUFTS ST***	***SE 1/2 - 1 (0.531 mi.)***	***R104***	***42***
Release Tracking Number / Current Status: 3-0014792 / RAO				
NO LOCATION AID	***515 SOMERVILLE AVE***	***WSW 1/2 - 1 (0.534 mi.)***	***S105***	***42***
Release Tracking Number / Current Status: 3-0023606 / RAO				
LOCANN GLASS	***693 MCGRATH AKA OBRI***	***ENE 1/2 - 1 (0.538 mi.)***	***T106***	***43***

EXECUTIVE SUMMARY

Release Tracking Number / Current Status: 3-0015825 / RAO				
NO LOCATION AID	***38 GLENWOOD RD***	***NW 1/2 - 1 (0.538 mi.)***	***107***	***44***
Release Tracking Number / Current Status: 3-0025003 / RAO				
GRZEBIENIOWSKI, ANDR	***38 FENWICK ST***	***N 1/2 - 1 (0.548 mi.)***	***108***	***44***
Release Tracking Number / Current Status: 3-0021242 / RAO				
GUS SERVICE STATION	***519 SOMERVILLE AVE***	***WSW 1/2 - 1 (0.551 mi.)***	***109***	***45***
Release Tracking Number / Current Status: 3-0002582 / RAO				
JOHN DAVIS CO	***50 TUFTS ST***	***SE 1/2 - 1 (0.551 mi.)***	***110***	***45***
Release Tracking Number / Current Status: 3-0024358 / TIERII Release Tracking Number / Current Status: 3-0023246 / TIERII Release Tracking Number / Current Status: 3-0024376 / TIERII Release Tracking Number / Current Status: 3-0026114 / TIERII				
@ WASHINGTON STREET	***BONNER ST***	***SSE 1/2 - 1 (0.552 mi.)***	***U111***	***46***
Release Tracking Number / Current Status: 3-0023353 / RAO				
4693770N 327473E	***298 SOMERVILLE AVE***	***SSE 1/2 - 1 (0.555 mi.)***	***112***	***46***
Release Tracking Number / Current Status: 3-0021046 / RAO				
PROPOSED LINCOLN PAR	***290 WASHINGTON ST***	***SSW 1/2 - 1 (0.556 mi.)***	***113***	***46***
Release Tracking Number / Current Status: 3-0025668 / RAO				
INTERSECTION WITH JA	***65 TEMPLE ST***	***NNE 1/2 - 1 (0.557 mi.)***	***114***	***47***
Release Tracking Number / Current Status: 3-0025252 / RAO				
CITGO STATION FMR	***236 WASHINGTON ST***	***SSE 1/2 - 1 (0.564 mi.)***	***115***	***47***
Release Tracking Number / Current Status: 3-0000133 / RAO				
NEAR MYSTIC AVE INTE	***779 MCGRATH HWY***	***ENE 1/2 - 1 (0.568 mi.)***	***116***	***47***
Release Tracking Number / Current Status: 3-0016643 / RAONR				
9 UNION SQUARE	***9 UNION SQUARE***	***SSE 1/2 - 1 (0.572 mi.)***	***U117***	***48***
Release Tracking Number / Current Status: 3-0032294 / PSC				
L BORNSTEIN CO INC	***321 WASHINGTON ST***	***SSW 1/2 - 1 (0.573 mi.)***	***118***	***48***
Release Tracking Number / Current Status: 3-0011561 / RAO				
COMMERCIAL PLASTICS	***352 MCGRATH HWY***	***SE 1/2 - 1 (0.578 mi.)***	***120***	***50***
Release Tracking Number / Current Status: 3-0022511 / RAO				
NO LOCATION AID	***220 WASHINGTON ST***	***SSE 1/2 - 1 (0.590 mi.)***	***121***	***50***
Release Tracking Number / Current Status: 3-0021795 / RAONR Release Tracking Number / Current Status: 3-0021796 / RAONR Release Tracking Number / Current Status: 3-0021794 / RAONR Release Tracking Number / Current Status: 3-0018329 / RAONR Release Tracking Number / Current Status: 3-0018328 / RAONR **Additional key fields are available in the Map Findings section*				
PROSPECT ST	***269 SOMERVILLE AVE***	***SSE 1/2 - 1 (0.596 mi.)***	***V122***	***51***
Release Tracking Number / Current Status: 3-0020453 / RAO				
FORMER KILEY BARREL	***20-22 PROSPECT ST***	***SSE 1/2 - 1 (0.597 mi.)***	***W123***	***51***
Release Tracking Number / Current Status: 3-0002849 / TIERI Release Tracking Number / Current Status: 3-0028464 / RAONR				
BOYS AND GIRLS CLUB	***181 WASHINGTON ST***	***SSE 1/2 - 1 (0.598 mi.)***	***X124***	***52***
Release Tracking Number / Current Status: 3-0027899 / TIERII				
NO LOCATION AID	***179 WASHINGTON ST***	***SSE 1/2 - 1 (0.598 mi.)***	***X125***	***52***
Release Tracking Number / Current Status: 3-0027087 / TIER1D				
NO LOCATION AID	***259 LOWELL ST***	***NW 1/2 - 1 (0.599 mi.)***	***126***	***53***
Release Tracking Number / Current Status: 3-0017552 / RAO				

Release Tracking Number / Current Status: 3-0017602 / RAO				
RESIDENTIAL PROPERTY	***4 MILK PLACE***	***SSE 1/2 - 1 (0.603 mi.)***	***V127***	***53***
Release Tracking Number / Current Status: 3-0031763 / TIER1D				
Release Tracking Number / Current Status: 3-0032134 / TIER1D				
PROPERTIES ABUTTING	***9 11 13 17 ALLEN ST***	***SSE 1/2 - 1 (0.604 mi.)***	***W128***	***54***
Release Tracking Number / Current Status: 3-0028512 / TIERII				
FMR KILEY BARREL	***20 TO 22 PROSPECT ST***	***SSE 1/2 - 1 (0.608 mi.)***	***V129***	***54***
Release Tracking Number / Current Status: 3-0018513 / RAONR				
NO LOCATION AID	***143 JACQUES ST***	***N 1/2 - 1 (0.608 mi.)***	***130***	***54***
Release Tracking Number / Current Status: 3-0017103 / RAO				
MAP 82, LOTS 1 AND 2	***26-30 PROSPECT STREE***	***SSE 1/2 - 1 (0.612 mi.)***	***W131***	***55***
Release Tracking Number / Current Status: 3-0032133 / TIER1D				
NO LOCATION AID	***26-28 PROSPECT STREE***	***SSE 1/2 - 1 (0.612 mi.)***	***W132***	***55***
Release Tracking Number / Current Status: 3-0031025 / TIER1D				
VALVOLINE INSTANT OI	***182 WASHINGTON ST***	***SE 1/2 - 1 (0.616 mi.)***	***133***	***55***
Release Tracking Number / Current Status: 3-0002672 / TIER1D				
AMES SAFETY ENVELOPE	***12 PARK ST***	***SW 1/2 - 1 (0.616 mi.)***	***134***	***56***
Release Tracking Number / Current Status: 3-0028611 / RAO				
RESIDENCE	***27 VILLAGE STREET***	***SW 1/2 - 1 (0.622 mi.)***	***135***	***56***
Release Tracking Number / Current Status: 3-0023855 / TIER1D				
Release Tracking Number / Current Status: 3-0031858 / RAO				
MBTA MYSTIC JUNCTION	***WASHINGTON ST NEAR J***	***SE 1/2 - 1 (0.624 mi.)***	***Y136***	***57***
Release Tracking Number / Current Status: 3-0018503 / RAO				
WASHINGTON ST OVERPA	***WASHINGTON ST RR TRA***	***SE 1/2 - 1 (0.624 mi.)***	***Y137***	***57***
Release Tracking Number / Current Status: 3-0019190 / RAO				
OFF PROSPECT ST	***BENNETT CT***	***SSE 1/2 - 1 (0.625 mi.)***	***138***	***57***
Release Tracking Number / Current Status: 3-0023401 / RAO				
RESIDENTIAL APARTMEN	***250 SOMERVILLE AVENU***	***SSE 1/2 - 1 (0.625 mi.)***	***139***	***58***
Release Tracking Number / Current Status: 3-0031752 / TIERII				
MULTI-FAMILY RESIDEN	***88 PEARL ST***	***ESE 1/2 - 1 (0.630 mi.)***	***140***	***58***
Release Tracking Number / Current Status: 3-0029022 / RAO				
HYDRAMATIC SALES & S	***4 JOY ST***	***SE 1/2 - 1 (0.635 mi.)***	***Y141***	***58***
Release Tracking Number / Current Status: 3-0023562 / RAONR				
FOREIGN BODY WORKS	***587-593 SOMERVILLE A***	***WSW 1/2 - 1 (0.644 mi.)***	***Z142***	***59***
Release Tracking Number / Current Status: 3-0031557 / PSNC				
THE SOMERVILLE COMMU	***16 & 16R BUTLER DR***	***NNE 1/2 - 1 (0.646 mi.)***	***143***	***60***
Release Tracking Number / Current Status: 3-0029857 / RAO				
CORNER OF WASHINGTON	***120 WASHINGTON ST***	***SE 1/2 - 1 (0.648 mi.)***	***144***	***60***
Release Tracking Number / Current Status: 3-0019047 / RAO				
130 BROADWAY	***130 BROADWAY***	***E 1/2 - 1 (0.649 mi.)***	***145***	***60***
Release Tracking Number / Current Status: 3-0029021 / RAO				
Release Tracking Number / Current Status: 3-0028392 / RAO				
Release Tracking Number / Current Status: 3-0028420 / RAO				
NO LOCATION AID	***43 PITMAN ST***	***WSW 1/2 - 1 (0.651 mi.)***	***146***	***61***
Release Tracking Number / Current Status: 3-0024255 / RAO				
NO LOCATION AID	***29-31 ALLEN ST***	***SSE 1/2 - 1 (0.651 mi.)***	***AA147***	***61***
Release Tracking Number / Current Status: 3-0022680 / RAO				
UNAS	***29-33 ALLEN ST***	***SSE 1/2 - 1 (0.651 mi.)***	***AA148***	***62***

EXECUTIVE SUMMARY

Release Tracking Number / Current Status: 3-0022153 / RAO				
M & S BENNETT SERVIC	***26 BENNETT ST***	***SSE 1/2 - 1 (0.652 mi.)***	***AB149***	***62***
Release Tracking Number / Current Status: 3-0029452 / RAO				
BENNETT STREET	***15 BENNETT STREET***	***SSE 1/2 - 1 (0.654 mi.)***	***AB150***	***63***
Release Tracking Number / Current Status: 3-0030510 / TIERII				
NO LOCATION AID	***30 ALLEN ST***	***SSE 1/2 - 1 (0.655 mi.)***	***AA151***	***63***
Release Tracking Number / Current Status: 3-0022337 / RAO				
A1 AUTO CLINIC	***308 MCGRATH HWY***	***SE 1/2 - 1 (0.656 mi.)***	***AC152***	***63***
Release Tracking Number / Current Status: 3-0019828 / RAO				
COMMERCIAL PROPERTY	***40 BENNETT STREET***	***SSE 1/2 - 1 (0.657 mi.)***	***AB153***	***64***
Release Tracking Number / Current Status: 3-0030848 / TIERII				
Release Tracking Number / Current Status: 3-0032131 / TIER1D				
NO LOCATION AID	***15A BLEACHERY CT***	***WSW 1/2 - 1 (0.658 mi.)***	***Z154***	***64***
Release Tracking Number / Current Status: 3-0011753 / RAO				
NO LOCATION AID	***27 BENNETT STREET***	***SSE 1/2 - 1 (0.658 mi.)***	***AB155***	***65***
Release Tracking Number / Current Status: 3-0032129 / TIER1D				
Release Tracking Number / Current Status: 3-0031024 / TIER1D				
NO LOCATION AID	***588-592 SOMERVILLE A***	***WSW 1/2 - 1 (0.658 mi.)***	***Z156***	***65***
Release Tracking Number / Current Status: 3-0016884 / RAO				
PATS AUTO BODY	***306-308 MCGRATH HWY***	***SE 1/2 - 1 (0.661 mi.)***	***AC157***	***65***
Release Tracking Number / Current Status: 3-0002665 / DEPNFA				
NO LOCATION AID	***592 SOMERVILLE AVE***	***WSW 1/2 - 1 (0.661 mi.)***	***Z158***	***66***
Release Tracking Number / Current Status: 3-0026907 / URAM				
SOMERSET MACHINE & T	***37 ALLEN ST***	***SSE 1/2 - 1 (0.663 mi.)***	***AA159***	***66***
Release Tracking Number / Current Status: 3-0000666 / RAO				
FRANKLIN ST	***9 PALMER AVE***	***ESE 1/2 - 1 (0.664 mi.)***	***160***	***67***
Release Tracking Number / Current Status: 3-0018255 / RAO				
COMMERCIAL PROPERTY	***50 PROSPECT STREET***	***S 1/2 - 1 (0.668 mi.)***	***161***	***67***
Release Tracking Number / Current Status: 3-0030849 / RAO				
NO LOCATION AID	***60 CROSS ST E***	***ENE 1/2 - 1 (0.671 mi.)***	***162***	***67***
Release Tracking Number / Current Status: 3-0018193 / RAO				
WHEATLAND ST	***MYSTIC AVE***	***NE 1/2 - 1 (0.672 mi.)***	***163***	***68***
Release Tracking Number / Current Status: 3-0020034 / RAO				
VACANT GARAGE	***49-51 ALLEN ST***	***SSE 1/2 - 1 (0.676 mi.)***	***AD164***	***68***
Release Tracking Number / Current Status: 3-0032130 / TIER1D				
Release Tracking Number / Current Status: 3-0024339 / RAO				
Release Tracking Number / Current Status: 3-0024921 / RAO				
COMMERCIAL PROPERTY	***51 ALLEN STREET***	***SSE 1/2 - 1 (0.678 mi.)***	***AD165***	***68***
Release Tracking Number / Current Status: 3-0030850 / TIER1D				
NO LOCATION AID	***45 WEBSTER AVE***	***S 1/2 - 1 (0.680 mi.)***	***AE166***	***69***
Release Tracking Number / Current Status: 3-0019236 / RAO				
OFF UNION SQUARE	***72 NEWTON ST***	***S 1/2 - 1 (0.683 mi.)***	***167***	***69***
Release Tracking Number / Current Status: 3-0018229 / RAO				
50 WEBSTER AVENUE	***50 WEBSTER AVENUE***	***S 1/2 - 1 (0.688 mi.)***	***AE168***	***70***
Release Tracking Number / Current Status: 3-0032909 / UNCLSS				
Release Tracking Number / Current Status: 3-0018389 / RAONR				
MYSTIC VIEW APARTMEN	***5-15-25 RIVER RD***	***NNE 1/2 - 1 (0.691 mi.)***	***169***	***70***

EXECUTIVE SUMMARY

Release Tracking Number / Current Status: 3-0003091 / RAO				
AT TEMPLE STREET	***422 MYSTIC AVE***	***NE 1/2 - 1 (0.697 mi.)***	***170***	***71***
Release Tracking Number / Current Status: 3-0014854 / RAO				
NO LOCATION AID	***100 PROPERZI WAY***	***SW 1/2 - 1 (0.705 mi.)***	***171***	***71***
Release Tracking Number / Current Status: 3-0027844 / PSC				
INTERSECTION	***RTE 28 AND RTE 38 UN***	***NE 1/2 - 1 (0.705 mi.)***	***AF172***	***71***
Release Tracking Number / Current Status: 3-0027009 / RAO				
AT RT 28 RAMP	***RT 93 N***	***NE 1/2 - 1 (0.712 mi.)***	***AF174***	***72***
Release Tracking Number / Current Status: 3-0013985 / RAO				
SOMERVILLE LUMBER	***260 MYSTIC AVE AKA 7***	***ENE 1/2 - 1 (0.714 mi.)***	***AG175***	***72***
Release Tracking Number / Current Status: 3-0000658 / RAO				
NO LOCATION AID	***105 BROADWAY***	***E 1/2 - 1 (0.714 mi.)***	***176***	***73***
Release Tracking Number / Current Status: 3-0022857 / RAO				
55 WEBSTER & PROSPEC	***WEBSTER ST***	***S 1/2 - 1 (0.716 mi.)***	***AH177***	***73***
Release Tracking Number / Current Status: 3-0023021 / URAM				
SOMERVILLE LUMBER CR	***250 MYSTIC AVE***	***ENE 1/2 - 1 (0.721 mi.)***	***AG178***	***73***
Release Tracking Number / Current Status: 3-0010846 / RAO Release Tracking Number / Current Status: 3-0023667 / RAONR				
SO OF EXIT 29	***RTE 93N***	***ENE 1/2 - 1 (0.721 mi.)***	***179***	***74***
Release Tracking Number / Current Status: 3-0014823 / RAO				
COMMERCIAL PROPERTY	***70 PROSPECT STREET***	***S 1/2 - 1 (0.722 mi.)***	***AH180***	***74***
Release Tracking Number / Current Status: 3-0031687 / TIERII				
COMMERCIAL PLAZA	***90 WASHINGTON ST***	***ESE 1/2 - 1 (0.730 mi.)***	***181***	***75***
Release Tracking Number / Current Status: 3-0031102 / TIERII				
RAO	***84 HINCKLEY STREET***	***NW 1/2 - 1 (0.732 mi.)***	***182***	***75***
Release Tracking Number / Current Status: 3-0032731 / UNCLSS				
NO LOCATION AID	***37 FREMONT ST***	***N 1/2 - 1 (0.740 mi.)***	***183***	***75***
Release Tracking Number / Current Status: 3-0020349 / RAO				
U-HAUL CO OF BOSTON	***151 LINWOOD ST***	***SE 1/2 - 1 (0.747 mi.)***	***184***	***76***
Release Tracking Number / Current Status: 3-0030113 / RAO				
TARGET CORPORATION	***180 SOMERVILLE AVE***	***SSE 1/2 - 1 (0.748 mi.)***	***AI185***	***76***
Release Tracking Number / Current Status: 3-0024787 / RAO				
TARGET DEPT. STORE	***176 SOMERVILLE AVE***	***SSE 1/2 - 1 (0.748 mi.)***	***AI186***	***77***
Release Tracking Number / Current Status: 3-0025393 / RAO				
NO LOCATION AID	***78 PROSPECT ST***	***S 1/2 - 1 (0.750 mi.)***	***187***	***77***
Release Tracking Number / Current Status: 3-0021209 / RAO				
NO LOCATION AID	***32-38 KENT ST***	***WSW 1/2 - 1 (0.757 mi.)***	***AJ188***	***77***
Release Tracking Number / Current Status: 3-0015839 / RAO				
DODAKINS AUTO SALES	***81 PARK STREET***	***SW 1/2 - 1 (0.759 mi.)***	***AK189***	***78***
Release Tracking Number / Current Status: 3-0032135 / PSC				
DODAKINS AUTO SALES	***191 BEACON STREET***	***SW 1/2 - 1 (0.761 mi.)***	***AK190***	***78***
Release Tracking Number / Current Status: 3-0031722 / PSC				
NO LOCATION AID	***17 KENT CT***	***WSW 1/2 - 1 (0.762 mi.)***	***AJ191***	***79***
Release Tracking Number / Current Status: 3-0015916 / RAO				
NO LOCATION AID	***61 CLYDE ST***	***NW 1/2 - 1 (0.763 mi.)***	***AL192***	***79***
Release Tracking Number / Current Status: 3-0024062 / RAONR Release Tracking Number / Current Status: 3-0018771 / RAO				
ELHIDE CO INC, THE	***56 CLYDE ST***	***NW 1/2 - 1 (0.764 mi.)***	***AL193***	***80***

Release Tracking Number / Current Status: 3-0025542 / RAO				
ALBERTINE SERVICE ST	***646 SOMERVILLE AVE***	***WSW 1/2 - 1 (0.768 mi.)***	***194***	***80***
Release Tracking Number / Current Status: 3-0028236 / RAO				
42 CLYDE STREET	***42 CLYDE ST***	***NW 1/2 - 1 (0.770 mi.)***	***AL195***	***81***
Release Tracking Number / Current Status: 3-0028375 / RAO				
BOSTON EDISON CO	***68 JOY ST***	***SE 1/2 - 1 (0.774 mi.)***	***196***	***81***
Release Tracking Number / Current Status: 3-0013521 / RAO				
NO LOCATION AID	***844 TO 846 MCGRATH H***	***ENE 1/2 - 1 (0.775 mi.)***	***197***	***81***
Release Tracking Number / Current Status: 3-0017628 / RAO				
MA HWY DEPT FACILITY	***MYSTIC AVE (UNDER RT***	***ENE 1/2 - 1 (0.781 mi.)***	***198***	***82***
Release Tracking Number / Current Status: 3-0013515 / RAO				
50 MIDDLESEX AVE	***50 MIDDLESEX AVE***	***ENE 1/2 - 1 (0.784 mi.)***	***199***	***82***
Release Tracking Number / Current Status: 3-0030445 / RAO				
FORMER SCRAP YARD	***56 WEBSTER AVE***	***S 1/2 - 1 (0.785 mi.)***	***200***	***83***
Release Tracking Number / Current Status: 3-0018120 / RAONR				
Release Tracking Number / Current Status: 3-0029911 / RAO				
Release Tracking Number / Current Status: 3-0024254 / RAONR				
Release Tracking Number / Current Status: 3-0017183 / RAONR				
Release Tracking Number / Current Status: 3-0016632 / RAO				
**Additional key fields are available in the Map Findings section*				
NSTAR 300KVA PADMOUN	***BEHIND 415 WASHINGTO***	***SW 1/2 - 1 (0.791 mi.)***	***201***	***83***
Release Tracking Number / Current Status: 3-0027680 / RAO				
DURRELL PARK FORMER	***245 BEACON ST***	***WSW 1/2 - 1 (0.796 mi.)***	***202***	***84***
Release Tracking Number / Current Status: 3-0024114 / RAO				
NO LOCATION AID	***SCOTT AND BRYAN STS***	***SW 1/2 - 1 (0.798 mi.)***	***203***	***84***
Release Tracking Number / Current Status: 3-0018371 / URAM				
FIRST NATL GASOLINE	***MYSTIC AVE***	***ENE 1/2 - 1 (0.801 mi.)***	***204***	***84***
Release Tracking Number / Current Status: 3-0002140 / WCSPRM				
HOLIDAY INN	***30 WASHINGTON ST***	***ESE 1/2 - 1 (0.803 mi.)***	***205***	***85***
Release Tracking Number / Current Status: 3-0003133 / WCSPRM				
NO LOCATION AID	***10 POPLAR ST***	***SE 1/2 - 1 (0.807 mi.)***	***206***	***85***
Release Tracking Number / Current Status: 3-0032211 / TIERII				
Release Tracking Number / Current Status: 3-0021109 / RAO				
Release Tracking Number / Current Status: 3-0013360 / RAO				
BURGER KING	***SOMERVILLE AVE AND M***	***SSE 1/2 - 1 (0.807 mi.)***	***207***	***85***
Release Tracking Number / Current Status: 3-0017120 / RAO				
NO LOCATION AID	***92-96 AND 97 PROSPEC***	***S 1/2 - 1 (0.808 mi.)***	***208***	***86***
Release Tracking Number / Current Status: 3-0012317 / RAO				
FR STURTEVANT STREET	***FOLEY ST***	***ENE 1/2 - 1 (0.809 mi.)***	***209***	***86***
Release Tracking Number / Current Status: 3-0028993 / RAO				
NO LOCATION AID	***86 JOY ST***	***SE 1/2 - 1 (0.812 mi.)***	***210***	***87***
Release Tracking Number / Current Status: 3-0021316 / RAO				
Release Tracking Number / Current Status: 3-0024366 / RAO				
NO LOCATION AID	***70-80 WEBSTER AVE***	***S 1/2 - 1 (0.817 mi.)***	***AM211***	***87***
Release Tracking Number / Current Status: 3-0026419 / TIERII				
Release Tracking Number / Current Status: 3-0029036 / RAONR				
Release Tracking Number / Current Status: 3-0025167 / RAONR				
Release Tracking Number / Current Status: 3-0029078 / RAONR				
WINDSOR PLACE AND WI	***600 WINDSOR PL***	***SSE 1/2 - 1 (0.821 mi.)***	***212***	***88***

EXECUTIVE SUMMARY

Release Tracking Number / Current Status: 3-0020989 / RAO				
Release Tracking Number / Current Status: 3-0028671 / RAO				
NO LOCATION AID	***258 BEACON ST AND 3***	***WSW 1/2 - 1 (0.824 mi.)***	***213***	***88***
Release Tracking Number / Current Status: 3-0031302 / DPS				
COMMERCIAL BUILDING	***260-264 BEACON ST***	***WSW 1/2 - 1 (0.827 mi.)***	***AN214***	***89***
Release Tracking Number / Current Status: 3-0031040 / TIERII				
COMMERCIAL BUILDING	***260-264 BEACON STREE***	***WSW 1/2 - 1 (0.827 mi.)***	***AN215***	***89***
Release Tracking Number / Current Status: 3-0031228 / RAONR				
TRUM FIELD	***14 CHARLES RYAN RD***	***NW 1/2 - 1 (0.830 mi.)***	***216***	***89***
Release Tracking Number / Current Status: 3-0018566 / RAO				
NEAR RTE 38	***32 SHORE DR***	***NNE 1/2 - 1 (0.831 mi.)***	***217***	***90***
Release Tracking Number / Current Status: 3-0016780 / RAO				
SOMERVILLE SERVICE C	***101 LINWOOD ST***	***SE 1/2 - 1 (0.835 mi.)***	***218***	***90***
Release Tracking Number / Current Status: 3-0021946 / RAO				
Release Tracking Number / Current Status: 3-0018392 / RAO				
Release Tracking Number / Current Status: 3-0003364 / RAO				
Release Tracking Number / Current Status: 3-0002914 / DEPNFA				
NO LOCATION AID	***SOMERVILLE AVE AND M***	***SSE 1/2 - 1 (0.835 mi.)***	***219***	***91***
Release Tracking Number / Current Status: 3-0015191 / RAO				
NO LOCATION AID	***96-98 MIDDLESEX AVE***	***ENE 1/2 - 1 (0.835 mi.)***	***220***	***91***
Release Tracking Number / Current Status: 3-0020403 / RAO				
APARTMENT BLDG	***278 BEACON ST***	***WSW 1/2 - 1 (0.836 mi.)***	***221***	***91***
Release Tracking Number / Current Status: 3-0013723 / RAO				
WOBURN AUTO PARTS	***511 BROADWAY***	***NNW 1/2 - 1 (0.837 mi.)***	***AO222***	***92***
Release Tracking Number / Current Status: 3-0000554 / DEPNFA				
MARTIN WILDE CO	***500 COLUMBIA ST***	***S 1/2 - 1 (0.840 mi.)***	***223***	***92***
Release Tracking Number / Current Status: 3-0002688 / RAO				
INTERSECTION OF STRE	***MYRTLE AVE AT KIRKLA***	***SW 1/2 - 1 (0.841 mi.)***	***AP224***	***92***
Release Tracking Number / Current Status: 3-0030782 / URAM				
DRY CLEANER-50’ FRM	***MYRTLE ST***	***SW 1/2 - 1 (0.841 mi.)***	***AP225***	***93***
Release Tracking Number / Current Status: 3-0024735 / TIER1D				
WEBSTER AVE NORFOLK	***79-81 WEBSTER AVE***	***S 1/2 - 1 (0.842 mi.)***	***AM226***	***93***
Release Tracking Number / Current Status: 3-0021178 / RAO				
SOMERVILLE MARGINAL	***271 MYSTIC AVE***	***E 1/2 - 1 (0.842 mi.)***	***227***	***94***
Release Tracking Number / Current Status: 3-0015340 / RAO				
NO LOCATION AID	***43 FOLEY ST***	***ENE 1/2 - 1 (0.844 mi.)***	***228***	***94***
Release Tracking Number / Current Status: 3-0003937 / LSPNFA				
Release Tracking Number / Current Status: 3-0025033 / RAO				
CUMBERLAND FARMS CHR	***701 SOMERVILLE AVE***	***W 1/2 - 1 (0.849 mi.)***	***229***	***94***
Release Tracking Number / Current Status: 3-0030395 / RAO				
FAULKNER BROTHERS IN	***2 ALPINE ST***	***WNW 1/2 - 1 (0.855 mi.)***	***AQ230***	***95***
Release Tracking Number / Current Status: 3-0004043 / RAO				
NAREKIAN, THOMAS AS	***525 BROADWAY***	***NNW 1/2 - 1 (0.856 mi.)***	***AO231***	***96***
Release Tracking Number / Current Status: 3-0022263 / RAO				
NO LOCATION AID	***154 CEDAR STREET***	***WNW 1/2 - 1 (0.859 mi.)***	***AQ232***	***96***
Release Tracking Number / Current Status: 3-0032571 / UNCLSS				
BETWEEN FREMONT AND	***682 THRU 708 MYSTIC***	***N 1/2 - 1 (0.861 mi.)***	***233***	***96***

Release Tracking Number / Current Status: 3-0019516 / RAO				
NO LOCATION AID	***14 MURDOCK STREET***	***NW 1/2 - 1 (0.862 mi.)***	***234***	***97***
Release Tracking Number / Current Status: 3-0031841 / RAO				
NO LOCATION AID	***14 CHESTNUT ST***	***SE 1/2 - 1 (0.869 mi.)***	***AR235***	***97***
Release Tracking Number / Current Status: 3-0013471 / RAO				
HK PORTER	***74 FOLEY ST***	***ENE 1/2 - 1 (0.869 mi.)***	***236***	***98***
Release Tracking Number / Current Status: 3-0000649 / RAO				
MWRA CSO ESMNT BTN A	***137 MIDDLESEX AVE***	***NE 1/2 - 1 (0.870 mi.)***	***237***	***98***
Release Tracking Number / Current Status: 3-0015525 / URAM				
NO LOCATION AID	***290 HIGHLAND AVENUE***	***WNW 1/2 - 1 (0.873 mi.)***	***238***	***99***
Release Tracking Number / Current Status: 3-0032923 / UNCLSS				
NO LOCATION AID	***MYRTLE AND MAGNOLIA***	***SW 1/2 - 1 (0.874 mi.)***	***239***	***99***
Release Tracking Number / Current Status: 3-0029926 / URAM				
T C AUTO EXCHANGE	***176-178 TREMONT ST***	***S 1/2 - 1 (0.875 mi.)***	***240***	***100***
Release Tracking Number / Current Status: 3-0003662 / RAO				
NO LOCATION AID	***481 COLUMBIA ST***	***S 1/2 - 1 (0.878 mi.)***	***AS241***	***100***
Release Tracking Number / Current Status: 3-0019742 / TIERII				
NO LOCATION AID	***433 NORFOLK ST***	***S 1/2 - 1 (0.878 mi.)***	***242***	***101***
Release Tracking Number / Current Status: 3-0019741 / RAO				
NISSENBAUMS AUTO PAR	***480 COLUMBIA ST***	***S 1/2 - 1 (0.880 mi.)***	***AS243***	***101***
Release Tracking Number / Current Status: 3-0024229 / RAONR				
SOMERVILLE COURTHOUS	***175 FELLSWAY***	***NE 1/2 - 1 (0.883 mi.)***	***244***	***102***
Release Tracking Number / Current Status: 3-0013016 / RAO				
TAN TRAN RESIDENCE	***10 LINCOLN AVE***	***E 1/2 - 1 (0.884 mi.)***	***245***	***102***
Release Tracking Number / Current Status: 3-0021261 / RAO				
SUNOCO STA	***541 BROADWAY***	***NNW 1/2 - 1 (0.887 mi.)***	***AT246***	***102***
Release Tracking Number / Current Status: 3-0021518 / REMOPS Release Tracking Number / Current Status: 3-0022078 / RAONR Release Tracking Number / Current Status: 3-0027773 / RAONR Release Tracking Number / Current Status: 3-0022814 / RAONR				
AMERICAN ELECTROPLAT	***26 CHESTNUT ST***	***SE 1/2 - 1 (0.889 mi.)***	***AR247***	***103***
Release Tracking Number / Current Status: 3-0002312 / RAO Release Tracking Number / Current Status: 3-0013197 / RAO				
CITYSIDE AUTO	***38 BROADWAY***	***E 1/2 - 1 (0.892 mi.)***	***248***	***104***
Release Tracking Number / Current Status: 3-0030424 / TIERII				
CAMBRIDGE MACHINED P	***100 FOLEY STREET***	***ENE 1/2 - 1 (0.893 mi.)***	***249***	***104***
Release Tracking Number / Current Status: 3-0000434 / RAO				
NO LOCATION AID	***545-547 BROADWAY***	***NNW 1/2 - 1 (0.895 mi.)***	***AT250***	***105***
Release Tracking Number / Current Status: 3-0023898 / DPS				
NO LOCATION AID	***545 BROADWAY***	***NNW 1/2 - 1 (0.895 mi.)***	***AT251***	***105***
Release Tracking Number / Current Status: 3-0027079 / RAONR				
TRUM FIELDHOUSE	***546 BROADWAY***	***NNW 1/2 - 1 (0.902 mi.)***	***AT252***	***106***
Release Tracking Number / Current Status: 3-0027124 / RAO				
THE HOME DEPOT STORE	***75 MYSTIC AVE***	***E 1/2 - 1 (0.907 mi.)***	***253***	***106***
Release Tracking Number / Current Status: 3-0031960 / RAO				
NEAR INMAN SQUARE	***6-8 BEACON ST***	***SSW 1/2 - 1 (0.911 mi.)***	***AU254***	***107***
Release Tracking Number / Current Status: 3-0031328 / RAO				
COMMERCIAL PROPERTY	***6 BEACON ST***	***SSW 1/2 - 1 (0.911 mi.)***	***AU255***	***107***

Release Tracking Number / Current Status: 3-0004801 / INVSUB				
WINTER HILL YACHT CL	***130 FOLEY ST***	***ENE 1/2 - 1 (0.919 mi.)***	***256***	***108***
Release Tracking Number / Current Status: 3-0029665 / RAO				
FMR SAINT POLYCARP C	***100 TEMPLE ST***	***NE 1/2 - 1 (0.923 mi.)***	***257***	***108***
Release Tracking Number / Current Status: 3-0025982 / RAO				
305 WEBSTER AVE	***305 WEBSTER AVE***	***S 1/2 - 1 (0.925 mi.)***	***AV258***	***109***
Release Tracking Number / Current Status: 3-0025215 / RAO				
NO LOCATION AID	***WENDELL ST***	***WSW 1/2 - 1 (0.925 mi.)***	***259***	***109***
Release Tracking Number / Current Status: 3-0018843 / URAM				
CORNER OF BROADWAY A	***561 BROADWAY***	***NW 1/2 - 1 (0.928 mi.)***	***260***	***109***
Release Tracking Number / Current Status: 3-0017895 / RAO				
AUTO PARTS STORE FMR	***306 WEBSTER AVE***	***S 1/2 - 1 (0.928 mi.)***	***AV261***	***110***
Release Tracking Number / Current Status: 3-0004503 / DEPNFA				
DEPARTMENT OF PUBLIC	***1 FRANEY RD***	***NW 1/2 - 1 (0.931 mi.)***	***262***	***110***
Release Tracking Number / Current Status: 3-0026592 / RAO				
HARVARD UNIVERSITY	***42 FRANCIS AVE***	***WSW 1/2 - 1 (0.932 mi.)***	***263***	***111***
Release Tracking Number / Current Status: 3-0021924 / RAO				
NO LOCATION AID	***SCOTT ST***	***SW 1/2 - 1 (0.933 mi.)***	***264***	***111***
Release Tracking Number / Current Status: 3-0018910 / URAM				
BOYNTON YARDS	***WATER ST S ST***	***SSE 1/2 - 1 (0.936 mi.)***	***265***	***112***
Release Tracking Number / Current Status: 3-0000026 / WCSPRM				
KEOLIS COMMUTER SERV	***26 REAR INNER BELT R***	***ESE 1/2 - 1 (0.937 mi.)***	***266***	***112***
Release Tracking Number / Current Status: 3-0021711 / RAO				
NO LOCATION AID	***432 COLUMBIA ST***	***S 1/2 - 1 (0.944 mi.)***	***267***	***112***
Release Tracking Number / Current Status: 3-0012325 / RAO				
NO LOCATION AID	***35 REAR LEXINGTON AV***	***WNW 1/2 - 1 (0.945 mi.)***	***AW268***	***113***
Release Tracking Number / Current Status: 3-0026830 / RAO				
REAR OF LEXINGTON AV	***35 LEXINGTON AVE***	***WNW 1/2 - 1 (0.945 mi.)***	***AW269***	***113***
Release Tracking Number / Current Status: 3-0014276 / RAO				
ASSEMBLY SQUARE	***100 STURTEVANT ST***	***NE 1/2 - 1 (0.947 mi.)***	***270***	***113***
Release Tracking Number / Current Status: 3-0021377 / RAONR Release Tracking Number / Current Status: 3-0028153 / RAONR Release Tracking Number / Current Status: 3-0000951 / DEPNFA Release Tracking Number / Current Status: 3-0011886 / RAO				
PROPERTY	***77 MEDFORD ST***	***SSE 1/2 - 1 (0.949 mi.)***	***271***	***114***
Release Tracking Number / Current Status: 3-0003198 / RAO				
EAST CAMBRIDGE SAVIN	***1310 CAMBRIDGE ST***	***S 1/2 - 1 (0.951 mi.)***	***272***	***115***
Release Tracking Number / Current Status: 3-0000950 / LSPNFA				
NO LOCATION AID	***580 BROADWAY***	***NW 1/2 - 1 (0.961 mi.)***	***AX273***	***115***
Release Tracking Number / Current Status: 3-0029660 / URAM				
HILLSIDE AUTO REPAIR	***583 BROADWAY***	***NW 1/2 - 1 (0.962 mi.)***	***AX274***	***115***
Release Tracking Number / Current Status: 3-0000620 / RAO				
7-ELEVEN 32473	***582 BROADWAY***	***NW 1/2 - 1 (0.965 mi.)***	***AX275***	***116***
Release Tracking Number / Current Status: 3-0032247 / UNCLSS Release Tracking Number / Current Status: 3-0029903 / TIERII Release Tracking Number / Current Status: 3-0004441 / RAONR				
B&M YARD 21	***FOLEY ST TENNEY CT***	***ENE 1/2 - 1 (0.970 mi.)***	***276***	***116***

Release Tracking Number / Current Status: 3-0004082 / RAO				
TRIUMVIRATE ENVIRONM	***191 INNER BELT RD.***	***SE 1/2 - 1 (0.970 mi.)***	***AY277***	***117***
Release Tracking Number / Current Status: 3-0032669 / PSNC				
SWEETHEART CUP COMPA	***30 INNERBELT RD***	***ESE 1/2 - 1 (0.972 mi.)***	***AZ278***	***117***
Release Tracking Number / Current Status: 3-0010325 / RAO				
Release Tracking Number / Current Status: 3-0011895 / RAO				
ANGELICA TEXTILE SER	***30 INNER BELT RD.***	***ESE 1/2 - 1 (0.972 mi.)***	***AZ279***	***118***
Release Tracking Number / Current Status: 3-0026065 / RAO				
NO LOCATION AID	***2 HARDING ST***	***SSE 1/2 - 1 (0.974 mi.)***	***280***	***119***
Release Tracking Number / Current Status: 3-0010897 / RAO				
B&M RAILROAD YARD 8	***INNER BELT RD***	***SE 1/2 - 1 (0.975 mi.)***	***AY281***	***119***
Release Tracking Number / Current Status: 3-0004222 / RAO				
ELM CORPORATION	***371 BEACON ST***	***W 1/2 - 1 (0.976 mi.)***	***282***	***119***
Release Tracking Number / Current Status: 3-0022315 / RAONR				
Release Tracking Number / Current Status: 3-0004432 / TIERII				
CAMBRIDGE HOSPITAL T	***1493 CAMBRIDGE ST***	***SSW 1/2 - 1 (0.978 mi.)***	***283***	***120***
Release Tracking Number / Current Status: 3-0016518 / RAO				
NO LOCATION AID	***50 INNER BELT DR***	***ESE 1/2 - 1 (0.980 mi.)***	***AZ284***	***121***
Release Tracking Number / Current Status: 3-0020300 / URAM				
8-18 BROADWAY	***8-18 BROADWAY***	***E 1/2 - 1 (0.982 mi.)***	***285***	***121***
Release Tracking Number / Current Status: 3-0030155 / URAM				
NO LOCATION AID	***52-56 ROLAND ST***	***ESE 1/2 - 1 (0.987 mi.)***	***BA286***	***121***
Release Tracking Number / Current Status: 3-0015887 / RAO				
Release Tracking Number / Current Status: 3-0014475 / RAO				
NEON COMMUNICATIONS	***56 ROLAND STREET***	***ESE 1/2 - 1 (0.987 mi.)***	***BA287***	***122***
Release Tracking Number / Current Status: 3-0015888 / RAO				
INDEPENDANT ELECTRIC	***41 INNER BELT RD***	***SE 1/2 - 1 (0.991 mi.)***	***288***	***122***
Release Tracking Number / Current Status: 3-0020363 / RAO				
NO LOCATION AID	***HOVEY AVE***	***SW 1/2 - 1 (0.991 mi.)***	***289***	***123***
Release Tracking Number / Current Status: 3-0018911 / URAM				
RESIDENTIAL PROPERTY	***21-29 CALDWELL ST***	***E 1/2 - 1 (0.996 mi.)***	***290***	***123***
Release Tracking Number / Current Status: 3-0031588 / RAO				
DRAW SEVEN PARK	***FOLEY STREET EXT***	***ENE 1/2 - 1 (0.996 mi.)***	***291***	***123***
Release Tracking Number / Current Status: 3-0003908 / DPS				
CAMBRIDGE CITY LINE	***30 MEDFORD ST***	***SSE 1/2 - 1 (0.997 mi.)***	***292***	***124***
Release Tracking Number / Current Status: 3-0020456 / RAO				

State and tribal leaking storage tank lists

LAST: A review of the LAST list, as provided by EDR, and dated 06/30/2015 has revealed that there are 6 LAST sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
NO LOCATION AID	***103 GILMAN ST***	***ESE 1/8 - 1/4 (0.228 mi.)***	***H54***	***22***
Release Tracking Number / Current Status: 3-0010466 / RAO				
NO LOCATION AID	***3 SUMMER ST***	***S 1/4 - 1/2 (0.360 mi.)***	***J63***	***25***

Release Tracking Number / Current Status: 3-0024469 / RAO

NO LOCATION AID Release Tracking Number / Current Status: 3-0022627 / RAO	***41 GILMAN ST***	***ESE 1/4 - 1/2 (0.365 mi.)***	***65***	***26***
FORMER DISTRICT COUR Release Tracking Number / Current Status: 3-0026241 / RAO	***19 WALNUT ST***	***S 1/4 - 1/2 (0.370 mi.)***	***66***	***26***
NO LOCATION AID Release Tracking Number / Current Status: 3-0022327 / RAONR	***1 SUMMER ST***	***S 1/4 - 1/2 (0.372 mi.)***	***J67***	***27***
NO LOCATION Release Tracking Number / Current Status: 3-0026651 / RAO	***9 MONTGOMERY AVE***	***ENE 1/4 - 1/2 (0.413 mi.)***	***M76***	***30***

LUST: A review of the LUST list, as provided by EDR, and dated 06/30/2015 has revealed that there are 21 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
TEXACO SERVICE Release Tracking Number / Current Status: 3-0003944 / RAO	***112 HIGHLAND AVE***	***W 1/8 - 1/4 (0.154 mi.)***	***F39***	***18***
NO LOCATION AID Release Tracking Number / Current Status: 3-0020161 / RAO	***188 CENTRAL ST***	***NNW 1/4 - 1/2 (0.492 mi.)***	***95***	***38***

Lower Elevation	Address	Direction / Distance	Map ID	Page
GOOD GAS Release Tracking Number / Current Status: 3-0003191 / RAO	***345 MEDFORD ST***	***NNE 0 - 1/8 (0.095 mi.)***	***B24***	***13***
SOMERVILLE XTRA FUEL Release Tracking Number / Current Status: 3-0015184 / RAO Release Tracking Number / Current Status: 3-0028903 / RAO	***360 MEDFORD ST***	***N 1/8 - 1/4 (0.131 mi.)***	***D35***	***16***
CUMMINGS SCHOOL & PL Release Tracking Number / Current Status: 3-0026494 / RAO	***42 PRESCOTT ST***	***SSW 1/8 - 1/4 (0.156 mi.)***	***40***	***18***
VERIZON MASSACHUSETT Release Tracking Number / Current Status: 3-0004584 / RAO	***111 CENTRAL ST***	***NW 1/4 - 1/2 (0.332 mi.)***	***59***	***24***
NO LOCATION AID Release Tracking Number / Current Status: 3-0013764 / RAO	***28-30 MARSHALL ST***	***NNE 1/4 - 1/2 (0.345 mi.)***	***62***	***25***
MCGRATH AUTO BODY SH Release Tracking Number / Current Status: 3-0004542 / RAO	***42 DANA ST***	***E 1/4 - 1/2 (0.363 mi.)***	***64***	***26***
RESIDENTIAL Release Tracking Number / Current Status: 3-0028555 / RAO	***19 CAMBRIA ST***	***W 1/4 - 1/2 (0.386 mi.)***	***68***	***27***
NO LOCATION AID Release Tracking Number / Current Status: 3-0017933 / RAO	***65 1\2 BOW ST***	***SSW 1/4 - 1/2 (0.394 mi.)***	***K71***	***28***
BLAISDALE SLATE CO Release Tracking Number / Current Status: 3-0004577 / RAO	***27 OSGOOD ST***	***SW 1/4 - 1/2 (0.395 mi.)***	***L72***	***29***
SUNOCO SERVICE STATI Release Tracking Number / Current Status: 3-0004820 / RAO Release Tracking Number / Current Status: 3-0012319 / RAO	***258 BROADWAY***	***NE 1/4 - 1/2 (0.410 mi.)***	***M75***	***30***
NO LOCATION AID Release Tracking Number / Current Status: 3-0014538 / RAO	***338 BROADWAY***	***NNE 1/4 - 1/2 (0.423 mi.)***	***79***	***31***
NO LOCATION AID	***148 SYCAMORE ST***	***N 1/4 - 1/2 (0.430 mi.)***	***81***	***32***

Release Tracking Number / Current Status: 3-0022827 / RAO				
LATTA BROTHERS MEMOR	*251 BROADWAY*	*NE 1/4 - 1/2 (0.431 mi.)*	*82*	*32*
Release Tracking Number / Current Status: 3-0015604 / RAO				
RESIDENCE	*8 MINER ST*	*NW 1/4 - 1/2 (0.441 mi.)*	*83*	*33*
Release Tracking Number / Current Status: 3-0025050 / RAO				
SUNOCO #0005-2175	*434 MCGRATH HWY*	*SE 1/4 - 1/2 (0.453 mi.)*	*86*	*34*
Release Tracking Number / Current Status: 3-0004701 / RAO				
NO LOCATION AID	*18 TEMPLE STREET*	*NNE 1/4 - 1/2 (0.459 mi.)*	*89*	*35*
Release Tracking Number / Current Status: 3-0031100 / RAO				
NO LOCATION AID	*460 SOMERVILLE AVE*	*SW 1/4 - 1/2 (0.462 mi.)*	*O90*	*36*
Release Tracking Number / Current Status: 3-0014864 / RAO Release Tracking Number / Current Status: 3-0014866 / RAO				
CUMBERLAND FARMS #11	*212 BROADWAY*	*ENE 1/4 - 1/2 (0.483 mi.)*	*Q92*	*37*
Release Tracking Number / Current Status: 3-0011462 / RAO Release Tracking Number / Current Status: 3-0022508 / RAO				
HERITAGE HOSPITAL	*26 CENTRAL ST*	*WSW 1/4 - 1/2 (0.491 mi.)*	*94*	*38*
Release Tracking Number / Current Status: 3-0015449 / RAO				

State and tribal registered storage tank lists

UST: A review of the UST list, as provided by EDR, and dated 07/13/2015 has revealed that there are 3 UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
TEXACO SERVICE	*112 HIGHLAND AVE*	*W 1/8 - 1/4 (0.154 mi.)*	*F39*	*18*
Tank Status: Removed Facility Id: 20035				

Lower Elevation	Address	Direction / Distance	Map ID	Page
GOOD GAS	*345 MEDFORD ST*	*NNE 0 - 1/8 (0.095 mi.)*	*B24*	*13*
Tank Status: Removed Tank Status: In Use Facility Id: 10910				
SOMERVILLE XTRA FUEL	*360 MEDFORD ST*	*N 1/8 - 1/4 (0.131 mi.)*	*D35*	*16*
Tank Status: Removed Tank Status: In Use Facility Id: 10925				

State and tribal institutional control / engineering control registries

INST CONTROL: A review of the INST CONTROL list, as provided by EDR, and dated 06/30/2015 has revealed that there are 5 INST CONTROL sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
SOMERVILLE XTRA FUEL Release Tracking Number: 3-0015184	***360 MEDFORD ST***	***N 1/8 - 1/4 (0.131 mi.)***	***D35***	***16***
VACANT LOT Release Tracking Number: 3-0004031	***299-303 MEDFORD ST***	***ESE 1/8 - 1/4 (0.190 mi.)***	***G47***	***20***
COMMUNITY DEVELOPMEN Release Tracking Number: 3-0027194	***112A CENTRAL ST***	***NW 1/4 - 1/2 (0.340 mi.)***	***I61***	***25***
NO LOCATION AID Release Tracking Number: 3-0018136 Release Tracking Number: 3-0018349	***444 SOMERVILLE AVE***	***SW 1/4 - 1/2 (0.448 mi.)***	***N85***	***33***
NO LOCATION AID Release Tracking Number: 3-0014864 Release Tracking Number: 3-0014866 Release Tracking Number: 3-0014880	***460 SOMERVILLE AVE***	***SW 1/4 - 1/2 (0.462 mi.)***	***O90***	***36***

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A review of the US BROWNFIELDS list, as provided by EDR, and dated 06/22/2015 has revealed that there are 2 US BROWNFIELDS sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
303 MEDFORD STREET	***303 MEDFORD STREET***	***ESE 1/8 - 1/4 (0.176 mi.)***	***G42***	***19***
SOMERVILLE COMMUNITY	***112A CENTRAL STREET***	***NW 1/4 - 1/2 (0.340 mi.)***	***I60***	***24***

Other Ascertainable Records

RCRA NonGen / NLR: A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 06/09/2015 has revealed that there are 4 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
RAYS TEXACO	***112 HIGHLAND AVE***	***W 1/8 - 1/4 (0.154 mi.)***	***F38***	***17***

Lower Elevation	Address	Direction / Distance	Map ID	Page
PCJ AUTO SERVICE INC	345 MEDFORD ST	NNE 0 - 1/8 (0.095 mi.)	B25	14
SOMERVILLE HIGH SCHO	***93 SCHOOL ST***	***SW 1/8 - 1/4 (0.170 mi.)***	***41***	***18***
A & C AUTO BODY INC	***297 MEDFORD ST***	***ESE 1/8 - 1/4 (0.196 mi.)***	***G50***	***21***

EXECUTIVE SUMMARY

HW GEN: A review of the HW GEN list, as provided by EDR, and dated 06/22/2015 has revealed that there are 5 HW GEN sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
GOOD GAS State Generator Status: SQG-MA EPA Id: MAD040180119	***345 MEDFORD ST***	***NNE 0 - 1/8 (0.095 mi.)***	***B24***	***13***
BACK BAY SIGN CO INC EPA Id: MAD001005784	236 PEARL ST	ENE 1/8 - 1/4 (0.128 mi.)	E33	16
SRP SIGN CORP EPA Id: MV6176236222	236 PEARL ST	ENE 1/8 - 1/4 (0.128 mi.)	E34	16
SOMERVILLE XTRA FUEL EPA Id: MV6176255555	***360 MEDFORD ST***	***N 1/8 - 1/4 (0.131 mi.)***	***D35***	***16***
A PLUS AUTO BODY EPA Id: MV6177764500	297 MEDFORD ST	ESE 1/8 - 1/4 (0.196 mi.)	G49	21

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR US Hist Auto Stat: A review of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there are 8 EDR US Hist Auto Stat sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
Not reported	345 MEDFORD ST	NNE 0 - 1/8 (0.095 mi.)	B23	13
Not reported	91 MARSHALL ST	NE 0 - 1/8 (0.119 mi.)	29	15
Not reported	360 MEDFORD ST	N 1/8 - 1/4 (0.131 mi.)	D36	17
Not reported	368 MEDFORD ST	N 1/8 - 1/4 (0.153 mi.)	37	17
Not reported	55 MADISON ST	WNW 1/8 - 1/4 (0.180 mi.)	44	19
Not reported	73 PLEASANT AVE	SSE 1/8 - 1/4 (0.181 mi.)	45	20
Not reported	297 MEDFORD ST	ESE 1/8 - 1/4 (0.196 mi.)	G48	21
Not reported	295 MEDFORD ST	ESE 1/8 - 1/4 (0.204 mi.)	51	21

EDR US Hist Cleaners: A review of the EDR US Hist Cleaners list, as provided by EDR, has revealed that there are 3 EDR US Hist Cleaners sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
Not reported	62 HIGHLAND AVE	SSE 0 - 1/8 (0.112 mi.)	C27	14
Not reported	211 PEARL ST	E 1/8 - 1/4 (0.206 mi.)	52	21
Not reported	92 GILMAN ST	ESE 1/8 - 1/4 (0.234 mi.)	H55	22

Count: 92 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BOSTON (CHARLESTOWN	1002930133	BOSTON NAVAL SHIPYARD (FORMER)	BOSTON NAVAL SHIPYARD	02129	CERC-NFRAP
CAMBRIDGE	S116687166	165 & 181 CAMBRIDGE PARK DRIVE	165 & 181 CAMBRIDGE PARK DRIVE	02140	SHWS, RELEASE
CAMBRIDGE	S116756099	165 & 181 CAMBRIDGE PARK DRIVE	165 & 181 CAMBRIDGE PARK DRIVE	02140	SHWS, RELEASE
CAMBRIDGE	S113411747	COMMERCIAL PROPERTY	18 TO 28 JFK STREET	02138	SHWS, RELEASE
CAMBRIDGE	S108476781	NO LOCATION AID	3RD ST AND BROADWAY		SHWS, RELEASE
CAMBRIDGE	S117964730	NO LOCATION AID	AMORY ST @ HAMPSHIRE STREET	02138	SHWS, RELEASE
CAMBRIDGE	S111085904	NO LOCATION AID	86 AND 88 AVON HILL ST	02140	SHWS, LUST, INST CONTROL, RELEASE
CAMBRIDGE	S109489324	CHILLED WATER LINE EXTN	BETW OXFORD ST AND FRANCIS AVE	02138	SHWS, RELEASE, ENF
CAMBRIDGE	S106863458	BROADWAY & BINNEY STREETS	CAMBRIDGE CTR		SHWS, RELEASE
CAMBRIDGE	S112288414	INTERSECTION CAMBRIDGE & PROSPECT	CAMBRIDGE STREET	02139	SHWS, RELEASE, ENF
CAMBRIDGE	S116358050	NO LOCATION AID	CONCORD AVE	02138	SHWS, LUST, RELEASE
CAMBRIDGE	S111085966	NO LOCATION AID	CONCORD AVE		SHWS, RELEASE
CAMBRIDGE	S113805035	CONSTRUCTION SITE	NORTHWEST COR BANKS AND GRANT	02138	SHWS, RELEASE
CAMBRIDGE	S103383633	KENNEDY SQUARE	CRAIGIE ST	02138	SHWS, RELEASE
CAMBRIDGE	S113805036	INT OF EVERETT ST & MASS AVE	EVERETT ST AT MASS AVE	02138	SHWS, LUST, RELEASE, ENF
CAMBRIDGE	S110684448	HARRISON AVENUE AT WHITTEMORE	HARRISON AVENUE		SHWS, RELEASE
CAMBRIDGE	S117964805	CHILLED WATER EXTENSION PROJECT	HOLYOKE STREET	02138	SHWS, RELEASE
CAMBRIDGE	S113805080	NO LOCATION AID	JACKSON AND CLAY STS	02140	SHWS, RELEASE
CAMBRIDGE	S113882707	NO LOCATION AID	KIRKLAND ST EXT	02138	SHWS, RELEASE
CAMBRIDGE	S117277505	ROADWAY	MASSACHUSETTS AVE @ PORTER ROA		SHWS, RELEASE
CAMBRIDGE	S113411667	NO LOCATION AID	MASSACHUSETTS AVE TROWBRIDGE S		SHWS, RELEASE
CAMBRIDGE	S110303401	BOSTON UNIVERSITY BRIDGE	MEMORIAL DR	02139	SHWS, RELEASE
CAMBRIDGE	S117964727	MBTA GREEN LINE EXTENSION	MILLERS RIVER		SHWS, RELEASE
CAMBRIDGE	S106512910	NO LOCATION AID	MOUNT AUBURN STREET AND WESTER		SHWS, RELEASE
CAMBRIDGE	S112288424	DANEHY PARK	NEW STREET	02138	SHWS, RELEASE
CAMBRIDGE	S113411758	UTILITY CORRIDOR	WEST OF MEMORIAL DRIVE		SHWS, RELEASE
CAMBRIDGE	S111826307	HARVARD UNIVERSITY SCIENCE CENTER	OXFORD STREET		LAST, RELEASE
CAMBRIDGE	S108640697	HARVARD COLLEGE	OXFORD STREET TO MASSACHUSETTS		SHWS, RELEASE
CAMBRIDGE	S103812035	100 FT FROM JUNCTION OF BEACON ST	SCOTT ST	02139	SHWS, RELEASE
CAMBRIDGE	S108476979	SOUTH STREET PARKING LOT	SOUTH ST	02138	SHWS, RELEASE
CAMBRIDGE	S105596721	FRANCES AVE	VANSERG SHANNON HALL INTERIOR	02138	SHWS, RELEASE
CAMBRIDGE	S103383758	B&M RAILROAD	WATER ST @ BANDM RR YARD		SHWS, RELEASE
CHARLESTOWN	S111411835	TOBIN BRIDGE	ROUTE 1 SOUTH	02129	SHWS, RELEASE
CHARLESTOWN	S110360945	ARLINGTON AVENUE	ARLINGTON AVE		SHWS, RELEASE
CHARLESTOWN	S110822194	BENEATH I-93, MBTA, NR BHCC GILMOR	0 AUSTIN STREET, PARCEL 179000	02129	SHWS, RELEASE, ENF
CHARLESTOWN	S108117315	HESS STATION 21308	123 CAMBRIDGE ST	02129	SHWS, RELEASE
CHARLESTOWN	S106511661	SW CORNER OF CAMBRIDGE & STARK STS	118-122 CAMBRIDGE ST	02129	SHWS, INST CONTROL, RELEASE
CHARLESTOWN	S106512758	NO LOCATION AID	DEXTER RD AND RUTHERFORD AVE	02129	SHWS, RELEASE
CHARLESTOWN	S109612890	ALFORD STREET UNDERPASS - INBOUND	INTERSECTION MAIN ST/RT 99		SHWS, RELEASE
CHARLESTOWN	S109146551	RAIL LINE AT EAST END OF STREET	ROLAND ST		SHWS, RELEASE, ENF
CHARLESTOWN	S106511609	MWRA CSO EASEMENT BTN I93 & WARREN	WARREN AVE	02129	SHWS, RELEASE
CHARLESTOWN	S117552819	CHARLESTOWN BRIDGE	NORTH WASHINGTON STREET	02129	SHWS, RELEASE

Count: 92 records.

ORPHAN SUMMARY

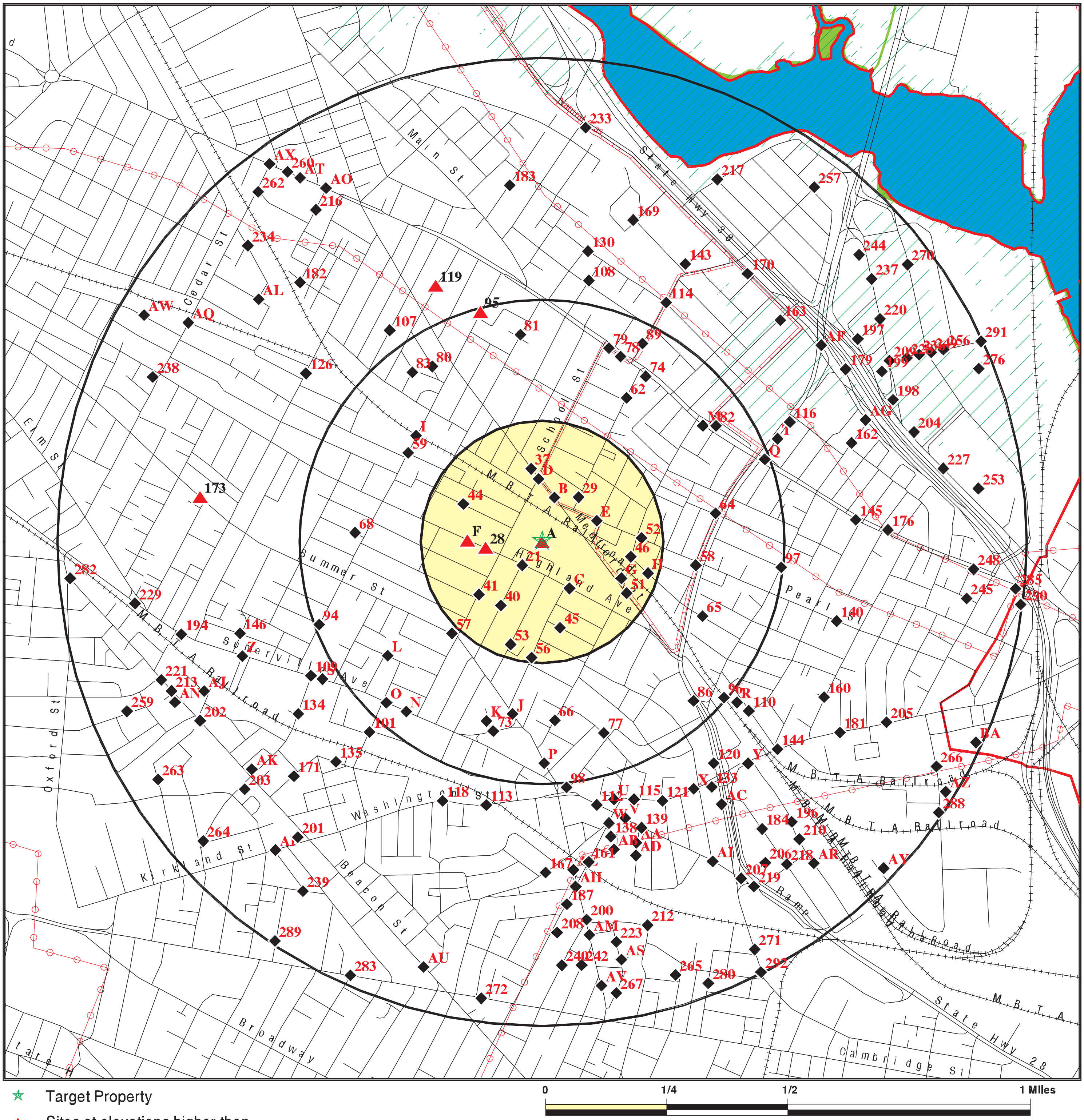
City	EDR ID	Site Name	Site Address	Zip	Database(s)
CHARLESTOWN	S106511887	BECO	NORTH WASHINGTON ST	02129	SHWS, RELEASE
CHARLESTOWN	S106512362	TUDOR WHARF	WATER ST	02129	SHWS, RELEASE
MEDFORD	S114004844	NO LOCATION AID	ROUTE 93 SOUTH	02155	SHWS, RELEASE
MEDFORD	S110526225	MBTA TRACKS	BOSTON AVE	02155	SHWS, RELEASE
MEDFORD	S110124999	NO LOCATION AID	BOW ST	02155	SHWS, RELEASE
MEDFORD	S117964779	NO LOCATION AID	BOWEN AVE AT MYSTIC AVE	02155	SHWS, LUST, RELEASE
MEDFORD	S104545188	NO LOCATION AID	FELLSWAY		LUST, RELEASE
MEDFORD	S110526160	COMMUTER RAIL CROSSING	HARVARD ST	02155	SHWS, RELEASE
MEDFORD	S110115191	ROUTE 16 WEST OFF-RAMP TO MAIN STR	MAIN ST		SHWS, RELEASE
MEDFORD	S105596752	KAMINSKI, ROBERT	MIDDLESEX AVE	02155	SHWS, RELEASE, ENF
MEDFORD	S109546216	NO LOCATION AID	MYSTIC AVE	02155	SHWS, LUST, RELEASE
MEDFORD	S104545645	BET RT 93 & SHIP AVE	MYSTIC RIV		SHWS, RELEASE
MEDFORD	S110822193	WEST WING WALL UPPER MYSTIC LAKE D	1001 MYSTIC VALLEY PKWY	02155	SHWS, RELEASE
MEDFORD	S101017320	SUNOCO	MYSTIC AVE/HARVARD	02155	SHWS, RELEASE, SPILLS
MEDFORD	S107678317	E SIDE OF ST E OF INT WITH BILLING	MYSTIC AVE (RTE 38)	02155	SHWS, RELEASE
MEDFORD	S111989501	RTE 16 OVER THE MBTA ORANGE LINE T	REVERE BEACH PKWY	02155	SHWS, RELEASE
MEDFORD	S106863377	NO LOCATION AID	REVERE BEACH PKWY		SHWS, RELEASE
MEDFORD	S105811044	PROPOSED MYSTIC CENTER	REVERE BEACH PKWY	02155	SHWS, RELEASE
SOMERVILLE	S104482319	NO LOCATION AID	BEACON ST		SHWS, RELEASE
SOMERVILLE	S114004786	MBTA GREEN LINE EXTENSION-SOMERVIL	BTW MCGRATH HWY & MEDFORD ST	02143	SHWS, RELEASE
SOMERVILLE	S108117631	TUFTS UNIVERSITY COHEN AUDITORIUM	15 SOUTH CAMPUS RD	02145	SHWS, RELEASE
SOMERVILLE	S117964797	DC-48 WITHIN MBTA ROW	CHESTNUT STREET	02143	SHWS, RELEASE
SOMERVILLE	S117964728	MBTA GREEN LINE EXTENSION - SOMERV	GREEN LINE EXTENSION PIER 26A	02143	SHWS, RELEASE
SOMERVILLE	S109612968	NO LOCATION AID	0 HIGHLAND RD	02143	SHWS, RELEASE
SOMERVILLE	S108962865	NO LOCATION AID	JOSEPHINE AND PEARSON AVE		SHWS, RELEASE
SOMERVILLE	S105596481	SUBSTATION PNU33	LINWOOD ST		SHWS, RELEASE
SOMERVILLE	S114004787	MBTA GREEN LINE EXTENSION - SOMERV	MBTA ROW NEAR SCHOOL STREET	02143	SHWS, RELEASE
SOMERVILLE	S114004788	MBTA GREEN LINE EXTENSION - SOMERV	MBTA ROW NEAR BROADWAY	02145	SHWS, RELEASE
SOMERVILLE	S114965493	MBTA GREEN LINE EXTENSION - SOMERV	MBTA ROW NORTH OF MCGRATH HWY	02143	SHWS, RELEASE
SOMERVILLE	S110115135	INTER. PEARL STREET AND MCGRATH HG	MCGRATH AND OBRIEN HWY		SHWS, RELEASE
SOMERVILLE	S104482385	RTE 28 SOUTHBOUND ON RAMP	MEDFORD ST	02143	SHWS, RELEASE
SOMERVILLE	S108348118	NO LOCATION AID	MYSTIC AVE		SHWS, RELEASE
SOMERVILLE	S106512865	OFF ROUTE 93 NORTHBOUND ON RAMP	MYSTIC AVE	02145	SHWS, RELEASE
SOMERVILLE	S104000431	NO LOCATION AID	MYSTIC PKWY		SHWS, RELEASE
SOMERVILLE	S117552793	MBTA GREEN LINE EXTENSION - SOMERV	SOUTH OF RED BRIDGE	02143	SHWS, RELEASE
SOMERVILLE	S110479600	PEARL ST AT MCGRATH OBRIEN HWY	PEARL ST		SHWS, RELEASE
SOMERVILLE	S109489646	NSTAR SUBSTATION 402	PROSPECT ST	02143	SHWS, RELEASE
SOMERVILLE	S110684393	RAILROAD RIGHT OF WAY B-S007-1	RAILROAD TRACKS UNDER MEDFORD	02143	SHWS, RELEASE
SOMERVILLE	S110526291	RAILROAD RIGHT OF WAY B-S004-4	RAILROAD TRACKS OVER WASHINGTO	02143	SHWS, RELEASE
SOMERVILLE	S110684392	RAILROAD RIGHT OF WAY B-S042-1	RAILROAD TRACKS OVER MEDFORD S	02143	SHWS, RELEASE
SOMERVILLE	S110684378	RAILROAD RIGHT OF WAY B-S006-1	RAILROAD TRACKS UNDER WALNUT S	02143	SHWS, RELEASE
SOMERVILLE	S110684398	RAILROAD RIGHT OF WAY B-S008-3	RAILROAD TRACKS UNDER SCHOOL S	02143	SHWS, RELEASE
SOMERVILLE	S110684377	RAILROAD RIGHT OF WAY	RAILROAD TRACKS NEAR PROSPECT	02143	SHWS, RELEASE
SOMERVILLE	S110526292	RAILROAD RIGHT OF WAY B-S004-1	RAILROAD TRACKS OVER WASHINGTO	02143	SHWS, RELEASE
SOMERVILLE	S114965492	MBTA GREEN LINE EXTENSION - SOMERV	ROW BTW SYCAMORE & CENTRAL	02143	SHWS, RELEASE
SOMERVILLE	S103811968	NO LOCATION AID	SCHOOL ST		SHWS, RELEASE
SOMERVILLE	S112288447	HYDRAULIC OIL RELEASE	298 SOMERVILLE AVE	02143	SHWS, RELEASE, ENF

Count: 92 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
SOMERVILLE	S112288434	NO LOCATION AID	298 SOMERVILLE AVE	02143	SHWS, RELEASE
SOMERVILLE	S117405654	PARCELS 6 & 8 DOWNGRADIENT PROPERT	504 SOMERVILLE AVE & 7-9 PROPE	02143	SHWS, RELEASE
SOMERVILLE	S104847547	NO LOCATION AID	WALNUT ST		SHWS, RELEASE

OVERVIEW MAP - 4442112.2S



☆ Target Property

▲ Sites at elevations higher than or equal to the target property

◆ Sites at elevations lower than the target property

♟ Manufactured Gas Plants

▨ National Priority List Sites

▨ Dept. Defense Sites

▨ Indian Reservations BIA

╱╲ County Boundary

╱╲ Power transmission lines

╱╲ Pipelines

▨ 100-year flood zone

▨ 500-year flood zone

🟩 National Wetland Inventory

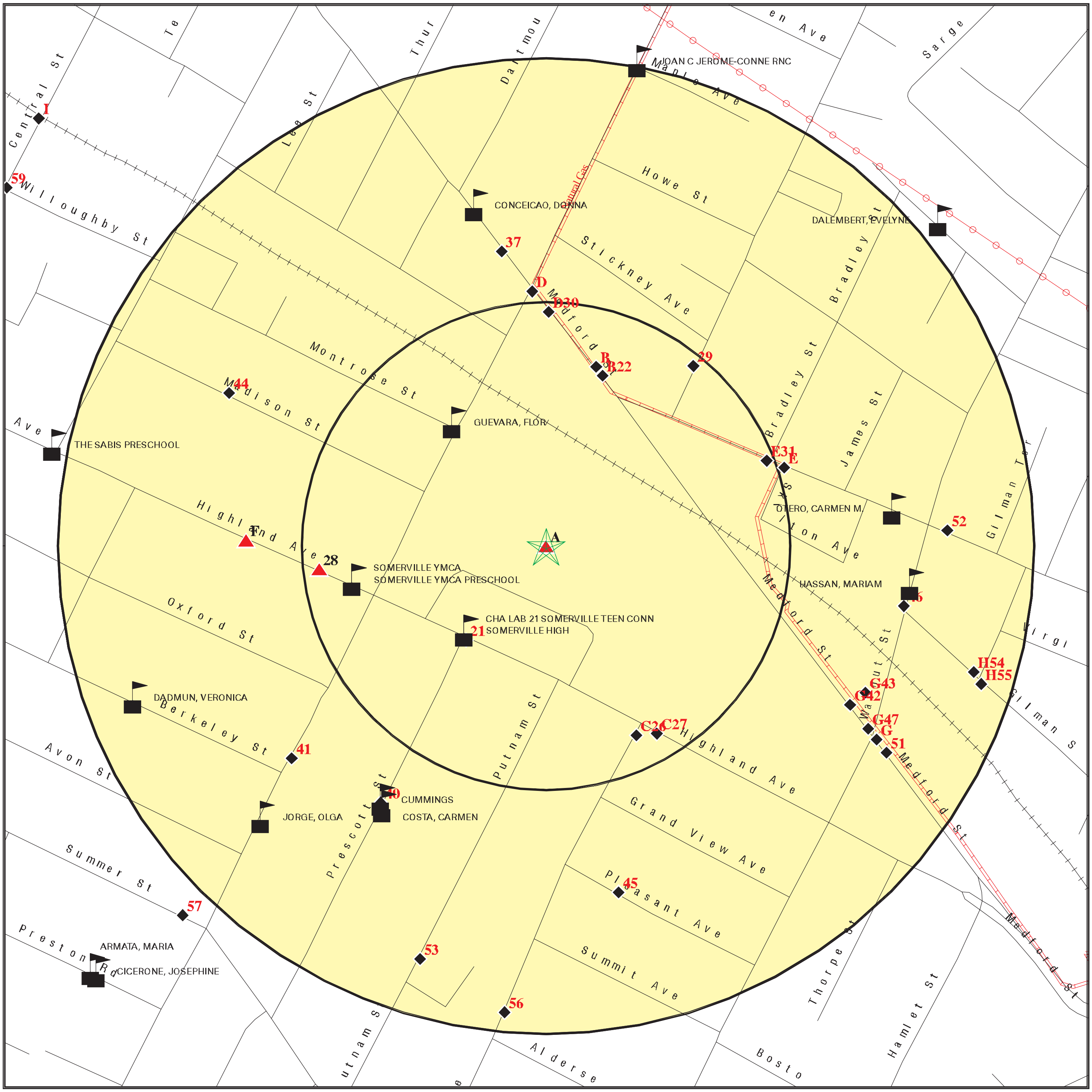
▨ Areas of Critical Environmental Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Somerville High School
ADDRESS: 81-86 HIGHLAND AVE
Somerville MA 02143
LAT/LONG: 42.3872 / 71.097

CLIENT: CDW Consultants Inc.
CONTACT: Susan Cahalan
INQUIRY #: 4442112.2s
DATE: October 20, 2015 9:48 am

DETAIL MAP - 4442112.2S



0 1/16 1/8 1/4 Miles

- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ♟ Manufactured Gas Plants
- ⚑ Sensitive Receptors
- ▨ National Priority List Sites
- ▨ Dept. Defense Sites
- ▨ Indian Reservations BIA
- Power transmission lines
- Pipelines
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- ▨ Areas of Critical Environmental Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Somerville High School
ADDRESS: 81-86 HIGHLAND AVE
Somerville MA 02143
LAT/LONG: 42.3872 / 71.097

CLIENT: CDW Consultants Inc.
CONTACT: Susan Cahalan
INQUIRY #: 4442112.2s
DATE: October 20, 2015 9:50 am

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
CERCLIS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	1	NR	NR	NR	1
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
SHWS	1.000		6	6	24	195	NR	231
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LAST	0.500		0	1	5	NR	NR	6
LUST	0.500		1	3	17	NR	NR	21
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
UST	0.250		1	2	NR	NR	NR	3
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0

State and tribal institutional control / engineering control registries

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INST CONTROL	0.500		0	2	3	NR	NR	5

State and tribal voluntary cleanup sites

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN VCP	0.500		0	0	0	NR	NR	0

State and tribal Brownfields sites

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
BROWNFIELDS	0.500		0	0	0	NR	NR	0

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
US BROWNFIELDS	0.500	5	0	1	1	NR	NR	7

Local Lists of Landfill / Solid Waste Disposal Sites

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0

Local Lists of Hazardous waste / Contaminated Sites

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
US HIST CDL	TP		NR	NR	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0

Local Land Records

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0

Records of Emergency Release Reports

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
RELEASE	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
SPILLS 80	TP		NR	NR	NR	NR	NR	0

Other Ascertainable Records

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
RCRA NonGen / NLR	0.250	1	1	3	NR	NR	NR	5
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP	1	NR	NR	NR	NR	NR	1
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP	1	NR	NR	NR	NR	NR	1
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP	1	NR	NR	NR	NR	NR	1
US MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP	7	NR	NR	NR	NR	NR	7
AIRS	TP		NR	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
GWDP	TP		NR	NR	NR	NR	NR	0
HW GEN	0.250	2	1	4	NR	NR	NR	7
LEAD	TP	4	NR	NR	NR	NR	NR	4
MERCURY	0.500		0	0	0	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
TIER 2	TP		NR	NR	NR	NR	NR	0
TSD	0.500		0	0	0	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		2	6	NR	NR	NR	8
EDR US Hist Cleaners	0.250	1	1	2	NR	NR	NR	4

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
RGA HWS	TP	2	NR	NR	NR	NR	NR	2
RGA LUST	TP	2	NR	NR	NR	NR	NR	2
- Totals --		27	13	31	50	195	0	316

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
A1 **Target** **Property**	**SOMERVILLE HIGH SCHOOL SCHOOL ST** **81 HIGHLAND AVE** **SOMERVILLE, MA**	**RGA HWS**	**S115049582** **N/A**

Actual:
101 ft.

[Click here for full text details]

RGA HWS
Facility ID: 3-0017909

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
A2 **Target** **Property**	**HOLIDAY CLEANERS** **82 HIGHLAND AVE** **SOMERVILLE, MA 02143**	**RCRA NonGen / NLR** **FINDS**	**1000247815** **MAD091491670**

Actual:
101 ft.

[Click here for full text details]

RCRA NonGen / NLR
EPA Id: MAD091491670

FINDS
Registry ID:: 110003447422

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
A3 **Target** **Property**	**BAY STATE** **84 HIGHLAND AVE** **SOMERVILLE, MA 02143**	**US BROWNFIELDS** **FINDS**	**1016351837** **N/A**

Actual:
101 ft.

[Click here for full text details]

US BROWNFIELDS
ACRES property ID: 12918

FINDS
Registry ID:: 110039541662

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
A4 **Target** **Property**	**86A HIGHLAND AVE** **SOMERVILLE, MA 02143**	**LEAD**	**S111743816** **N/A**

Actual:
101 ft.

[Click here for full text details]

LEAD
Inspector License Number: 3757

A5
Target
Property

SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE
SOMERVILLE, MA 02143

US AIRS
FINDS

1004519385
N/A

Actual:
101 ft.

Click here for full text details

US AIRS
EPA plant ID:: 110002017317

FINDS
Registry ID:: 110002017317

A6
Target
Property

86 HIGHLAND AVE
SOMERVILLE, MA 02143

LEAD

S112296710
N/A

Actual:
101 ft.

Click here for full text details

LEAD
Inspector License Number: 2929

A7
Target
Property

BOYNTON YARDS
84 HIGHLAND AVE
SOMERVILLE, MA 02143

US BROWNFIELDS
FINDS

1016351833
N/A

Actual:
101 ft.

Click here for full text details

US BROWNFIELDS
ACRES property ID: 12917

FINDS
Registry ID:: 110039541626

A8
Target
Property

KEMP NUTS
84 HIGHLAND AVE
SOMERVILLE, MA 02143

US BROWNFIELDS
FINDS

1016351839
N/A

Actual:
101 ft.

Click here for full text details

US BROWNFIELDS
ACRES property ID: 12919

FINDS
Registry ID:: 110039541706

A9 **Target** **Property**	**VERNON STREET** **84 HIGHLAND AVE** **SOMERVILLE, MA 02143**	**US BROWNFIELDS** **FINDS**	**1016351841** **N/A**

Actual:
101 ft.

Click here for full text details

US BROWNFIELDS
ACRES property ID: 12920

FINDS
Registry ID:: 110039541742

A10 **Target** **Property**	**HOLIDAY CLEANERS** **82 HIGHLAND AVE** **SOMERVILLE, MA 02143**	**HW GEN**	**S113410836** **N/A**

Actual:
101 ft.

Click here for full text details

HW GEN
EPA Id: MV6177760087

A11 **Target** **Property**	 **82 HIGHLAND AVE** **SOMERVILLE, MA 02143**	**EDR US Hist Cleaners**	**1015098922** **N/A**

Actual:
101 ft.

Click here for full text details

A12 **Target** **Property**	**CONWELL SCHOOL** **84 HIGHLAND AVE** **SOMERVILLE, MA 02143**	**US BROWNFIELDS** **FINDS**	**1016351843** **N/A**

Actual:
101 ft.

Click here for full text details

US BROWNFIELDS
ACRES property ID: 12923

FINDS
Registry ID:: 110039541788

A13 **Target** **Property**	 **86A HIGHLAND AVE** **SOMERVILLE, MA 02143**	**LEAD**	**S111276208** **N/A**

Actual:
101 ft.

Click here for full text details

LEAD
Inspector License Number: 1430

A14
Target
Property

SOMERVILLE HIGH SCHOOL SCHOOL ST
81 HIGHLAND AVE
SOMERVILLE, MA

RGA HWS

S115049581
N/A

Actual:
101 ft.

Click here for full text details

RGA HWS
Facility ID: 3-0017909

A15
Target
Property

SOMERVILLE SCHOOL DIST.
81 HIGHLAND AVE.
SOMERVILLE, MA 2143

FTTS

1010009861
N/A

Actual:
101 ft.

Click here for full text details

FTTS
Docket Number:: 01-86-1030
Close Date:: / /

A16
Target
Property

SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVE
SOMERVILLE, MA 02144

HW GEN

S112515204
N/A

Actual:
101 ft.

Click here for full text details

HW GEN
State Generator Status: SQG-MA
EPA Id: MAV000008909

A17
Target
Property

SOMERVILLE HIGH SCHOOL SCHOOL ST
81 HIGHLAND AVE
SOMERVILLE, MA

RGA LUST

S115007597
N/A

Actual:
101 ft.

Click here for full text details

RGA LUST
Facility ID: 3-0017909

A18
Target
Property

86A HIGHLAND AVE
SOMERVILLE, MA 02143

LEAD

S111742842
N/A

Actual:
101 ft.

Click here for full text details

LEAD
Inspector License Number: 2929

A19 **Target** **Property**	**SOMERVILLE SCHOOL DIST.** **81 HIGHLAND AVE.** **SOMERVILLE, MA 02143**	**HIST FTTS**	**1008189551** **N/A**

Actual:
101 ft.

Click here for full text details

HIST FTTS
Close Date:: / /
Docket Number:: 01-86-1030

A20 **Target** **Property**	**SOMERVILLE HIGH SCHOOL SCHOOL ST** **81 HIGHLAND AVE** **SOMERVILLE, MA**	**RGA LUST**	**S115007596** **N/A**

Actual:
101 ft.

Click here for full text details

RGA LUST
Facility ID: 3-0017909

21 **SW** **< 1/8** **0.063 mi.** **334 ft.**	**SOMERVILLE PUBLIC LIBRARY** **79 HIGHLAND AVE** **SOMERVILLE, MA 02145**	**SHWS** **RELEASE** **ENF**	**S109146612** **N/A**

Relative:
Lower

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0029996 /   RAONR
Release Tracking Number / Current Status: 3-0027659 /   RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0027659 /   RAO
Release Tracking Number / Current Status: 3-0029996 /   RAONR

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0027659
Program Id: 3-0029996

B22 **NNE** **< 1/8** **0.092 mi.** **486 ft.**	**NO LOCATION AID** **343 MEDFORD ST** **SOMERVILLE, MA 02145**	**SHWS** **RELEASE**	**S102085449** **N/A**

Relative:
Lower

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0010851 /   DPS

Click here to access the MA DEP site for this facility

NO LOCATION AID (Continued) **S102085449**

RELEASE
Release Tracking Number / Current Status: 3-0010851 / DPS

Click here to access the MA DEP site for this facility

B23
NNE
< 1/8
0.095 mi.
504 ft.

Relative:
Lower

345 MEDFORD ST
SOMERVILLE, MA 02145

EDR US Hist Auto Stat

1015439688
N/A

Click here for full text details

B24
NNE
< 1/8
0.095 mi.
504 ft.

Relative:
Lower

GOOD GAS
345 MEDFORD ST
SOMERVILLE, MA 02143

LUST
UST
RELEASE
Financial Assurance
HW GEN

1000768767
N/A

Click here for full text details

LUST
Release Tracking Number / Current Status: 3-0003191 / RAO

Click here to access the MA DEP site for this facility

UST
Facility Id: 10910
Tank Status: Removed
Tank Status: In Use

RELEASE
Release Tracking Number / Current Status: 3-0003191 / RAO

Click here to access the MA DEP site for this facility

Financial Assurance
Facility Id: 10910

HW GEN
State Generator Status: SQG-MA
EPA Id: MAD040180119

B25
NNE
< 1/8
0.095 mi.
504 ft.

Relative:
Lower

PCJ AUTO SERVICE INC
345 MEDFORD ST
SOMERVILLE, MA 02145

RCRA NonGen / NLR

1000881567
MAD040180119

Click here for full text details

RCRA NonGen / NLR
EPA Id: MAD040180119

C26
SSE
< 1/8
0.107 mi.
567 ft.

Relative:
Lower

ROADWAY SPILL ON VINAL AVE @ HIGHLAND
VINAL AVE
SOMERVILLE, MA 02145

SHWS
RELEASE

S109146603
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0027737 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0027737 / RAO

Click here to access the MA DEP site for this facility

C27
SSE
< 1/8
0.112 mi.
589 ft.

Relative:
Lower

62 HIGHLAND AVE
SOMERVILLE, MA 02143

EDR US Hist Cleaners

1015081781
N/A

Click here for full text details

28
West
< 1/8
0.117 mi.
617 ft.

Relative:
Higher

NO LOCATION AID
101 HIGHLAND AVE
SOMERVILLE, MA

SHWS
RELEASE

S104562585
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0019547 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0019547 / RAO

Click here to access the MA DEP site for this facility

29
NE
< 1/8
0.119 mi.
629 ft.

Relative:
Lower

91 MARSHALL ST
SOMERVILLE, MA 02145

EDR US Hist Auto Stat   **1015671338**
N/A

Click here for full text details

D30
North
< 1/8
0.120 mi.
633 ft.

Relative:
Lower

PARKING LOT
358 MEDFORD ST
SOMERVILLE, MA 02143

SHWS   **S103383733**
RELEASE   **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0017076 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0017076 / RAO

Click here to access the MA DEP site for this facility

E31
ENE
< 1/8
0.121 mi.
640 ft.

Relative:
Lower

APARTMENT BUILDING
240 PEARL STREET
SOMERVILLE, MA 02145

SHWS   **S116358009**
RELEASE   **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0031954 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0031954 / RAO

Click here to access the MA DEP site for this facility

E32
ENE
1/8-1/4
0.128 mi.
678 ft.

Relative:
Lower

BACK BAY SIGN CO INC
236 PEARL ST
SOMERVILLE, MA 02145

RCRA-CESQG   **1004715276**
FINDS   **MAD001005784**

Click here for full text details

RCRA-CESQG
EPA Id: MAD001005784

FINDS

BACK BAY SIGN CO INC (Continued) **1004715276**

Registry ID:: 110003416857

E33 **ENE** **1/8-1/4** **0.128 mi.** **678 ft.** **Relative: Lower**	**BACK BAY SIGN CO INC** **236 PEARL ST** **SOMERVILLE, MA 02145**	**HW GEN**	**S112550693** **N/A**

Click here for full text details

HW GEN
EPA Id: MAD001005784

E34 **ENE** **1/8-1/4** **0.128 mi.** **678 ft.** **Relative: Lower**	**SRP SIGN CORP** **236 PEARL ST** **SOMERVILLE, MA 02145**	**HW GEN**	**S112558716** **N/A**

Click here for full text details

HW GEN
EPA Id: MV6176236222

D35 **North** **1/8-1/4** **0.131 mi.** **690 ft.** **Relative: Lower**	**SOMERVILLE XTRA FUELS** **360 MEDFORD ST** **SOMERVILLE, MA 02145**	**SHWS** **LUST** **UST** **INST CONTROL** **RELEASE** **ENF** **Financial Assurance** **HW GEN**	**U003655043** **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0016624 / RAO

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0015184 / RAO
Release Tracking Number / Current Status: 3-0028903 / RAO

Click here to access the MA DEP site for this facility

UST
Facility Id: 10925
Tank Status: Removed
Tank Status: In Use

INST CONTROL
Release Tracking Number: 3-0015184

RELEASE

SOMERVILLE XTRA FUELS (Continued) **U003655043**

Release Tracking Number / Current Status: 3-0015184 / RAO
Release Tracking Number / Current Status: 3-0016624 / RAO
Release Tracking Number / Current Status: 3-0028903 / RAO

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0028903

Financial Assurance
Facility Id: 10925

HW GEN
EPA Id: MV6176255555

D36
North
1/8-1/4
0.131 mi.
690 ft.

Relative:
Lower

360 MEDFORD ST
SOMERVILLE, MA 02145

EDR US Hist Auto Stat **1015448080**
N/A

Click here for full text details

37
North
1/8-1/4
0.153 mi.
806 ft.

Relative:
Lower

368 MEDFORD ST
SOMERVILLE, MA 02145

EDR US Hist Auto Stat **1015452241**
N/A

Click here for full text details

F38
West
1/8-1/4
0.154 mi.
812 ft.

Relative:
Higher

RAYS TEXACO
112 HIGHLAND AVE
SOMERVILLE, MA 02143

RCRA NonGen / NLR **1000376033**
FINDS **MAD981892417**

Click here for full text details

RCRA NonGen / NLR
EPA Id: MAD981892417

FINDS
Registry ID:: 110003472144

F39
West
1/8-1/4
0.154 mi.
812 ft.

Relative:
Higher

TEXACO SERVICE
112 HIGHLAND AVE
SOMERVILLE, MA 02143

LUST
UST
RELEASE
Financial Assurance

U002010300
N/A

Click here for full text details

LUST
Release Tracking Number / Current Status: 3-0003944 / RAO

Click here to access the MA DEP site for this facility

UST
Facility Id: 20035
Tank Status: Removed

RELEASE
Release Tracking Number / Current Status: 3-0003944 / RAO

Click here to access the MA DEP site for this facility

Financial Assurance
Facility Id: 20035

40
SSW
1/8-1/4
0.156 mi.
826 ft.

Relative:
Lower

CUMMINGS SCHOOL & PLAYGROUND
42 PRESCOTT ST
SOMERVILLE, MA 02143

LUST
RELEASE
ENF

S108347896
N/A

Click here for full text details

LUST
Release Tracking Number / Current Status: 3-0026494 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0026494 / RAO

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0026494

41
SW
1/8-1/4
0.170 mi.
896 ft.

Relative:
Lower

SOMERVILLE HIGH SCHOOL AUTO SHOP
93 SCHOOL ST
SOMERVILLE, MA 02143

RCRA NonGen / NLR
FINDS

1000219967
MAD981887656

Click here for full text details

RCRA NonGen / NLR
EPA Id: MAD981887656

SOMERVILLE HIGH SCHOOL AUTO SHOP (Continued) **1000219967**

FINDS
Registry ID:: 110003470315

G42
ESE
1/8-1/4
0.176 mi.
928 ft.
Relative: Lower

303 MEDFORD STREET
303 MEDFORD STREET
SOMERVILLE, MA 02143

US BROWNFIELDS **1016352478**
FINDS **N/A**

Click here for full text details

US BROWNFIELDS
ACRES property ID: 12925

FINDS
Registry ID:: 110039552365

G43
ESE
1/8-1/4
0.180 mi.
950 ft.
Relative: Lower

CORNER OF MEDFORD AND WALNUT ST
299 TO 303 MEDFORD ST
SOMERVILLE, MA 02143

SHWS **S105309367**
RELEASE **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0021398 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0021398 / RAO

Click here to access the MA DEP site for this facility

44
WNW
1/8-1/4
0.180 mi.
952 ft.
Relative: Lower

55 MADISON ST
SOMERVILLE, MA 02143

EDR US Hist Auto Stat **1015549488**
N/A

Click here for full text details

MAP FINDINGS

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number

45
SSE
1/8-1/4
0.181 mi.
957 ft.

Relative:
Lower

73 PLEASANT AVE
SOMERVILLE, MA 02143

EDR US Hist Auto Stat — **1015618561** / **N/A**

[Click here for full text details]

46
East
1/8-1/4
0.186 mi.
981 ft.

Relative:
Lower

INDUSTRIAL PROPERTY
100 WALNUT ST
SOMERVILLE, MA 02143

SHWS / **RELEASE** — **S100830671** / **N/A**

[Click here for full text details]

SHWS
Release Tracking Number / Current Status: 3-0004193 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0004193 / RAO

Click here to access the MA DEP site for this facility

G47
ESE
1/8-1/4
0.190 mi.
1002 ft.

Relative:
Lower

VACANT LOT
299-303 MEDFORD ST
SOMERVILLE, MA 02143

SHWS / **INST CONTROL** / **RELEASE** — **S100363193** / **N/A**

[Click here for full text details]

SHWS
Release Tracking Number / Current Status: 3-0004031 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0004031

RELEASE
Release Tracking Number / Current Status: 3-0004031 / RAO

Click here to access the MA DEP site for this facility

G48 | **EDR US Hist Auto Stat** | **1015396700**
ESE | **297 MEDFORD ST** | **N/A**
1/8-1/4 | **SOMERVILLE, MA 02143**
0.196 mi.
1035 ft.

Click here for full text details

Relative:
Lower

G49 | **A PLUS AUTO BODY** | **HW GEN** | **S117894797**
ESE | **297 MEDFORD ST** | **N/A**
1/8-1/4 | **SOMERVILLE, MA 02143**
0.196 mi.
1035 ft.

Click here for full text details

Relative:
Lower

HW GEN
EPA Id: MV6177764500

G50 | **A & C AUTO BODY INC** | **RCRA NonGen / NLR** | **1000105645**
ESE | **297 MEDFORD ST** | **FINDS** | **MAD981206873**
1/8-1/4 | **SOMERVILLE, MA 02145**
0.196 mi.
1035 ft.

Click here for full text details

Relative:
Lower

RCRA NonGen / NLR
EPA Id: MAD981206873

FINDS
Registry ID:: 110003464974

---

51 | **EDR US Hist Auto Stat** | **1015395732**
ESE | **295 MEDFORD ST** | **N/A**
1/8-1/4 | **SOMERVILLE, MA 02143**
0.204 mi.
1077 ft.

Click here for full text details

Relative:
Lower

---

52 | **EDR US Hist Cleaners** | **1015017265**
East | **211 PEARL ST** | **N/A**
1/8-1/4 | **SOMERVILLE, MA 02145**
0.206 mi.
1086 ft.

Click here for full text details

Relative:
Lower

53
SSW
1/8-1/4
0.221 mi.
1168 ft.

Relative:
Lower

RESIDENCE
27 PUTNAM ST
SOMERVILLE, MA 02143

SHWS **S103249925**
RELEASE **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0016688 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0016688 / RAO

Click here to access the MA DEP site for this facility

H54
ESE
1/8-1/4
0.228 mi.
1205 ft.

Relative:
Lower

NO LOCATION AID
103 GILMAN ST
SOMERVILLE, MA 02145

LAST **S106617118**
RELEASE **N/A**
LEAD

Click here for full text details

LAST
Release Tracking Number / Current Status: 3-0010466 / RAO

RELEASE
Release Tracking Number / Current Status: 3-0010466 / RAO

Click here to access the MA DEP site for this facility

LEAD
Inspector License Number: 2097

H55
ESE
1/8-1/4
0.234 mi.
1234 ft.

Relative:
Lower

92 GILMAN ST
SOMERVILLE, MA 02145

EDR US Hist Cleaners **1015106099**
N/A

Click here for full text details

56
South
1/8-1/4
0.240 mi.
1266 ft.

Relative:
Lower

NO LOCATION AID
31 VINAL AVE
SOMERVILLE, MA 02143

SHWS **S105914093**
RELEASE **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0022695 / RAO

NO LOCATION AID (Continued) **S105914093**

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0022695 / RAO

Click here to access the MA DEP site for this facility

57
SW
1/4-1/2
0.265 mi.
1401 ft.

Relative:
Lower

SAMAY INC
73 SUMMER ST
SOMERVILLE, MA 02143

SHWS
RELEASE
SPILLS
HW GEN

S101031634
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0019957 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0019957 / RAO

Click here to access the MA DEP site for this facility

SPILLS
Facility Id: 0000
Case Closed: YES
Spill ID: N87-0757
Spill ID: N92-0266

HW GEN
State Generator Status: SQG-MA
EPA Id: MV6177766667

58
East
1/4-1/2
0.321 mi.
1694 ft.

Relative:
Lower

CEDARS PETROLEUM
180 PEARL ST
SOMERVILLE, MA 02145

SHWS
UST
RELEASE
Financial Assurance
HW GEN

U003655037
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0026091 / RAO

Click here to access the MA DEP site for this facility

UST
Facility Id: 10891
Tank Status: Removed
Tank Status: In Use

CEDARS PETROLEUM (Continued) **U003655037**

RELEASE
Release Tracking Number / Current Status: 3-0026091 / RAO

Click here to access the MA DEP site for this facility

Financial Assurance
Facility Id: 10891

HW GEN
State Generator Status: SQG-MA
EPA Id: MV6176165764
EPA Id: MAD981209570

59
NW
1/4-1/2
0.332 mi.
1751 ft.

Relative:
Lower

VERIZON MASSACHUSETTS #623206
111 CENTRAL ST
SOMERVILLE, MA 02143

LUST
UST
RELEASE
Financial Assurance

U002007584
N/A

Click here for full text details

LUST
Release Tracking Number / Current Status: 3-0004584 / RAO

Click here to access the MA DEP site for this facility

UST
Facility Id: 10884
Tank Status: Removed
Tank Status: In Use

RELEASE
Release Tracking Number / Current Status: 3-0004584 / RAO

Click here to access the MA DEP site for this facility

Financial Assurance
Facility Id: 10884

I60
NW
1/4-1/2
0.340 mi.
1794 ft.

Relative:
Lower

SOMERVILLE COMMUNITY PATH PARK, PHASE I AREA
112A CENTRAL STREET
SOMERVILLE, MA 02143

US BROWNFIELDS
FINDS

1016350335
N/A

Click here for full text details

US BROWNFIELDS
ACRES property ID: 70015

FINDS

SOMERVILLE COMMUNITY PATH PARK, PHASE I AREA (Continued) **1016350335**

Registry ID:: 110039062796

I61
NW
1/4-1/2
0.340 mi.
1794 ft.

Relative:
Lower

COMMUNITY DEVELOPMENT PARCEL
112A CENTRAL ST
SOMERVILLE, MA 02143

SHWS
INST CONTROL
RELEASE

S108858832
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0027194 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0027194

RELEASE
Release Tracking Number / Current Status: 3-0027194 / RAO

Click here to access the MA DEP site for this facility

62
NNE
1/4-1/2
0.345 mi.
1822 ft.

Relative:
Lower

NO LOCATION AID
28-30 MARSHALL ST
SOMERVILLE, MA 02143

LUST
RELEASE

S102087561
N/A

Click here for full text details

LUST
Release Tracking Number / Current Status: 3-0013764 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0013764 / RAO

Click here to access the MA DEP site for this facility

J63
South
1/4-1/2
0.360 mi.
1901 ft.

Relative:
Lower

NO LOCATION AID
3 SUMMER ST
SOMERVILLE, MA 02143

LAST
RELEASE

S106776045
N/A

Click here for full text details

LAST
Release Tracking Number / Current Status: 3-0024469 / RAO

RELEASE
Release Tracking Number / Current Status: 3-0024469 / RAO

NO LOCATION AID (Continued) **S106776045**

Click here to access the MA DEP site for this facility

64
East
1/4-1/2
0.363 mi.
1915 ft.

Relative:
Lower

MCGRATH AUTO BODY SHOP
42 DANA ST
SOMERVILLE, MA 02143

LUST
RELEASE

S100829679
N/A

Click here for full text details

LUST
Release Tracking Number / Current Status: 3-0004542 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0004542 / RAO

Click here to access the MA DEP site for this facility

65
ESE
1/4-1/2
0.365 mi.
1927 ft.

Relative:
Lower

NO LOCATION AID
41 GILMAN ST
SOMERVILLE, MA

LAST
RELEASE

S105810740
N/A

Click here for full text details

LAST
Release Tracking Number / Current Status: 3-0022627 / RAO

RELEASE
Release Tracking Number / Current Status: 3-0022627 / RAO

Click here to access the MA DEP site for this facility

66
South
1/4-1/2
0.370 mi.
1953 ft.

Relative:
Lower

FORMER DISTRICT COURT
19 WALNUT ST
SOMERVILLE, MA 02143

LAST
RELEASE
ENF

S108117276
N/A

Click here for full text details

LAST
Release Tracking Number / Current Status: 3-0026241 / RAO

RELEASE
Release Tracking Number / Current Status: 3-0026241 / RAO

Click here to access the MA DEP site for this facility

ENF

FORMER DISTRICT COURT (Continued) **S108117276**

Program Id: 3-0026241

J67
South
1/4-1/2
0.372 mi.
1966 ft.

Relative:
Lower

NO LOCATION AID
1 SUMMER ST
SOMERVILLE, MA 02143

SHWS
LAST
RELEASE

S105735684
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0021497 / RAO
Release Tracking Number / Current Status: 3-0022327 / RAONR

Click here to access the MA DEP site for this facility

LAST
Release Tracking Number / Current Status: 3-0022327 / RAONR

RELEASE
Release Tracking Number / Current Status: 3-0021497 / RAO
Release Tracking Number / Current Status: 3-0022327 / RAONR

Click here to access the MA DEP site for this facility

68
West
1/4-1/2
0.386 mi.
2039 ft.

Relative:
Lower

RESIDENTIAL
19 CAMBRIA ST
SOMERVILLE, MA 02143

LUST
RELEASE
LEAD

S107304150
N/A

Click here for full text details

LUST
Release Tracking Number / Current Status: 3-0028555 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0028555 / RAO

Click here to access the MA DEP site for this facility

LEAD
Inspector License Number: 3144

K69
SSW
1/4-1/2
0.387 mi.
2045 ft.

Relative:
Lower

SUBSTATION PNU 13
BOW STREET PL
SOMERVILLE, MA

SHWS
RELEASE

S105735698
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0022347 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0022347 / RAO

Click here to access the MA DEP site for this facility

L70
SW
1/4-1/2
0.393 mi.
2076 ft.

Relative:
Lower

NO LOCATION AID
25-27 OSGOOD ST
SOMERVILLE, MA

SHWS
RELEASE

S108034473
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0025805 / URAM

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0025805 / URAM

Click here to access the MA DEP site for this facility

K71
SSW
1/4-1/2
0.394 mi.
2078 ft.

Relative:
Lower

NO LOCATION AID
65 1\\2 BOW ST
SOMERVILLE, MA

LUST
RELEASE

S105309325
N/A

Click here for full text details

LUST
Release Tracking Number / Current Status: 3-0017933 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0017933 / RAO

Click here to access the MA DEP site for this facility

L72
SW
1/4-1/2
0.395 mi.
2088 ft.

Relative:
Lower

BLAISDALE SLATE CO
27 OSGOOD ST
SOMERVILLE, MA 02143

SHWS
LUST
RELEASE
SPILLS

S101042743
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0024660 / RAO

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0004577 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0004577 / RAO
Release Tracking Number / Current Status: 3-0024660 / RAO

Click here to access the MA DEP site for this facility

SPILLS

Facility Id: 3-4577
Case Closed: YES
Spill ID: N92-0666

73
SSW
1/4-1/2
0.403 mi.
2129 ft.

Relative:
Lower

PROPERTY
55 BOW ST
SOMERVILLE, MA 02143

SHWS
RELEASE

S100363187
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0003600 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0003600 / RAO

Click here to access the MA DEP site for this facility

74
NNE
1/4-1/2
0.404 mi.
2131 ft.

Relative:
Lower

AT MARSHALL ST
296 TO 308 BROADWAY
SOMERVILLE, MA 02143

SHWS
RELEASE

S104000500
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0018407 / DPS

AT MARSHALL ST (Continued) **S104000500**

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0018407 / DPS

Click here to access the MA DEP site for this facility

M75 **NE** **1/4-1/2** **0.410 mi.** **2163 ft.** **Relative:** **Lower**	**SUNOCO SERVICE STATION** **258 BROADWAY** **SOMERVILLE, MA 02145**	**SHWS** **LUST** **RELEASE** **HW GEN**	**S105735961** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0022432 / RAO

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0004820 / RAO
Release Tracking Number / Current Status: 3-0012319 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0004820 / RAO
Release Tracking Number / Current Status: 3-0012319 / RAO
Release Tracking Number / Current Status: 3-0022432 / RAO

Click here to access the MA DEP site for this facility

HW GEN

EPA Id: MAD000847350

M76 **ENE** **1/4-1/2** **0.413 mi.** **2182 ft.** **Relative:** **Lower**	**NO LOCATION** **9 MONTGOMERY AVE** **SOMERVILLE, MA 02145**	**LAST** **RELEASE**	**S108476889** **N/A**

Click here for full text details

LAST

Release Tracking Number / Current Status: 3-0026651 / RAO

RELEASE

Release Tracking Number / Current Status: 3-0026651 / RAO

Click here to access the MA DEP site for this facility

77
SSE
1/4-1/2
0.415 mi.
2189 ft.

Relative:
Lower

NEAR 55 COLUMBUS AVE
COLUMBUS AVE
SOMERVILLE, MA

SHWS
RELEASE

S108858954
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0027074 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0027074 / RAO

Click here to access the MA DEP site for this facility

78
NNE
1/4-1/2
0.416 mi.
2196 ft.

Relative:
Lower

NO LOCATION AID
324 BROADWAY
SOMERVILLE, MA

SHWS
RELEASE

S103811997
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0017887 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0017887 / RAO

Click here to access the MA DEP site for this facility

79
NNE
1/4-1/2
0.423 mi.
2236 ft.

Relative:
Lower

NO LOCATION AID
338 BROADWAY
SOMERVILLE, MA

LUST
RELEASE

S102404013
N/A

Click here for full text details

LUST
Release Tracking Number / Current Status: 3-0014538 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0014538 / RAO

Click here to access the MA DEP site for this facility

80
NNW
1/4-1/2
0.427 mi.
2257 ft.

Relative:
Lower

NO LOCATION AID
33 ROBINSON ST
SOMERVILLE, MA 02145

SHWS
RELEASE

S107678258
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0025748 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0025748 / RAO

Click here to access the MA DEP site for this facility

81
North
1/4-1/2
0.430 mi.
2273 ft.

Relative:
Lower

NO LOCATION AID
148 SYCAMORE ST
SOMERVILLE, MA

LUST
RELEASE

S105914272
N/A

Click here for full text details

LUST

Release Tracking Number / Current Status: 3-0022827 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0022827 / RAO

Click here to access the MA DEP site for this facility

82
NE
1/4-1/2
0.431 mi.
2278 ft.

Relative:
Lower

LATTA BROTHERS MEMORIAL POOL
251 BROADWAY
SOMERVILLE, MA

LUST
RELEASE

S102967349
N/A

Click here for full text details

LUST

Release Tracking Number / Current Status: 3-0015604 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0015604 / RAO

Click here to access the MA DEP site for this facility

83
NW
1/4-1/2
0.441 mi.
2328 ft.

Relative:
Lower

RESIDENCE
8 MINER ST
SOMERVILLE, MA 02145

LUST
RELEASE

S107405753
N/A

Click here for full text details

LUST
Release Tracking Number / Current Status: 3-0025050 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0025050 / RAO

Click here to access the MA DEP site for this facility

N84
SW
1/4-1/2
0.448 mi.
2368 ft.

Relative:
Lower

AUTOMOTIVE SHOP
444-460 SOMERVILLE AVE
SOMERVILLE, MA 02143

SHWS
RELEASE

S100830660
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0000772 / PENNFA

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0000772 / PENNFA

Click here to access the MA DEP site for this facility

N85
SW
1/4-1/2
0.448 mi.
2368 ft.

Relative:
Lower

NO LOCATION AID
444 SOMERVILLE AVE
SOMERVILLE, MA 02143

SHWS
INST CONTROL
RELEASE
HW GEN

S103812195
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0018136 / RAO
Release Tracking Number / Current Status: 3-0018349 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0018136
Release Tracking Number: 3-0018349

RELEASE
Release Tracking Number / Current Status: 3-0018136 / RAO
Release Tracking Number / Current Status: 3-0018349 / RAO

NO LOCATION AID (Continued) **S103812195**

Click here to access the MA DEP site for this facility

HW GEN
State Generator Status: SQG-MA
EPA Id: MAD981067101

86
SE
1/4-1/2
0.453 mi.
2394 ft.

Relative:
Lower

SUNOCO #0005-2175
434 MCGRATH HWY
SOMERVILLE, MA 02143

SHWS
LUST
UST
RELEASE
Financial Assurance
HW GEN

U003655042
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0017921 / RAO

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0004701 / RAO

Click here to access the MA DEP site for this facility

UST
Facility Id: 10921
Tank Status: Removed

RELEASE
Release Tracking Number / Current Status: 3-0004701 / RAO
Release Tracking Number / Current Status: 3-0017921 / RAO

Click here to access the MA DEP site for this facility

Financial Assurance
Facility Id: 10921

HW GEN
EPA Id: MAD985268994

O87
SW
1/4-1/2
0.454 mi.
2399 ft.

Relative:
Lower

SOMERVILLE AUTO REPAIR
453 SOMERVILLE AVE
SOMERVILLE, MA 02143

SHWS
RELEASE
HW GEN

S108034614
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0026058 / RAO

SOMERVILLE AUTO REPAIR (Continued) **S108034614**

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0026058 / RAO

Click here to access the MA DEP site for this facility

HW GEN
State Generator Status: SQG-MA
EPA Id: MV6176251779

P88
South
1/4-1/2
0.457 mi.
2412 ft.

Relative:
Lower

BOSTON EDISON CO
10 BOW PL
SOMERVILLE, MA 02143

SHWS **S101856538**
RELEASE **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0002946 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0002946 / RAO

Click here to access the MA DEP site for this facility

89
NNE
1/4-1/2
0.459 mi.
2425 ft.

Relative:
Lower

NO LOCATION AID
18 TEMPLE STREET
SOMERVILLE, MA 02145

LUST **S112195285**
RELEASE **N/A**

Click here for full text details

LUST
Release Tracking Number / Current Status: 3-0031100 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0031100 / RAO

Click here to access the MA DEP site for this facility

O90
SW
1/4-1/2
0.462 mi.
2438 ft.

Relative:
Lower

NO LOCATION AID
460 SOMERVILLE AVE
SOMERVILLE, MA

SHWS
LUST
INST CONTROL
SPILLS
RELEASE

S101018686
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0014880 / RAO

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0014864 / RAO
Release Tracking Number / Current Status: 3-0014866 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0014864
Release Tracking Number: 3-0014866
Release Tracking Number: 3-0014880

SPILLS

Facility Id: 0000
Case Closed: YES
Spill ID: N88-0745

RELEASE

Release Tracking Number / Current Status: 3-0014864 / RAO
Release Tracking Number / Current Status: 3-0014866 / RAO
Release Tracking Number / Current Status: 3-0014880 / RAO

Click here to access the MA DEP site for this facility

P91
South
1/4-1/2
0.470 mi.
2479 ft.

Relative:
Lower

GOODYEAR TIRE & RUBBER CO
1 BOW ST
SOMERVILLE, MA 02143

SHWS
RELEASE
HW GEN

S110684423
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0029668 / RAO
Release Tracking Number / Current Status: 3-0029845 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0029668 / RAO
Release Tracking Number / Current Status: 3-0029845 / RAO

Click here to access the MA DEP site for this facility

HW GEN

GOODYEAR TIRE & RUBBER CO (Continued) **S110684423**

State Generator Status: LQG-MA
EPA Id: MAD981898216

Q92 **ENE** **1/4-1/2** **0.483 mi.** **2552 ft.** **Relative:** **Lower**	**CUMBERLAND FARMS #118602** **212 BROADWAY** **SOMERVILLE, MA 02143** **Click here for full text details**	**SHWS** **LUST** **UST** **AST** **RELEASE** **Financial Assurance**	**U001006516** **N/A**

SHWS
Release Tracking Number / Current Status: 3-0003722 / RAO

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0011462 / RAO
Release Tracking Number / Current Status: 3-0022508 / RAO

Click here to access the MA DEP site for this facility

UST
Facility Id: 10915
Tank Status: Removed
Tank Status: In Use

AST
Release Tracking Number: 10915

RELEASE
Release Tracking Number / Current Status: 3-0003722 / RAO
Release Tracking Number / Current Status: 3-0011462 / RAO
Release Tracking Number / Current Status: 3-0022508 / RAO

Click here to access the MA DEP site for this facility

Financial Assurance
Facility Id: 10915

Q93 **ENE** **1/4-1/2** **0.490 mi.** **2588 ft.** **Relative:** **Lower**	**MWRA DRAIN** **RTE 28 BROADWAY** **SOMERVILLE, MA** **Click here for full text details**	**SHWS** **RELEASE**	**S102085306** **N/A**

SHWS
Release Tracking Number / Current Status: 3-0010663 / RAO

Click here to access the MA DEP site for this facility

MWRA DRAIN (Continued) **S102085306**

RELEASE
Release Tracking Number / Current Status: 3-0010663 / RAO

Click here to access the MA DEP site for this facility

94
WSW
1/4-1/2
0.491 mi.
2590 ft.

Relative:
Lower

HERITAGE HOSPITAL
26 CENTRAL ST
SOMERVILLE, MA

LUST
RELEASE

S102687409
N/A

Click here for full text details

LUST
Release Tracking Number / Current Status: 3-0015449 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0015449 / RAO

Click here to access the MA DEP site for this facility

95
NNW
1/4-1/2
0.492 mi.
2596 ft.

Relative:
Higher

NO LOCATION AID
188 CENTRAL ST
SOMERVILLE, MA 02145

LUST
RELEASE
LEAD

S104847522
N/A

Click here for full text details

LUST
Release Tracking Number / Current Status: 3-0020161 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0020161 / RAO

Click here to access the MA DEP site for this facility

LEAD
Inspector License Number: 2378

96
SE
1/4-1/2
0.494 mi.
2609 ft.

Relative:
Lower

TUFTS UNIVERSITY
TILTON HALL
SOMERVILLE, MA 02145

SHWS
RELEASE

S103383692
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0017019 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0017019 / RAO

Click here to access the MA DEP site for this facility

97
East
1/4-1/2
0.496 mi.
2620 ft.

Relative:
Lower

CHROME PLATING FACILITY FMR
46 CROSS ST
SOMERVILLE, MA 02143

SHWS
RELEASE

S100830664
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0000673 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0000673 / RAO

Click here to access the MA DEP site for this facility

98
South
1/2-1
0.510 mi.
2692 ft.

Relative:
Lower

PROSPECT & STONE IN FRONT OF 59 UNION SQ
SOMERVILLE AVE
SOMERVILLE, MA

SHWS
RELEASE

S104482348
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0018942 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0018942 / RAO

Click here to access the MA DEP site for this facility

R99 **SE** **1/2-1** **0.521 mi.** **2752 ft.**	**MBTA STORM DRAIN** **WASHINGTON ST** **SOMERVILLE, MA 02145**	**SHWS** **RELEASE**	**S109948731** **N/A**

Relative:
Lower

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0028231 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0028231 / RAO

Click here to access the MA DEP site for this facility

S100 **SW** **1/2-1** **0.521 mi.** **2752 ft.**	**NO LOCATION AID** **508 SOMERVILLE AVE** **SOMERVILLE, MA 02143**	**SHWS** **LUST** **RELEASE** **ENF**	**S116687214** **N/A**

Relative:
Lower

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0032186 / TIERII

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0032186 / TIERII
Release Tracking Number / Current Status: 3-0032389 / UNCLSS

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0032186 / TIERII
Release Tracking Number / Current Status: 3-0032389 / UNCLSS

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0032389

---

101 **SW** **1/2-1** **0.530 mi.** **2798 ft.**	**PROPERTY** **24 DANE ST** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE**	**S101696343** **N/A**

Relative:
Lower

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0003393 / RAO

PROPERTY (Continued) **S101696343**

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0003393 / RAO

Click here to access the MA DEP site for this facility

T102
ENE
1/2-1
0.531 mi.
2803 ft.

Relative:
Lower

HESS STATION 21521
709 MCGRATH HIGHWAY
SOMERVILLE, MA 02145

SHWS
LUST
RELEASE

S114004806
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0031741 / TIERI

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0031741 / TIERI

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0031741 / TIERI

Click here to access the MA DEP site for this facility

T103
ENE
1/2-1
0.531 mi.
2803 ft.

Relative:
Lower

HESS CORPORATION
709 MCGRATH HWY
SOMERVILLE, MA 02145

SHWS
LUST
RELEASE
ENF

S100831689
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0015862 / RAONR
Release Tracking Number / Current Status: 3-0000856 / INVSUB
Release Tracking Number / Current Status: 3-0021247 / RAONR
Release Tracking Number / Current Status: 3-0021399 / RAO
Release Tracking Number / Current Status: 3-0015170 / RAONR
Release Tracking Number / Current Status: 3-0014215 / RAONR

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0000856 / INVSUB
Release Tracking Number / Current Status: 3-0014626 / RAONR
Release Tracking Number / Current Status: 3-0021247 / RAONR
Release Tracking Number / Current Status: 3-0023292 / RAONR

HESS CORPORATION (Continued) **S100831689**

Release Tracking Number / Current Status: 3-0023363 / RAONR
Release Tracking Number / Current Status: 3-0023387 / RAONR

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0000856 / INVSUB
Release Tracking Number / Current Status: 3-0014215 / RAONR
Release Tracking Number / Current Status: 3-0014626 / RAONR
Release Tracking Number / Current Status: 3-0015170 / RAONR
Release Tracking Number / Current Status: 3-0015862 / RAONR
Release Tracking Number / Current Status: 3-0021247 / RAONR
Release Tracking Number / Current Status: 3-0021399 / RAO
Release Tracking Number / Current Status: 3-0023292 / RAONR
Release Tracking Number / Current Status: 3-0023363 / RAONR
Release Tracking Number / Current Status: 3-0023387 / RAONR

Click here to access the MA DEP site for this facility

ENF

Program Id: 3-0000856

R104 **SE** **1/2-1** **0.531 mi.** **2806 ft.**	**@ CROSS ST** **60 TUFTS ST** **SOMERVILLE, MA**	**SHWS** **RELEASE** **LEAD**	**S102555511** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0014792 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0014792 / RAO

Click here to access the MA DEP site for this facility

LEAD

Inspector License Number: 2006

S105 **WSW** **1/2-1** **0.534 mi.** **2821 ft.**	**NO LOCATION AID** **515 SOMERVILLE AVE** **SOMERVILLE, MA 02143**	**SHWS** **LAST** **LUST** **INST CONTROL** **RELEASE** **ENF**	**S106512855** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0023606 / RAO

NO LOCATION AID (Continued) **S106512855**

Click here to access the MA DEP site for this facility

LAST
Release Tracking Number / Current Status: 3-0023606 / RAO

LUST
Release Tracking Number / Current Status: 3-0023606 / RAO
Release Tracking Number / Current Status: 3-0028545 / RAO
Release Tracking Number / Current Status: 3-0028546 / RAO
Release Tracking Number / Current Status: 3-0028548 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0023606

RELEASE
Release Tracking Number / Current Status: 3-0023606 / RAO
Release Tracking Number / Current Status: 3-0028545 / RAO
Release Tracking Number / Current Status: 3-0028546 / RAO
Release Tracking Number / Current Status: 3-0028548 / RAO

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0023606

T106
ENE
1/2-1
0.538 mi.
2840 ft.

Relative:
Lower

LOCANN GLASS
693 MCGRATH AKA OBRIEN HWY
SOMERVILLE, MA 02145

SHWS **S102967469**
RELEASE **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0015825 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0015825 / RAO

Click here to access the MA DEP site for this facility

107
NW
1/2-1
0.538 mi.
2842 ft.

Relative:
Lower

NO LOCATION AID
38 GLENWOOD RD
SOMERVILLE, MA

SHWS
LAST
RELEASE

S106954219
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0025003 / RAO

Click here to access the MA DEP site for this facility

LAST

Release Tracking Number / Current Status: 3-0025003 / RAO

RELEASE

Release Tracking Number / Current Status: 3-0025003 / RAO

Click here to access the MA DEP site for this facility

108
North
1/2-1
0.548 mi.
2896 ft.

Relative:
Lower

GRZEBIENIOWSKI, ANDREW
38 FENWICK ST
SOMERVILLE, MA

SHWS
LUST
RELEASE
ENF

S106775737
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0021242 / RAO

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0021242 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0021242 / RAO

Click here to access the MA DEP site for this facility

ENF

Program Id: 3-0021242

109 **WSW** **1/2-1** **0.551 mi.** **2909 ft.** **Relative:** **Lower**	**GUS SERVICE STATION** **519 SOMERVILLE AVE** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE**	**S100043085** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0002582 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0002582 / RAO

Click here to access the MA DEP site for this facility

---

110 **SE** **1/2-1** **0.551 mi.** **2911 ft.** **Relative:** **Lower**	**JOHN DAVIS CO** **50 TUFTS ST** **SOMERVILLE, MA 02143**	**SHWS** **UST** **INST CONTROL** **RELEASE** **ENF** **Financial Assurance** **HW GEN**	**U002007547** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0024358 / TIERII
Release Tracking Number / Current Status: 3-0023246 / TIERII
Release Tracking Number / Current Status: 3-0024376 / TIERII
Release Tracking Number / Current Status: 3-0026114 / TIERII

Click here to access the MA DEP site for this facility

UST

Facility Id: 10866
Tank Status: Removed

INST CONTROL

Release Tracking Number: 3-0023246

RELEASE

Release Tracking Number / Current Status: 3-0023246 / TIERII
Release Tracking Number / Current Status: 3-0024358 / TIERII
Release Tracking Number / Current Status: 3-0024376 / TIERII
Release Tracking Number / Current Status: 3-0026114 / TIERII

Click here to access the MA DEP site for this facility

ENF

Program Id: 3-0023246
Program Id: 3-0026114

Financial Assurance

JOHN DAVIS CO (Continued) **U002007547**

Facility Id: 10866

HW GEN
EPA Id: MAC300011277

U111
SSE
1/2-1
0.552 mi.
2915 ft.

Relative:
Lower

@ WASHINGTON STREET
BONNER ST
SOMERVILLE, MA 02143

SHWS **S106132277**
RELEASE **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0023353 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0023353 / RAO

Click here to access the MA DEP site for this facility

112
SSE
1/2-1
0.555 mi.
2929 ft.

Relative:
Lower

4693770N 327473E
298 SOMERVILLE AVE
SOMERVILLE, MA 02143

SHWS **S105200003**
RELEASE **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0021046 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0021046 / RAO

Click here to access the MA DEP site for this facility

113
SSW
1/2-1
0.556 mi.
2935 ft.

Relative:
Lower

PROPOSED LINCOLN PARK COMMUNITY SCHOOL
290 WASHINGTON ST
SOMERVILLE, MA 02143

SHWS **S107678354**
RELEASE **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0025668 / RAO

Click here to access the MA DEP site for this facility

RELEASE

PROPOSED LINCOLN PARK COMMUNITY SCHOOL (Continued) **S107678354**

Release Tracking Number / Current Status: 3-0025668 / RAO

Click here to access the MA DEP site for this facility

---

114 **NNE** **1/2-1** **0.557 mi.** **2941 ft.** **Relative:** **Lower**	**INTERSECTION WITH JAQUES ST** **65 TEMPLE ST** **SOMERVILLE, MA 02145**	**SHWS** **RELEASE**	**S107405527** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0025252 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0025252 / RAO

Click here to access the MA DEP site for this facility

---

115 **SSE** **1/2-1** **0.564 mi.** **2980 ft.** **Relative:** **Lower**	**CITGO STATION FMR** **236 WASHINGTON ST** **SOMERVILLE, MA 02143**	**SHWS** **LUST** **RELEASE**	**S100831686** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0000133 / RAO

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0000133 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0000133 / RAO

Click here to access the MA DEP site for this facility

---

116 **ENE** **1/2-1** **0.568 mi.** **3001 ft.** **Relative:** **Lower**	**NEAR MYSTIC AVE INTERSECTION** **779 MCGRATH HWY** **SOMERVILLE, MA 02145**	**SHWS** **LUST** **INST CONTROL** **RELEASE**	**S103043496** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0016643 / RAONR

NEAR MYSTIC AVE INTERSECTION (Continued) **S103043496**

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0015727 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0015727

RELEASE
Release Tracking Number / Current Status: 3-0015727 / RAO
Release Tracking Number / Current Status: 3-0016643 / RAONR

Click here to access the MA DEP site for this facility

U117
SSE
1/2-1
0.572 mi.
3019 ft.

Relative:
Lower

9 UNION SQUARE
9 UNION SQUARE
SOMERVILLE, MA 02143

SHWS
INST CONTROL
RELEASE

S116756056
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0032294 / PSC

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0032294

RELEASE
Release Tracking Number / Current Status: 3-0032294 / PSC

Click here to access the MA DEP site for this facility

118
SSW
1/2-1
0.573 mi.
3025 ft.

Relative:
Lower

L BORNSTEIN CO INC
321 WASHINGTON ST
SOMERVILLE, MA 02143

SHWS
LUST
INST CONTROL
RELEASE
ENF
HW GEN

S102085956
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0011561 / RAO

Click here to access the MA DEP site for this facility

LUST

L BORNSTEIN CO INC (Continued) **S102085956**

Release Tracking Number / Current Status: 3-0011497 / RAO
Release Tracking Number / Current Status: 3-0011555 / RAO
Release Tracking Number / Current Status: 3-0011561 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0011497
Release Tracking Number: 3-0011555
Release Tracking Number: 3-0011561

RELEASE
Release Tracking Number / Current Status: 3-0011497 / RAO
Release Tracking Number / Current Status: 3-0011555 / RAO
Release Tracking Number / Current Status: 3-0011561 / RAO

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0011497

HW GEN
EPA Id: MAD981214802

---

119 **NNW** **1/2-1** **0.573 mi.** **3027 ft.** **Relative:** **Higher**	**NO LOCATION AID** **120 BARTLETT ST** **SOMERVILLE, MA**	**SHWS** **LAST** **RELEASE** **SPILLS**	**S101047909** **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0010419 / RAO

Click here to access the MA DEP site for this facility

LAST
Release Tracking Number / Current Status: 3-0010419 / RAO

RELEASE
Release Tracking Number / Current Status: 3-0010419 / RAO

Click here to access the MA DEP site for this facility

SPILLS
Facility Id: 0000
Case Closed: YES
Spill ID: N93-1163

120
SE
1/2-1
0.578 mi.
3054 ft.

Relative:
Lower

COMMERCIAL PLASTICS
352 MCGRATH HWY
SOMERVILLE, MA 02143

SHWS
RELEASE

S105735980
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0022511 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0022511 / RAO

Click here to access the MA DEP site for this facility

121
SSE
1/2-1
0.590 mi.
3114 ft.

Relative:
Lower

NO LOCATION AID
220 WASHINGTON ST
SOMERVILLE, MA 02143

SHWS
LUST
INST CONTROL
RELEASE
ENF
HW GEN

S104000434
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0021795 / RAONR
Release Tracking Number / Current Status: 3-0021796 / RAONR
Release Tracking Number / Current Status: 3-0021794 / RAONR
Release Tracking Number / Current Status: 3-0018329 / RAONR
Release Tracking Number / Current Status: 3-0018328 / RAONR
Release Tracking Number / Current Status: 3-0018323 / RAO

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0028863 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0018323

RELEASE

Release Tracking Number / Current Status: 3-0018323 / RAO
Release Tracking Number / Current Status: 3-0018328 / RAONR
Release Tracking Number / Current Status: 3-0018329 / RAONR
Release Tracking Number / Current Status: 3-0021794 / RAONR
Release Tracking Number / Current Status: 3-0021795 / RAONR
Release Tracking Number / Current Status: 3-0021796 / RAONR
Release Tracking Number / Current Status: 3-0028863 / RAO

Click here to access the MA DEP site for this facility

ENF

NO LOCATION AID (Continued) **S104000434**

Program Id: 3-0018323
Program Id: 3-0028863

HW GEN
State Generator Status: VQG-MA
EPA Id: MV6176251600

V122 **SSE** **1/2-1** **0.596 mi.** **3145 ft.** **Relative: Lower**	**PROSPECT ST** **269 SOMERVILLE AVE** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE** **SPILLS**	**S101019655** **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0020453 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0020453 / RAO

Click here to access the MA DEP site for this facility

SPILLS
Facility Id: 3-1991
Case Closed: YES
Spill ID: N88-1728

W123 **SSE** **1/2-1** **0.597 mi.** **3151 ft.** **Relative: Lower**	**FORMER KILEY BARREL COMPANY SITE** **20-22 PROSPECT ST** **SOMERVILLE, MA**	**SHWS** **BROWNFIELDS** **RELEASE** **ENF**	**S100830672** **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0002849 / TIERI
Release Tracking Number / Current Status: 3-0028464 / RAONR

Click here to access the MA DEP site for this facility

BROWNFIELDS
MCP Status: Tier IB
RTN: 3-0002849

RELEASE
Release Tracking Number / Current Status: 3-0002849 / TIERI
Release Tracking Number / Current Status: 3-0028464 / RAONR

Click here to access the MA DEP site for this facility

FORMER KILEY BARREL COMPANY SITE (Continued) **S100830672**

ENF
Program Id: 3-0002849

X124
SSE
1/2-1
0.598 mi.
3157 ft.

Relative:
Lower

BOYS AND GIRLS CLUB
181 WASHINGTON ST
SOMERVILLE, MA

SHWS
LUST
RELEASE
ENF

S109489310
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0027899 / TIERII

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0027899 / TIERII

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0027899 / TIERII

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0027899

X125
SSE
1/2-1
0.598 mi.
3158 ft.

Relative:
Lower

NO LOCATION AID
179 WASHINGTON ST
SOMERVILLE, MA

SHWS
RELEASE
ENF

S108858974
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0027087 / TIER1D

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0027087 / TIER1D

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0027087

126 **NW** **1/2-1** **0.599 mi.** **3161 ft.**	**NO LOCATION AID** **259 LOWELL ST** **SOMERVILLE, MA 02143**	**SHWS** **LUST** **INST CONTROL** **RELEASE** **HW GEN**	**S102618397** **N/A**

Relative:
Lower

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0017552 / RAO
Release Tracking Number / Current Status: 3-0017602 / RAO

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0014910 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0014910
Release Tracking Number: 3-0017552
Release Tracking Number: 3-0017602

RELEASE
Release Tracking Number / Current Status: 3-0014910 / RAO
Release Tracking Number / Current Status: 3-0017552 / RAO
Release Tracking Number / Current Status: 3-0017602 / RAO

Click here to access the MA DEP site for this facility

HW GEN
EPA Id: MV6177769800

V127 **SSE** **1/2-1** **0.603 mi.** **3186 ft.**	**RESIDENTIAL PROPERTY** **4 MILK PLACE** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE**	**S114004823** **N/A**

Relative:
Lower

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0031763 / TIER1D
Release Tracking Number / Current Status: 3-0032134 / TIER1D

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0031763 / TIER1D
Release Tracking Number / Current Status: 3-0032134 / TIER1D

Click here to access the MA DEP site for this facility

W128
SSE
1/2-1
0.604 mi.
3187 ft.

Relative:
Lower

PROPERTIES ABUTTING KILEY BARREL SITE
9 11 13 17 ALLEN ST
SOMERVILLE, MA

SHWS
RELEASE

S112288304
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0028512 / TIERII

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0028512 / TIERII

Click here to access the MA DEP site for this facility

V129
SSE
1/2-1
0.608 mi.
3209 ft.

Relative:
Lower

FMR KILEY BARREL
20 TO 22 PROSPECT ST
SOMERVILLE, MA 02143

SHWS
RELEASE

S104000574
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0018513 / RAONR

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0018513 / RAONR

Click here to access the MA DEP site for this facility

130
North
1/2-1
0.608 mi.
3210 ft.

Relative:
Lower

NO LOCATION AID
143 JACQUES ST
SOMERVILLE, MA 02143

SHWS
RELEASE

S103383754
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0017103 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0017103 / RAO

Click here to access the MA DEP site for this facility

W131
SSE
1/2-1
0.612 mi.
3230 ft.

Relative:
Lower

MAP 82, LOTS 1 AND 2
26-30 PROSPECT STREET
SOMERVILLE, MA 02143

SHWS
RELEASE

S116687189
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0032133 / TIER1D

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0032133 / TIER1D

Click here to access the MA DEP site for this facility

W132
SSE
1/2-1
0.612 mi.
3230 ft.

Relative:
Lower

NO LOCATION AID
26-28 PROSPECT STREET
SOMERVILLE, MA 02143

SHWS
RELEASE

S112195263
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0031025 / TIER1D

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0031025 / TIER1D

Click here to access the MA DEP site for this facility

133
SE
1/2-1
0.616 mi.
3250 ft.

Relative:
Lower

VALVOLINE INSTANT OIL CHANGE
182 WASHINGTON ST
SOMERVILLE, MA 02143

SHWS
LUST
RELEASE
HW GEN

S100831692
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0002672 / TIER1D

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0002672 / TIER1D

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0002672 / TIER1D

VALVOLINE INSTANT OIL CHANGE (Continued) **S100831692**

Click here to access the MA DEP site for this facility

HW GEN
State Generator Status: LQG-MA
EPA Id: MAD982755886

134
SW
1/2-1
0.616 mi.
3251 ft.

Relative:
Lower

AMES SAFETY ENVELOPE COMPANY
12 PARK ST
SOMERVILLE, MA

SHWS
RELEASE

S109948645
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0028611 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0028611 / RAO

Click here to access the MA DEP site for this facility

135
SW
1/2-1
0.622 mi.
3286 ft.

Relative:
Lower

RESIDENCE
27 VILLAGE STREET
SOMERVILLE, MA 02143

SHWS
LUST
RELEASE

S106512925
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0023855 / TIER1D
Release Tracking Number / Current Status: 3-0031858 / RAO

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0031858 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0023855 / TIER1D
Release Tracking Number / Current Status: 3-0031858 / RAO

Click here to access the MA DEP site for this facility

Y136 **SE** **1/2-1** **0.624 mi.** **3297 ft.** **Relative:** **Lower**	**MBTA MYSTIC JUNCTION** **WASHINGTON ST NEAR JOY ST** **SOMERVILLE, MA 02143**	**SHWS** **INST CONTROL** **RELEASE**	**S104179784** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0018503 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0018503

RELEASE

Release Tracking Number / Current Status: 3-0018503 / RAO

Click here to access the MA DEP site for this facility

Y137 **SE** **1/2-1** **0.624 mi.** **3297 ft.** **Relative:** **Lower**	**WASHINGTON ST OVERPASS COMMUTER RAIL** **WASHINGTON ST RR TRAK** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE**	**S109489950** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0019190 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0019190 / RAO

Click here to access the MA DEP site for this facility

---

138 **SSE** **1/2-1** **0.625 mi.** **3298 ft.** **Relative:** **Lower**	**OFF PROSPECT ST** **BENNETT CT** **SOMERVILLE, MA 02145**	**SHWS** **RELEASE**	**S106132293** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0023401 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0023401 / RAO

Click here to access the MA DEP site for this facility

139
SSE
1/2-1
0.625 mi.
3299 ft.

Relative:
Lower

RESIDENTIAL APARTMENTS
250 SOMERVILLE AVENUE
SOMERVILLE, MA 02143

SHWS
RELEASE
ENF

S114004813
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0031752 / TIERII

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0031752 / TIERII

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0031752

140
ESE
1/2-1
0.630 mi.
3325 ft.

Relative:
Lower

MULTI-FAMILY RESIDENTIAL PROPERTY
88 PEARL ST
SOMERVILLE, MA

SHWS
RELEASE
LEAD

S107395487
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0029022 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0029022 / RAO

Click here to access the MA DEP site for this facility

LEAD
Inspector License Number: 3161
Inspector License Number: 3561

Y141
SE
1/2-1
0.635 mi.
3353 ft.

Relative:
Lower

HYDRAMATIC SALES & SERVICE CORP
4 JOY ST
SOMERVILLE, MA 02143

SHWS
LUST
UST
RELEASE
RCRA NonGen / NLR
FINDS
ENF
Financial Assurance

1000353444
MAD981885114

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0023562 / RAONR

HYDRAMATIC SALES & SERVICE CORP (Continued) **1000353444**

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0011444 / RAO
Release Tracking Number / Current Status: 3-0013082 / RAONR

Click here to access the MA DEP site for this facility

UST
Facility Id: 10870
Tank Status: Removed

RELEASE
Release Tracking Number / Current Status: 3-0011444 / RAO
Release Tracking Number / Current Status: 3-0013082 / RAONR
Release Tracking Number / Current Status: 3-0023562 / RAONR

Click here to access the MA DEP site for this facility

RCRA NonGen / NLR
EPA Id: MAD981885114

FINDS
Registry ID:: 110003468970

ENF
Program Id: 3-0011444

Financial Assurance
Facility Id: 10870

Z142
WSW
1/2-1
0.644 mi.
3400 ft.

Relative:
Lower

FOREIGN BODY WORKS
587-593 SOMERVILLE AVE
SOMERVILLE, MA 02143

SHWS **S113805095**
RELEASE **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0031557 / PSNC

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0031557 / PSNC

Click here to access the MA DEP site for this facility

143 **NNE** **1/2-1** **0.646 mi.** **3409 ft.**	**THE SOMERVILLE COMMUNITY CORPORATION, INC.** **16 & 16R BUTLER DR** **SOMERVILLE, MA 02145**	**SHWS** **INST CONTROL** **RELEASE** **ENF**	**S112195257** **N/A**

Relative:
Lower

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0029857 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0029857

RELEASE
Release Tracking Number / Current Status: 3-0029857 / RAO

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0029857

---

144 **SE** **1/2-1** **0.648 mi.** **3420 ft.**	**CORNER OF WASHINGTON AND NEW WASHINGTON** **120 WASHINGTON ST** **SOMERVILLE, MA 02145**	**SHWS** **RELEASE**	**S104482428** **N/A**

Relative:
Lower

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0019047 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0019047 / RAO

Click here to access the MA DEP site for this facility

---

145 **East** **1/2-1** **0.649 mi.** **3426 ft.**	**130 BROADWAY** **130 BROADWAY** **SOMERVILLE, MA 02145**	**SHWS** **LUST** **INST CONTROL** **RELEASE** **ENF**	**S109546069** **N/A**

Relative:
Lower

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0029021 / RAO
Release Tracking Number / Current Status: 3-0028392 / RAO
Release Tracking Number / Current Status: 3-0028420 / RAO

Click here to access the MA DEP site for this facility

LUST

130 BROADWAY (Continued) **S109546069**

Release Tracking Number / Current Status: 3-0028420 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0028392
Release Tracking Number: 3-0028420
Release Tracking Number: 3-0029021

RELEASE

Release Tracking Number / Current Status: 3-0028392 / RAO
Release Tracking Number / Current Status: 3-0028420 / RAO
Release Tracking Number / Current Status: 3-0029021 / RAO

Click here to access the MA DEP site for this facility

ENF

Program Id: 3-0028420

---

146 **WSW** **1/2-1** **0.651 mi.** **3437 ft.**	**NO LOCATION AID** **43 PITMAN ST** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE**	**S106617578** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0024255 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0024255 / RAO

Click here to access the MA DEP site for this facility

AA147 **SSE** **1/2-1** **0.651 mi.** **3437 ft.**	**NO LOCATION AID** **29-31 ALLEN ST** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE**	**S105914092** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0022680 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0022680 / RAO

NO LOCATION AID (Continued) **S105914092**

Click here to access the MA DEP site for this facility

AA148
SSE
1/2-1
0.651 mi.
3437 ft.

Relative:
Lower

UNAS
29-33 ALLEN ST
SOMERVILLE, MA

SHWS
INST CONTROL
BROWNFIELDS
RELEASE
ENF

S105596774
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0022153 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0022153

BROWNFIELDS
MCP Status: RAO
RTN: 3-0022153

RELEASE
Release Tracking Number / Current Status: 3-0022153 / RAO

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0022153

AB149
SSE
1/2-1
0.652 mi.
3443 ft.

Relative:
Lower

M & S BENNETT SERVICES, CORP.
26 BENNETT ST
SOMERVILLE, MA 02143

SHWS
INST CONTROL
RELEASE
ENF

S110526252
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0029452 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0029452

RELEASE
Release Tracking Number / Current Status: 3-0029452 / RAO

Click here to access the MA DEP site for this facility

ENF

M & S BENNETT SERVICES, CORP. (Continued) **S110526252**

Program Id: 3-0029452

AB150 **SSE** **1/2-1** **0.654 mi.** **3451 ft.**	**BENNETT STREET** **15 BENNETT STREET** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE**	**S111460191** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0030510 / TIERII

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0030510 / TIERII

Click here to access the MA DEP site for this facility

AA151 **SSE** **1/2-1** **0.655 mi.** **3460 ft.**	**NO LOCATION AID** **30 ALLEN ST** **SOMERVILLE, MA**	**SHWS** **RELEASE**	**S105735940** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0022337 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0022337 / RAO

Click here to access the MA DEP site for this facility

AC152 **SE** **1/2-1** **0.656 mi.** **3466 ft.**	**A1 AUTO CLINIC** **308 MCGRATH HWY** **SOMERVILLE, MA 02145**	**SHWS** **RELEASE** **HW GEN**	**S104774197** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0019828 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0019828 / RAO

Click here to access the MA DEP site for this facility

A1 AUTO CLINIC (Continued) **S104774197**

HW GEN
State Generator Status: SQG-MA
EPA Id: MV6176285757

AB153 **SSE** **1/2-1** **0.657 mi.** **3470 ft.** **Relative:** **Lower**	**COMMERCIAL PROPERTY** **40 BENNETT STREET** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE**	**S111989466** **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0030848 / TIERII
Release Tracking Number / Current Status: 3-0032131 / TIER1D

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0030848 / TIERII
Release Tracking Number / Current Status: 3-0032131 / TIER1D

Click here to access the MA DEP site for this facility

Z154 **WSW** **1/2-1** **0.658 mi.** **3473 ft.** **Relative:** **Lower**	**NO LOCATION AID** **15A BLEACHERY CT** **SOMERVILLE, MA 02143**	**SHWS** **LUST** **INST CONTROL** **RELEASE**	**S102687302** **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0011753 / RAO

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0011753 / RAO
Release Tracking Number / Current Status: 3-0014924 / RAONR
Release Tracking Number / Current Status: 3-0015632 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0011753
Release Tracking Number: 3-0015632

RELEASE
Release Tracking Number / Current Status: 3-0011753 / RAO
Release Tracking Number / Current Status: 3-0014924 / RAONR
Release Tracking Number / Current Status: 3-0015632 / RAO

NO LOCATION AID (Continued) **S102687302**

Click here to access the MA DEP site for this facility

AB155
SSE
1/2-1
0.658 mi.
3475 ft.

Relative:
Lower

NO LOCATION AID
27 BENNETT STREET
SOMERVILLE, MA 02143

SHWS
RELEASE

S112195262
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0032129 / TIER1D
Release Tracking Number / Current Status: 3-0031024 / TIER1D

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0031024 / TIER1D
Release Tracking Number / Current Status: 3-0032129 / TIER1D

Click here to access the MA DEP site for this facility

Z156
WSW
1/2-1
0.658 mi.
3476 ft.

Relative:
Lower

NO LOCATION AID
588-592 SOMERVILLE AVE
SOMERVILLE, MA

SHWS
INST CONTROL
RELEASE

S103250057
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0016884 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0016884

RELEASE
Release Tracking Number / Current Status: 3-0016884 / RAO

Click here to access the MA DEP site for this facility

AC157
SE
1/2-1
0.661 mi.
3489 ft.

Relative:
Lower

PATS AUTO BODY
306-308 MCGRATH HWY
SOMERVILLE, MA 02143

SHWS
RELEASE

S105199539
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0002665 / DEPNFA

PATS AUTO BODY (Continued) **S105199539**

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0002665 / DEPNFA

Click here to access the MA DEP site for this facility

Z158
WSW
1/2-1
0.661 mi.
3492 ft.

Relative: Lower

NO LOCATION AID
592 SOMERVILLE AVE
SOMERVILLE, MA

SHWS
RELEASE

S108640653
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0026907 / URAM

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0026907 / URAM

Click here to access the MA DEP site for this facility

AA159
SSE
1/2-1
0.663 mi.
3499 ft.

Relative: Lower

SOMERSET MACHINE & TOOL
37 ALLEN ST
SOMERVILLE, MA 02143

SHWS
INST CONTROL
RELEASE

S100362184
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0000666 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0000666

RELEASE
Release Tracking Number / Current Status: 3-0000666 / RAO

Click here to access the MA DEP site for this facility

160
ESE
1/2-1
0.664 mi.
3508 ft.

Relative:
Lower

FRANKLIN ST
9 PALMER AVE
SOMERVILLE, MA 02145

SHWS
RELEASE

S104000382
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0018255 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0018255 / RAO

Click here to access the MA DEP site for this facility

161
South
1/2-1
0.668 mi.
3528 ft.

Relative:
Lower

COMMERCIAL PROPERTY
50 PROSPECT STREET
SOMERVILLE, MA 02143

SHWS
RELEASE

S111989467
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0030849 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0030849 / RAO

Click here to access the MA DEP site for this facility

162
ENE
1/2-1
0.671 mi.
3541 ft.

Relative:
Lower

NO LOCATION AID
60 CROSS ST E
SOMERVILLE, MA 02145

SHWS
LUST
INST CONTROL
RELEASE

S103812241
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0018193 / RAO

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0023551 / RAONR

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0018193

RELEASE

NO LOCATION AID (Continued) **S103812241**

Release Tracking Number / Current Status: 3-0018193 / RAO
Release Tracking Number / Current Status: 3-0023551 / RAONR

Click here to access the MA DEP site for this facility

163
NE
1/2-1
0.672 mi.
3548 ft.

Relative:
Lower

WHEATLAND ST
MYSTIC AVE
SOMERVILLE, MA 02143

SHWS
RELEASE

S104847430
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0020034 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0020034 / RAO

Click here to access the MA DEP site for this facility

AD164
SSE
1/2-1
0.676 mi.
3569 ft.

Relative:
Lower

VACANT GARAGE
49-51 ALLEN ST
SOMERVILLE, MA 02143

SHWS
RELEASE

S106617608
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0032130 / TIER1D
Release Tracking Number / Current Status: 3-0024339 / RAO
Release Tracking Number / Current Status: 3-0024921 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0024339 / RAO
Release Tracking Number / Current Status: 3-0024921 / RAO
Release Tracking Number / Current Status: 3-0032130 / TIER1D

Click here to access the MA DEP site for this facility

AD165
SSE
1/2-1
0.678 mi.
3581 ft.

Relative:
Lower

COMMERCIAL PROPERTY
51 ALLEN STREET
SOMERVILLE, MA 02143

SHWS
RELEASE
SPILLS
ENF

S101039312
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0030850 / TIER1D

COMMERCIAL PROPERTY (Continued) **S101039312**

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0030850 / TIER1D

Click here to access the MA DEP site for this facility

SPILLS

Facility Id: 0000
Case Closed: YES
Spill ID: N91-0791

ENF

Program Id: 3-0030850

AE166
South
1/2-1
0.680 mi.
3593 ft.

Relative:
Lower

NO LOCATION AID
45 WEBSTER AVE
SOMERVILLE, MA 02143

SHWS **S104482574**
RELEASE **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0019236 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0019236 / RAO

Click here to access the MA DEP site for this facility

167
South
1/2-1
0.683 mi.
3607 ft.

Relative:
Lower

OFF UNION SQUARE
72 NEWTON ST
SOMERVILLE, MA

SHWS **S104000380**
RELEASE **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0018229 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0018229 / RAO

Click here to access the MA DEP site for this facility

AE168
South
1/2-1
0.688 mi.
3633 ft.

Relative:
Lower

50 WEBSTER AVENUE
50 WEBSTER AVENUE
SOMERVILLE, MA 02143

SHWS
LUST
RELEASE
SPILLS

S101045528
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0032909 / UNCLSS
Release Tracking Number / Current Status: 3-0018389 / RAONR

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0004446 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0004446 / RAO
Release Tracking Number / Current Status: 3-0018389 / RAONR
Release Tracking Number / Current Status: 3-0032909 / UNCLSS

Click here to access the MA DEP site for this facility

SPILLS
Facility Id: 3-4446
Case Closed: YES
Spill ID: N93-0086

169
NNE
1/2-1
0.691 mi.
3648 ft.

Relative:
Lower

MYSTIC VIEW APARTMENTS
5-15-25 RIVER RD
SOMERVILLE, MA 02143

SHWS
RELEASE

S104905212
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0003091 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0003091 / RAO

Click here to access the MA DEP site for this facility

170
NE
1/2-1
0.697 mi.
3682 ft.

Relative:
Lower

AT TEMPLE STREET
422 MYSTIC AVE
SOMERVILLE, MA

SHWS
RELEASE

S102555549
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0014854 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0014854 / RAO

Click here to access the MA DEP site for this facility

171
SW
1/2-1
0.705 mi.
3720 ft.

Relative:
Lower

NO LOCATION AID
100 PROPERZI WAY
SOMERVILLE, MA 02143

SHWS
RELEASE
ENF

S109146466
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0027844 / PSC

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0027844 / PSC

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0027844

AF172
NE
1/2-1
0.705 mi.
3724 ft.

Relative:
Lower

INTERSECTION
RTE 28 AND RTE 38 UNDER RTE 93
SOMERVILLE, MA

SHWS
RELEASE

S108640704
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0027009 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0027009 / RAO

Click here to access the MA DEP site for this facility

173 **West** **1/2-1** **0.712 mi.** **3757 ft.**	**NO LOCATION AID** **219 SUMMER ST** **SOMERVILLE, MA**	**SHWS** **RELEASE**	**S108962832** **N/A**

Relative:
Higher

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0027260 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0027260 / RAO

Click here to access the MA DEP site for this facility

AF174 **NE** **1/2-1** **0.712 mi.** **3758 ft.**	**AT RT 28 RAMP** **RT 93 N** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE**	**S102403764** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0013985 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0013985 / RAO

Click here to access the MA DEP site for this facility

AG175 **ENE** **1/2-1** **0.714 mi.** **3769 ft.**	**SOMERVILLE LUMBER** **260 MYSTIC AVE AKA 70 CROSS ST** **SOMERVILLE, MA 02143**	**SHWS** **INST CONTROL** **RELEASE**	**S100043098** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0000658 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0000658

RELEASE

Release Tracking Number / Current Status: 3-0000658 / RAO

Click here to access the MA DEP site for this facility

176
East
1/2-1
0.714 mi.
3770 ft.

Relative:
Lower

NO LOCATION AID
105 BROADWAY
SOMERVILLE, MA

SHWS
RELEASE

S105914122
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0022857 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0022857 / RAO

Click here to access the MA DEP site for this facility

AH177
South
1/2-1
0.716 mi.
3778 ft.

Relative:
Lower

55 WEBSTER & PROSPECT ST
WEBSTER ST
SOMERVILLE, MA

SHWS
RELEASE

S106030054
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0023021 / URAM

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0023021 / URAM

Click here to access the MA DEP site for this facility

AG178
ENE
1/2-1
0.721 mi.
3805 ft.

Relative:
Lower

SOMERVILLE LUMBER CRANE BLDG
250 MYSTIC AVE
SOMERVILLE, MA 02145

SHWS
INST CONTROL
RELEASE

S101506358
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0010846 / RAO
Release Tracking Number / Current Status: 3-0023667 / RAONR

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0010846

RELEASE

Release Tracking Number / Current Status: 3-0010846 / RAO
Release Tracking Number / Current Status: 3-0023667 / RAONR

SOMERVILLE LUMBER CRANE BLDG (Continued) **S101506358**

Click here to access the MA DEP site for this facility

---

179 **ENE** **1/2-1** **0.721 mi.** **3807 ft.**	**SO OF EXIT 29** **RTE 93N** **SOMERVILLE, MA**	**SHWS** **RELEASE**	**S102555531** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0014823 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0014823 / RAO

Click here to access the MA DEP site for this facility

AH180 **South** **1/2-1** **0.722 mi.** **3810 ft.**	**COMMERCIAL PROPERTY** **70 PROSPECT STREET** **SOMERVILLE, MA 01243**	**SHWS** **LUST** **RELEASE** **HW GEN**	**S112553218** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0031687 / TIERII

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0031687 / TIERII

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0031687 / TIERII

Click here to access the MA DEP site for this facility

HW GEN

EPA Id: MAD982544496

181
ESE
1/2-1
0.730 mi.
3854 ft.

Relative:
Lower

COMMERCIAL PLAZA
90 WASHINGTON ST
SOMERVILLE, MA 02143

SHWS
RELEASE

S112195287
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0031102 / TIERII

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0031102 / TIERII

Click here to access the MA DEP site for this facility

182
NW
1/2-1
0.732 mi.
3867 ft.

Relative:
Lower

RAO
84 HINCKLEY STREET
SOMERVILLE, MA 02145

SHWS
RELEASE

S117552823
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0032731 / UNCLSS

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0032731 / UNCLSS

Click here to access the MA DEP site for this facility

183
North
1/2-1
0.740 mi.
3905 ft.

Relative:
Lower

NO LOCATION AID
37 FREMONT ST
SOMERVILLE, MA 02145

SHWS
RELEASE

S104941909
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0020349 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0020349 / RAO

Click here to access the MA DEP site for this facility

184
SE
1/2-1
0.747 mi.
3943 ft.

Relative:
Lower

U-HAUL CO OF BOSTON
151 LINWOOD ST
SOMERVILLE, MA 02143

SHWS
LUST
UST
RELEASE
Financial Assurance

U001006501
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0030113 / RAO

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0013535 / RAO
Release Tracking Number / Current Status: 3-0013854 / RAONR

Click here to access the MA DEP site for this facility

UST
Facility Id: 10885
Tank Status: Removed

RELEASE
Release Tracking Number / Current Status: 3-0013535 / RAO
Release Tracking Number / Current Status: 3-0013854 / RAONR
Release Tracking Number / Current Status: 3-0030113 / RAO

Click here to access the MA DEP site for this facility

Financial Assurance
Facility Id: 10885

AI185
SSE
1/2-1
0.748 mi.
3947 ft.

Relative:
Lower

TARGET CORPORATION
180 SOMERVILLE AVE
SOMERVILLE, MA 02143

SHWS
RELEASE
ENF

S106863500
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0024787 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0024787 / RAO

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0024787

AI186 **SSE** **1/2-1** **0.748 mi.** **3952 ft.** **Relative: Lower**	**TARGET DEPT. STORE** **176 SOMERVILLE AVE** **SOMERVILLE, MA**	**SHWS** **RELEASE**	**S107517367** **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0025393 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0025393 / RAO

Click here to access the MA DEP site for this facility

---

187 **South** **1/2-1** **0.750 mi.** **3959 ft.** **Relative: Lower**	**NO LOCATION AID** **78 PROSPECT ST** **SOMERVILLE, MA**	**SHWS** **INST CONTROL** **RELEASE**	**S105200119** **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0021209 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0021209

RELEASE
Release Tracking Number / Current Status: 3-0021209 / RAO

Click here to access the MA DEP site for this facility

AJ188 **WSW** **1/2-1** **0.757 mi.** **3995 ft.** **Relative: Lower**	**NO LOCATION AID** **32-38 KENT ST** **SOMERVILLE, MA 02145**	**SHWS** **RELEASE**	**S102967478** **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0015839 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0015839 / RAO

Click here to access the MA DEP site for this facility

AK189
SW
1/2-1
0.759 mi.
4009 ft.

Relative:
Lower

DODAKINS AUTO SALES
81 PARK STREET
SOMERVILLE, MA 02143

SHWS
LUST
INST CONTROL
RELEASE

S116687190
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0032135 / PSC

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0032135 / PSC

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0032135

RELEASE

Release Tracking Number / Current Status: 3-0032135 / PSC

Click here to access the MA DEP site for this facility

AK190
SW
1/2-1
0.761 mi.
4017 ft.

Relative:
Lower

DODAKINS AUTO SALES
191 BEACON STREET
SOMERVILLE, MA

SHWS
LUST
INST CONTROL
RELEASE

S113882731
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0031722 / PSC

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0031722 / PSC

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0031722

RELEASE

Release Tracking Number / Current Status: 3-0031722 / PSC

Click here to access the MA DEP site for this facility

AJ191 **WSW** **1/2-1** **0.762 mi.** **4025 ft.**	**NO LOCATION AID** **17 KENT CT** **SOMERVILLE, MA 02143**	**SHWS** **INST CONTROL** **RELEASE**	**S102967527** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0015916 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0015916

RELEASE

Release Tracking Number / Current Status: 3-0015916 / RAO

Click here to access the MA DEP site for this facility

AL192 **NW** **1/2-1** **0.763 mi.** **4028 ft.**	**NO LOCATION AID** **61 CLYDE ST** **SOMERVILLE, MA 02145**	**SHWS** **RELEASE** **ENF** **LEAD**	**S104179899** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0024062 / RAONR
Release Tracking Number / Current Status: 3-0018771 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0018771 / RAO
Release Tracking Number / Current Status: 3-0024062 / RAONR

Click here to access the MA DEP site for this facility

ENF

Program Id: 3-0018771

LEAD

Inspector License Number: 3146

AL193
NW
1/2-1
0.764 mi.
4032 ft.

Relative:
Lower

ELHIDE CO INC, THE
56 CLYDE ST
SOMERVILLE, MA 02145

SHWS
UST
RELEASE
Financial Assurance

U002007544
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0025542 / RAO

Click here to access the MA DEP site for this facility

UST

Facility Id: 10865
Tank Status: Removed

RELEASE

Release Tracking Number / Current Status: 3-0025542 / RAO

Click here to access the MA DEP site for this facility

Financial Assurance

Facility Id: 10865

194
WSW
1/2-1
0.768 mi.
4055 ft.

Relative:
Lower

ALBERTINE SERVICE STATION
646 SOMERVILLE AVE
SOMERVILLE, MA 02143

SHWS
LAST
UST
RELEASE
Financial Assurance

U003655036
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0028236 / RAO

Click here to access the MA DEP site for this facility

LAST

Release Tracking Number / Current Status: 3-0028236 / RAO

UST

Facility Id: 10880
Tank Status: Removed

RELEASE

Release Tracking Number / Current Status: 3-0028236 / RAO

Click here to access the MA DEP site for this facility

Financial Assurance

Facility Id: 10880

AL195 **NW** **1/2-1** **0.770 mi.** **4065 ft.**	**42 CLYDE STREET** **42 CLYDE ST** **SOMERVILLE, MA 02145**	**SHWS** **RELEASE**	**S109546076** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0028375 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0028375 / RAO

Click here to access the MA DEP site for this facility

196 **SE** **1/2-1** **0.774 mi.** **4088 ft.**	**BOSTON EDISON CO** **68 JOY ST** **SOMERVILLE, MA 02144**	**SHWS** **RELEASE** **HW GEN**	**S102087388** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0013521 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0013521 / RAO

Click here to access the MA DEP site for this facility

HW GEN

EPA Id: MV6176254642

197 **ENE** **1/2-1** **0.775 mi.** **4090 ft.**	**NO LOCATION AID** **844 TO 846 MCGRATH HWY** **SOMERVILLE, MA 02145**	**SHWS** **INST CONTROL** **RELEASE**	**S103546357** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0017628 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0017628

RELEASE

NO LOCATION AID (Continued) **S103546357**

Release Tracking Number / Current Status: 3-0017628 / RAO

Click here to access the MA DEP site for this facility

198
ENE
1/2-1
0.781 mi.
4124 ft.

Relative:
Lower

MA HWY DEPT FACILITY #80
MYSTIC AVE (UNDER RTE 93)
SOMERVILLE, MA 02143

SHWS
RELEASE

1000520555
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0013515 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0013515 / RAO

Click here to access the MA DEP site for this facility

199
ENE
1/2-1
0.784 mi.
4141 ft.

Relative:
Lower

50 MIDDLESEX AVE
50 MIDDLESEX AVE
SOMERVILLE, MA 02143

SHWS
LUST
RELEASE

S111411845
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0030445 / RAO

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0030938 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0030445 / RAO
Release Tracking Number / Current Status: 3-0030938 / RAO

Click here to access the MA DEP site for this facility

200
South
1/2-1
0.785 mi.
4147 ft.

Relative:
Lower

FORMER SCRAP YARD
56 WEBSTER AVE
SOMERVILLE, MA 02143

SHWS
INST CONTROL
RELEASE

S103383820
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0018120 / RAONR
Release Tracking Number / Current Status: 3-0029911 / RAO
Release Tracking Number / Current Status: 3-0024254 / RAONR
Release Tracking Number / Current Status: 3-0017183 / RAONR
Release Tracking Number / Current Status: 3-0016632 / RAO
Release Tracking Number / Current Status: 3-0024295 / RAONR

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0016632

RELEASE
Release Tracking Number / Current Status: 3-0016632 / RAO
Release Tracking Number / Current Status: 3-0017183 / RAONR
Release Tracking Number / Current Status: 3-0018120 / RAONR
Release Tracking Number / Current Status: 3-0024254 / RAONR
Release Tracking Number / Current Status: 3-0024295 / RAONR
Release Tracking Number / Current Status: 3-0029911 / RAO

Click here to access the MA DEP site for this facility

201
SW
1/2-1
0.791 mi.
4179 ft.

Relative:
Lower

NSTAR 300KVA PADMOUNT TRANS PMH8921
BEHIND 415 WASHINGTON ST NEAR BEACON
SOMERVILLE, MA 02143

SHWS
RELEASE

S109146508
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0027680 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0027680 / RAO

Click here to access the MA DEP site for this facility

202
WSW
1/2-1
0.796 mi.
4204 ft.

Relative:
Lower

DURRELL PARK FORMER SCHOOL PLAYGROUND
245 BEACON ST
SOMERVILLE, MA 02143

SHWS **S106617501**
RELEASE **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0024114 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0024114 / RAO

Click here to access the MA DEP site for this facility

203
SW
1/2-1
0.798 mi.
4216 ft.

Relative:
Lower

NO LOCATION AID
SCOTT AND BRYAN STS
CAMBRIDGE, MA

SHWS **S105810643**
RELEASE **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0018371 / URAM

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0018371 / URAM

Click here to access the MA DEP site for this facility

204
ENE
1/2-1
0.801 mi.
4227 ft.

Relative:
Lower

FIRST NATL GASOLINE STA FMR
MYSTIC AVE
SOMERVILLE, MA 02143

SHWS **S100830667**
RELEASE **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0002140 / WCSPRM

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0002140 / WCSPRM

Click here to access the MA DEP site for this facility

205
ESE
1/2-1
0.803 mi.
4239 ft.

Relative:
Lower

HOLIDAY INN
30 WASHINGTON ST
SOMERVILLE, MA 02143

SHWS
RELEASE

S100363179
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0003133 / WCSPRM

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0003133 / WCSPRM

Click here to access the MA DEP site for this facility

206
SE
1/2-1
0.807 mi.
4260 ft.

Relative:
Lower

NO LOCATION AID
10 POPLAR ST
SOMERVILLE, MA 02143

SHWS
SWF/LF
RELEASE
HW GEN

S106021687
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0032211 / TIERII
Release Tracking Number / Current Status: 3-0021109 / RAO
Release Tracking Number / Current Status: 3-0013360 / RAO

Click here to access the MA DEP site for this facility

SWF/LF
Current Operational Status: Closed

RELEASE
Release Tracking Number / Current Status: 3-0013360 / RAO
Release Tracking Number / Current Status: 3-0021109 / RAO
Release Tracking Number / Current Status: 3-0032211 / TIERII

Click here to access the MA DEP site for this facility

HW GEN
State Generator Status: LQG-MA
EPA Id: MAD985306950

207
SSE
1/2-1
0.807 mi.
4262 ft.

Relative:
Lower

BURGER KING
SOMERVILLE AVE AND MEDFORD ST
SOMERVILLE, MA

SHWS
RELEASE

S103811901
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0017120 / RAO

BURGER KING (Continued) **S103811901**

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0017120 / RAO

Click here to access the MA DEP site for this facility

208
South
1/2-1
0.808 mi.
4264 ft.

Relative:
Lower

NO LOCATION AID
92-96 AND 97 PROSPECT ST
SOMERVILLE, MA 02143

SHWS
RELEASE

S102086554
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0012317 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0012317 / RAO

Click here to access the MA DEP site for this facility

209
ENE
1/2-1
0.809 mi.
4271 ft.

Relative:
Lower

FR STURTEVANT STREET LLC
FOLEY ST
SOMERVILLE, MA 02145

SHWS
RELEASE
ENF

S110124959
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0028993 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0028993 / RAO

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0028993

210
SE
1/2-1
0.812 mi.
4285 ft.

Relative:
Lower

NO LOCATION AID
86 JOY ST
SOMERVILLE, MA 02143

SHWS
INST CONTROL
RELEASE
ENF
HW GEN

S105200198
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0021316 / RAO
Release Tracking Number / Current Status: 3-0024366 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0021316

RELEASE

Release Tracking Number / Current Status: 3-0021316 / RAO
Release Tracking Number / Current Status: 3-0024366 / RAO

Click here to access the MA DEP site for this facility

ENF

Program Id: 3-0021316

HW GEN

EPA Id: MV6176617411

AM211
South
1/2-1
0.817 mi.
4316 ft.

Relative:
Lower

NO LOCATION AID
70-80 WEBSTER AVE
SOMERVILLE, MA 02143

SHWS
RELEASE
ENF

S107405606
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0026419 / TIERII
Release Tracking Number / Current Status: 3-0029036 / RAONR
Release Tracking Number / Current Status: 3-0025167 / RAONR
Release Tracking Number / Current Status: 3-0029078 / RAONR

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0025167 / RAONR
Release Tracking Number / Current Status: 3-0026419 / TIERII
Release Tracking Number / Current Status: 3-0029036 / RAONR
Release Tracking Number / Current Status: 3-0029078 / RAONR

Click here to access the MA DEP site for this facility

ENF

Program Id: 3-0029036

NO LOCATION AID (Continued) **S107405606**

Program Id: 3-0029078

212
SSE
1/2-1
0.821 mi.
4336 ft.

Relative:
Lower

WINDSOR PLACE AND WINDSOR STREET
600 WINDSOR PL
SOMERVILLE, MA 02143

SHWS
INST CONTROL
RELEASE
ENF
HW GEN

S109948873
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0020989 / RAO
Release Tracking Number / Current Status: 3-0028671 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0020989

RELEASE
Release Tracking Number / Current Status: 3-0020989 / RAO
Release Tracking Number / Current Status: 3-0028671 / RAO

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0020989

HW GEN
State Generator Status: SQG-MA
EPA Id: MV6176282222

213
WSW
1/2-1
0.824 mi.
4351 ft.

Relative:
Lower

NO LOCATION AID
258 BEACON ST AND 3 BECKWITH CIR
SOMERVILLE, MA 02143

SHWS
RELEASE
ENF

S113411693
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0031302 / DPS

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0031302 / DPS

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0031302

AN214 WSW 1/2-1 0.827 mi. 4364 ft.	**COMMERCIAL BUILDING 260-264 BEACON ST SOMERVILLE, MA 02143**	**SHWS RELEASE**	**S112146224 N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0031040 /   TIERII

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0031040 /   TIERII

Click here to access the MA DEP site for this facility

AN215 WSW 1/2-1 0.827 mi. 4364 ft.	**COMMERCIAL BUILDING 260-264 BEACON STREET SOMERVILLE, MA 02143**	**SHWS RELEASE ENF**	**S113411687 N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0031228 /   RAONR

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0031228 /   RAONR

Click here to access the MA DEP site for this facility

ENF

Program Id: 3-0031228

216 NW 1/2-1 0.830 mi. 4380 ft.	**TRUM FIELD 14 CHARLES RYAN RD SOMERVILLE, MA**	**SHWS RELEASE**	**S104000614 N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0018566 /   RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0018566 /   RAO

Click here to access the MA DEP site for this facility

217 **NEAR RTE 38** **SHWS** **S103249980**
NNE **32 SHORE DR** **RELEASE** **N/A**
1/2-1 **SOMERVILLE, MA**
0.831 mi.
4390 ft.

Relative:
Lower

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0016780 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0016780 / RAO

Click here to access the MA DEP site for this facility

---

218 **SOMERVILLE SERVICE CENTER** **SHWS** **U000228685**
SE **101 LINWOOD ST** **UST** **N/A**
1/2-1 **SOMERVILLE, MA 02143** **RELEASE**
0.835 mi. **Financial Assurance**
4410 ft.

Relative:
Lower

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0021946 / RAO
Release Tracking Number / Current Status: 3-0018392 / RAO
Release Tracking Number / Current Status: 3-0003364 / RAO
Release Tracking Number / Current Status: 3-0002914 / DEPNFA

Click here to access the MA DEP site for this facility

UST
Facility Id: 10909
Tank Status: Removed

RELEASE
Release Tracking Number / Current Status: 3-0002914 / DEPNFA
Release Tracking Number / Current Status: 3-0003364 / RAO
Release Tracking Number / Current Status: 3-0018392 / RAO
Release Tracking Number / Current Status: 3-0021946 / RAO

Click here to access the MA DEP site for this facility

Financial Assurance
Facility Id: 10909

219
SSE
1/2-1
0.835 mi.
4411 ft.

Relative:
Lower

NO LOCATION AID
SOMERVILLE AVE AND MCGRATH HWY
SOMERVILLE, MA

SHWS
RELEASE

S102618567
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0015191 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0015191 / RAO

Click here to access the MA DEP site for this facility

220
ENE
1/2-1
0.835 mi.
4411 ft.

Relative:
Lower

NO LOCATION AID
96-98 MIDDLESEX AVE
SOMERVILLE, MA 02145

SHWS
INST CONTROL
RELEASE

S104941949
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0020403 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0020403

RELEASE

Release Tracking Number / Current Status: 3-0020403 / RAO

Click here to access the MA DEP site for this facility

221
WSW
1/2-1
0.836 mi.
4412 ft.

Relative:
Lower

APARTMENT BLDG
278 BEACON ST
SOMERVILLE, MA 02143

SHWS
RELEASE
LEAD

S102087527
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0013723 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0013723 / RAO

Click here to access the MA DEP site for this facility

LEAD

APARTMENT BLDG (Continued) **S102087527**

Inspector License Number: 1758

AO222
NNW
1/2-1
0.837 mi.
4417 ft.

Relative:
Lower

WOBURN AUTO PARTS
511 BROADWAY
SOMERVILLE, MA 02143

SHWS
RELEASE

S100830683
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0000554 / DEPNFA

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0000554 / DEPNFA

Click here to access the MA DEP site for this facility

223
South
1/2-1
0.840 mi.
4437 ft.

Relative:
Lower

MARTIN WILDE CO
500 COLUMBIA ST
SOMERVILLE, MA 02143

SHWS
RELEASE
SPILLS

S101023141
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0002688 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0002688 / RAO

Click here to access the MA DEP site for this facility

SPILLS

Facility Id: 3-2688
Case Closed: YES
Spill ID: N89-0906

AP224
SW
1/2-1
0.841 mi.
4441 ft.

Relative:
Lower

INTERSECTION OF STREETS
MYRTLE AVE AT KIRKLAND STREET
CAMBRIDGE, MA 02138

SHWS
RELEASE

S111826329
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0030782 / URAM

Click here to access the MA DEP site for this facility

INTERSECTION OF STREETS (Continued) **S111826329**

RELEASE

Release Tracking Number / Current Status: 3-0030782 / URAM

Click here to access the MA DEP site for this facility

AP225 **SW** **1/2-1** **0.841 mi.** **4443 ft.** **Relative:** **Lower**	**DRY CLEANER-50’ FRM KIRKLAND ST INS** **MYRTLE ST** **CAMBRIDGE, MA 02138**	**SHWS** **RELEASE** **ENF**	**S107517117** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0024735 / TIER1D

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0024735 / TIER1D

Click here to access the MA DEP site for this facility

ENF

Program Id: 3-0024735

AM226 **South** **1/2-1** **0.842 mi.** **4444 ft.** **Relative:** **Lower**	**WEBSTER AVE NORFOLK ST** **79-81 WEBSTER AVE** **SOMERVILLE, MA**	**SHWS** **RELEASE**	**S105200102** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0021178 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0021178 / RAO

Click here to access the MA DEP site for this facility

227
East
1/2-1
0.842 mi.
4445 ft.

Relative:
Lower

SOMERVILLE MARGINAL CSO FACILITY
271 MYSTIC AVE
SOMERVILLE, MA 02145

SHWS
INST CONTROL
RELEASE

S103382816
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0015340 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0015340

RELEASE
Release Tracking Number / Current Status: 3-0015340 / RAO

Click here to access the MA DEP site for this facility

228
ENE
1/2-1
0.844 mi.
4454 ft.

Relative:
Lower

NO LOCATION AID
43 FOLEY ST
SOMERVILLE, MA 02145

SHWS
LUST
RELEASE

S106954098
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0003937 / LSPNFA
Release Tracking Number / Current Status: 3-0025033 / RAO

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0028311 / RAONR

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0003937 / LSPNFA
Release Tracking Number / Current Status: 3-0025033 / RAO
Release Tracking Number / Current Status: 3-0028311 / RAONR

Click here to access the MA DEP site for this facility

229
West
1/2-1
0.849 mi.
4485 ft.

Relative:
Lower

CUMBERLAND FARMS CHRISTYS MKT
701 SOMERVILLE AVE
SOMERVILLE, MA 02143

SHWS
LUST
RELEASE
HW GEN

1004517501
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0030395 / RAO

CUMBERLAND FARMS CHRISTYS MKT (Continued) **1004517501**

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0004676 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0004676 / RAO
Release Tracking Number / Current Status: 3-0030395 / RAO

Click here to access the MA DEP site for this facility

HW GEN

State Generator Status: VQG-MA
EPA Id: MAC300002904

AQ230 **WNW** **1/2-1** **0.855 mi.** **4515 ft.**	**FAULKNER BROTHERS INC** **2 ALPINE ST** **SOMERVILLE, MA 02143**	**SHWS** **INST CONTROL** **RELEASE** **SPILLS**	**S101040106** **N/A**
Relative: **Lower**			

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0004043 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0004043

RELEASE

Release Tracking Number / Current Status: 3-0004043 / RAO

Click here to access the MA DEP site for this facility

SPILLS

Facility Id: 3-4043
Case Closed: YES
Spill ID: N91-1545

AO231 **NNW** **1/2-1** **0.856 mi.** **4521 ft.** **Relative:** **Lower**	**NAREKIAN, THOMAS AS TRUSTEE OF SOOREN REALTY TRUST** **525 BROADWAY** **SOMERVILLE, MA 02145**	**SHWS** **RELEASE** **ENF**	**S105735920** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0022263 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0022263 / RAO

Click here to access the MA DEP site for this facility

ENF

Program Id: 3-0022263

AQ232 **WNW** **1/2-1** **0.859 mi.** **4535 ft.** **Relative:** **Lower**	**NO LOCATION AID** **154 CEDAR STREET** **SOMERVILLE, MA 02144**	**SHWS** **RELEASE**	**S117405678** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0032571 / UNCLSS

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0032571 / UNCLSS

Click here to access the MA DEP site for this facility

233 **North** **1/2-1** **0.861 mi.** **4545 ft.** **Relative:** **Lower**	**BETWEEN FREMONT AND MORELAND ST** **682 THRU 708 MYSTIC AVE** **SOMERVILLE, MA**	**SHWS** **RELEASE**	**S104562558** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0019516 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0019516 / RAO

Click here to access the MA DEP site for this facility

234 **NW** **1/2-1** **0.862 mi.** **4552 ft.**	**NO LOCATION AID** **14 MURDOCK STREET** **SOMERVILLE, MA 02145**	**SHWS** **LUST** **RELEASE**	**S114965519** **N/A**

Relative:
Lower

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0031841 / RAO

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0031841 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0031841 / RAO

Click here to access the MA DEP site for this facility

AR235 **SE** **1/2-1** **0.869 mi.** **4589 ft.**	**NO LOCATION AID** **14 CHESTNUT ST** **SOMERVILLE, MA**	**SHWS** **LUST** **RELEASE** **ENF**	**S103043447** **N/A**

Relative:
Lower

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0013471 / RAO

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0016583 / RAONR

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0013471 / RAO
Release Tracking Number / Current Status: 3-0016583 / RAONR

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0013471

236
ENE
1/2-1
0.869 mi.
4589 ft.

Relative:
Lower

HK PORTER
74 FOLEY ST
SOMERVILLE, MA 02143

SHWS
LUST
LAST
INST CONTROL
RELEASE

S100830670
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0000649 / RAO

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0000649 / RAO

Click here to access the MA DEP site for this facility

LAST

Release Tracking Number / Current Status: 3-0000649 / RAO

INST CONTROL

Release Tracking Number: 3-0000649

RELEASE

Release Tracking Number / Current Status: 3-0000649 / RAO

Click here to access the MA DEP site for this facility

237
NE
1/2-1
0.870 mi.
4596 ft.

Relative:
Lower

MWRA CSO ESMNT BTN ASSMBLY SQ & MYSTIC R
137 MIDDLESEX AVE
SOMERVILLE, MA 02145

SHWS
RELEASE

S105810963
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0015525 / URAM

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0015525 / URAM

Click here to access the MA DEP site for this facility

238
WNW
1/2-1
0.873 mi.
4607 ft.

Relative:
Lower

NO LOCATION AID
290 HIGHLAND AVENUE
SOMERVILLE, MA 02144

Click here for full text details

SHWS
LUST
SPILLS
RELEASE
ENF
LEAD

S101017197
N/A

SHWS

Release Tracking Number / Current Status: 3-0032923 / UNCLSS

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0004124 / TIERII

Click here to access the MA DEP site for this facility

SPILLS

Facility Id: 0000
Case Closed: YES
Spill ID: N87-0998
Spill ID: N93-0251

RELEASE

Release Tracking Number / Current Status: 3-0004124 / TIERII
Release Tracking Number / Current Status: 3-0032923 / UNCLSS

Click here to access the MA DEP site for this facility

ENF

Program Id: 3-0004124
Program Id: 3-0032923

LEAD

Inspector License Number: 2929

239
SW
1/2-1
0.874 mi.
4613 ft.

Relative:
Lower

NO LOCATION AID
MYRTLE AND MAGNOLIA AVE
CAMBRIDGE, MA 02138

Click here for full text details

SHWS
RELEASE

S110822270
N/A

SHWS

Release Tracking Number / Current Status: 3-0029926 / URAM

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0029926 / URAM

Click here to access the MA DEP site for this facility

240
South
1/2-1
0.875 mi.
4622 ft.

Relative:
Lower

T C AUTO EXCHANGE
176-178 TREMONT ST
SOMERVILLE, MA 02143

SHWS
RELEASE
ENF

S100043099
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0003662 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0003662 / RAO

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0003662

AS241
South
1/2-1
0.878 mi.
4636 ft.

Relative:
Lower

NO LOCATION AID
481 COLUMBIA ST
SOMERVILLE, MA

SHWS
INST CONTROL
BROWNFIELDS
RELEASE
ENF

S104562701
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0019742 / TIERII

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0019742

BROWNFIELDS
MCP Status: TIER 2
RTN: 3-0019742

RELEASE
Release Tracking Number / Current Status: 3-0019742 / TIERII

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0019742

242 **South** **1/2-1** **0.878 mi.** **4637 ft.**	**NO LOCATION AID** **433 NORFOLK ST** **SOMERVILLE, MA**	**SHWS** **RELEASE**	**S104562700** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0019741 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0019741 / RAO

Click here to access the MA DEP site for this facility

AS243 **South** **1/2-1** **0.880 mi.** **4647 ft.**	**NISSENBAUMS AUTO PARTS INC** **480 COLUMBIA ST** **SOMERVILLE, MA 02143**	**SHWS** **LUST** **SPILLS** **RELEASE** **ENF**	**S101034607** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0024229 / RAONR

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0021260 / RAO

Click here to access the MA DEP site for this facility

SPILLS

Facility Id: 0000
Case Closed: YES
Spill ID: N90-1413

RELEASE

Release Tracking Number / Current Status: 3-0021260 / RAO
Release Tracking Number / Current Status: 3-0024229 / RAONR

Click here to access the MA DEP site for this facility

ENF

Program Id: 3-0021260

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
244 **NE** **1/2-1** **0.883 mi.** **4661 ft.**	**SOMERVILLE COURTHOUSE** **175 FELLSWAY** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE** **ENF**	**S101697144** **N/A**

Relative:
Lower

[Click here for full text details]

SHWS

Release Tracking Number / Current Status: 3-0013016 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0013016 / RAO

Click here to access the MA DEP site for this facility

ENF

Program Id: 3-0013016

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
245 **East** **1/2-1** **0.884 mi.** **4668 ft.**	**TAN TRAN RESIDENCE** **10 LINCOLN AVE** **SOMERVILLE, MA 02144**	**SHWS** **RELEASE**	**S105200157** **N/A**

Relative:
Lower

[Click here for full text details]

SHWS

Release Tracking Number / Current Status: 3-0021261 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0021261 / RAO

Click here to access the MA DEP site for this facility

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
AT246 **NNW** **1/2-1** **0.887 mi.** **4685 ft.**	**SUNOCO STA** **541 BROADWAY** **SOMERVILLE, MA 02145**	**SHWS** **RELEASE** **SPILLS** **HW GEN**	**S101028419** **N/A**

Relative:
Lower

[Click here for full text details]

SHWS

Release Tracking Number / Current Status: 3-0021518 / REMOPS
Release Tracking Number / Current Status: 3-0022078 / RAONR
Release Tracking Number / Current Status: 3-0027773 / RAONR
Release Tracking Number / Current Status: 3-0022814 / RAONR

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0021518 / REMOPS

SUNOCO STA (Continued) **S101028419**

Release Tracking Number / Current Status: 3-0022078 / RAONR
Release Tracking Number / Current Status: 3-0022814 / RAONR
Release Tracking Number / Current Status: 3-0027773 / RAONR

Click here to access the MA DEP site for this facility

SPILLS
Facility Id: 0000
Case Closed: YES
Spill ID: N84-0747
Spill ID: N84-0510

HW GEN
EPA Id: MAD122872625

AR247
SE
1/2-1
0.889 mi.
4694 ft.

Relative: Lower

AMERICAN ELECTROPLATING CO
26 CHESTNUT ST
SOMERVILLE, MA 02143

SHWS
LAST
INST CONTROL
RELEASE
RCRA NonGen / NLR
RAATS

1000358387
MAD001041649

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0002312 / RAO
Release Tracking Number / Current Status: 3-0013197 / RAO

Click here to access the MA DEP site for this facility

LAST
Release Tracking Number / Current Status: 3-0013197 / RAO

INST CONTROL
Release Tracking Number: 3-0002312

RELEASE
Release Tracking Number / Current Status: 3-0002312 / RAO
Release Tracking Number / Current Status: 3-0013197 / RAO

Click here to access the MA DEP site for this facility

RCRA NonGen / NLR
EPA Id: MAD001041649

RAATS
Status: 11
Facility ID: MAD001041649

248 **East** **1/2-1** **0.892 mi.** **4712 ft.** **Relative:** **Lower**	**CITYSIDE AUTO** **38 BROADWAY** **SOMERVILLE, MA 02145**	**SHWS** **LUST** **RELEASE** **ENF** **HW GEN**	**S111411836** **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0030424 / TIERII

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0030424 / TIERII

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0030424 / TIERII

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0030424

HW GEN
State Generator Status: VQG-MA
EPA Id: MV6178280661

---

249 **ENE** **1/2-1** **0.893 mi.** **4717 ft.** **Relative:** **Lower**	**CAMBRIDGE MACHINED PRODUCTS (FORMER)** **100 FOLEY STREET** **SOMERVILLE, MA 02143**	**CERC-NFRAP** **SHWS** **LUST** **UST** **INST CONTROL** **RELEASE** **RCRA NonGen / NLR** **Financial Assurance**	**1000164677** **MAD055509103**

Click here for full text details

CERC-NFRAP
Site ID: 0100537
EPA Id: MAD055509103

SHWS
Release Tracking Number / Current Status: 3-0000434 / RAO

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0000434 / RAO

Click here to access the MA DEP site for this facility

UST

CAMBRIDGE MACHINED PRODUCTS (FORMER) (Continued) **1000164677**

Facility Id: 10900
Tank Status: Removed

INST CONTROL
Release Tracking Number: 3-0000434

RELEASE
Release Tracking Number / Current Status: 3-0000434 / RAO

Click here to access the MA DEP site for this facility

RCRA NonGen / NLR
EPA Id: MAD055509103

Financial Assurance
Facility Id: 10900

AT250
NNW
1/2-1
0.895 mi.
4727 ft.

Relative:
Lower

NO LOCATION AID
545-547 BROADWAY
SOMERVILLE, MA 02143

SHWS
RELEASE

S106512949
N/A

[Click here for full text details]()

SHWS
Release Tracking Number / Current Status: 3-0023898 / DPS

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0023898 / DPS

Click here to access the MA DEP site for this facility

AT251
NNW
1/2-1
0.895 mi.
4727 ft.

Relative:
Lower

NO LOCATION AID
545 BROADWAY
SOMERVILLE, MA

SHWS
LUST
RELEASE
ENF

S108859003
N/A

[Click here for full text details]()

SHWS
Release Tracking Number / Current Status: 3-0027079 / RAONR

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0027079 / RAONR

Click here to access the MA DEP site for this facility

NO LOCATION AID (Continued) **S108859003**

RELEASE
Release Tracking Number / Current Status: 3-0027079 / RAONR

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0027079

AT252
NNW
1/2-1
0.902 mi.
4765 ft.

Relative:
Lower

TRUM FIELDHOUSE
546 BROADWAY
SOMERVILLE, MA 02145

SHWS
RELEASE

S108859136
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0027124 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0027124 / RAO

Click here to access the MA DEP site for this facility

253
East
1/2-1
0.907 mi.
4790 ft.

Relative:
Lower

THE HOME DEPOT STORE #2667
75 MYSTIC AVE
SOMERVILLE, MA 02143

SHWS
RELEASE
HW GEN
TIER 2

S112292105
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0031960 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0031960 / RAO

Click here to access the MA DEP site for this facility

HW GEN
State Generator Status: VQG-MA
EPA Id: MAR000512269

TIER 2
Facility Id: FATR20126ZF7W20EJXWL
Facility Id: FATR20136ZF7W20EJXWL

THE HOME DEPOT STORE #2667 (Continued) **S112292105**

Facility Id: FATR20116ZF7W20EJXWL

AU254
SSW
1/2-1
0.911 mi.
4811 ft.

Relative:
Lower

NEAR INMAN SQUARE
6-8 BEACON ST
SOMERVILLE, MA 02143

SHWS
RELEASE
ENF

S113411702
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0031328 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0031328 / RAO

Click here to access the MA DEP site for this facility

ENF

Program Id: 3-0031328

AU255
SSW
1/2-1
0.911 mi.
4811 ft.

Relative:
Lower

COMMERCIAL PROPERTY
6 BEACON ST
SOMERVILLE, MA 02143

SHWS
LUST
SPILLS
RELEASE
ENF

S101047673
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0004801 / INVSUB

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0004801 / INVSUB

Click here to access the MA DEP site for this facility

SPILLS

Facility Id: 3-4801
Case Closed: YES
Spill ID: N93-0979

RELEASE

Release Tracking Number / Current Status: 3-0004801 / INVSUB

Click here to access the MA DEP site for this facility

ENF

COMMERCIAL PROPERTY (Continued) **S101047673**

Program Id: 3-0004801

256
ENE
1/2-1
0.919 mi.
4853 ft.

Relative:
Lower

WINTER HILL YACHT CLUB
130 FOLEY ST
SOMERVILLE, MA 02143

SHWS
UST
INST CONTROL
RELEASE
ENF
Financial Assurance

U004014137
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0029665 / RAO

Click here to access the MA DEP site for this facility

UST
Facility Id: 20036
Tank Status: In Use

INST CONTROL
Release Tracking Number: 3-0029665

RELEASE
Release Tracking Number / Current Status: 3-0029665 / RAO

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0029665

Financial Assurance
Facility Id: 20036

257
NE
1/2-1
0.923 mi.
4874 ft.

Relative:
Lower

FMR SAINT POLYCARP CHURCH
100 TEMPLE ST
SOMERVILLE, MA 02145

SHWS
LUST
RELEASE
LEAD

S108707142
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0025982 / RAO

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0027500 / RAONR

Click here to access the MA DEP site for this facility

RELEASE

FMR SAINT POLYCARP CHURCH (Continued) **S108707142**

Release Tracking Number / Current Status: 3-0025982 / RAO
Release Tracking Number / Current Status: 3-0027500 / RAONR

Click here to access the MA DEP site for this facility

LEAD
Inspector License Number: 2006

AV258
South
1/2-1
0.925 mi.
4883 ft.

Relative:
Lower

305 WEBSTER AVE
305 WEBSTER AVE
CAMBRIDGE, MA 02141

SHWS
RELEASE

S108117152
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0025215 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0025215 / RAO

Click here to access the MA DEP site for this facility

259
WSW
1/2-1
0.925 mi.
4884 ft.

Relative:
Lower

NO LOCATION AID
WENDELL ST
CAMBRIDGE, MA 02139

SHWS
RELEASE

S104482284
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0018843 / URAM

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0018843 / URAM

Click here to access the MA DEP site for this facility

260
NW
1/2-1
0.928 mi.
4898 ft.

Relative:
Lower

CORNER OF BROADWAY AND ALFRED ST
561 BROADWAY
SOMERVILLE, MA

SHWS
RELEASE
LEAD

S103812004
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0017895 / RAO

CORNER OF BROADWAY AND ALFRED ST (Continued) **S103812004**

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0017895 / RAO

Click here to access the MA DEP site for this facility

LEAD

Inspector License Number: 1837

AV261
South
1/2-1
0.928 mi.
4899 ft.

Relative:
Lower

AUTO PARTS STORE FMR
306 WEBSTER AVE
CAMBRIDGE, MA 02138

SHWS
RELEASE
HW GEN

S100830419
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0004503 / DEPNFA

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0004503 / DEPNFA

Click here to access the MA DEP site for this facility

HW GEN

EPA Id: MAC300009529

262
NW
1/2-1
0.931 mi.
4915 ft.

Relative:
Lower

DEPARTMENT OF PUBLIC WORKS
1 FRANEY RD
SOMERVILLE, MA 02143

SHWS
LUST
INST CONTROL
RELEASE
ENF

S102087574
N/A

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0026592 / RAO

Click here to access the MA DEP site for this facility

LUST

Release Tracking Number / Current Status: 3-0013777 / RAO
Release Tracking Number / Current Status: 3-0023433 / RAO
Release Tracking Number / Current Status: 3-0026592 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL

DEPARTMENT OF PUBLIC WORKS (Continued) **S102087574**

Release Tracking Number: 3-0013777
Release Tracking Number: 3-0023433

RELEASE
Release Tracking Number / Current Status: 3-0013777 / RAO
Release Tracking Number / Current Status: 3-0023433 / RAO
Release Tracking Number / Current Status: 3-0026592 / RAO

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0023433
Program Id: 3-0026592

263
WSW
1/2-1
0.932 mi.
4921 ft.

Relative:
Lower

HARVARD UNIVERSITY
42 FRANCIS AVE
CAMBRIDGE, MA 02139

SHWS
RELEASE
LEAD

S105596733
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0021924 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0021924 / RAO

Click here to access the MA DEP site for this facility

LEAD
Inspector License Number: 1100

264
SW
1/2-1
0.933 mi.
4927 ft.

Relative:
Lower

NO LOCATION AID
SCOTT ST
CAMBRIDGE, MA 02139

SHWS
RELEASE

S104482320
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0018910 / URAM

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0018910 / URAM

Click here to access the MA DEP site for this facility

265 **SSE** **1/2-1** **0.936 mi.** **4942 ft.** **Relative:** **Lower**	**BOYNTON YARDS** **WATER ST S ST** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE**	**S100830663** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0000026 / WCSPRM

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0000026 / WCSPRM

Click here to access the MA DEP site for this facility

266 **ESE** **1/2-1** **0.937 mi.** **4946 ft.** **Relative:** **Lower**	**KEOLIS COMMUTER SERVICES** **26 REAR INNER BELT RD** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE** **HW GEN**	**S105521993** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0021711 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0021711 / RAO

Click here to access the MA DEP site for this facility

HW GEN

State Generator Status: VQG-MA
EPA Id: MV6172223610

267 **South** **1/2-1** **0.944 mi.** **4984 ft.** **Relative:** **Lower**	**NO LOCATION AID** **432 COLUMBIA ST** **CAMBRIDGE, MA 02139**	**SHWS** **RELEASE**	**S102086560** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0012325 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0012325 / RAO

Click here to access the MA DEP site for this facility

AW268
WNW
1/2-1
0.945 mi.
4992 ft.

Relative:
Lower

NO LOCATION AID
35 REAR LEXINGTON AVE
SOMERVILLE, MA 02144

SHWS
RELEASE

S116687163
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0026830 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0026830 / RAO

Click here to access the MA DEP site for this facility

AW269
WNW
1/2-1
0.945 mi.
4992 ft.

Relative:
Lower

REAR OF LEXINGTON AVE
35 LEXINGTON AVE
SOMERVILLE, MA 02144

SHWS
INST CONTROL
RELEASE

S116687161
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0014276 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0014276

RELEASE
Release Tracking Number / Current Status: 3-0014276 / RAO

Click here to access the MA DEP site for this facility

270
NE
1/2-1
0.947 mi.
5002 ft.

Relative:
Lower

ASSEMBLY SQUARE
100 STURTEVANT ST
SOMERVILLE, MA 02143

SHWS
LUST
LAST
INST CONTROL
SPILLS
RELEASE
HW GEN

S101017330
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0021377 / RAONR
Release Tracking Number / Current Status: 3-0028153 / RAONR
Release Tracking Number / Current Status: 3-0000951 / DEPNFA
Release Tracking Number / Current Status: 3-0011886 / RAO

Click here to access the MA DEP site for this facility

LUST

ASSEMBLY SQUARE (Continued) **S101017330**

Release Tracking Number / Current Status: 3-0011886 / RAO
Release Tracking Number / Current Status: 3-0028153 / RAONR

Click here to access the MA DEP site for this facility

LAST
Release Tracking Number / Current Status: 3-0011886 / RAO

INST CONTROL
Release Tracking Number: 3-0011886

SPILLS
Facility Id: 3-0951
Case Closed: YES
Spill ID: N87-1133

RELEASE
Release Tracking Number / Current Status: 3-0000951 / DEPNFA
Release Tracking Number / Current Status: 3-0011886 / RAO
Release Tracking Number / Current Status: 3-0021377 / RAONR
Release Tracking Number / Current Status: 3-0028153 / RAONR

Click here to access the MA DEP site for this facility

HW GEN
State Generator Status: VQG-MA
EPA Id: MAD985269471

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271 **SSE** **1/2-1** **0.949 mi.** **5013 ft.** **Relative:** **Lower**	**PROPERTY** **77 MEDFORD ST** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE**	**S100363188** **N/A**

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0003198 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0003198 / RAO

Click here to access the MA DEP site for this facility

272 **South** **1/2-1** **0.951 mi.** **5021 ft.** **Relative: Lower**	**EAST CAMBRIDGE SAVINGS BANK** **1310 CAMBRIDGE ST** **CAMBRIDGE, MA 02138**	**SHWS** **RELEASE**	**S100830433** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0000950 / LSPNFA

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0000950 / LSPNFA

Click here to access the MA DEP site for this facility

AX273 **NW** **1/2-1** **0.961 mi.** **5076 ft.** **Relative: Lower**	**NO LOCATION AID** **580 BROADWAY** **SOMERVILLE, MA 02145**	**SHWS** **RELEASE**	**S110684418** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0029660 / URAM

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0029660 / URAM

Click here to access the MA DEP site for this facility

AX274 **NW** **1/2-1** **0.962 mi.** **5081 ft.** **Relative: Lower**	**HILLSIDE AUTO REPAIR** **583 BROADWAY** **SOMERVILLE, MA 02145**	**SHWS** **UST** **AST** **RELEASE** **ENF** **Financial Assurance**	**U001006513** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0000620 / RAO

Click here to access the MA DEP site for this facility

UST

Facility Id: 10905
Tank Status: Removed
Tank Status: In Use

AST

Release Tracking Number: 10905

HILLSIDE AUTO REPAIR (Continued) **U001006513**

RELEASE
Release Tracking Number / Current Status: 3-0000620 / RAO

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0000620

Financial Assurance
Facility Id: 10905

AX275
NW
1/2-1
0.965 mi.
5094 ft.

Relative:
Lower

7-ELEVEN 32473
582 BROADWAY
SOMERVILLE, MA 02145

SHWS
LUST
RELEASE
ENF

S105199804
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0032247 / UNCLSS
Release Tracking Number / Current Status: 3-0029903 / TIERII
Release Tracking Number / Current Status: 3-0004441 / RAONR

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0032247 / UNCLSS

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0004441 / RAONR
Release Tracking Number / Current Status: 3-0029903 / TIERII
Release Tracking Number / Current Status: 3-0032247 / UNCLSS

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0032247

276
ENE
1/2-1
0.970 mi.
5119 ft.

Relative:
Lower

B&M YARD 21
FOLEY ST TENNEY CT
SOMERVILLE, MA 02143

SHWS
INST CONTROL
RELEASE
ENF

S100830661
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0004082 / RAO

B&M YARD 21 (Continued) **S100830661**

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0004082

RELEASE
Release Tracking Number / Current Status: 3-0004082 / RAO

Click here to access the MA DEP site for this facility

ENF
Program Id: 3-0004082

AY277
SE
1/2-1
0.970 mi.
5122 ft.

Relative:
Lower

TRIUMVIRATE ENVIRONMENTAL, INC.
191 INNER BELT RD.
SOMERVILLE, MA 02143

SHWS
RELEASE
TIER 2

S112293370
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0032669 / PSNC

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0032669 / PSNC

Click here to access the MA DEP site for this facility

TIER 2
Facility Id: FATR20138ENCX40020M3
Facility Id: FATR20128ENCX40020M3
Facility Id: FATR20118ENCX40020M3
Facility Id: FATR20148ENCX40020M3

AZ278
ESE
1/2-1
0.972 mi.
5134 ft.

Relative:
Lower

SWEETHEART CUP COMPANY
30 INNERBELT RD
SOMERVILLE, MA 02143

SHWS
LUST
LAST
RELEASE
SPILLS
AIRS

S101038915
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0010325 / RAO
Release Tracking Number / Current Status: 3-0011895 / RAO

Click here to access the MA DEP site for this facility

LUST

SWEETHEART CUP COMPANY (Continued) **S101038915**

Release Tracking Number / Current Status: 3-0003626 / PENNFA

Click here to access the MA DEP site for this facility

LAST
Release Tracking Number / Current Status: 3-0010350 / RAO

RELEASE
Release Tracking Number / Current Status: 3-0003626 / PENNFA
Release Tracking Number / Current Status: 3-0010325 / RAO
Release Tracking Number / Current Status: 3-0010350 / RAO
Release Tracking Number / Current Status: 3-0011895 / RAO

Click here to access the MA DEP site for this facility

SPILLS
Facility Id: 3-3626
Case Closed: YES
Spill ID: N91-0457

AIRS
Facility Status: APPROV
Date Closed: 07/28/2000

AZ279
ESE
1/2-1
0.972 mi.
5134 ft.

Relative:
Lower

ANGELICA TEXTILE SERVICES
30 INNER BELT RD.
SOMERVILLE, MA 02143

SHWS
RELEASE
HW GEN
TIER 2

S108117168
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0026065 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0026065 / RAO

Click here to access the MA DEP site for this facility

HW GEN
EPA Id: MV6176285660

TIER 2
Facility Id: FATR201294N6N5002U7N
Facility Id: FATR20139UPX1Z0024NY

280
SSE
1/2-1
0.974 mi.
5144 ft.

Relative:
Lower

NO LOCATION AID
2 HARDING ST
SOMERVILLE, MA 02143

SHWS
INST CONTROL
RELEASE

S102085484
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0010897 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL
Release Tracking Number: 3-0010897

RELEASE
Release Tracking Number / Current Status: 3-0010897 / RAO

Click here to access the MA DEP site for this facility

AY281
SE
1/2-1
0.975 mi.
5147 ft.

Relative:
Lower

B&M RAILROAD YARD 8
INNER BELT RD
SOMERVILLE, MA 02143

SHWS
RELEASE

S100363168
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0004222 / RAO

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0004222 / RAO

Click here to access the MA DEP site for this facility

282
West
1/2-1
0.976 mi.
5155 ft.

Relative:
Lower

ELM CORPORATION
371 BEACON ST
SOMERVILLE, MA 02143

SHWS
LUST
UST
RELEASE
Financial Assurance

U003287371
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0022315 / RAONR
Release Tracking Number / Current Status: 3-0004432 / TIERII

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0017733 / RAONR
Release Tracking Number / Current Status: 3-0019920 / RAONR

ELM CORPORATION (Continued) **U003287371**

Click here to access the MA DEP site for this facility

UST
Facility Id: 10920
Tank Status: Removed

RELEASE
Release Tracking Number / Current Status: 3-0004432 / TIERII
Release Tracking Number / Current Status: 3-0017733 / RAONR
Release Tracking Number / Current Status: 3-0019920 / RAONR
Release Tracking Number / Current Status: 3-0022315 / RAONR

Click here to access the MA DEP site for this facility

Financial Assurance
Facility Id: 10920

---

283 **SSW** **1/2-1** **0.978 mi.** **5166 ft.** **Relative:** **Lower**	**CAMBRIDGE HOSPITAL THE** **1493 CAMBRIDGE ST** **CAMBRIDGE, MA 02139** **Click here for full text details**	**SHWS** **LUST** **SPILLS** **RELEASE** **AIRS** **HW GEN**	**S101023721** **N/A**

SHWS
Release Tracking Number / Current Status: 3-0016518 / RAO

Click here to access the MA DEP site for this facility

LUST
Release Tracking Number / Current Status: 3-0030100 / RAO

Click here to access the MA DEP site for this facility

SPILLS
Facility Id: 0000
Case Closed: YES
Spill ID: N89-1122

RELEASE
Release Tracking Number / Current Status: 3-0016518 / RAO
Release Tracking Number / Current Status: 3-0030100 / RAO

Click here to access the MA DEP site for this facility

AIRS
Facility Status: APPROV
Date Closed: 10/17/1997

CAMBRIDGE HOSPITAL THE (Continued) **S101023721**

HW GEN
State Generator Status: SQG-MA
EPA Id: MAD138028311

AZ284
ESE
1/2-1
0.980 mi.
5172 ft.
Relative:
Lower

NO LOCATION AID
50 INNER BELT DR
SOMERVILLE, MA

SHWS
RELEASE

S104941868
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0020300 / URAM

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0020300 / URAM

Click here to access the MA DEP site for this facility

285
East
1/2-1
0.982 mi.
5185 ft.
Relative:
Lower

8-18 BROADWAY
8-18 BROADWAY
SOMERVILLE, MA

SHWS
RELEASE

S111277269
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0030155 / URAM

Click here to access the MA DEP site for this facility

RELEASE
Release Tracking Number / Current Status: 3-0030155 / URAM

Click here to access the MA DEP site for this facility

BA286
ESE
1/2-1
0.987 mi.
5209 ft.
Relative:
Lower

NO LOCATION AID
52-56 ROLAND ST
CHARLESTOWN, MA 02129

SHWS
INST CONTROL
RELEASE

S106511440
N/A

Click here for full text details

SHWS
Release Tracking Number / Current Status: 3-0015887 / RAO
Release Tracking Number / Current Status: 3-0014475 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL

NO LOCATION AID (Continued) **S106511440**

Release Tracking Number: 3-0015887

RELEASE

Release Tracking Number / Current Status: 3-0014475 / RAO
Release Tracking Number / Current Status: 3-0015887 / RAO

Click here to access the MA DEP site for this facility

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
BA287 **ESE** **1/2-1** **0.987 mi.** **5209 ft.** **Relative: Lower**	**NEON COMMUNICATIONS - CHARLESTOWN** **56 ROLAND STREET** **CHARLESTOWN, MA 02129**	**SHWS** **INST CONTROL** **RELEASE** **TIER 2**	**S106511659** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0015888 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0015888

RELEASE

Release Tracking Number / Current Status: 3-0015888 / RAO

Click here to access the MA DEP site for this facility

TIER 2

Facility Id: FATR201493J21K00JLJG
Facility Id: FATR201393J21K00JLJG

Map ID / Direction / Distance / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
288 **SE** **1/2-1** **0.991 mi.** **5234 ft.** **Relative: Lower**	**INDEPENDANT ELECTRIC SUPPLY** **41 INNER BELT RD** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE**	**S105043385** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0020363 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0020363 / RAO

Click here to access the MA DEP site for this facility

289 **SW** **1/2-1** **0.991 mi.** **5235 ft.**	**NO LOCATION AID** **HOVEY AVE** **CAMBRIDGE, MA 02139**	**SHWS** **RELEASE**	**S104482321** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0018911 / URAM

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0018911 / URAM

Click here to access the MA DEP site for this facility

290 **East** **1/2-1** **0.996 mi.** **5258 ft.**	**RESIDENTIAL PROPERTY** **21-29 CALDWELL ST** **CHARLESTOWN, MA 02129**	**SHWS** **RELEASE**	**S113805111** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0031588 / RAO

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0031588 / RAO

Click here to access the MA DEP site for this facility

291 **ENE** **1/2-1** **0.996 mi.** **5261 ft.**	**DRAW SEVEN PARK** **FOLEY STREET EXT** **SOMERVILLE, MA 02143**	**SHWS** **RELEASE**	**S100830666** **N/A**

Relative:
Lower

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0003908 / DPS

Click here to access the MA DEP site for this facility

RELEASE

Release Tracking Number / Current Status: 3-0003908 / DPS

Click here to access the MA DEP site for this facility

292 **SSE** **1/2-1** **0.997 mi.** **5264 ft.** **Relative:** **Lower**	**CAMBRIDGE CITY LINE** **30 MEDFORD ST** **SOMERVILLE, MA 02143**	**SHWS** **INST CONTROL** **RELEASE** **HW GEN**	**S104941986** **N/A**

Click here for full text details

SHWS

Release Tracking Number / Current Status: 3-0020456 / RAO

Click here to access the MA DEP site for this facility

INST CONTROL

Release Tracking Number: 3-0020456

RELEASE

Release Tracking Number / Current Status: 3-0020456 / RAO

Click here to access the MA DEP site for this facility

HW GEN

EPA Id: MV6175761855

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
MA	AIRS	Permitted Facilities Listing	Department of Environmental Protection	01/26/2015	01/27/2015	02/10/2015
MA	AST	Aboveground Storage Tank Database	Department of Public Safety	10/22/2009	10/28/2009	11/06/2009
MA	BROWNFIELDS	Completed Brownfields Covenants Listing	Office of the Attorney General	11/01/2014	11/06/2014	11/10/2014
MA	BROWNFIELDS 2	Potential Brownfields Listing	Department of Environmental Protection	12/17/2014	05/06/2015	05/11/2015
MA	DRYCLEANERS	Regulated Drycleaning Facilities	Department of Environmental Protection	08/03/2015	08/03/2015	09/02/2015
MA	ENFORCEMENT	Enforcement Action Cases	Department of Environmental Quality	08/31/2015	09/03/2015	09/22/2015
MA	Financial Assurance 1	Financial Assurance Information Listing	Department of Environmental Protection	12/01/2010	12/23/2010	02/03/2011
MA	Financial Assurance 2	Financial Assurance Information Listing	Office of State Fire Marshal	10/21/2011	10/25/2011	11/18/2011
MA	Financial Assurance 3	Financial Assurance Information listing	Department of Environmental Protection	10/01/2014	10/30/2014	11/10/2014
MA	GWDP	Ground Water Discharge Permits	MassGIS	09/01/2011	11/08/2011	12/05/2011
MA	HW GEN	List of Massachusetts Hazardous Waste Generators	Department of Environmental Protection	06/22/2015	06/26/2015	07/10/2015
MA	INST CONTROL	Sites With Activity and Use Limitation	Department of Environmental Protection	06/30/2015	07/14/2015	08/04/2015
MA	LAST	Leaking Aboveground Storage Tank Sites	Department of Environmental Protection	06/30/2015	07/14/2015	08/04/2015
MA	LEAD	Lead Inspection Database	Department of Health & Human Services, Childh	07/09/2015	07/15/2015	08/04/2015
MA	LF PROFILES	Landfill Profiles Listing	Department of Environmental Protection	06/26/2012	11/21/2014	12/17/2014
MA	LIENS	Liens Information Listing	Department of Environmental Protection	02/24/2014	02/27/2014	03/14/2014
MA	LUST	Leaking Underground Storage Tank Listing	Department of Environmental Protection	06/30/2015	07/14/2015	08/04/2015
MA	MA SPILLS	Historical Spill List	Department of Environmental Protection	09/30/1993	12/03/2003	12/31/2003
MA	MERCURY	Mercury Product Recyling Drop-Off Locations Listing	Department of Environmental Protection	08/28/2015	08/28/2015	09/22/2015
MA	NPDES	NPDES Permit Listing	Department of Environmental Protection	01/01/2015	02/17/2015	03/05/2015
MA	RELEASE	Reportable Releases	Department of Environmental Protection	06/30/2015	07/14/2015	08/04/2015
MA	RGA HWS	Recovered Government Archive State Hazardous Waste Facilitie	Department of Environmental Protection		07/01/2013	12/24/2013
MA	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	Department of Environmental Protection		07/01/2013	12/24/2013
MA	SHWS	Site Transition List	Department of Environmental Protection	06/30/2015	07/14/2015	08/04/2015
MA	SPILLS 80	SPILLS80 data from FirstSearch	FirstSearch	03/10/1998	01/03/2013	03/05/2013
MA	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	12/11/2012	01/03/2013	02/08/2013
MA	SWF/LF	Solid Waste Facility Database/Transfer Stations	Department of Environmental Protection	01/29/2015	04/09/2015	04/21/2015
MA	TIER 2	Tier 2 Information Listing	Massachusetts Emergency Management Agency	12/31/2014	07/29/2015	09/02/2015
MA	TSD	TSD Facility	Department of Environmental Protection	04/01/2015	06/30/2015	07/10/2015
MA	UST	Summary Listing of all the Tanks Registered in the State of	Department of Fire Services, Office of the Pu	07/13/2015	07/21/2015	08/04/2015
US	2020 COR ACTION	2020 Corrective Action Program List	Environmental Protection Agency	04/22/2013	03/03/2015	03/09/2015
US	BRS	Biennial Reporting System	EPA/NTIS	12/31/2013	02/24/2015	09/30/2015
US	CERCLIS	Comprehensive Environmental Response, Compensation, and Liab	EPA	10/25/2013	11/11/2013	02/13/2014
US	CERCLIS-NFRAP	CERCLIS No Further Remedial Action Planned	EPA	10/25/2013	11/11/2013	02/13/2014
US	COAL ASH DOE	Steam-Electric Plant Operation Data	Department of Energy	12/31/2005	08/07/2009	10/22/2009
US	COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	Environmental Protection Agency	07/01/2014	09/10/2014	10/20/2014
US	CONSENT	Superfund (CERCLA) Consent Decrees	Department of Justice, Consent Decree Library	12/31/2014	04/17/2015	06/02/2015
US	CORRACTS	Corrective Action Report	EPA	06/09/2015	06/26/2015	09/16/2015
US	DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	EPA, Region 9	01/12/2009	05/07/2009	09/21/2009
US	DOD	Department of Defense Sites	USGS	12/31/2005	11/10/2006	01/11/2007
US	DOT OPS	Incident and Accident Data	Department of Transporation, Office of Pipeli	07/31/2012	08/07/2012	09/18/2012
US	Delisted NPL	National Priority List Deletions	EPA	03/26/2015	04/08/2015	06/22/2015
US	EDR MGP	EDR Proprietary Manufactured Gas Plants	EDR, Inc.			
US	EDR US Hist Auto Stat	EDR Exclusive Historic Gas Stations	EDR, Inc.			
US	EDR US Hist Cleaners	EDR Exclusive Historic Dry Cleaners	EDR, Inc.			
US	EPA WATCH LIST	EPA WATCH LIST	Environmental Protection Agency	08/30/2013	03/21/2014	06/17/2014
US	ERNS	Emergency Response Notification System	National Response Center, United States Coast	06/22/2015	06/26/2015	09/16/2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	FEDERAL FACILITY	Federal Facility Site Information listing	Environmental Protection Agency	03/26/2015	04/08/2015	06/11/2015
US	FEDLAND	Federal and Indian Lands	U.S. Geological Survey	12/31/2005	02/06/2006	01/11/2007
US	FEMA UST	Underground Storage Tank Listing	FEMA	01/01/2010	02/16/2010	04/12/2010
US	FINDS	Facility Index System/Facility Registry System	EPA	01/18/2015	02/27/2015	03/25/2015
US	FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA/Office of Prevention, Pesticides and Toxi	04/09/2009	04/16/2009	05/11/2009
US	FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA	04/09/2009	04/16/2009	05/11/2009
US	FUDS	Formerly Used Defense Sites	U.S. Army Corps of Engineers	01/31/2015	07/08/2015	10/13/2015
US	HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HIST FTTS INSP	FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HMIRS	Hazardous Materials Information Reporting System	U.S. Department of Transportation	06/24/2015	06/26/2015	09/02/2015
US	ICIS	Integrated Compliance Information System	Environmental Protection Agency	01/23/2015	02/06/2015	03/09/2015
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	EPA Region 1	02/03/2015	04/30/2015	06/22/2015
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	EPA Region 10	07/21/2015	07/29/2015	10/13/2015
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	EPA Region 4	07/30/2015	08/07/2015	10/13/2015
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	EPA, Region 5	07/28/2015	08/07/2015	10/13/2015
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	EPA Region 6	05/13/2015	08/03/2015	10/13/2015
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	EPA Region 7	03/30/2015	04/28/2015	06/22/2015
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	EPA Region 8	04/30/2015	05/05/2015	06/22/2015
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	Environmental Protection Agency	01/08/2015	01/08/2015	02/09/2015
US	INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	Environmental Protection Agency	12/31/1998	12/03/2007	01/24/2008
US	INDIAN RESERV	Indian Reservations	USGS	12/31/2005	12/08/2006	01/11/2007
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	EPA, Region 1	02/03/2015	04/30/2015	06/22/2015
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	EPA Region 10	07/21/2015	07/29/2015	10/13/2015
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	EPA Region 4	07/30/2015	08/07/2015	10/13/2015
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	EPA Region 5	07/28/2015	08/07/2015	10/13/2015
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	EPA Region 6	05/13/2015	08/03/2015	10/13/2015
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	EPA Region 7	09/23/2014	11/25/2014	01/29/2015
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	EPA Region 8	07/28/2015	08/14/2015	10/13/2015
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	EPA Region 9	12/14/2014	02/13/2015	03/13/2015
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	EPA, Region 1	09/29/2014	10/01/2014	11/06/2014
US	INDIAN VCP R7	Voluntary Cleanup Priority Lisitng	EPA, Region 7	03/20/2008	04/22/2008	05/19/2008
US	LEAD SMELTER 1	Lead Smelter Sites	Environmental Protection Agency	11/25/2014	11/26/2014	01/29/2015
US	LEAD SMELTER 2	Lead Smelter Sites	American Journal of Public Health	04/05/2001	10/27/2010	12/02/2010
US	LIENS 2	CERCLA Lien Information	Environmental Protection Agency	02/18/2014	03/18/2014	04/24/2014
US	LUCIS	Land Use Control Information System	Department of the Navy	05/28/2015	05/29/2015	06/11/2015
US	MLTS	Material Licensing Tracking System	Nuclear Regulatory Commission	06/26/2015	07/10/2015	10/13/2015
US	NPL	National Priority List	EPA	03/26/2015	04/08/2015	06/22/2015
US	NPL LIENS	Federal Superfund Liens	EPA	10/15/1991	02/02/1994	03/30/1994
US	ODI	Open Dump Inventory	Environmental Protection Agency	06/30/1985	08/09/2004	09/17/2004
US	PADS	PCB Activity Database System	EPA	07/01/2014	10/15/2014	11/17/2014
US	PCB TRANSFORMER	PCB Transformer Registration Database	Environmental Protection Agency	02/01/2011	10/19/2011	01/10/2012
US	PRP	Potentially Responsible Parties	EPA	10/25/2013	10/17/2014	10/20/2014
US	Proposed NPL	Proposed National Priority List Sites	EPA	03/26/2015	04/08/2015	06/22/2015
US	RAATS	RCRA Administrative Action Tracking System	EPA	04/17/1995	07/03/1995	08/07/1995
US	RADINFO	Radiation Information Database	Environmental Protection Agency	07/07/2015	07/09/2015	09/16/2015
US	RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated	Environmental Protection Agency	06/09/2015	06/26/2015	09/16/2015
US	RCRA-CESQG	RCRA - Conditionally Exempt Small Quantity Generators	Environmental Protection Agency	06/09/2015	06/26/2015	09/16/2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	RCRA-LQG	RCRA - Large Quantity Generators	Environmental Protection Agency	06/09/2015	06/26/2015	09/16/2015
US	RCRA-SQG	RCRA - Small Quantity Generators	Environmental Protection Agency	06/09/2015	06/26/2015	09/16/2015
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	Environmental Protection Agency	06/09/2015	06/26/2015	09/16/2015
US	RMP	Risk Management Plans	Environmental Protection Agency	02/01/2015	02/13/2015	03/25/2015
US	ROD	Records Of Decision	EPA	11/25/2013	12/12/2013	02/24/2014
US	SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	Environmental Protection Agency	03/07/2011	03/09/2011	05/02/2011
US	SSTS	Section 7 Tracking Systems	EPA	12/31/2009	12/10/2010	02/25/2011
US	TRIS	Toxic Chemical Release Inventory System	EPA	12/31/2013	02/12/2015	06/02/2015
US	TSCA	Toxic Substances Control Act	EPA	12/31/2012	01/15/2015	01/29/2015
US	UMTRA	Uranium Mill Tailings Sites	Department of Energy	09/14/2010	10/07/2011	03/01/2012
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	EPA	07/22/2015	07/24/2015	09/02/2015
US	US AIRS MINOR	Air Facility System Data	EPA	07/22/2015	07/24/2015	09/02/2015
US	US BROWNFIELDS	A Listing of Brownfields Sites	Environmental Protection Agency	06/22/2015	06/24/2015	09/02/2015
US	US CDL	Clandestine Drug Labs	Drug Enforcement Administration	05/15/2015	06/02/2015	09/16/2015
US	US ENG CONTROLS	Engineering Controls Sites List	Environmental Protection Agency	06/09/2015	06/26/2015	09/02/2015
US	US FIN ASSUR	Financial Assurance Information	Environmental Protection Agency	06/01/2015	06/02/2015	09/16/2015
US	US HIST CDL	National Clandestine Laboratory Register	Drug Enforcement Administration	06/01/2015	06/02/2015	09/16/2015
US	US INST CONTROL	Sites with Institutional Controls	Environmental Protection Agency	06/09/2015	06/26/2015	09/02/2015
US	US MINES	Mines Master Index File	Department of Labor, Mine Safety and Health A	05/14/2015	06/03/2015	09/02/2015
US	US MINES 2	Ferrous and Nonferrous Metal Mines Database Listing	USGS	12/05/2005	02/29/2008	04/18/2008
US	US MINES 3	Active Mines & Mineral Plants Database Listing	USGS	04/14/2011	06/08/2011	09/13/2011

Oil/Gas Pipelines
Source: PennWell Corporation
Telephone: 281-546-1505
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: 800-823-6277
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St	Acronym	Full Name	Government Agency
US	AHA Hospitals	Sensitive Receptor: AHA Hospitals	American Hospital Association, Inc.
US	Medical Centers	Sensitive Receptor: Medical Centers	Centers for Medicare & Medicaid Services
US	Nursing Homes	Sensitive Receptor: Nursing Homes	National Institutes of Health
US	Public Schools	Sensitive Receptor: Public Schools	National Center for Education Statistics
US	Private Schools	Sensitive Receptor: Private Schools	National Center for Education Statistics

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	Flood Zones	100-year and 500-year flood zones	Emergency Management Agency (FEMA)			
US	NWI	National Wetlands Inventory	U.S. Fish and Wildlife Service			
US	Topographic Map		U.S. Geological Survey			

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

SOMERVILLE HIGH SCHOOL
81-86 HIGHLAND AVE
SOMERVILLE, MA 02143

TARGET PROPERTY COORDINATES

Latitude (North):	42.3872 - 42˚ 23’ 13.92’’
Longitude (West):	71.097 - 71˚ 5’ 49.20’’
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	327379.9
UTM Y (Meters):	4694684.0
Elevation:	101 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5646197 BOSTON NORTH, MA
Version Date:	2012
South Map:	5646199 BOSTON SOUTH, MA
Version Date:	2012

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

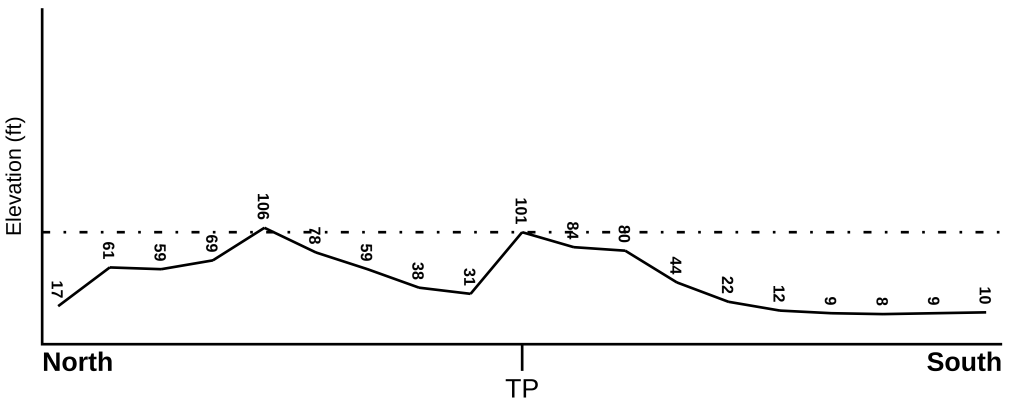
TOPOGRAPHIC INFORMATION

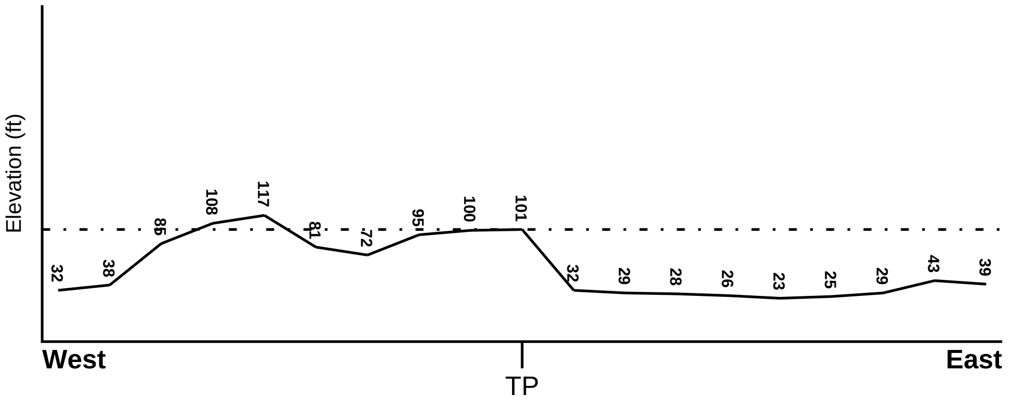
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

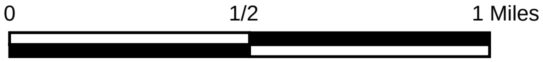
General Topographic Gradient: General ENE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 101 ft.



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
MIDDLESEX, MA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 25017C - FEMA DFIRM Flood data

Additional Panels in search area: 25025C - FEMA DFIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
EAST HALF OF BOSTON NORTH	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
6	1/4 - 1/2 Mile NE	E
7	1/2 - 1 Mile ENE	N
15	1/2 - 1 Mile WSW	ESE
17	1/2 - 1 Mile ENE	SSE
25	1/2 - 1 Mile West	W

For additional site information, refer to Physical Setting Source Map Findings.

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era: Paleozoic
System: Cambrian
Series: Cambrian
Code: Ce *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture’s (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	URBAN LAND
Soil Surface Texture:	variable
Hydrologic Group:	Not reported
Soil Drainage Class:	Not reported

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	Not Reported
Depth to Bedrock Min:	> 10 inches
Depth to Bedrock Max:	> 10 inches

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	6 inches	variable	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures:	fine sandy loam silt loam very fine sandy loam
Surficial Soil Types:	fine sandy loam silt loam very fine sandy loam
Shallow Soil Types:	No Other Soil Types
Deeper Soil Types:	fine sandy loam channery - silt loam gravelly - loamy sand silt loam loamy fine sand stratified gravelly - sandy loam

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS40000473109	1/8 - 1/4 Mile East

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	USGS40000473177	1/8 - 1/4 Mile NE
3	USGS40000473219	1/4 - 1/2 Mile NNW
4	USGS40000473049	1/4 - 1/2 Mile SE
5	USGS40000473267	1/4 - 1/2 Mile North
9	USGS40000473168	1/2 - 1 Mile ENE
12	USGS40000473322	1/2 - 1 Mile NE
13	USGS40000473279	1/2 - 1 Mile NE
19	USGS40000473364	1/2 - 1 Mile NNE
20	USGS40000473201	1/2 - 1 Mile ENE
21	USGS40000473385	1/2 - 1 Mile North
B26	USGS40000473298	1/2 - 1 Mile NE
31	USGS40000473266	1/2 - 1 Mile ENE
32	USGS40000473410	1/2 - 1 Mile NNE
33	USGS40000473437	1/2 - 1 Mile North

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

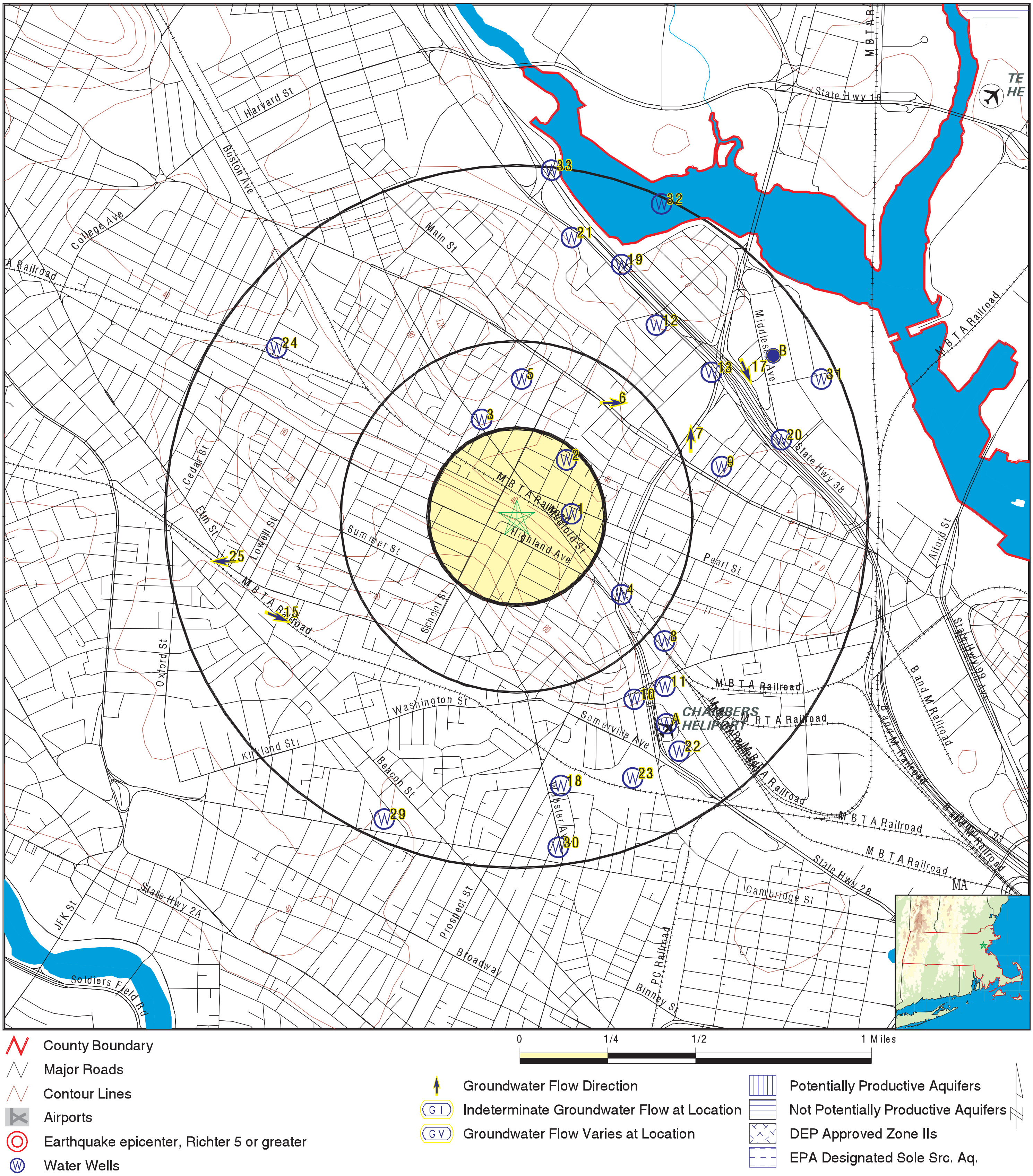
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
8	MA8000000000592	1/2 - 1 Mile SE
10	MA8000000001322	1/2 - 1 Mile SSE
11	MA8000000001300	1/2 - 1 Mile SE
A14	MA8000000001253	1/2 - 1 Mile SE
A16	MA8000000001019	1/2 - 1 Mile SE
18	MA8000000001580	1/2 - 1 Mile South
22	MA8000000001560	1/2 - 1 Mile SE
23	MA8000000000207	1/2 - 1 Mile SSE
24	MA8000000000072	1/2 - 1 Mile NW
B27	MA8000000001149	1/2 - 1 Mile ENE
B28	MA8000000001049	1/2 - 1 Mile ENE
29	MA8000000001290	1/2 - 1 Mile SSW
30	MA8000000001239	1/2 - 1 Mile South

PHYSICAL SETTING SOURCE MAP - 4442112.2s



SITE NAME:	Somerville High School	CLIENT:	CDW Consultants Inc.
ADDRESS:	81-86 HIGHLAND AVE Somerville MA 02143	CONTACT:	Susan Cahalan
		INQUIRY #:	4442112.2s
LAT/LONG:	42.3872 / 71.097	DATE:	October 20, 2015 9:51 am

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
1 **East** **1/8 - 1/4 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000473109**
2 **NE** **1/8 - 1/4 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000473177**
3 **NNW** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000473219**
4 **SE** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000473049**
5 **North** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000473267**
6 **NE** **1/4 - 1/2 Mile** **Lower**	Click here for full text details	**AQUIFLOW**	**2571**
7 **ENE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**AQUIFLOW**	**4677**
8 **SE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**MA WELLS**	**MA8000000000592**
9 **ENE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000473168**

Map ID Direction Distance Elevation		Database	EDR ID Number
10 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**MA WELLS**	**MA8000000001322**
11 **SE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**MA WELLS**	**MA8000000001300**
12 **NE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000473322**
13 **NE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000473279**
A14 **SE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**MA WELLS**	**MA8000000001253**
15 **WSW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**AQUIFLOW**	**4819**
A16 **SE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**MA WELLS**	**MA8000000001019**
17 **ENE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**AQUIFLOW**	**4821**
18 **South** **1/2 - 1 Mile** **Lower**	Click here for full text details	**MA WELLS**	**MA8000000001580**

Map ID Direction Distance Elevation		Database	EDR ID Number
19 **NNE** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**FED USGS**	**USGS40000473364**
20 **ENE** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**FED USGS**	**USGS40000473201**
21 **North** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**FED USGS**	**USGS40000473385**
22 **SE** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**MA WELLS**	**MA8000000001560**
23 **SSE** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**MA WELLS**	**MA8000000000207**
24 **NW** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**MA WELLS**	**MA8000000000072**
25 **West** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**AQUIFLOW**	**4678**
B26 **NE** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**FED USGS**	**USGS40000473298**
B27 **ENE** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**MA WELLS**	**MA8000000001149**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
B28 **ENE** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**MA WELLS**	**MA8000000001049**
29 **SSW** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**MA WELLS**	**MA8000000001290**
30 **South** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**MA WELLS**	**MA8000000001239**
31 **ENE** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**FED USGS**	**USGS40000473266**
32 **NNE** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**FED USGS**	**USGS40000473410**
33 **North** **1/2 - 1 Mile** **Lower**	**Click here for full text details**	**FED USGS**	**USGS40000473437**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: MA Radon

Radon Test Results

County	% of sites>4 pCi/L	Median
MIDDLESEX	26	2.2

Federal EPA Radon Zone for MIDDLESEX County: 1

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 02143

Number of sites tested: 2

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	1.100 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5’ Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5’ Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture’s (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Massachusetts Geographic Information System (MassGIS) Datalayers
Source: Executive Office of Environmental Affairs

Public Water Supply Database: The Public Water Supply datalayer contains the locations of public community surface and groundwater supply sources and public non-community supply sources as defined in 310 CMR 22.00.

OTHER STATE DATABASE INFORMATION

Areas of Critical Environmental Concern Datalayer: The Areas of Critical Environmental Concern (ACEC) datalayer shows the location of areas that have been designated ACECs by the Secretary of Environmental Affairs. ACEC designation requires greater environmental review of certain kinds of proposed development under state jurisdiction within the ACEC boundaries. The ACEC Program is administered by the Department of Environmental Management (DEM) on behalf of the Secretary of Environmental Affairs. The Massachusetts Coastal Zone Management (MCZM) Office managed the original Coastal ACEC Program from 1978 to 1993, and continues to play a key role in monitoring coastal ACECs. Procedures for ACEC designation and the general policies governing the effects of designation are contained in the ACEC regulations (301 CMR 12.00). The ACEC datalayer has been compiled by MCZM and DEM and includes both coastal and inland areas.

EPA Designated Sole Source Aquifers Datalayer: The Sole Source Aquifer datalayer was compiled by the Department of Environmental Protection (DEP) Division of Water Supply (DWS). Seven Sole Source Aquifers have been designated by the US Environmental Protection Agency (EPA) for Massachusetts. A Sole Source Aquifer (SSA) is an aquifer designated by US EPA as the sole or principal source of drinking water for a given aquifer service area; that is, an aquifer which is needed to supply 50% or more of the drinking water for that area and for which there are no reasonably available alternative sources should that aquifer become contaminated. The aquifers were defined by a EPA hydrogeologist.

Aquifers Datalayer: MassGIS produced an aquifer datalayer composed of 20 individual panels, generally based on the boundaries of the major drainage basins. Areas of high and medium yield were mapped. This datalayer includes polygon attribute coding to help in the identification of areas in which cleanup of hazardous waste sites must meet drinking water standards, as defined in the Massachusetts Contingency Plan (MCP) (310 CMR 40.00000).

Non-Potential Drinking Water Source Areas: Non-Potential Drinking Water Source Areas (NPDWSA) are regulatory in nature, representing one of many considerations used in determining the standards to which ground water must be cleaned in the event of a release of oil or hazardous material. NPDWSAs are not based on existing water quality and do not indicate poor ambient conditions.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

DEP Approved Zone IIs Datalayer: The Department of Environmental Protection (DEP) approved Zone IIs datalayer was compiled by the DEP Division of Water Supply (DWS). The database contains 281 approved Zone IIs statewide. As stated in 310 CMR 22.02, a Zone II is "that area of an aquifer which contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at safe yield, with no recharge from precipitation.) It is bounded by the groundwater divides which result from pumping the well and by the contact of the aquifer with less permeable materials such as till or bedrock. In some cases, streams or lakes may act as recharge boundaries. In all cases, Zone IIs shall extend up gradient to its point of intersection with prevailing hydrogeologic boundaries (a groundwater flow divide, a contact with till or bedrock, or a recharge boundary)." These data are used in association with the Public Water Supplies datalayer. The following describes certain unique features of this association.

- Any proposed new well which will pump at least 100,000 gallons per day must have a Zone II delineation completed and approved by DEP prior to the well coming on line.
- Additionally, a new source may not be on-line yet, but other, older wells may fall within its Zone II boundary.
- Further, existing wells must have a Zone II delineated as a condition of receiving a water withdrawal permit under the Water Management Act.

RADON

State Database: MA Radon
Source: Department of Health
Telephone: 413-586-7525
Radon Test Results

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR’s Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

STREET AND ADDRESS INFORMATION

Appendix B

Sanborn Maps

Somerville High School
81-86 HIGHLAND AVE
Somerville, MA 02143

Inquiry Number: 4442112.3
October 19, 2015

Certified Sanborn® Map Report

EDR®

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

10/19/15

Site Name:	**Client Name:**
Somerville High School 81-86 HIGHLAND AVE Somerville, MA 02143	CDW Consultants Inc. 40 Speen Street Framingham, MA 01701
EDR Inquiry # 4442112.3	Contact: Susan Cahalan

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by CDW Consultants Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Site Name:	Somerville High School
Address:	81-86 HIGHLAND AVE
City, State, Zip:	Somerville, MA 02143
Cross Street:	
P.O. #	1491.0
Project:	somerville high school
Certification #	96BC-4A40-833B

Maps Provided:

1991

1989

1950

1933

1900

Sanborn® Library search results
Certification # 96BC-4A40-833B

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Sanborn Sheet Thumbnails

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1991 Source Sheets

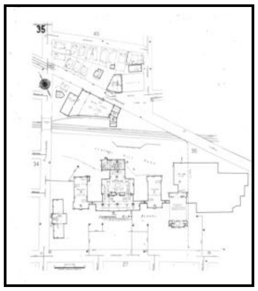

Volume 1, Sheet 27


Volume 1, Sheet 36


Volume 1, Sheet 35

1989 Source Sheets


Volume 1, Sheet 27


Volume 1, Sheet 35


Volume 1, Sheet 36

1950 Source Sheets


Volume 1, Sheet 35


Volume 1, Sheet 36


Volume 1, Sheet 27

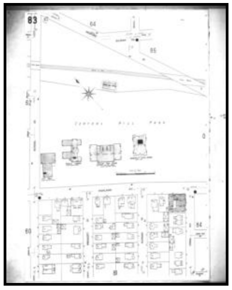
1933 Source Sheets


Volume 1, Sheet 27


Volume 1, Sheet 35


Volume 1, Sheet 36

1900 Source Sheets



Volume 1, Sheet 83

Volume 1, Sheet 85

1991 Certified Sanborn Map

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Certification # 96BC-4A40-833B

Site Name:	Somerville High School
Address:	81-86 HIGHLAND AVE
City, ST, ZIP:	Somerville MA 02143
Client:	CDW Consultants Inc.
EDR Inquiry:	4442112.3
Order Date:	10/19/2015 7:52:01 PM
Certification #	96BC-4A40-833B

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

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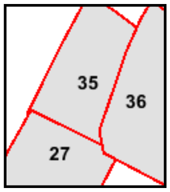
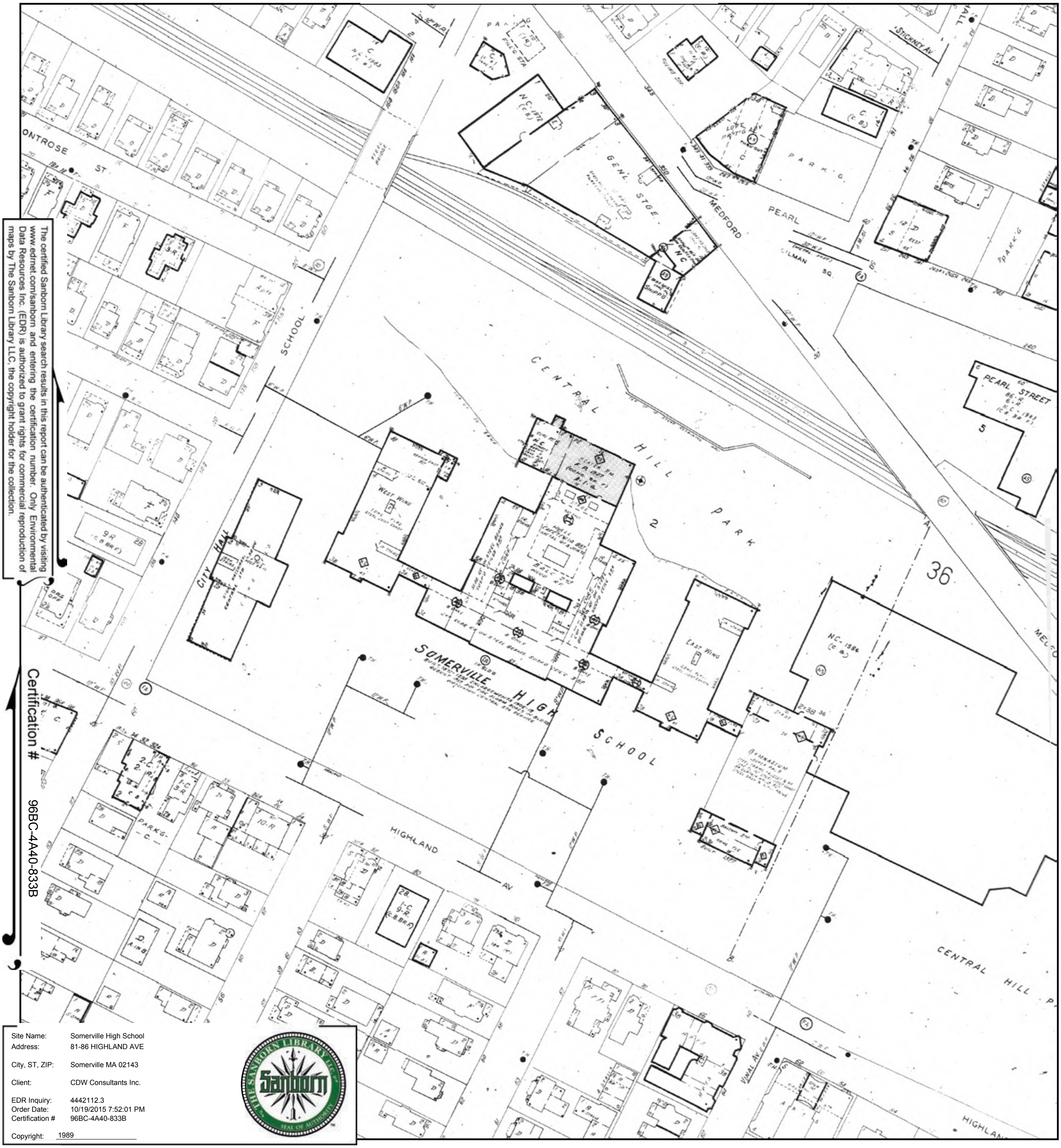


Volume 1, Sheet 27
Volume 1, Sheet 36
Volume 1, Sheet 35

1989 Certified Sanborn Map



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Certification # 96BC-4A40-833B

Site Name:	Somerville High School
Address:	81-86 HIGHLAND AVE
City, ST, ZIP:	Somerville MA 02143
Client:	CDW Consultants Inc.
EDR Inquiry:	4442112.3
Order Date:	10/19/2015 7:52:01 PM
Certification #	96BC-4A40-833B
Copyright:	1989

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Outlined areas indicate map sheets within the collection.

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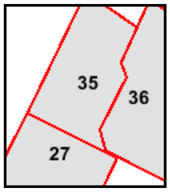

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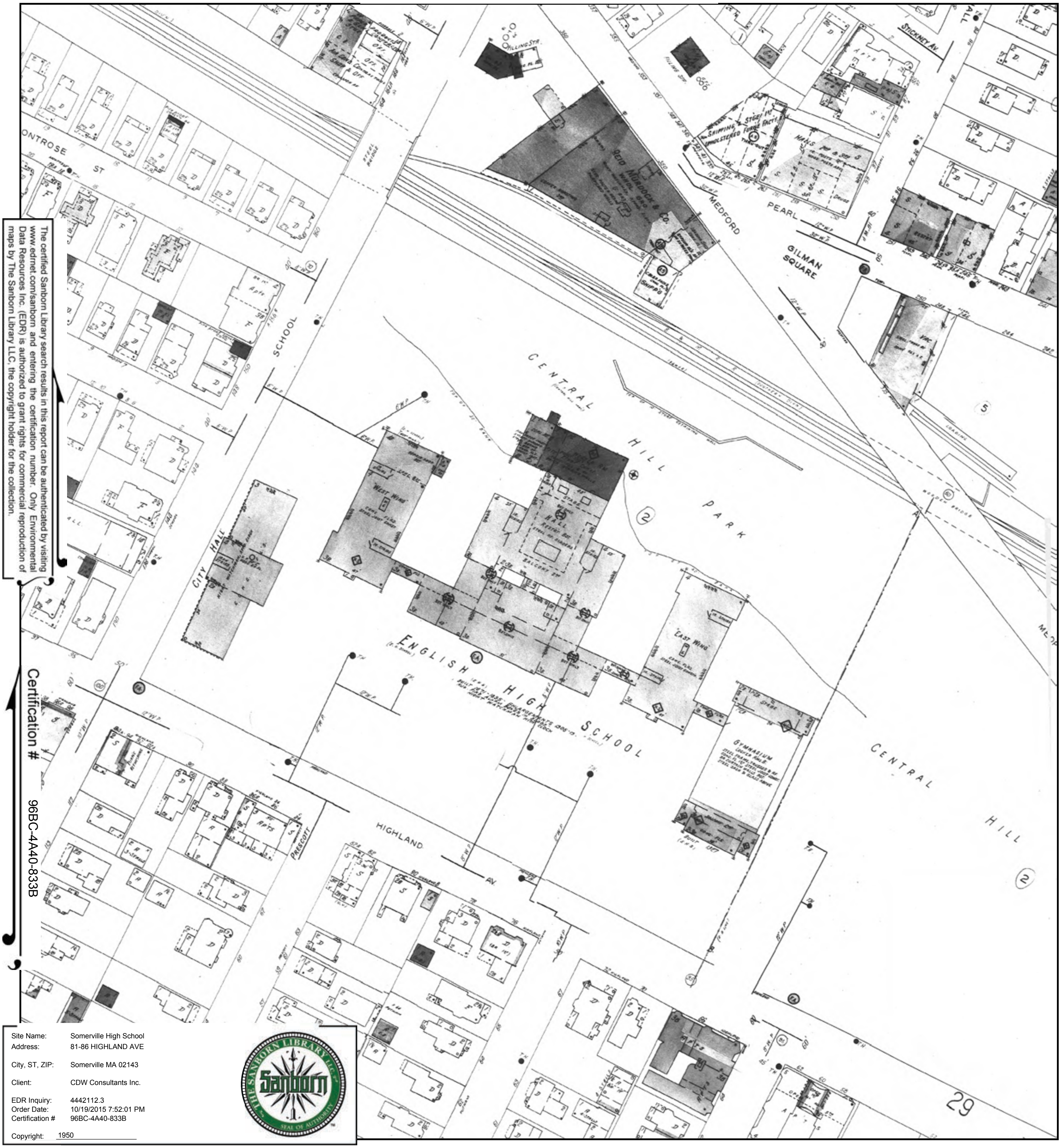
Volume 1, Sheet 35
Volume 1, Sheet 36

N

1950 Certified Sanborn Map



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Certification # 96BC-4A40-833B

Site Name:	Somerville High School
Address:	81-86 HIGHLAND AVE
City, ST, ZIP:	Somerville MA 02143
Client:	CDW Consultants Inc.
EDR Inquiry:	4442112.3
Order Date:	10/19/2015 7:52:01 PM
Certification #	96BC-4A40-833B
Copyright:	1950

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Outlined areas indicate map sheets within the collection.

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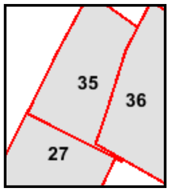

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Volume 1, Sheet 27

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1933 Certified Sanborn Map

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Certification # 96BC-4A40-833B

Site Name: Somerville High School
Address: 81-86 HIGHLAND AVE

City, ST, ZIP: Somerville MA 02143

Client: CDW Consultants Inc.

EDR Inquiry: 4442112.3
Order Date: 10/19/2015 7:52:01 PM
Certification # 96BC-4A40-833B

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Outlined areas indicate map sheets within the collection.

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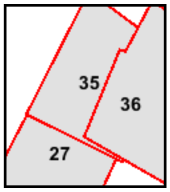

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Volume 1, Sheet 36

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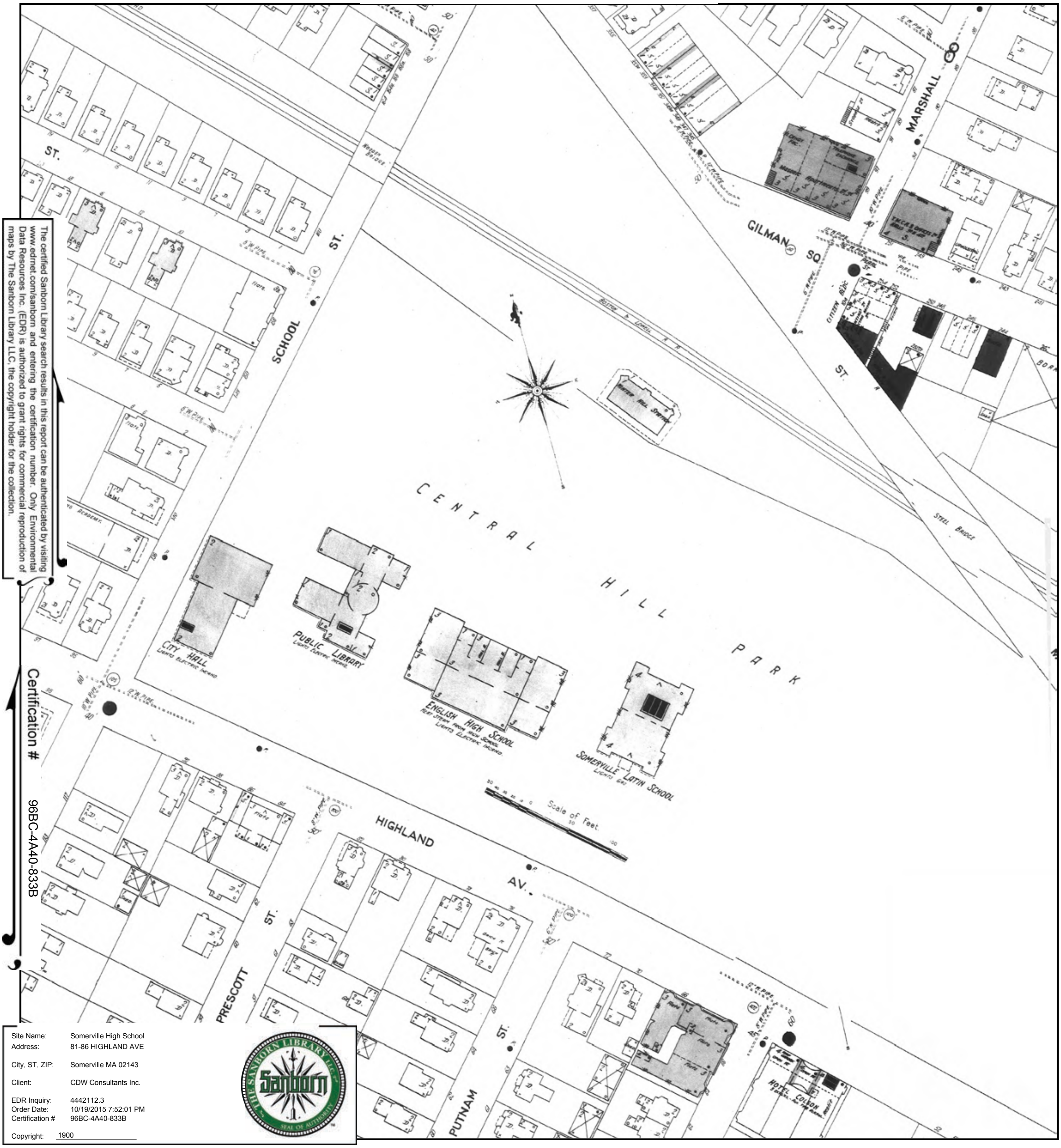
1900 Certified Sanborn Map



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Certification # 96BC-4A40-833B

Site Name:	Somerville High School
Address:	81-86 HIGHLAND AVE
City, ST, ZIP:	Somerville MA 02143
Client:	CDW Consultants Inc.
EDR Inquiry:	4442112.3
Order Date:	10/19/2015 7:52:01 PM
Certification #	96BC-4A40-833B
Copyright:	1900

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Outlined areas indicate map sheets within the collection.

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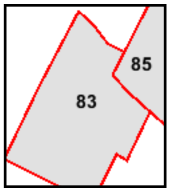

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N

Appendix C

Site Photographs

Room off of Boiler Room with Excavation

Room off of Boiler Room with Excavation

Room off of Boiler Room with Excavation Close up of Ash and Clinkers

Drum with Hazardous Waste Sticker off Boiler Room

15,000-Gallon Fuel Oil USTs Near Loading Dock

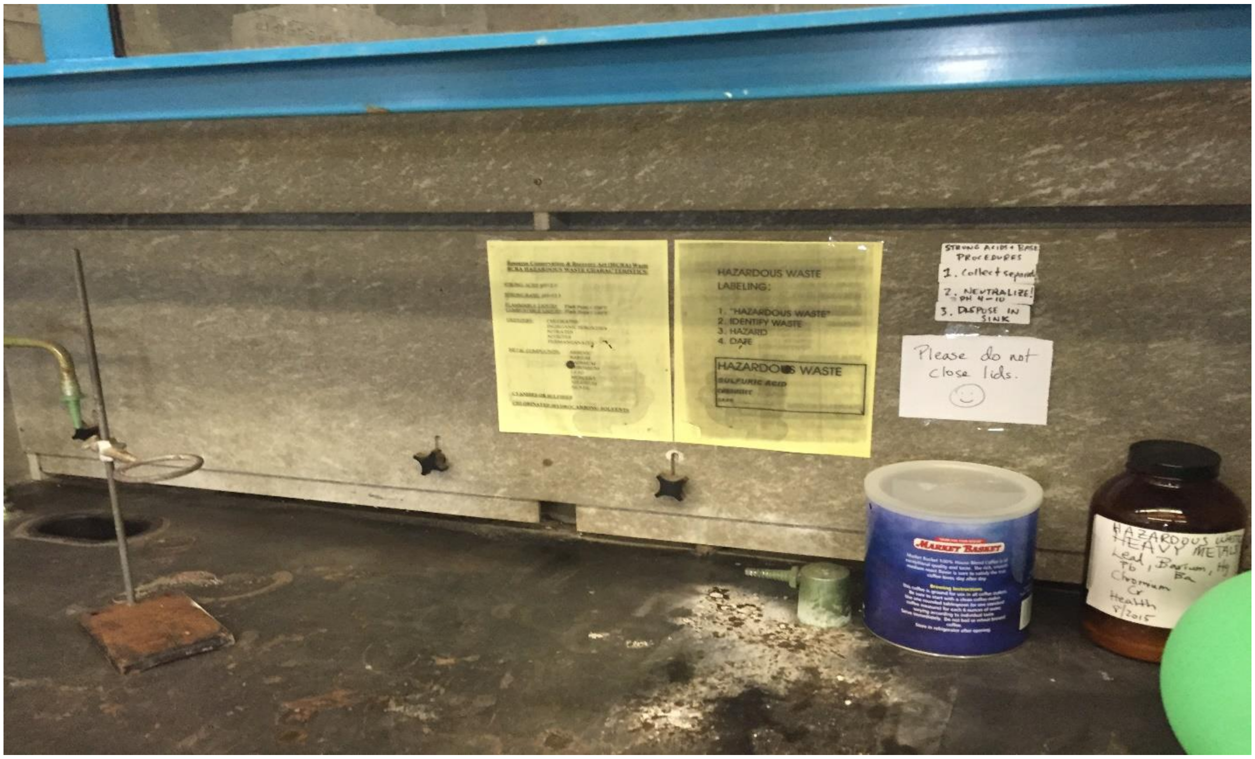
Loading Dock

Boiler Room

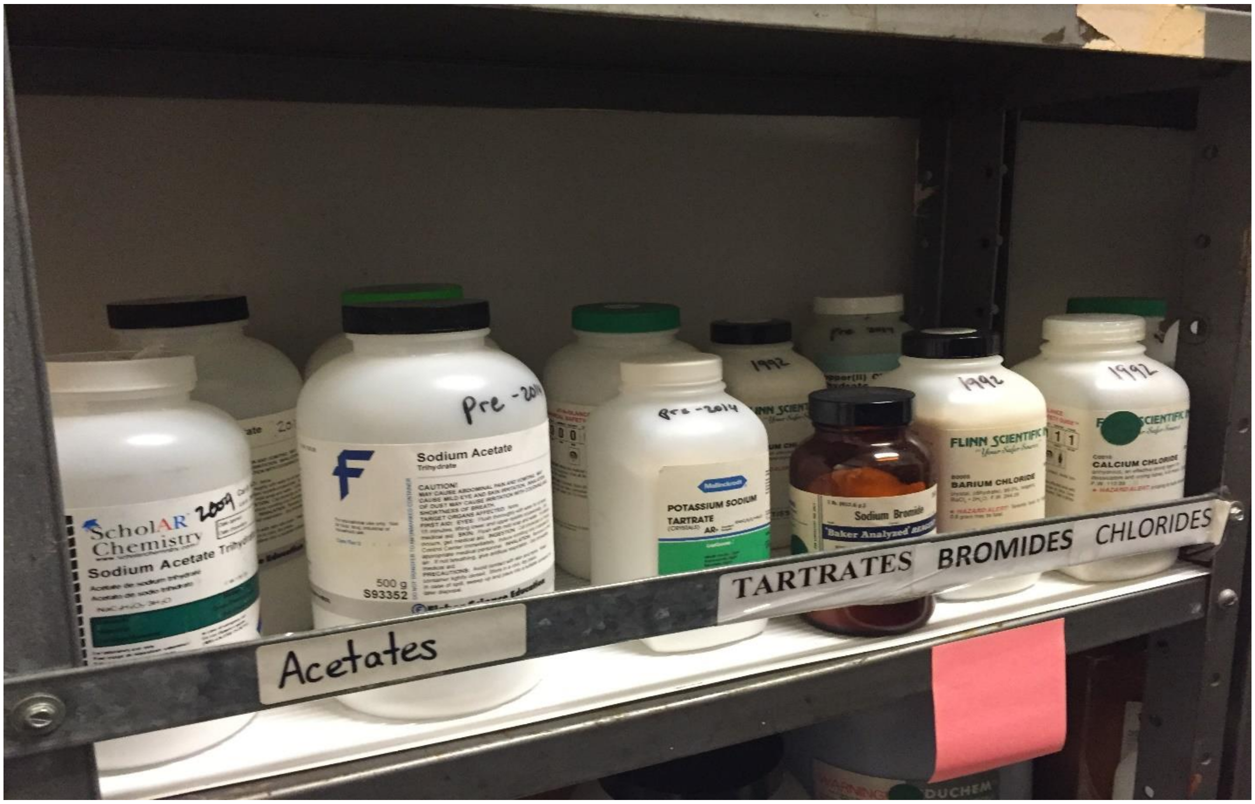
Drums in Auto Shop

Oil Drum in Auto Shop

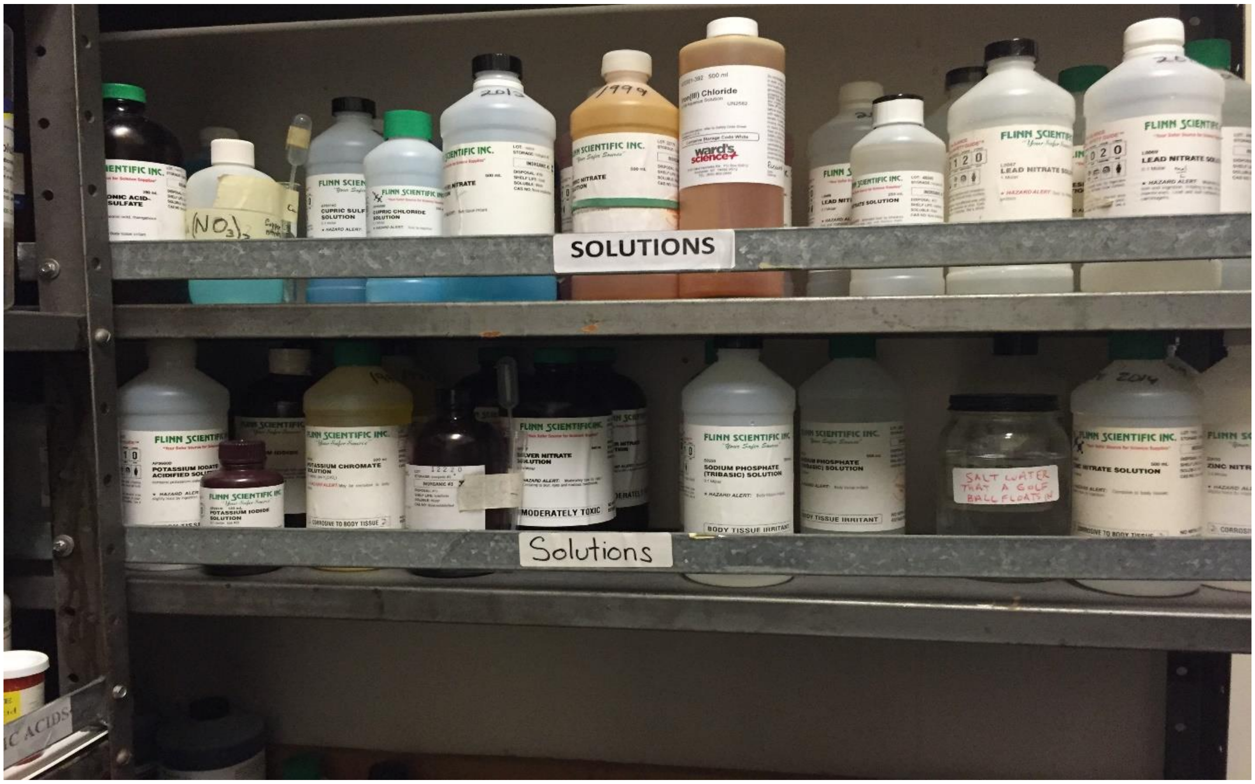
Old Hydraulic Lift with Reservoir Auto Shop



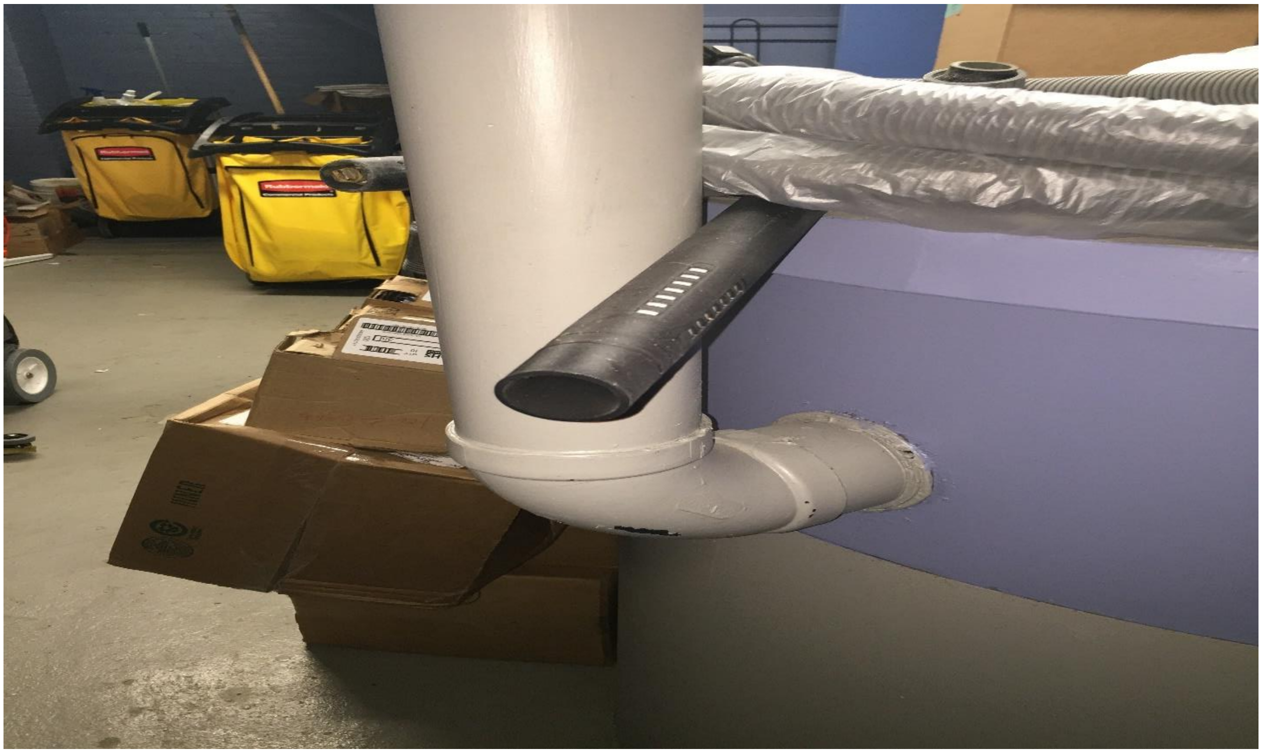
Fume Hood in Chemistry



Science Chemical Storage



Science Chemical Storage



Acid Neutralization Tank in Basement Near Custodial Office

X-Ray in Dental tech

Welding Gases in Welding Shop

Discharge to Chimney

Front of A Wing

Front of B Wing

Front of D Wing

Front View Toward South East

Back of 1988 Wing with View Toward Medford Street

Formal Front Lawn with View Toward City Hall

LGCI
Lahlaf Geotechnical Consulting, Inc.

November 19, 2015

Ms. Lorraine Finnegan
Symmes Maini & McKee Associates
1000 Massachusetts Avenue
Cambridge, MA 02138
Phone: (617) 547-5400
Fax: (617) 648-4920
E-mail: lfinnegan@smma.com

Re: **Preliminary Geotechnical Report**
Proposed Somerville High School
Somerville, Massachusetts
LGCI Project No. 1538

Dear Ms. Finnegan:

Lahlaf Geotechnical Consulting, Inc. (LGCI) has completed a preliminary geotechnical study for Somerville High School in Somerville, Massachusetts. We are submitting this preliminary report electronically, please notify us if you need a hard copy.

The soil samples from our explorations are currently stored at LGCI for further analysis, if requested. Unless notified otherwise, we will dispose of the soil samples after three months.

Thank you for choosing LGCI as your geotechnical engineer.

Very truly yours,

Lahlaf Geotechnical Consulting, Inc.

Todd Dwyer, P.E.
Senior Project Manager

Abdelmadjid M. Lahlaf, Ph.D., P.E.
Principal Engineer

Lahlaf Geotechnical Consulting, Inc.

PRELIMINARY GEOTECHNICAL REPORT
PROPOSED SOMERVILLE HIGH SCHOOL
SOMERVILLE, MASSACHUSETTS

LGCI Project No. 1538
November 19, 2015

Prepared for:

SYMMES MAINI & MCKEE ASSOCIATES
1000 Massachusetts Avenue
Cambridge, MA 02138
Phone: (617) 547-5400
Fax: (617) 648-4920

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Phone: (617) 547-5400
Fax: (617) 648-4920

Prepared by:

LAHLAF GEOTECHNICAL CONSULTING, INC.
23 McGinness Way
Billerica, Massachusetts 01821
Phone: (978) 330-5912
Fax: (978) 330-5056

ABDELMADJID M. LAHLAF
CIVIL
No. 39814

Abdelmadjid M. Lahlaf, Ph.D., P.E.
Principal Engineer

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1. PROJECT INFORMATION

1.1 Project Authorization

This preliminary geotechnical report presents the results of the subsurface explorations and a preliminary geotechnical evaluation performed by Lahlaf Geotechnical Consulting, Inc. (LGCI) as part of the feasibility study for Somerville High School in Somerville, Massachusetts. LGCI performed our services in general accordance with our proposal No. 15103-Revised dated October 1, 2015 with a revision date of October 6, 2015. Ms. Lorraine Finnegan of Symmes Maini & McKee Associates (SMMA) authorized our services by signing our proposal on October 15, 2015.

1.2 Purpose and Scope of Services

The purpose of this preliminary geotechnical study was to obtain subsurface information at Somerville High School and to provide preliminary recommendations regarding the geotechnical aspects of the project in support of the feasibility study. LGCI performed the following services:

- Provided a field representative to observe the locations of the borings staked in the field by SMMA.

- Notified Dig Safe Systems Inc. (Dig Safe) and the City of Somerville for utility clearance. LGCI also reviewed a set of plans provided to us by the City of Somerville and titled "Combined Utility Plan," comprised of 17 sheets of historic site plans and plans of adjacent roadways that show utilities on and around the project site.

- Engaged Northern Drill Service of Northborough, Massachusetts, a drilling subcontractor, to advance five (5) borings at the project site. The drilling subcontractor also installed groundwater observation wells in two (2) of the borings.

- Provided a geotechnical field engineer to observe the borings, describe the soil samples, and prepare field logs.

- Submitted two soil samples for laboratory testing.

- Prepared this preliminary geotechnical report containing the results of our subsurface explorations and our preliminary recommendations for foundation design and construction at the site, including our comments on construction considerations based on the preliminary explorations.

- We understand that additional borings and test pits will be performed during later phases of the project. At this time, our scope does not include preparing specifications, performing contract document review, or providing construction services. LGCI would be pleased to perform these services when needed. Recommendations for stormwater management, erosion control, pavement design, and detailed cost or quantity estimates are not included in our scope of work.

LGCI did not perform environmental services for this project. LGCI did not perform an assessment to evaluate for the presence or absence of hazardous or toxic materials above or below the ground surface at or around the site. Any statement about the color, odor, or the presence of suspicious materials included in our boring logs or report were made by LGCI for information only and to support our geotechnical services. No environmental recommendations and/or opinions are included in this report.

1.3 Site Description and Project Description

LGCI's understanding of the site is based on the following documents provided to us by the City of Somerville via e-mail on October 23, 2015:

- "Partial Site Plan, Renovations and Additions to the Somerville Comprehensive High School, Somerville, Massachusetts," Sheets SU-1 and SU-2, prepared by Robert W. Sullivan, Inc. Consulting Engineers, dated April 27, 1984.

- "Site Utility Details and General Notes, Renovations and Additions to the Somerville Comprehensive High School, Somerville, Massachusetts," Sheet SU-3, prepared by Robert W. Sullivan, Inc. Consulting Engineers and dated May 8, 1984.

- "Highland Avenue Construction Plan," Sheets 5 to 8, prepared by the City of Somerville.

- "Site Plan, Renovations and Additions to the Somerville Comprehensive High School, Somerville, Massachusetts," Sheets E-1, prepared by Lottero and Mason Associates, Inc., dated May 10 1984.

- Water services plans without titles (9 sheets) showing water lines in the streets and service line locations for area customers surrounding the Somerville High School property.

We also based our understanding of the existing conditions on the following plans provided to us SMMA:

- Architectural floor plans, five sheets, titled: "Shop Level Program Plan, First Floor Program Plan, Second Floor Program Plan, Third Floor Program Plan, and Fourth Floor Program Plan," prepared by SMMA and received via e-mail on November 10, 2015.

- "Existing Conditions Survey, Somerville High School, 81 Highland Avenue, Somerville, MA 02143," prepared by Nitsch Engineering, dated October 7, 2015, and provided by SMMA on November 10, 2015 via e-mail.

The existing Somerville High School is located at 81 Highland Avenue, northeast of the intersection of Highland Avenue and School Street in Somerville, Massachusetts as shown in Figure 1. The existing school shares the property with Somerville City Hall, located west of the school, and Somerville Public Library, located east of the school. The property is bordered by School Street on the western side, Highland Avenue on the southern side, Walnut Street on the eastern side, and Medford Street and the Massachusetts Bay Transportation Authority (MBTA) rail corridor on the northern side. The existing school complex is set on a ridge, and the grades drop steeply in a northerly direction from the school toward Medford Street. The grades also drop gently away from the existing buildings to the south, east, and west. For the convenience of this report the existing school buildings will be numbered, from west to east, as Buildings A, B, C, D, and Fieldhouse. The footprints of the existing school buildings encompass approximately 125,420 square feet.

The grades along the southern side of the school vary from El. 106 feet near the southwestern corner of Building A to El. 108 feet at the southeastern corner of Building C and down to El. 97 feet at the southeastern corner of the Fieldhouse. The land south of the school grades down to Highland Avenue. Highland Avenue has a centerline elevation at El. 97 feet at the western driveway immediately south of Building A and the road grades gently down in an easterly direction with the centerline elevation at El. 93 feet at the eastern driveway south of the Fieldhouse.

The site slopes down most steeply toward the northern side of the school, and the school buildings step down one to two stories to accommodate the grade change to the north. The existing grade is at about El. 91 feet at the northwestern corner of Building A and at about El. 76 feet at the northeastern corner of Building B, and drops to about El. 56 feet at the northwestern corner of the Fieldhouse. Immediately north of Buildings B and the Fieldhouse, the ground surface is wooded and slopes down steeply at about 2H:1V or steeper toward the MBTA rail corridor. Construction associated with the new Medford Street Bridge, part of the MBTA Green Line Extension project, was ongoing at the time of our explorations. This construction activity is adjacent to the northern wall of the Fieldhouse and involves construction of several new retaining walls.

Several parking lots exist on the property. These include the School Street Parking Lot, the Highland Avenue West Parking Lot, the Highland Avenue East Parking Lot, and the Medford Street Parking Lot.

The School Street Parking Lot provides access to Building A, Building B, and to City Hall. The parking lot is comprised of a two lane driveway with parking north and south of the driveway. A retaining wall extends along the northern side of the parking lot, starting about 10 feet east of School Street and terminating near the northwestern corner of Building B. This retaining wall has a maximum height of approximately 13 feet. Grades north of the wall are relatively level for about 8 to 10 feet, providing access for mowers and maintenance equipment, and then drop steeply toward the rail corridor. We understand that the MBTA plans to construct a traction power substation, also part of the Green Line Extension Project, north of the School Street Parking Lot and Building B.

The Highland Avenue West Parking Lot has a one-way driveway that extends north from the Highland Avenue entrance with parking on the eastern and western sides of the driveway and Somerville City Hall on the west. The one-way driveway loops back to Highland Avenue past the entrances to Buildings A, B, and C with parking along portions of the northern side and all along the southern side of the driveway. At the exit, the one-way driveway has parking on the east and west sides and Building D is located just east of the driveway.

The Highland Avenue East Parking Lot's one-way driveway extends north from Highland Avenue and then turns northeast after 60 feet. The driveway continues toward the northeast for approximately 220 feet and is relatively level with Building D and the Fieldhouse located northwest of the driveway. At the northern end, the driveway turns 90 degrees toward the southeast and parking spaces are present on the each side of the driveway for about 160 feet. The driveway drops from about El. 96 feet to El. 89 feet at the end of this stretch. The ground surface north of this section is a lawn area that drops at about a 3H:1V slope to the Medford Street parking lot. At its eastern end, the driveway splits, with one drive that extends along the northern side of the library and connects to Walnut Street and the other drive that extends south along the western side of the library and meets Highland Avenue.

The Medford Street Parking Lot extends southwest from Medford Street and gradually turns toward the northeast corner of the Fieldhouse. Parking spaces are provided along both northeastern and southwestern sides of the driveway. Grades in the parking lot vary from approximately El. 78 feet at the northeastern corner of the Fieldhouse to El. 65 feet at the intersection with Medford Street. This parking lot also has a concrete retaining wall that extends along the northeastern boundary of the lot.

At this time, we understand that the proposed building addition layout and configuration are not established. Accordingly, specific structural details related to renovation and possible additions to the school complex have not been developed and the geotechnical recommendations in this report are preliminary.

Due to the significant grade changes across the site, additional exploration and analyses will be required to provide final geotechnical recommendations. We understand that additional explorations, including borings and test pits, will be performed during the schematic and/or design phases.

1.4 Elevation Datum

We understand that the elevations shown on the existing conditions survey prepared by Nitsch Engineering, and which we included on our boring logs, are referenced to the North American Vertical Datum of 1988.

2. SITE AND SUBSURFACE CONDITIONS

2.1 Surficial Geology

LGCI reviewed the surficial geological map titled "Surficial Geological Map of the Boston North Quadrangle, Massachusetts," included as Plate 2 from the 2004 USGS report "Liquefaction Hazard Mapping in Boston, Massachusetts," prepared by William Lettis & Associates, Inc., and Tufts University.

The map indicates that the natural soils in the general vicinity of the site consist of glacial till, drumlin comprised primarily of sand and clay with gravel, cobbles, and silt. The surficial geologic map of the site is shown in Figure 2.

2.2 LGCI's Borings

SMMA staked the boring locations, and LGCI checked the boring locations in the field for access. We notified Dig Safe and the City of Somerville for utility clearance prior to performing the explorations at the site.

LGCI engaged Northern Drill Service (drillers) of Northborough, Massachusetts to advance five (5) borings at the site as follows: boring B-1 adjacent to the School Street Parking Lot entrance; boring B-2 within the School Street Parking Lot; boring B-3 near the northeastern corner of Building B; boring B-4 in the grassy alcove formed by the eastern wall of Building C, north wall of Building D, and west wall of the Fieldhouse; and boring B-5 just east of the Fieldhouse in the Highland Avenue East Parking Lot. Groundwater observation wells were installed in borings B-2 and B-5. The boring locations are shown in Figure 3.

An LGCI engineer observed and logged the borings in the field. The borings were advanced with a Mobile B-48 rotary drill rig mounted on a rubber track carrier. Borings were advanced by employing drive and wash drilling techniques using flush joint casing. Upon completion, the boreholes were backfilled with the soil cuttings unless a groundwater observation well was installed. The ground surface was restored with asphalt cold patch in paved areas.

The drillers performed Standard Penetration Tests (SPT) and obtained split spoon samples with an automatic hammer at the depth intervals (typically 2 feet or 5 feet) noted on the boring logs in general accordance with ASTM D-1586. Unless notified otherwise, we will dispose of the soil samples after three months.

Appendix A contains LGCI's boring logs and our groundwater observation well installation reports. Elevations noted on the boring logs were estimated by plotting the boring locations on the "Existing Conditions Survey, Somerville High School, 81 Highland Avenue, Somerville, MA 02143," prepared by Nitsch Engineering and interpolating between elevation contours to the nearest ½ foot. Table 1 includes a summary of the borings.

2.3 Subsurface Conditions

The subsurface description in this report is based on a limited number of borings and is intended to highlight the major soil strata encountered during our borings. The subsurface conditions are known only at the actual boring locations. Variations may occur and should be expected between boring locations. The boring logs represent conditions that we observed at the time of our explorations and were edited, as appropriate, based on the results of the laboratory test data and inspection of the soil samples in the laboratory. The strata boundaries shown in our boring logs are based on our interpretations and the actual transitions may be gradual. Graphic soil symbols are for illustration only.

The soil strata encountered in the borings were as follows, starting at the ground surface.

Asphalt – Asphalt was encountered at the ground surface at borings B-2 and B-5 with observed thicknesses of 4 inches and 6 inches, respectively.

Topsoil/Subsoil – A layer of surficial organic soil (topsoil/subsoil) was encountered at the ground surface in borings B-1, B-3, and B-4. This layer had thicknesses ranging 0.5 to 2.0 feet.

Fill – Existing fill was encountered below the asphalt or topsoil in each of the borings. The fill generally consisted of sand with variable proportions of gravel and silt. The fill contained debris such as brick fragments and coal ash. Samples were most often described as silty sand, occasionally as poorly graded sand and well-graded sand, and one fill sample was classified as well-graded gravel.

The Standard Penetration Test (SPT) N-values in the existing fill ranged from 4 to 80 blows per foot (bpf) with most values ranging between 4 and 14 bpf indicating loose to medium dense material. Sample 2 in boring B-3 had an SPT N-value of 80 and Sample 1 in boring B-5 had an SPT N-value of 51 indicating the possible presence of cobbles or boulders.

Glacial Till – Glacial till was encountered in the borings below the existing fill. The glacial till was typically classified as silty sand or silt with gravel. Each of the five borings terminated within the glacial till stratum.

The SPT N-values in the glacial till ranged from 21 to more than 100 bpf, indicating medium dense to very dense soil. Sampler refusal was encountered in five of the twenty-one samples obtained within this stratum indicating the possible presence of cobbles or boulders in the till

2.4 Groundwater

Groundwater observation wells were installed in borings B-2 and B-5. Groundwater depths were measured in borings B-2 and B-5 shortly after completion of the groundwater well installations and were noted as 4.8 and 0.5 feet beneath the ground surface, respectively. The groundwater depths were measured again on November 13, 2015, i.e., about two weeks after the installation of the wells in borings B-2 and B-5 at 19.5 feet and 21 feet beneath the ground surface, respectively. The respective groundwater elevations in borings B-2 and B-5 were El. 73 and El. 74.5 feet on November 13, 2015. We recommend engaging LGCI as part of the next phase of services, to continue monitoring the groundwater observation wells.

Groundwater depths were also measured in borings B-1, B-3, and B-4 at 4.3 feet, 4.0 feet, and 7.5 feet, respectively. The groundwater depths measured in borings B-1, B-3, and B-4 are based on observations made shortly after the completion of drilling. Note that water was introduced into each borehole to maintain a stable borehole and the groundwater levels noted may not represent the actual groundwater level, as additional time may be required for the groundwater levels to stabilize. The groundwater levels presented in this report only represents the conditions encountered at the time and location of the explorations, unless noted otherwise. Seasonal fluctuation should be anticipated.

2.5 Laboratory Test Data

LGCI submitted two (2) soil samples collected from the borings for grain size analysis. The results of the grain size analyses performed are provided on the test data sheets included in Appendix B and are also summarized in the table below.

Grain Size Analysis Test Results

Boring No.	Sample No.	Stratum	Sample depth (ft.)	Percent Gravel	Percent Sand	Percent Fines
B-2	S1	Fill	0.5 - 2	14.0	56.5	29.5
B-4	S3	Fill	4 - 6	29.6	42.4	28.0

3. PRELIMINARY EVALUATION AND RECOMMENDATIONS

3.1 General

The borings indicated variable conditions across the site. Our preliminary recommendations are provided in the subsequent sections for preliminary foundation design and construction. Based on our understanding of the Somerville High School site, our observation of the borings, and the results of our laboratory testing, there are a few issues that we would like to highlight for consideration and discussion.

3.1.1 Site Grading – Cuts and Fills

Site grading and the location and layout of new additions should be carefully considered as the project design is advanced. Due to the sloping ground, new additions will likely require cuts into the existing slope and placement of new fill to achieve the finished floor elevations. The grade changes at the site will also likely result in new retaining walls being constructed to provide grade separation. New retaining walls should be preliminarily designed in accordance with the lateral earth pressure recommendations in section 3.6. Once the final design locations of new retaining walls are determined, the overall stability of the walls should be evaluated by LGCI. Additional borings and test pits will be required to collect soil samples for shear strength testing, which will provide important data to complete the overall stability analyses.

3.1.2 Existing Fill

Existing fill was encountered in each of the borings performed at the site extending to depths of 4 to 8.5 feet beneath the ground surface. The fill was observed to be variable in composition and density. Existing fill that was not placed with strict moisture, density, and gradation control presents risk of unpredictable settlements that may result in poor performance of floor slabs and foundations. Due to these risks, the existing fill should be entirely removed from within the proposed building footprint and replaced with Structural Fill.

Due to the impacts the extent of the fill may have on design and construction, we recommend test pits be considered in the schematic and/or final design phases to further evaluate the depth, composition, and extent of the fill below the planned additions and renovations.

3.1.3 MBTA Construction

We understand the MBTA is planning to construct a new traction power substation north of the School Street Parking Lot and Building B. The planned southern wall of the new traction power substation will be as close as 35 feet from the retaining wall along the northern side of the School Street Parking Lot and Building B. If new structures are planned in the School

Street Parking Lot or renovations are planned on the northern side of Building B, we recommend that potential impacts to the new traction power substation be considered by the design team and addressed in future explorations, as necessary.

Construction associated with the new Medford Street Bridge, also part of the MBTA Green Line Extension project, was ongoing at the time of our explorations. This construction activity is adjacent to the northern wall of the Fieldhouse and also involves construction of several new retaining walls. Should new structures be planned near these new walls, we recommend that potential impacts to the walls be considered by the design team and addressed in future explorations, as necessary.

3.2 Preliminary Foundation Recommendations

Based on the results of the preliminary borings, the subsurface conditions appear suitable for support of new structures with grade-supported floor slabs and shallow foundations. Preliminary recommendations for footing design and settlement are presented below.

3.2.1 Preliminary Footing Design

- We recommend new footings be preliminarily designed using a net allowable bearing pressure of 6 kips per square foot (ksf) for footings bearing on Structural Fill placed directly on glacial till.
- Footing subgrades should be prepared in accordance with the recommendations in Section 4.1.
- All foundations should be designed in accordance with The Commonwealth of Massachusetts State Building Code 780 CMR, Eighth Edition (MSBC 8th Edition).
- Exterior footings and footings in unheated areas should be placed at a minimum depth of 4 feet below the final exterior grade to provide adequate frost protection. Interior footings in heated areas may be designed and constructed at a minimum depth of 2 feet below finished floor grades.
- Wall footings should be designed and constructed with continuous, longitudinal steel reinforcement for greater bending strength to span across small areas of loose or soft soils that may go undetected during construction.
- A representative of LGCI should be engaged to observe that the subgrade has been prepared in accordance with our recommendations.

3.2.2 Preliminary Settlement Estimates

For footings designed using the net allowable bearing pressure recommended above, we anticipate that the settlement will be about 1 inch and that the differential settlement of the footings will be 3/4 inch or less over a distance of 25 feet. Total and differential settlements of these magnitudes are usually considered tolerable for the anticipated construction. However, the predicted total settlement will be differential with respect the existing school structure. Should the predicted settlements not be tolerable, the structural engineer could consider a control joint between a new addition and the existing structure. As the design progresses and the settlement estimates are refined, the tolerance of the proposed structure to the predicted total and differential settlements should be assessed by the structural engineer.

Most of the settlement is anticipated to occur during or shortly after construction. To reduce the potential for damage to masonry elements as a result of differential settlement between a proposed addition and the existing building, we recommend not installing masonry elements, glass finishes, and brittle wall and floor finishes until near the end of construction to allow for some settlement to occur.

3.3 Preliminary Concrete Slab Considerations

- Floor slabs can be constructed as a slab-on-grade bearing on a minimum of 12 inches of Structural Fill placed directly on top of the natural sand and silt. The subgrade of the slab should be prepared as described in Section 4.1.

- To reduce the potential for dampness in the proposed floor slab, the project architect may consider placing a vapor barrier beneath the floor slab. To reduce the potential for concrete curling and to protect the vapor barrier, a 3-inch layer of sand should be placed on the vapor barrier.

- For the design of the floor slabs bearing on the materials described above, we recommend using a modulus of subgrade reaction, k_{s1}, of 86 tons per cubic foot (tcf). Please note that the values of k_{s1} are for a 1 x 1 square foot area. These values should be adjusted for larger areas using the following expression:

  $$Modulus\ of\ Subgrade\ \mathrm{Re}action\,(k_s) = k_{s1} * \left(\frac{B+1}{2B}\right)^2$$

  where:
  k_s = Coefficient of vertical subgrade reaction for loaded area,
  k_{s1}= Coefficient of vertical subgrade reaction for 1 x 1 square foot area, and
  B = Width of area loaded, in feet.

- Please note that cracking of slabs-on-grade can occur as a result of heaving or compression of the underlying soil, but also as a result of concrete curing stresses. To reduce the potential for cracking, the precautions listed below should be closely followed for construction of all slabs-on-grade:

- Construction joints should be provided between the floor slab and the walls and columns in accordance with the American Concrete Institute (ACI) requirements, or other applicable code.

- Backfill in interior utility trenches should be properly compacted.

- In order for the movement of exterior slabs not to be transmitted to addition foundations or superstructures, exterior slabs such as approach slabs and sidewalks, should be isolated from the addition superstructure.

3.4 Under-slab Drains

Based on the groundwater levels observed in the explorations and the observation wells, it is not anticipated that an under-slab drainage system will be required under a new building addition. However, once finished floor elevations and addition footprint locations are established, LGCI should review and update this recommendation, as necessary.

3.5 Preliminary Seismic Design

In accordance with Section 1613 of MSBC 8th Edition and International Building Code (2009 IBC) and based on the boring data, the seismic criteria for the site are as follows:

- Site Class: D
- Spectral Response Acceleration at short period (S_s): 0.28 g
- Spectral Response Acceleration at 1 sec. (S_1): 0.069g
- Site Coefficient F_a (Table 1613.5.3(1)): 1.6
- Site Coefficient F_v (Table 1613.5.3(2): 2.4
- Adjusted spectral response S_{MS}: 0.448 g
- Adjusted spectral responses S_{M1}: 0.166g

The site preliminarily classifies as a site class C based on the average SPT N-value exceeding 50 as observed in the five borings. However, we believe that many of the high SPT N-values may be due to obstructions in the till. For this reason, we are recommending classifying the site as a Site Class D. We will revise this recommendation, if needed, after additional explorations are performed during the next phase. Based on the boring information, we believe the site soils are not susceptible to liquefaction.

3.6 Lateral Pressures for Wall Design

3.6.1 Preliminary Lateral Earth Pressures

Lateral earth pressures preliminarily recommended for design of retaining walls and below grade walls are provided below.

Coefficient of Active Earth Pressure, K_A:	0.31
Coefficient of At-Rest Earth Pressure, K_o:	0.5
Coefficient of Passive Earth Pressure, K_p:	3.3
Total Unit Weight, γ:	125 pounds per cubic foot

Note: The values in the table are based on a friction angle for the backfill of 32 degrees and neglecting friction between the backfill and the wall. The design active and passive coefficients are based on horizontal surfaces (non-sloping backfill) on both the active and passive sides, and a vertical wall face.

- Recommended lateral earth pressure coefficients should be evaluated in the schematic and/or design phases of the project. It is anticipated coefficients may require adjustment to account for sloping ground.

- Exterior walls of below-ground spaces should be designed using the “at-rest” pressure coefficient.

- We recommend placing free-draining material within the 3 feet immediately behind retaining walls. See Section 3.7 for additional recommendations regarding perimeter drains.

- Passive earth pressures should only be used at the toe of the wall where special measures or provisions are taken to prevent disturbance or future removal of the soil on the passive side of the wall, or in areas where the wall design includes a key.

- Where a permanent vertical uniform load will be applied on the active side immediately adjacent to the wall, a horizontal surcharge load equal to half of the uniform vertical load should be applied over the height of the wall. At a minimum, a temporary construction surcharge of 100 psf should be applied uniformly over the height of the wall.

- We recommend using an ultimate friction factor of 0.50 between the natural sand and the bottom of the wall. Retaining walls should be designed for minimum factors of safety of 1.5 for sliding and 2.0 for overturning.

3.6.2 Seismic Pressures

In accordance with the *Massachusetts State Building Code, 8th Edition*, Section 1610, a lateral earthquake force equal to $0.100*(S_s)*(F_a)*\gamma*H^2$ should be included in the design of walls (for horizontal backfill), where S_s is the maximum considered earthquake spectral response acceleration (defined in Section 3.5), F_a is the site coefficient (defined in Section 3.5), γ is the total unit weight of the soil backfill, and H is the height of the wall.

The earthquake force should be distributed as an inverted triangle over the height of the wall. In accordance with MSBC 8th Edition, Section 1610.2, a load factor of 1.43 shall be applied to the earthquake force for wall strength design.

Temporary surcharges should not be included when designing for earthquake loads. Surcharge loads applied for extended periods of time shall be included in the total static lateral soil pressure and their earthquake lateral force shall be computed and added to the force determined above.

3.7 Perimeter Drains

Information necessary to make recommendations for perimeter walls is not available at this time. However, it is prudent to assume that perimeter drains will be needed for exterior walls of below grade-spaces.

- We recommend that free-draining material be placed within 3 feet of the exterior of walls of below-ground spaces. To reduce the potential for dampness, the exterior walls of below-ground spaces should be damp-proofed.

- We recommend that drains be provided behind the exterior of walls of below-ground spaces. The drains should consist of 6-inch perforated PVC pipes installed with the slots facing down. Perimeter drains should be installed at the bottom of the wall in 18 inches of crushed stone wrapped in a geotextile for separation and filtration.

- Groundwater collected by the wall drains could be discharged in a lower area if gravity flow is possible. Alternatively, it should be discharged into the street drains. A permit would be required for discharge into street drains.

4. PRELIMINARY CONSTRUCTION CONSIDERATIONS

4.1 Subgrade Preparation

- Existing asphalt, topsoil/subsoil, existing fill, abandoned utilities and foundations, and other below-ground structures should be entirely removed from within the footprint of planned structures before the start of foundation work.

- Tree stumps, root balls, and roots larger than ½ inch in diameter should be removed and the cavities filled with suitable material and compacted per Section 4.3 of this report. Care should be exercised during stripping to reduce the potential for disturbance of the subgrade.

- Due to the silty nature of the natural soil, and to reduce the potential for disturbance of the subgrade during placement of the formwork and rebar, we recommend placing a minimum of 6 inches of Structural Fill at the bottom of footings to serve as a working mat.

- The base of the footing excavations in granular soil should be compacted with a dynamic vibratory compactor weighing at least 200 pounds and imparting a minimum of 4 kips of force to the subgrade, before placing the required 12 inches of Structural Fill.

- Fill placed within the footprint of the proposed building should meet the gradation and compaction requirements of Structural Fill shown in Section 4.3.1.

- Fill placed to raise the grades in paved areas up to the bottom of the subbase layer should meet the gradation and compaction requirements of Ordinary Fill shown in Section 4.3.1

- To reduce the potential of increasing lateral pressures on the retaining walls, fill placed within 3 feet of the walls should be compacted using a small plate compactor imparting a maximum dynamic effort of 4 kips. The fill within 3 feet of the walls should be placed in maximum 8-inch loose lifts.

- Loose or soft soils identified during the compaction of the subgrade should be excavated to a suitable bearing stratum as determined by the representative of LGCI and backfilled with suitable backfill.

- When crushed stone is required in the drawings or it is used for the convenience of the contractor, it should be wrapped in a geotextile fabric for separation except where introduction of the geotextile promotes sliding. A geotextile should not be placed between the bottoms of the footings and crushed stone.

- An LGCI representative should observe the exposed subgrades prior to fill and concrete placement to verify that the exposed bearing materials are suitable for the design soil bearing pressure. If soft or loose pockets are encountered in the footing excavations, the soft or loose materials should be removed, and the bottom of the footing should be placed at a lower elevation on firm soil, or the resulting excavation should be backfilled with Structural Fill, or crushed stone wrapped in a filter fabric.

4.2 Subgrade Protection

The onsite fill and natural soils are frost susceptible. If construction takes place during freezing weather, special measures should be taken to prevent the subgrade from freezing. Such measures should include the use of heat blankets, or excavating the final six inches of soil just before pouring concrete. Footings should be backfilled as soon as possible after footing construction. Soil used as backfill should be free of frozen material, as should the ground on which it is placed. Filling operations should be halted during freezing weather.

Materials with high fine contents are typically difficult to handle when wet as they are sensitive to moisture content variations. Subgrade support capacities may deteriorate when such soils become wet and/or disturbed. The contractor should keep exposed subgrades properly drained and free of ponded water. Subgrades should be protected from machine and foot traffic to reduce disturbance.

4.3 Fill Materials

Structural Fill and Ordinary Fill should consist of inert, hard, durable sand and gravel, free from organic matter, clay, surface coatings and deleterious materials, and should conform to the gradation requirements shown below.

4.3.1 Structural Fill

The Structural Fill should have a plasticity index of less than 6, and should meet the gradation requirements shown below. Structural Fill should be compacted in maximum 9-inch loose lifts to at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557), with moisture contents within ±2 percentage points of optimum moisture content.

Sieve Size Percent	Passing by Weight
3 inches	100
1 ½ inch	80-100
½ inch	50-100
No. 4	30-85
No. 20	15-60
No. 60	5-35
No. 200*	0-10

* 0 – 5 Under sidewalks

4.3.2 Ordinary Fill

Ordinary Fill should have a plasticity index of less than 6, and should meet the gradation requirements shown below. Ordinary Fill should be compacted in maximum 9-inch loose lifts to at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557), with moisture contents within ±2 percentage points of optimum moisture content.

Sieve Size Percent	Passing by Weight
6 inches	100
1 inch	50-100
No. 4	20-100
No. 20	10-70
No. 60	5-45
No. 200*	0-20

* 0 – 5 Under sidewalks

4.4 Reuse of Onsite Materials

Based on our field observations and the results of the grain-size analyses, we do not anticipate that the site soils will be suitable for re-use as Ordinary Fill or Structural Fill. Should the contractor encounter materials suitable for reuse during earthwork operations, the contractor should avoid mixing the reusable soils with fine-grained and/or organic soils. The soils to be reused should be excavated and stockpiled separately for compliance testing.

Soils with 20 percent or greater fine contents are generally very sensitive to moisture content variations and are susceptible to frost. Such soils are very difficult to compact at moisture contents that are much higher or much lower than the optimum moisture content determined from the laboratory compaction test. Therefore, strict moisture control should be implemented during compaction of onsite soils with fine contents of 20 percent or greater. The contractor should be prepared to remove and replace such soils if pumping occurs.

All materials to be used as fill should first be tested for compliance with the applicable gradation specifications.

4.5 Groundwater Control Procedures

Based on the limited information about groundwater levels encountered in our preliminary explorations, we anticipate that no major groundwater control procedures will be needed during excavation for the proposed footings and removal of existing fill. We expect that filtered sump pumps installed in pits located at least three feet below the bottom of planned excavations may be sufficient to handle surface runoff that may enter the excavation during wet weather.

The contractor should be permitted to employ whatever commonly accepted means and practices are necessary to maintain the groundwater level below the bottom of the excavation, and to maintain a dry excavation during wet weather. Groundwater levels should be maintained at a minimum of 1-foot below the bottom of excavations during construction. Placement of reinforcing steel or concrete in standing water should not be permitted.

To reduce the potential for sinkholes developing over sump pump pits after the sump pumps are removed, the crushed stone placed in the sump pump pits should be wrapped in a geotextile fabric. Alternatively, the crushed stone should be entirely removed after the sump pump is no longer in use and the sump pump pit should be restored with suitable backfill.

4.6 Temporary Excavations

All excavations to receive human traffic should be constructed in accordance with the OSHA guidelines.

The site soils should generally be considered Type "C" and should have a maximum allowable slope of 1.5 Horizontal to 1 Vertical (1.5H:1V) for excavations less than 20 feet deep. Deeper excavations, if needed, should have shoring designed by a professional engineer.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of the excavation sides and bottom and to protect existing structures.

5. RECOMMENDATIONS FOR FUTURE WORK

LGCI's services include attending a meeting with SMMA regarding this report.

In addition, we recommend engaging LGCI to perform the following services:

- Observe schematic/design phase explorations as the project progresses.
- Prepare schematic/design phase geotechnical report(s) as the project progresses.
- Prepare earthwork and support of excavation specifications.
- Review the geotechnical aspect of foundation drawings.
- Review the geotechnical aspects of contractor submittals and RFIs.
- Provide a field representative to observe the subgrades of foundations during construction.

6. REPORT LIMITATIONS

Our analysis and recommendations are based on project information provided to us at the time of this report. If changes to the type, size, and location of the proposed structures or to the site grading are made, the recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions and recommendations modified in writing by LGCI. LGCI cannot accept responsibility for designs based on our recommendations unless we are engaged to review the final plans and specifications to determine whether any changes in the project affect the validity of our recommendations and whether our recommendations have been properly implemented in the design.

It is not part of our scope to perform a more detailed site history; therefore, we have not explored for or researched the locations of buried utilities or other structures in the area of the proposed construction. Our scope did not include environmental services or services related to moisture, mold, or other biological contaminants in or around the site.

The recommendations in this report are based in part on the data obtained from the preliminary subsurface explorations. The nature and extent of variations between explorations may not become evident until construction. If variations from anticipated conditions are encountered, it may be necessary to revise the recommendations in this report. We cannot accept responsibility for designs based on recommendations in this report unless we are engaged to 1) perform additional explorations and revise the recommendations in this report as appropriate, 2) make site visits during construction to check that the subsurface conditions exposed during construction are in general conformance with our design assumptions and 3) ascertain that, in general, the work is being performed in compliance with the contract documents.

Our report has been prepared in accordance with generally accepted engineering practices and in accordance with the terms and conditions set forth in our agreement. No other warranty, expressed or implied, is made. This preliminary report has been prepared for the exclusive use of Symmes Maini & McKee Associates for the specific application to the proposed Somerville High School in Somerville, Massachusetts as conceived at this time.

7. REFERENCES

In addition to the references included in the text of the report, we used the following references:

The Commonwealth of Massachusetts (2010), "The Massachusetts State Building Code, Eighth Edition," comprised of the International Building Code (IBC-2009) and 780 CMR: Massachusetts Amendments to IBC-2009.

The Department of Labor, Occupational Safety and Health Administration (1989), "Occupational Safety and Health Standards - Excavations; Final Rule," 20 CFR Part 1926, Subpart P.

USGS Somerville, MA topographic map from http://mapserver.mytopo.com.

Table 1 - Summary of LGCI Borings
Proposed Somerville High School
Somerville, Massachusetts
LGCI Project No. 1538

Boring No.	Ground Surface Elevation (ft.)[1]	Groundwater Depth / El. (ft.)[2]	Bottom of Asphalt or Topsoil/ Subsoil Depth / El. (ft.)*	Bottom of Fill Depth / El. (ft.)	Bottom of Boring Depth / El. (ft.)
B-1	80.00	4.3 / 75.8	0.8 / **79.2**	4.8 / **75.2**	21 / **59.0**
B-2-OW[3]	92.50	19.5 / 73.0	0.3 / **92.2**	6 / **86.5**	32 / **60.5**
B-3	76.00	4.0 / 72.0	2 / **74.0**	6.2 / **69.8**	16 / **60.0**
B-4	101.00	7.5 / 93.5	0.5 / **100.5**	8.5 / **92.5**	18.8 / **82.2**
B-5-OW[3]	95.50	21 / 74.5	0.5 / **95.0**	4 / **91.5**	31 / **64.5**

1 - Elevations interpolated to the nearest 1/2 foot from plan titled "Existing Conditions Survey," prepared by Nitsch Enginee
and dated 11/10/2015. Elevations refer to North American Vertical Datum (NAVD88).

2 - Groundwater observed at the end of drilling unless noted otherwise.

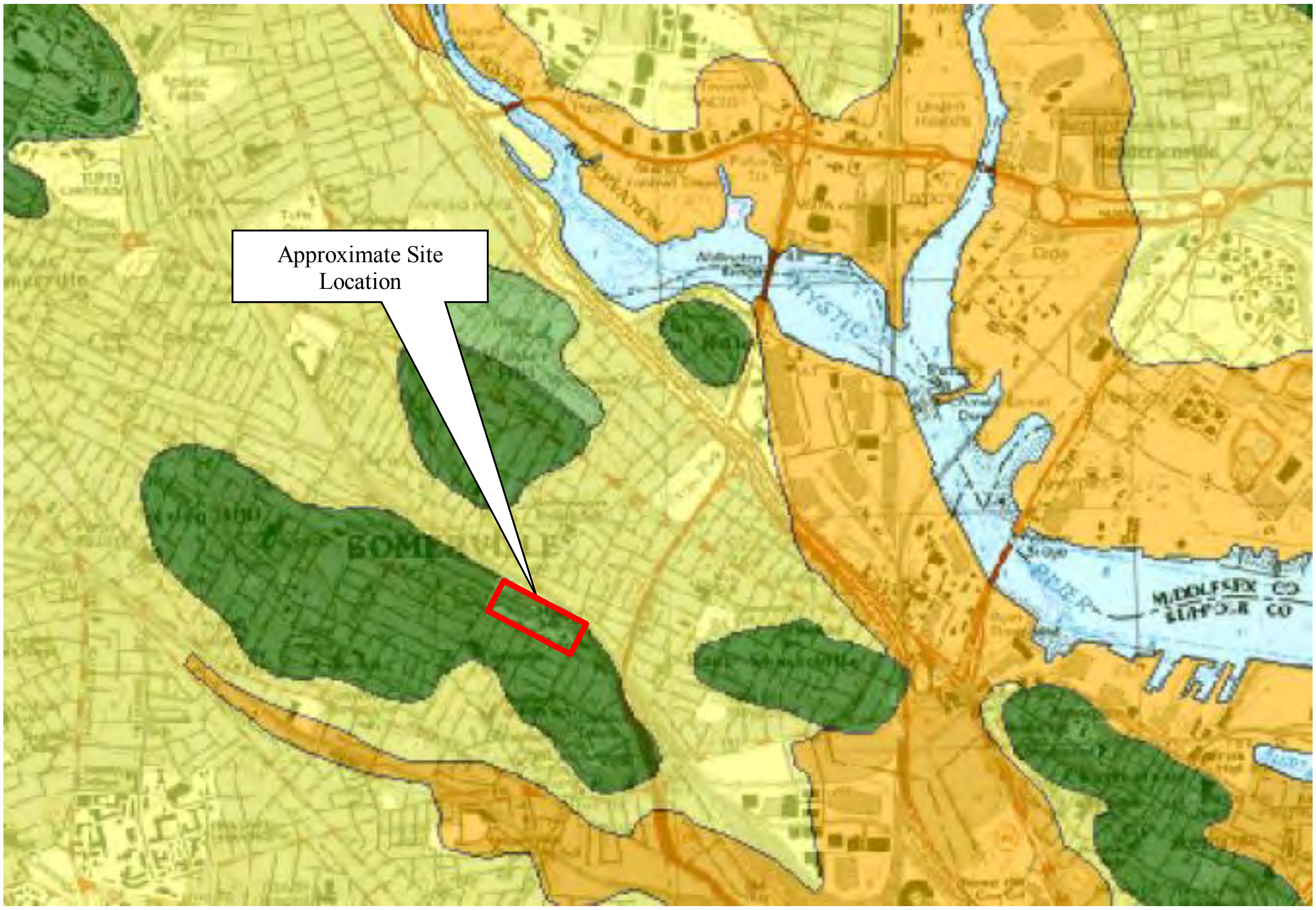
3 - Groundwater observed on 11/13/2015.

Map provided by MyTopo.com

Contour Intervals: 3 meters

Figure based on USGS topographic map of Somerville, MA obtained from http://mapserver.mytopo.com

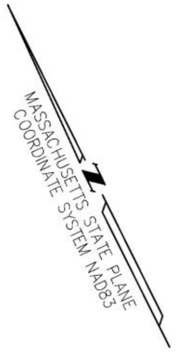
Client: Symmes Maini & McKee Associates	Project: Proposed Somerville High School	Figure 1 – Site Location Map	
LGCI Lahlaf Geotechnical Consulting, Inc.	Project Location: Somerville, MA	LGCI Project No.: 1538	Date: Nov. 2015



🟩 Glacial Till, Drumlin - Glacial till, consiting primarily of clay and sand with gravel, cobbles, and silt; generally dense to very dense, varies in color from yellow to orange to brown/grey.

Note: Figure based on Plate 2 Surficial Geologic Map of the Boston North Quadrangle, Massachusetts included in the 2004 USGS report titled “Liquefaction Hazard Mapping in Boston, Massachusetts” prepared William Lettis & Associates, Inc. and Tufts University

Client: Symmes Maini & McKee Associates	Project: Proposed Somerville High School	Figure 2 – Surficial Geologic Map	
LGCI Lahlaf Geotechnical Consulting, Inc.	Project Location: Somerville, MA	LGCI Project No.: 1538	Date: Nov. 2015

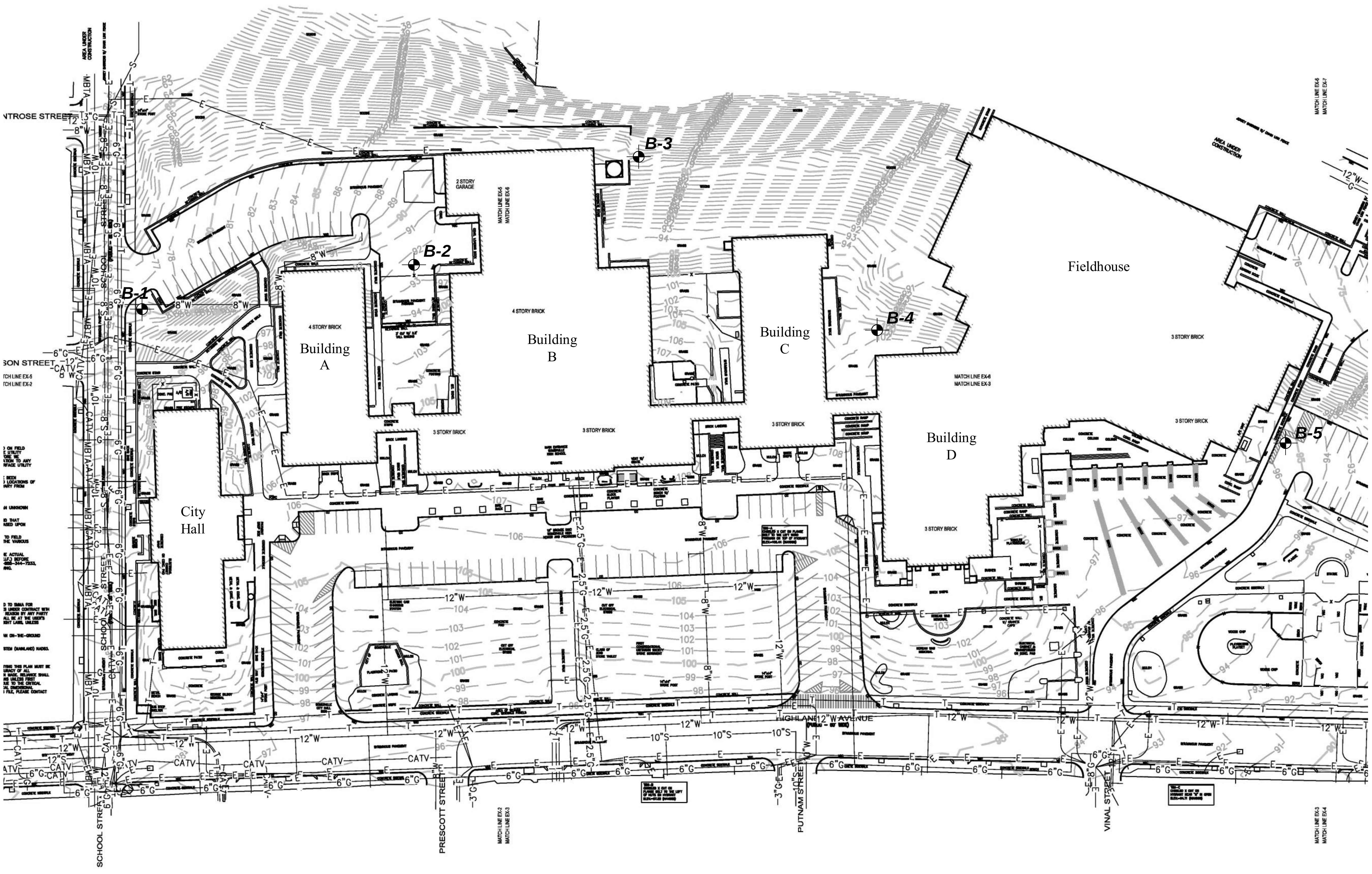


Note

Figure based on progress drawing titled: “Existing Conditions Survey, Somerville High School, 81 Highland Avenue, Somerville, MA 02143,” prepared by Nitsch Engineering and dated October 7, 2015. The drawing was provided to us by SMMA on November 10, 2015.

Legend

⌖ Approximate location of boring advanced by Northern Drill Service of Northborough, Massachusetts on October 28 and 29, 2015 and observed by LGCI.



GRAPHIC SCALE

60 30 0 60 120 180

Client:	Project:	
Symmes Maini & McKee Associates	Proposed Somerville High School	Figure 3 – Boring Location Plan
LGCI Lahlaf Geotechnical Consulting, Inc.	Project Location: Somerville, MA	LGCI Project No.: 1538 Date: Nov. 2015

Appendix A – Boring Logs and Groundwater Observation Well Installation Report

LGCI
Lahlaf Geotechnical Consulting, Inc.

BORING LOG

Boring B-1
Page 1 of 1

Project: **Proposed Somerville High School, Somerville, MA**
Client: **Symmes Maini & McKee Associates**
LGCI Project No.: 1538

Drilling Subcontractor: Northern Drill Service, Inc.
Drilling Foreman: Tim Tucker
LGCI Engineer: Andrew Jefferson

Date Started: 10/28/2015
Date Completed: 10/28/2015
Location: Lawn west of Sch. St. parking lot entrance

Ground Surface El: 80 feet (see remark 1)
Groundwater Depth: 4.3 ft. at end of drilling

Total Depth: 21 feet
Drill Rig Type: Mobile Drill B-48 (ATV)
Drilling Method: Drive & Wash, 4" casing and tricone bit

Hammer Weight: 140 lbs
Hammer Type: Automatic
Drop: 30 inches

Split Spoon Diameter: ID - 1.375", OD - 2"
Rock Core Barrel Size: N/A

Depth Scale	Sample Depth (ft)	Sample No	Blows per 6 inches 0-6	6-12	12-18	18-24	Pen (in)	Rec (in)	Remarks	Strata	Sample Description
	0-2	S1	1	3	5	18	24	16		Topsoil/	S1 - Top 10": Topsoil Bot. 6": Silty SAND (SM), fine, trace medium to coarse, ~25% fines, ~5% organic fines, trace roots, light brown, moist (fill)
	2-4	S2	5	8	5	6	24	12			S2 - Similar to Bot. 6" of S1, trace fine gravel, trace coal ash (fill)
										Fill ~4.8'	
5ft	4-6	S3	5	6	15	32	24	22			S3 - Top 10": Similar to bot 6" of S1, wet
											Bot. 12": Silty SAND (SM), fine, trace medium to coarse, ~30% fines, ~10% fine gravel, rounded, light brown, wet (natural)
10ft	9-11	S4	25	50	65		18	18	2		S4 - Similar to Bot. 12" of S3
										Silty Sand	
15ft	14-16	S5	14	24	25	29	24	24			S5 - Similar to Bot .12" of S3, gray
20ft	19-21	S6	27	25	27	44	24	3			S6 - Similar to Bot. 12" of S3, gray
										~21'	
											Bottom of boring at 21 feet. Backfilled borehole with drill cuttings.

Remarks:
1 - Elevations interpolated to the nearest 1/2 foot from plan titled "Existing Conditions Survey," prepared by Nitsch Engineering and dated 11/10/2015. Elevations refer to North American Vertical Datum (NAVD88).
2 - Refusal of sampler for S4 at 18".

BORING LOG

Boring B-2
Page 1 of 2

Project: **Proposed Somerville High School, Somerville, MA**

Client: **Symmes Maini & McKee Associates** LGCI Project No.: 1538

Drilling Subcontractor: Northern Drill Service, Inc.
Drilling Foreman: Tim Tucker
LGCI Engineer: Andrew Jefferson

Date Started: 10/28/2015
Date Completed: 10/28/2015
Location: School St. parking lot

Ground Surface El: 92.5 feet (see remark 1)
Groundwater Depth: 19.5 feet on 11/13/15

Total Depth: 32 feet
Drill Rig Type: Mobile Drill B-48 (ATV)
Drilling Method: Drive & Wash, 4" casing and tricone bit

Hammer Weight: 140 lbs
Hammer Type: Automatic
Drop: 30 inches

Split Spoon Diameter: ID - 1.375", OD - 2"
Rock Core Barrel Size: N/A

Depth Scale	Sample Depth (ft)	Sample No	Blows per 6 inches 0-6	6-12	12-18	18-24	Pen (in)	Rec (in)	Remarks	Strata	Sample Description
	0.5-2	S1	2	2	4		18	3		Asphalt	Drilled through 4" of Asphalt S1 - Silty SAND (SM), fine, trace medium to coarse, moderately plastic, 25-30% fines, 10-15% fine gravel, light brown, wet
	2-4	S2	4	8	5	7	24	11			S2 - Similar to S1, trace organic fines, trace orange/gray sand
5ft	4-6	S3	6	11	24	19	24	16		Fill ~6'	S3 - Top 13": Similar to S1 Bot. 3": Poorly Graded SAND (SP), fine to medium, 0-5% fines, light brown/brown, wet
	6-8	S4	18	21	14	22	24	15			S4 - Silty SAND (SM), fine to medium, trace coarse, 30-35% fines, 5-10% fine gravel, trace coarse, subrounded to rounded, light brown, wet
10ft	9-11	S5	54	67	35	43	24	22			S5 - Similar to S4
15ft	14-16	S6	24	31	34	44	24	24			S6 - Similar to S4
										Silty Sand	
20ft	19-20.3	S7	19	31	58/3"		15	15			S7 - Silty SAND (SM), fine, trace medium to coarse, ~30% plastic fines, 10-15% fine to coarse gravel, light brown, wet
	24-26	S8	32	51	50	60	24	24			S8 - Similar to S7

Remarks:
1 - Elevations interpolated to the nearest 1/2 foot from plan titled "Existing Conditions Survey," prepared by Nitsch Engineering and dated 11/10/2015. Elevations refer to North American Vertical Datum (NAVD88).

BORING LOG

Project:	**Proposed Somerville High School, Somerville, MA**	
Client:	**Symmes Maini & McKee Associates**	LGCI Project No.: 1538

Depth	Sample	Sample	Blows per 6 inches				Pen	Rec	Remarks	Strata	Sample Description
Scale	Depth (ft)	No	0-6	6-12	12-18	18-24	(in)	(in)			
										Silty Sand	S9 - Silty SAND (SM), fine, trace medium to coarse, ~30% slightly plastic fines, 10-15% fine to coarse gravel, light brown, wet
30 ft											
	30-32	S9	17	25	30	36	24	24			
										~32'	
											Bottom of the boring at 32 feet. Installed observation well B-2-OW.
35 ft											
40 ft											
45 ft											
50 ft											

Remarks:

Lahlaf Geotechnical Consulting, Inc.

BORING LOG

Boring B-3
Page 1 of 1

Project:	**Proposed Somerville High School, Somerville, MA**	
Client:	**Symmes Maini & McKee Associates**	LGCI Project No.: 1538

Drilling Subcontractor:	Northern Drill Service, Inc.	Date Started:	10/29/2015
Drilling Foreman:	Tim Tucker	Date Completed:	10/29/2015
LGCI Engineer:	Todd Dwyer	Location:	NE of Building B
Ground Surface El:	76 feet (see remark 1)	Total Depth:	16 feet
Groundwater Depth:	4 ft. at end of drilling	Drill Rig Type:	Mobile Drill B-48 (ATV)
		Drilling Method:	Drive & Wash, 4" casing and tricone bit
Hammer Weight:	140 lbs	Split Spoon Diameter:	ID - 1.375", OD - 2"
Hammer Type:	Automatic	Rock Core Barrel Size:	N/A
Drop:	30 inches		

Depth Scale	Sample Depth (ft)	Sample No	Blows per 6 inches 0-6	6-12	12-18	18-24	Pen (in)	Rec (in)	Remarks	Strata	Sample Description
	0-2	S1	1	1	3	3	24	6		Topsoil/ Subsoil	S1 - Organic SILT (ML), non plastic to slightly plastic, 25-30% fine sand, 5-10% fine gravel, trace roots, dark brown, moist
	2-4	S2	4	72	8	18	24	10		Fill	S2 - Silty SAND with Gravel (SM), fine to medium, 30-35% slightly plastic fines, ~25% fine to coarse gravel, trace brick, light brown, moist
5ft	4-6	S3	25	11	3	3	24	5			S3 - Well-Graded GRAVEL with Silt and Sand (GW-GM), fine to coarse, 10-15% fines, 15-20% fine to coarse sand, brown, moist
										~6.2'	
	6-8	S4	4	14	23	27	24	16			S4 - Top 2": Similar to S3 Bot. 14": Silty SAND with Gravel (SM), fine to medium, 25-30% fines, 25-30% fine gravel, light brown, moist
10ft	9-11	S5	35	34	32	39	24	22			S5 - Similar to Bot. 14" of S4
										Silty Sand	
15ft	14-16	S6	31	45	50	51	24	24			S6 - Similar to Bot. 14" of S4
											Bottom of the boring at 16 feet. Backfilled borehole with drill cuttings.
20ft											

Remarks:

1 - Elevations interpolated to the nearest 1/2 foot from plan titled "Existing Conditions Survey," prepared by Nitsch Engineering and dated 11/10/2015. Elevations refer to North American Vertical Datum (NAVD88).

LGCI
Lahlaf Geotechnical Consulting, Inc.

BORING LOG

Boring B-4
Page 1 of 1

Project:	**Proposed Somerville High School, Somerville, MA**		
Client:	**Symmes Maini & McKee Associates**	LGCI Project No.: 1538	
Drilling Subcontractor:	Northern Drill Service, Inc.	Date Started:	10/28/2015
Drilling Foreman:	Tim Tucker	Date Completed:	10/29/2015
LGCI Engineer:	Todd Dwyer	Location:	Lawn on eastern side, north of Fieldhouse
Ground Surface El:	101 feet (see remark 1)	Total Depth:	18.8 feet
Groundwater Depth:	7.5 feet at end of drilling	Drill Rig Type:	Mobile Drill B-48 (ATV)
		Drilling Method:	Drive & Wash, 4" casing and tricone bit
Hammer Weight:	140 lbs	Split Spoon Diameter:	ID - 1.375", OD - 2"
Hammer Type:	Automatic	Rock Core Barrel Size:	N/A
Drop:	30 inches		

Depth Scale	Sample Depth (ft)	Sample No	Blows per 6 inches 0-6	6-12	12-18	18-24	Pen (in)	Rec (in)	Remarks	Strata	Sample Description
	0-2	S1	1	3	4	5	24	10		Topsoil/	S1 - Top 6": Organic Silt (ML), no to low plasticity, 20-25% fine sand, dark brown, moist (topsoil) Bot. 4": Poorly Graded SAND with Silt (SP-SM), fine, trace medium to coarse, 10-15% organic fines, trace roots, brown, moist
	2-4	S2	1	2	3	5	24	7		Fill	S2 - Similar to Bot. 4" of S1, trace brick (fill)
5ft	4-6	S3	6	6	8	8	24	12			S3 - Silty SAND with Gravel (SM), fine to coarse, 25-30% fines, ~ 30% fine gravel, trace coal ash, brown, moist
	6-8	S4	5	9	5	8	24	2			S4 - Similar to S3, trace bricks, trace organics, dark brown
	8-10	S5	14	14	20	24	24	24		~8.5'	S5 - Top 6": Similar to S4 (fill) Bot. 18": Silty SAND with Gravel (SM), fine to medium, 30-35% slightly plastic fines, ~25% fine gravel, light brown, moist, wet (natural)
10ft										Silty Sand ~13'	
	13-15	S6	17	41	52	50/3"	21	21		Silt with Gravel	S6 - SILT with Gravel (ML), low plasticity, ~20% fine gravel, ~15% fine sand, light brown, wet
15ft											
	18-20	S7	43	50/4"			10	10		~18.8'	S7 - Similar to S6
20ft											Bottom of the boring at 18.8 feet. Backfilled borehole with drill cuttings.

Remarks:
1 - Elevations interpolated to the nearest 1/2 foot from plan titled "Existing Conditions Survey," prepared by Nitsch Engineering and dated 11/10/2015. Elevations refer to North American Vertical Datum (NAVD88).

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Lahlaf Geotechnical Consulting, Inc.

BORING LOG

Boring B-5
Page 1 of 2

Project:	**Proposed Somerville High School, Somerville, MA**		
Client:	**Symmes Maini & McKee Associates**	LGCI Project No.: 1538	
Drilling Subcontractor:	Northern Drill Service, Inc.	Date Started:	10/29/2015
Drilling Foreman:	Tim Tucker	Date Completed:	10/29/2015
LGCI Engineer:	Todd Dwyer	Location:	South of Fieldhouse, west parking lot
Ground Surface El:	95.5 feet (see remark 1)	Total Depth:	31 feet
Groundwater Depth:	21 feet on 11/13/15	Drill Rig Type:	Mobile Drill B-48 (ATV)
		Drilling Method:	Drive & Wash, 4" casing and tricone bit
Hammer Weight:	140 lbs	Split Spoon Diameter:	ID - 1.375", OD - 2"
Hammer Type:	Automatic	Rock Core Barrel Size:	N/A
Drop:	30 inches		

Depth Scale	Sample Depth (ft)	Sample No	Blows per 6 inches 0-6	6-12	12-18	18-24	Pen (in)	Rec (in)	Remarks	Strata	Sample Description
	0.5-2	S1	12	31	20	12	24	12		Asphalt Fill ~4'	Drilled through 6" of asphalt S1 - Top 5": Well-Graded SAND with Silt (SW-SM), fine to coarse, ~10% fines, ~5% fine gravel, light brown, moist Bot. 7": Silty SAND with Gravel (SM), fine to coarse, ~15% fines, ~15% fine to coarse gravel, gray to black, moist
5ft	4-6	S2	11	16	20	24	24	8		Silty Sand ~14'	S2 - Silty SAND with Gravel (SM), fine to medium, 35-40% fines, 20-25% fine gravel, light brown, moist
10ft	9-11	S3	24	20/1"			7	7			S3 - Silty SAND (SM), fine to medium, 15-20% fines, ~10% fine to coarse gravel, orange brown, moist
15ft	14-16	S4	34	50/5"			11	8		Silt with Gravel ~19'	S4 - SILT with Gravel (ML), low plasticity, 20-25% fine gravel, 20-25% fine to medium sand, light brown, moist
20ft	19-21	S5	33	50	50/4"		16	14		Silty Sand	S5 - Silty SAND (SM), fine to medium, ~15% fines, ~10% fine gravel, light brown, moist
	24-26	S6	16	37	47	53	24	20			S6 - Silty SAND with Gravel (SM), fine to medium, ~15% fines, 15-20% fine gravel, light brown, moist

Remarks:
1 - Elevations interpolated to the nearest 1/2 foot from plan titled "Existing Conditions Survey," prepared by Nitsch Engineering and dated 11/10/2015. Elevations refer to North American Vertical Datum (NAVD88).

BORING LOG

Boring B-5
Page 2 of 2

Project:	**Proposed Somerville High School, Somerville, MA**	
Client:	**Symmes Maini & McKee Associates**	LGCI Project No.: 1538

Depth Scale	Sample Depth (ft)	Sample No	Blows per 6 inches 0-6	6-12	12-18	18-24	Pen (in)	Rec (in)	Remarks	Strata	Sample Description
										Silty Sand **~31'**	
30 ft	29-31	S7	17	26	27	27	24	20			S7 - Silty SAND (SM), fine to medium, 15-20% fines, 10-15% fine gravel, gray, moist
											Bottom of the boring at 31 feet. Installed observation well B-5-OW.
35 ft											
40 ft											
45 ft											
50 ft											

Remarks:

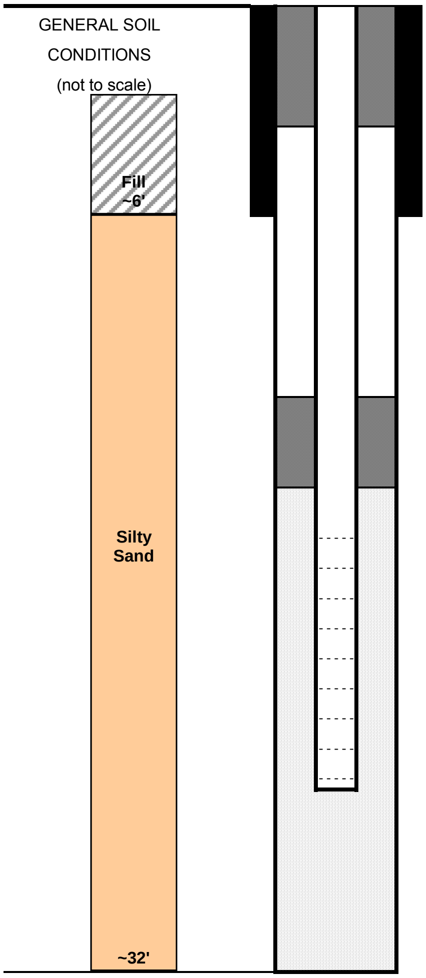
Lahlaf Geotechnical Consulting, Inc.

GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

Boring No. : **B-2-OW**

Page 1/1

Project Name:	**Proposed Somerville High School, Somerville, MA**		
LGCI Project Number:	**1538**		
Client:	**Symmes Maini & McKee Associates**		
Drilling Subcontractor:	Northern Drill Service, Inc.	Date Started:	10/28/15
Drilling Foreman:	Tim Tucker	Date Completed:	10/29/15
LGCI Engineer:	Andrew Jefferson	Location:	School St. parking lot
Ground Surface Elevation:	92.5 feet (see remark 1)	Total Depth of Boring:	32 feet
Ground Water Depth:	4.75' on 10/28/15	Drill Rig Type:	Mobile Drill B-48 (ATV)
		Drilling Method:	Drive & Wash, 4" casing and tricone bit



Riser Stickup ~1 below ground surface

THICKNESS OF SURFACE SEAL	1 foot
TYPE OF SURFACE SEAL	Cement
TYPE OF SURFACE CASING	aluminum road surface casing
ID OF SURFACE CASING	3.75"
DEPTH TO BOTTOM OF CASING	10"
ID OF RISER PIPE	2"
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Filter Sand
DEPTH TO TOP OF SEAL	6 feet
TYPE OF SEAL	Bentonite chips
DEPTH TO BOTTOM OF SEAL	8 feet
DEPTH TO TOP OF PERVIOUS SECTION	10 feet
TYPE OF PERVIOUS SECTION	PVC
DESCRIBE OPENINGS	Slotted
ID OF PERVIOUS SECTION	2"
TYPE OF BACKFILL AROUND PERVIOUS SECTION	Filter Sand
DEPTH TO BOTTOM OF PERVIOUS SECTION	30 feet
DEPTH TO BOTTOM OF SAND COLUMN	32 feet
TYPE OF BACKFILL BELOW PERVIOUS SECTION	Filter Sand
DIAMETER OF BOREHOLE	4"
DEPTH TO BOTTOM OF BOREHOLE	32 feet

NOTES: 1 - Elevations interpolated to the nearest 1/2 foot from plan titled "Existing Conditions Survey," prepared by Nitsch Engineering and dated 11/10/2015. Elevations refer to North American Vertical Datum (NAVD88).

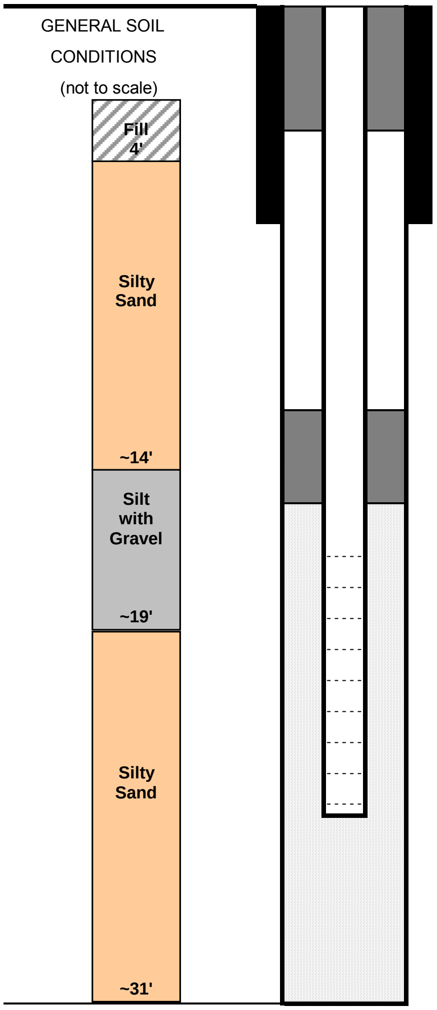
Lahlaf Geotechnical Consulting, Inc.

GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

Boring No. : **B-5-OW**

Project Name:	**Proposed Somerville High School, Somerville, MA**		
LGCI Project Number:	**1538**		
Client:	**Symmes Maini & McKee Associates**		
Drilling Subcontractor:	Northern Drill Service, Inc.	Date Started:	10/29/15
Drilling Foreman:	Tim Tucker	Date Completed:	10/29/15
LGCI Engineer:	Todd Dwyer	Location:	South of Fieldhouse, west parking lot
Ground Surface Elevation:	95.5 feet (see remark 1)	Total Depth of Boring:	31 feet
Ground Water Depth:	0.5' on 10/29/15	Drill Rig Type:	Mobile Drill B-48 (ATV)
		Drilling Method:	Drive & Wash, 4" casing and tricone bit

Riser Stickup ~0' above ground surface



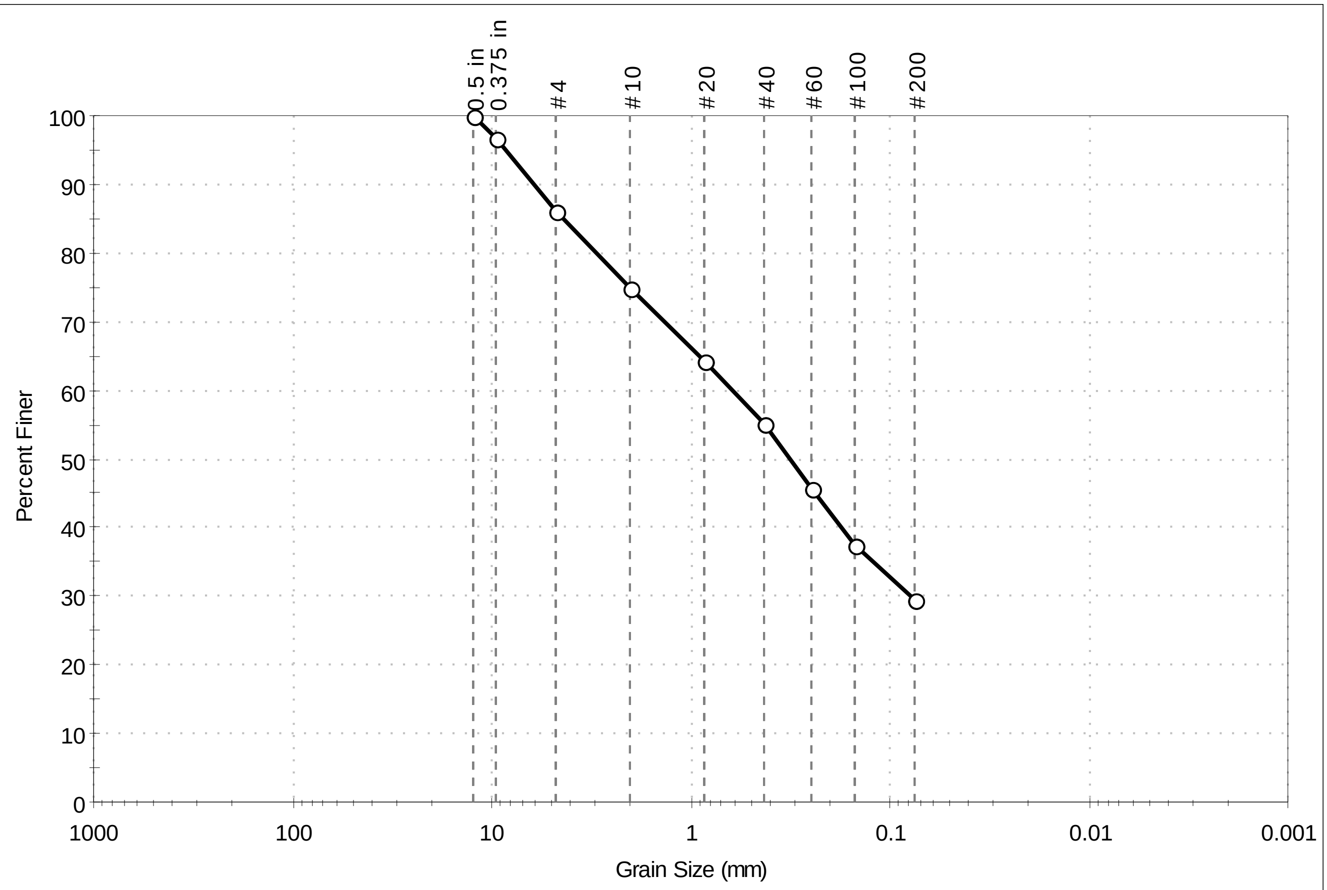
THICKNESS OF SURFACE SEAL	2.5 feet
TYPE OF SURFACE SEAL	Cement
TYPE OF SURFACE CASING	Aluminum road box
ID OF SURFACE CASING	4"
DEPTH TO BOTTOM OF CASING	10"
ID OF RISER PIPE	2"
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Bentonite and Cement
DEPTH TO TOP OF SEAL	2.5 feet
TYPE OF SEAL	Bentonite chips
DEPTH TO BOTTOM OF SEAL	8 feet
DEPTH TO TOP OF PERVIOUS SECTION	10 feet
TYPE OF PERVIOUS SECTION	PVC
DESCRIBE OPENINGS	Slotted
ID OF PERVIOUS SECTION	2"
TYPE OF BACKFILL AROUND PERVIOUS SECTION	Filter Sand
DEPTH TO BOTTOM OF PERVIOUS SECTION	29 feet
DEPTH TO BOTTOM OF SAND COLUMN	31 feet
TYPE OF BACKFILL BELOW PERVIOUS SECTION	Filter Sand
DIAMETER OF BOREHOLE	4"
DEPTH TO BOTTOM OF BOREHOLE	31 feet (Sampled from 29-31 ft.)

NOTES: 1 - Elevations interpolated to the nearest 1/2 foot from plan titled "Existing Conditions Survey," prepared by Nitsch Engineering and dated 11/10/2015. Elevations refer to North American Vertical Datum (NAVD88).

Appendix B – Laboratory Test results

Client: Lahlaf Geotechnical Consulting
Project: Somerville HS
Location: Somerville, MA
Project No: GTX-303948
Boring ID: B2
Sample Type: jar
Tested By: jbr
Sample ID: S1 (Bot 3")
Test Date: 11/10/15
Checked By: jdt
Depth : 0.5-2
Test Id: 353326
Test Comment: ---
Visual Description: Moist, brown silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	14.0	56.5	29.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	97		
#4	4.75	86		
#10	2.00	75		
#20	0.85	64		
#40	0.42	55		
#60	0.25	46		
#100	0.15	38		
#200	0.075	30		

Coefficients

D_{85} = 4.3905 mm
D_{30} = 0.0780 mm
D_{60} = 0.6117 mm
D_{15} = N/A
D_{50} = 0.3168 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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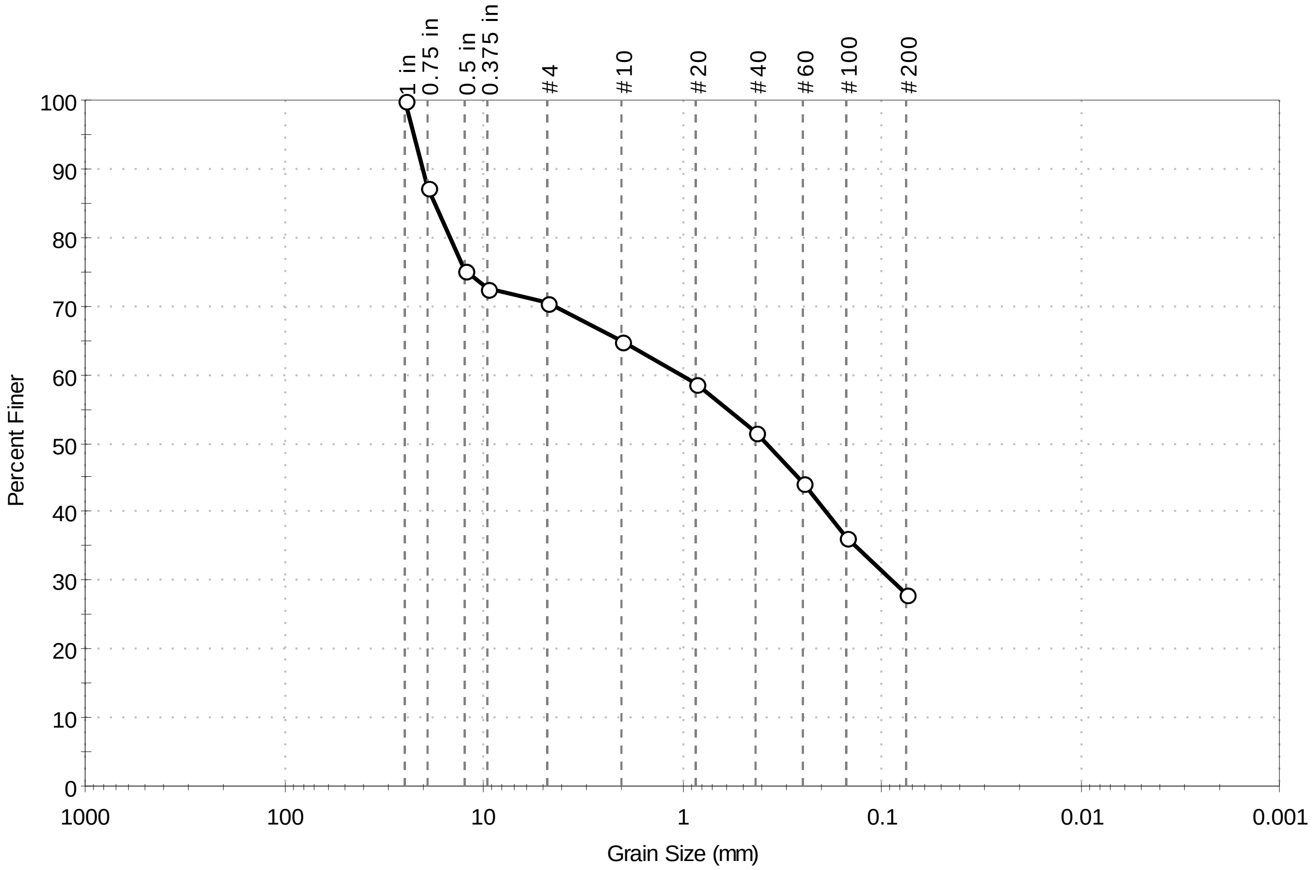
GeoTesting
EXPRESS

Client:	Lahlaf Geotechnical Consulting				
Project:	Somerville HS				
Location:	Somerville, MA			Project No:	GTX-303948
Boring ID:	B4	Sample Type:	jar	Tested By:	jbr
Sample ID:	S3	Test Date:	11/10/15	Checked By:	jdt
Depth :	4-6	Test Id:	353327		

Test Comment: ---
Visual Description: Moist, dark brown silty sand with gravel
Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	29.6	42.4	28.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	87		
0.5 in	12.50	75		
0.375 in	9.50	73		
#4	4.75	70		
#10	2.00	65		
#20	0.85	59		
#40	0.42	52		
#60	0.25	44		
#100	0.15	36		
#200	0.075	28		

Coefficients

D_{85} = 17.4589 mm
D_{30} = 0.0886 mm
D_{60} = 1.0240 mm
D_{15} = N/A
D_{50} = 0.3806 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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ACENTECH

33 Moulton Street
Cambridge MA 02138
617 499 8000
acentech.com

November 24, 2015

Matthew D. Rice, AIA
Symmes Maini & McKee Associates, Inc.
1000 Massachusetts Avenue
Cambridge, MA 02138
By email: mrice@smma.com

Subject: **Site Environmental Noise Analysis**
Somerville High School, Somerville, MA
Acentech Project 626687; SMMA Project 15070

Dear Matt:

This letter presents the results of our ambient noise survey at the site of Somerville High School. This survey will inform basis of design criteria relating to outdoor noise emissions from building mechanical equipment included in the new school to be designed.

SOMERVILLE AND MASSACHUSETTS DEP NOISE REGULATIONS

The City of Somerville Noise Control Ordinance[1] sets limits on noise emissions to adjacent properties based on the zoning district, the time of day, and the duration of the noise. Most relevant to this project is the limit of 40 dBA on noise emitted to residential properties between the hours of 10 pm to 7 am for longer than 2 hours. This limit typically applies to continuously operating outdoor or rooftop mechanical equipment that may operate overnight or begin operation before 7 am on school days. This 40 dBA limit is quite stringent,[2] and residential properties are located close to the site in all directions.

The Massachusetts DEP noise regulation states that sound levels following the installation of new noise sources are not to exceed the existing ambient noise at the property line of the subject site by more than 10 dBA (A-weighted decibels). The Commonwealth of Massachusetts Department of Air Quality Control Policy states, “Ambient is defined as the background A-weighted sound level that is exceeded 90% of the time measured during equipment operating hours.” This metric is commonly known as the L_{90}, expressed in dBA.

MEASUREMENT PROCEDURE

We placed five calibrated sound level monitors to collect sound levels continuously from November 4 to November 9, 2015. The monitor locations are described below and shown in Figure 1 on the next page:

- Location A: School Street across from Madison Street
- Location B: Medford Street, near gymnasium loading dock
- Location C: Medford Street, behind library
- Location D: Highland Ave, across from Vinal Street
- Location E: Highland Ave, at City Hall driveway entrance

---

[1] Sections 9-112 through 9-119, particularly 9-117: https://www.municode.com/library/ma/somerville/codes/code_of_ordinances?nodeId=PTIICOOR_CH9OFMIPR_ARTVIIOFAGPUPE_DIV2NOCOOR_S9-117NOLE

[2] By comparison, the cities of Boston and Cambridge limits for similar noise emissions are 50 dBA at nighttime hours to residential properties.

MEASUREMENT RESULTS

All data collected are reported in terms of A-weighted decibels (dBA), a weighted average of the sound spectrum based on the sensitivity of human hearing. The monitors collected data in 5-minute intervals, and recorded statistical metrics of sound levels measured during each interval. We report here the 90-percent exceedance level (L_{90}): the sound level (in dBA) that was exceeded 90% of the time over the 5-minute interval. The L_{90} constitutes the “ambient” sound level as defined by the Massachusetts DEP. These levels are reported in the attached graph as a rolling one-hour average L_{90} level.

Figure 1. Sound level meter locations

The quietest hour-long periods were recorded at Locations A and E between 2 am and 4 am, both of which were 42 dBA during the quietest hours measured. At Location D, the quietest hourlong period was 46 dBA. At Locations B and C, the quietest hours were 44 dBA and 43 dBA, respectively.

At all times during our measurement period, hourlong ambient sound levels were above the City of Somerville nighttime residential limit of 40 dBA.

If the project is required to comply with the limits prescribed by the City of Somerville Noise Ordinance, then the design goal for noise emissions from equipment that will operate between the hours of 10 pm and 7 am is 40 dBA, evaluated at the nearest residential property lines on all sides of the site.

The requirements of the Massachusetts DEP noise regulation would be satisfied if noise emissions from the new school do not exceed 52 dBA during quietest nighttime hours at nearby residential properties (10 dB louder than the existing ambient level at the quietest measured location).

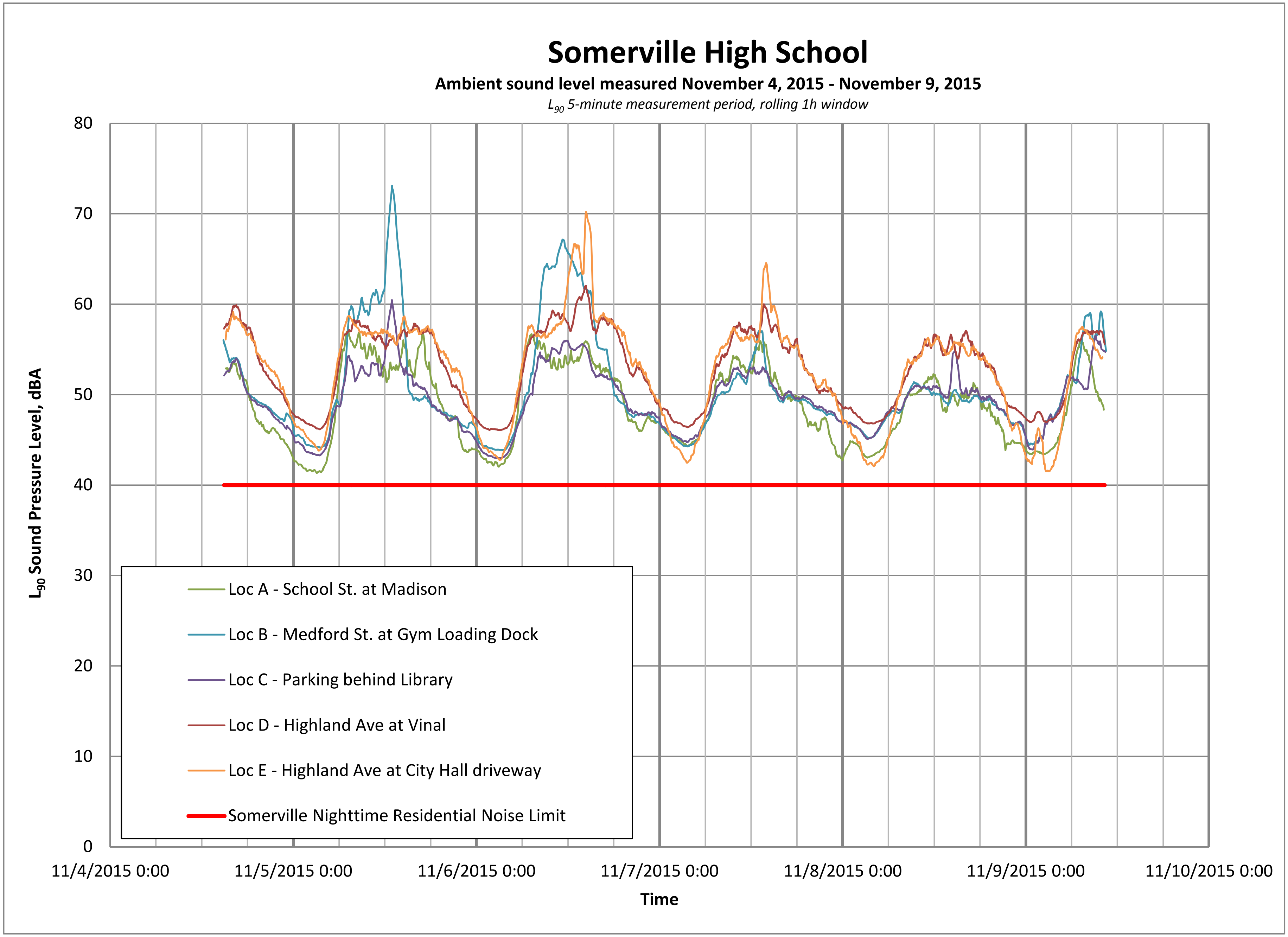
* * * * *

I trust this letter provides the information you need at this time. Please contact me with questions at 617-499-8079 or jsacks@acentech.com.

Sincerely,
ACENTECH INCORPORATED

Jonah Sacks
Senior Consultant in Acoustics

Enc: Graph of Measured Site Noise Levels
CC: Kelsey Hochgraf (Acentech)



Somerville High School

Ambient sound level measured November 4, 2015 - November 9, 2015

L_{90} 5-minute measurement period, rolling 1h window

Acentech Project 626687

BUILDING, FIRE & ACCESS, INC.

17 Brian Road
Lancaster, MA 01523
978.870.5674
rcarasitti@bfacode.com

January 29, 2016

Matthew Rice
Symmes Maini & McKee
1000 Massachusetts Avenue
Cambridge, MA 02138

Somerville High School Feasibility Study
Code Compliance Considerations Report

Dear Mr. Rice:

The Feasibility Study is addressing the existing Somerville High School building located at 82 Highland Street. More specifically, scenarios are being studied and considered including:

1. Code Upgrade Option (Alternative 0) – This scenario considers code minimum upgrades to effectively operational restore and upgrade the existing building based on code requirements. Under this scenario there are no changes in use, additions or reconfigured spaces.

2. Renovation Option (Alternative 1) – This scenario includes all efforts in Alternative 0 plus reconfiguration of existing spaces to address educational needs. Under this scenario there may be changes in use or additions, and reconfiguration of space is possible, including new systems such as HVAC, core electrical and core plumbing.

3. Renovation and Possible Change in Use and Addition Options (Alternatives 2 through 4) – These scenarios include all efforts in Alternative 1 but more extensive (Level 3 Alterations, Change in Use and Additions).

There are multiple distinct laws and regulations that are applicable to construction projects for existing buildings. Each is must be reviewed independently to identify “retroactive provisions” and “triggering provisions” based on proposed work.

APPLICABLE CODES

The following primary codes are applicable to this project:

- **Accessibility** - Massachusetts Architectural Access Board, 521-CMR and the Americans with Disabilities Act Guidelines (2010 ADAAG).

- **Building** - Massachusetts State Building Code (780 CMR) 8th Edition. 780 CMR is an amended version of the 2009 International Building Code. The 9th Edition is currently expected to be promulgated with an effective date of July 1, 2016. A concurrency variance is expected to allow projects to use the 8th through the end of 2016.
    - **Mechanical** - International Mechanical Code, 2009, as adopted/amended by 780 CMR (IMC).
    - **Energy Conservation** – 2012 International Energy Code as adopted and amended by 780 CMR (IECC) would be applicable to all existing components undergoing renovation or alteration. Any additions will be subject to the Stretch Energy Code which is an amended version of the 2009 IECC.

- **Fire Prevention** - Massachusetts Fire Prevention Regulations, 527 CMR which is an amended version of the 2012 NFPA 1.

    - **Electrical** - Massachusetts Electrical Code, 527 CMR 12.00. The Massachusetts Electrical Code is an amended version of the 2014 National Electrical Code (NFPA 70).

- **Plumbing** - Massachusetts Fuel Gas and Plumbing Codes, 248 CMR

- **Elevator** – Massachusetts Elevator Regulations, 524 CMR (an amended version of the 2004 Edition of ASME A17.1, Safety Code for Elevators and Escalators).

RETROACTIVE PROVISIONS

In general, the regulations do not have retroactive provisions except for:

1. **Maintenance Provisions (780 CMR 102.8, 521 CMR 2.6, 248 CMR 10.04 8, etc.)**
   Maintenance provisions can be enforced to require any work necessary to maintain compliance with codes at the time of construction or last substantial renovation.

   Respective professionals will need to identify specific maintenance deficiencies with existing systems and features.

2. **Existing Means of Egress, Lighting and Ventilation (780 CMR 102.6.4)**
   This provision may be enforced regardless of compliance at the time of original construction or last substantial renovation. The provision is specifically intended to ensure minimally:

   a. Adequate number of exits
   b. Adequate exit capacity
   c. Adequate exit arrangement
   d. Adequate lighting
   e. Adequate ventilation

   If in the opinion of the building code official any of these are not adequate, abatement orders may be issued.

   Based on our experience, adequate number and capacity of exits is provided for the building. The arrangement of exits is very subjective and typically issues that arise involve handrails, guardrails, tread surfaces of stairs, door hardware not meeting the opening force limit (5 lbs for interior doors and 15 lbs for exterior doors and fire rated doors), etc. an appreciable amount of these elements and features need to be addressed as part of all Alternatives (0 through 4).

Respective MEP engineers should review and comment on the adequacy of lighting and ventilation elements.

THRESHOLD PROVISIONS

Certain regulations have provisions that identify “triggering thresholds” that consider the proposed work to determine the extent of compliance required. In general, these thresholds are dependent on the nature and extent of the work when imposing additional compliance needs. However, each regulation is different and must be reviewed independently to determine their respective trigger thresholds. The following reviews the four primary regulations that typically impact scope in existing building work.

MASSACHUSETTS GENERAL LAW CHAPTER 148 SECTION 26G – ENHANCED SPRINKLER LAW

This law is applicable to all buildings that 7,500 gsf or more and requires sprinklers in existing buildings that undergo an addition or substantial alteration. Under substantial alteration, the law considers both the nature of the work and the extent of the work to determine whether sprinklers must be installed throughout the building. A two part test is used: Part A considers the nature of the work and whether it provides the opportunity to install sprinklers (i.e. ceilings being removed, spaces being altered, etc.). Part B considers the extent of the work by reviewing the area of the work and the cost of the work. If either, the area of work is 33% or more of the building area or the cost of work is 33% or more of the assessed value of the building, then Part B is satisfied. The review of the Part B considerations may include work completed in the last 5 years. Ultimately, the head of the fire department has the determination on whether MGL Ch. 148 S 26G will be imposed.

- In consideration of Alternative 0, it is likely that Part A will not be considered satisfied. Regardless of whether Part B is satisfied, if Part A is not satisfied, the law is likely to be determined to not apply and no upgrades required under the law.

- In consideration of Alternative 1, it is likely that that Part A will be determined satisfied (Alternative 1) and Part B is likely also satisfied due to the relatively low assessed value. In this scenario upgrades/sprinkler protection will be required to comply with MGL Ch. 148 S 26G.

    - For Alternatives 2 through 4, additions will trigger compliance with MGL Ch. 148 S 26G under the laws specific criteria for additions.

521 CMR, ARCHITECTURAL ACCESS BOARD

This regulation contains specific triggering thresholds when work occurs in existing buildings.

1. All work being performed must comply with 521 CMR regardless of other threshold triggers.

2. If the cost of the work exceeds $100,000 ($500,000 including exempt work), then an accessible entrance must be provided and where provided, an accessible restroom, an accessible drinking fountain and an accessible public telephone. In general, this threshold appears to be satisfied.

3. If the cost of the work (including work completed in the previous 36 months) exceeds 30% of the assessed value not including land, then the entire building must be made compliant.

   Based on the records of the assessor’s office, the 30% threshold is $16,394,934. It should be noted that “change orders” and other cost increases during the execution of the work can trigger the threshold after work commencement. In other words, projects can begin with the expectation of being under the threshold, but end up exceeding it, and if that occurs compliance is required.

It should also be noted that regardless of compliance with 521 CMR, complaints may still be filed with the Department of Justice. Reasonable accommodation is expected based on student and staff needs. As a public school building with a wide range of population, at a minimum public entrances, restrooms and accessible routes to various spaces (vertical and horizontal accessible routes) should be considered a minimum need. In addition, a detailed accommodation plan should be developed to address other aspects of conformance with the intent of both 521 CMR and ADAAG.

For changes in use, even if no alteration is occurring, an accessible route is required to be provided to the new use.

If an addition is made the addition must be fully compliant AND the cost of the addition is considered in the threshold analyses of the existing building.

If the cost of the addition is more than 30% (Alternatives 2 through 4) of the existing building value, or the 30% threshold is reached in any scenario (Alternative 0 or Alternative 1 through 4), then the existing building must be brought into full compliance including:

- All entrances,
- All levels must be provided with accessible routes,
- All public bathrooms must be made accessible (this could in turn triggers plumbing code compliance),
- All stairway handrails and nosings must be brought into compliance,
- All transaction counters must be made compliant, and
- Many more detail items addressed by 521 CMR will require upgrades.

248 CMR, STATE PLUMBING CODE

Under any of the Alternatives (0 through 4), the plumbing code is only triggered when: 1) maintenance is needed to the plumbing systems or 2) work to plumbing systems is made necessary to comply with other codes (i.e. 521 CMR). As always, any work undertaken voluntarily to plumbing systems also still must comply. Once applicable, the code affords a good deal of latitude to the plumbing inspector in terms of the scope of application. Under a change in use, if the new use results in a higher occupant load or one with differing fixture factors, additional plumbing facilities may be required. Under an addition, new plumbing facilities are required unless it can be demonstrated the existing facilities provide compliant fixture counts for the existing and new areas.

780 CMR, STATE BUILDING CODE

The building code does not have “threshold triggers” in terms of costs. It does however have various provisions which are applicable based on scope of work proposed. The least impactful path is through the “Work Area Method” (as opposed to the “Prescriptive Method”).

Under the Work Are Method, multiple work classifications can become applicable depending on the nature and scope of the work.

- Alternative 0 undoubtedly will be classified at least as a Repair and an Alteration Level 1. If the replacement of a system is ultimately deemed necessary by the designers, then it will also be classified as an Alteration Level 2 without a "work area" as defined by 780 CMR.

- Alternative 1 would be considered multiple classifications similar to Alterntive 0 but with Alterations Level 2 and possibly Level 3.

- Alternatives 2 through 4 will likely entail the classifications noted in Alternative 1 and Change in Use and Addition that include "work areas" as defined by 780 CMR.

A summary of 780 CMR applicability under Repairs, Alterations Level 1 and Alterations Level 2 is provided in Appendix A. Also in Appendix A is a brief description of criteria for Level 3, Change in Use and Additions.

CLOSING

Each applicable code has maintenance provisions which serve as the basis of minimal work necessary to achieve Alternative 0. In addition, several have trigger thresholds depending on the scope and extent (cost) of work proposed. Should threshold triggers be reached, compliance with those provisions are likely to require additional compliance in other regulations. Under Alternatives 1 through 4, the additional triggers could be extensive including Level 2, Level 3, Change in Use and Addition Provisions of the building code. Also, it is more likely that accessibility and plumbing code triggers will be reached under Alternatives 1 through 4 in a domino effect and increasing scope.

Sincerely,

Robert M. Carasitti, P.E., FSFPE

APPENDIX A

780 CMR 34 – CHAPTER 4, CLASSIFICATION OF WORK

Chapter 4 contains eight classifications of work. Depending on the proposed work, multiple sections can be applicable while others are not applicable. Based on the proposed work, the following Table summarizes the applicable sections for the project:

Section	Scope	Applicability	Chapter
402	Repairs	Yes	5
403	Alterations – Level 1	Yes	6
404	Alterations – Level 2	Yes	7
405	Alterations – Level 3	Not Applicable	8
406	Change of Occupancy	Not Applicable	9
407	Additions	Not Applicable	10
408	Historic Buildings	Not Applicable	11
409	Relocated Buildings	Not Applicable	12

Table 1 - Work Area Method Applicable Sections Summary

SECTION 401 – WORK AREA

Section 401.2 requires construction documents to identify the *Work Areas*. *Work Area* is defined by Chapter 2:

> ***WORK AREA***. *That portion or portions of a building consisting of all reconfigured spaces as indicated on the construction documents. Work area excludes other portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by this code.*

By definition, the “work area” is reconfigured areas (Alterations Level 2). For Alternative 0 there is no “work area”. Under Alternatives 1 through 4, there would be “work areas” and the Alteration Level 2, Level 3, Changes in Use or Addition provisions would be applicable to the “work areas” based on the category of work for the work area.

780 CMR 34 – CHAPTERS 5, 6 & 7, REPAIRS, ALTERATIONS LEVEL 1 & 2 RESPECTIVELY

The provisions of Sections 502 through 509 are applicable to repairs.

- Sections 502, 503 and 504 address criteria for Building Elements & Materials, Fire Protection and Means of Egress respectively.
- Section 505 refers users to 521 CMR.
- Section 506 addresses structural criteria.
- Section 507 refers users to 527 CMR 12.
- Section 508 addresses mechanical systems being repaired.
- Section 509 applies to plumbing repairs and refers user to 248 CMR.

The provisions of Sections 602 through 607 are applicable throughout the project areas.

- Sections 602, 603 and 604 address criteria for Building Elements & Materials, Fire Protection and Means of Egress respectively.
- Section 605 refers users to 521 CMR (and 524 CMR).

- Section 606 addresses structural criteria.
- Section 607 addresses Energy Conservation.

The provisions of 702 through 711 are applicable to the spaces identified as "work area" based on the reconfiguration of these spaces. In addition, by reference in Section 701, Chapter 6, criteria for Alterations Level 1 are also applicable.

- Section 702 addresses special uses and occupancies.
- Sections 703 (602), 704 (603) and 705 (604) address criteria for Building Elements & Materials, Fire Protection and Means of Egress respectively.
- Section 706 (605) refers users to 521 CMR (and 524 CMR).
- Section 707 (606) addresses structural criteria.
- Section 708 is deleted in its entirety by Massachusetts amendments.
- Section 709 addresses mechanical systems (the 2009 International Mechanical Code).
- Section 710 is deleted in its entirety by Massachusetts amendments.
- Section 711 (607) addresses Energy Conservation.

SECTIONS 502 & 602 BUILDING ELEMENTS & MATERIALS

Sections 502 & 602 addresses building elements & materials including interior finishes. In general, all new finishes must meet the criteria for new construction. Any fuel gas work must meet the criteria of 248 CMR for new construction.

Chapter 8 of 780 CMR regulates interior finish and trim of buildings. Interior finish includes all wall, ceiling and floor finishes, wainscoting and paneling or other finish applied structurally or for acoustical treatment, insulation, decoration or similar purposes (780 CMR 801.1). All interior finish and trim must be classified per ASTM E84 as follows:

Interior Finish Classifications		
Classification	Flame Spread	Smoke Development
Class A	0 – 25	0 – 450
Class B	26 – 75	0 – 450
Class C	76 – 200	0 – 450

Table 2 - Interior Finish Classifications

Interior finishes that have a flame-spread rating in excess of 200 or a smoke-developed rating in excess of 450 are not permitted. The interior finishes flame-spread classifications must meet the following (780 CMR Table 803.4):

Interior Finish Requirements (780 CMR Table 803.9)			
Use Group	Required Vertical Exits/Passageways	Exit Access	Rooms
A-2 & A-3, Assembly	B	B	C
E, Educational & B, Business	B	C	C

Table 3 - Interior Finish Requirements

The project will comply with interior finish requirements for new construction throughout the project areas.

SECTION 702 – SPECIAL USE OR OCCUPANCY

The building does is not contain a special use addressed by Section 702 and therefore Section 702 is not applicable.

SECTION 703 - THROUGHOUT THE WORK AREAS ONLY

Section 703 addresses criteria for specific building elements & materials including Vertical Openings, Smoke Barriers, Interior Finish and Guards.

Section 703.2 – Enclosure of Vertical Shafts

Section 703.2 addresses the enclosures of existing vertical shafts in *Work Areas*.

Section 703.3 – Smoke Barriers

This section is not applicable as there are no smoke barrier requirements for the uses in the building.

Section 703.5 – Guards

Section 703.5 requires guards to be compliant with new construction criteria throughout the *Work Area*.

SECTIONS 503, 603 & 704 – FIRE PROTECTION

Existing fire protection systems must be maintained and unaltered with the exception of the *Work Area*. In the *Work Area* modifications to the respective systems will be made compliant to new construction criteria. It is also noted that the age of certain sprinklers suggests they are nearing the end of useful life in accordance with NFPA 13, replacement should be anticipated.

It is noted that emergency responder radio coverage is not required for existing buildings but it is suspected that such a system will be deemed necessary by the Somerville Fire Department. It should be anticipated that such a system needs to be installed to provide coverage throughout the building.

780 CMR and 527 CMR require extinguishers to be provided. All fire extinguishers are required to comply with NFPA 10, *Standard for the Installation of Portable Fire Extinguishers.*

SECTIONS 504, 604 & 705 – MEANS OF EGRESS

Sections 504, 604 and 705 require existing egress features to be maintained. In addition, all existing exits are required to comply with Section 102.2.2.1 as previously noted.

> ***102.2.2.1 Existing Nonconforming Means of Egress****. The following conditions shall be corrected in all existing buildings:*
>
> 1. *Less than the number of means of egress serving every space and/or story, required by Chapter 10 of the International Building Code 2009 with Massachusetts Amendments (780 CMR 10.00);*
>
> 2. *Any required means of egress component which is not of sufficient width to provide adequate exit capacity in accordance with section 1005.1 of the International Building Code 2009 with Massachusetts Amendments (780 CMR 1005.1);*
>
> 3. *Any means of egress which is not so arranged as to provide safe and adequate means of egress, including exit signage and emergency lighting in accordance with Chapter 10 of the International Building Code 2009 with Massachusetts Amendments (780 CMR 10.00); or*
>
> 4. *Where the occupant load of an existing Group A-2 Nightclub use is 50 or greater… not applicable.*

> *If not corrected, the building official shall cite each deficiency in writing as a violation. Said citation shall order the abatement of the nonconformance and shall include such a time element as the building official deems necessary for the protection of the occupants thereof or as otherwise provided for by statute.*

Accessible Means of Egress

At least one (1) accessible means of egress is provided from an accessible room or space. Where more than one (1) means of egress or exit is required from a floor, room or space at least two (2) accessible means of egress are provided. Accessible means of egress must provide a continuous path of travel to a public way (780 CMR 1007.1). Areas of rescue assistance/areas of refuge are not required in the existing building (780 CMR 1007.3 Exception 3 and 521 CMR 20.12 Exception b). Accessible egress is provided as required.

Travel Distance

Exits are located such that the maximum length of exit access travel, measured from the most remote point to an approved exit along the natural and unobstructed line of travel does not exceed 250-feet for the E, A-2 and A-3 uses and 300-feet for the B uses (780 CMR 402.4.4). Travel distances are compliant with these limitations.

Means of Egress Illumination

Dwelling unit interiors are exempt from means of egress illumination requirements (780 CMR 1006.1 Exception 3). The means of egress for the commercial unit and all exit discharges must be equipped with artificial lighting facilities to provide the required intensity of illumination continuously during the time that condition of occupancy of the building requires that the exits be available (780 CMR 1006.1).

The means of egress lighting in the building, rooms, or spaces required to have more than one (1) exit or exit access, must be connected to an emergency electrical system that complies with 527 CMR 12.00, the Massachusetts Electrical Code (780 CMR 1006.1) to assure continued illumination for a duration of not less than 90 minutes in case of emergency or primary power loss (780 CMR 1006.3). Since all spaces are permitted to have a single exit, emergency power is not required for the means of egress lighting.

SECTIONS 505, 605 & 706 - ACCESSIBILITY

See 521 CMR section of this report.

SECTIONS 506, 606 & 707 – STRUCTURAL

It is our understanding that there are no modifications proposed to the existing structure. If such changes become necessary, the changes require structural engineer review. A structural engineer must confirm compliance with the structural provisions of Section 606 and 707. It is noted that as of April, 2014 Massachusetts has issued revised amendments to the IEBC structural provisions.

SECTIONS 507– ELECTRICAL

In general, all electrical work must be installed in compliance with criteria for new construction. Compliance with 527 CMR 12 criteria will be achieved for new equipment.

SECTIONS 607 & 711 – ENERGY CONSERVATION

Level 1 and 2 *alterations* to existing buildings or structures, as well as changes in uses which do not increase the use of fossil fuels and electricity, are permitted without requiring the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code.* The *alterations* must conform to the energy requirements of the *Energy Code* as they relate to new construction. Upgrades are not required to the building envelope unless the envelope is altered as part of the project and then only to the extent they are alter.

Compliance with the energy code criteria noted will be achieved for new equipment and new envelope conditions occurring as part of this project, but the entirety of the building is not required to comply. New windows and mechanical equipment will comply.

SECTIONS 508 & 709 – MECHANICAL

In general, all new mechanical systems must be installed in compliance with criteria for new construction. Compliance with the mechanical code criteria will be achieved for new equipment.

ALTERATION LEVEL 3

Under Alteration Level 3, the aspects of compliance identified for Alteration Level 2 remain applicable but to the broader scope of the "entire building(s)".

CHANGES IN USE AND ADDITIONS

Under change in use and additions, the height and area (construction classification) must be reviewed and compliance must be maintained. Sometimes for change in use additional separated mixed use approaches are necessary and for additions, structurally independent fire walls or equivalents often are necessary.

Other than height and area, the changed use or addition must comply with the code for new construction in general.

SITE DEVELOPMENT REQUIREMENTS

5.1 EXISTING SITE PLAN

A site survey of the existing Somerville High School located at 81 Highland Avenue was conducted by Nitsch Engineering during October 2015, a copy of which is attached at the end of this section.

As part of the survey activities, deed research was conducted that illustrated free and clear title to the existing high school property. The property on which the high school is located is composed of multiple parcels. To confirm ownership of the parcels by the City, copies of the records from the Registry of Deeds are included for reference at the end of this Section.

5.2 SITE DEVELOPMENT REQUIREMENTS

Zoning

The site is located within an RC Residence District. Educational uses are permitted by right within this district. The RC district has the following dimensional requirements:

City of Somerville Zoning Ordinance Review – RC Dimensional Requirements

	Lot Area Minimum	Ground Coverage Maximum	Landscape Area Minimum	Floor Area Ratio (FAR)	Front-age Min.	Front Yard Min.	Side Yard Min.	Rear Yard Min.	Maximum Height	Minimum Pervious Area
Required	7,500 sf	70%	25% of lot	2.0	50 ft	15 ft	note a	20 ft	3 stories 40 ft	30% of lot
Existing	13.05 acres	approx. 22%	54% of lot	0.75 (0.63)*	3480 ft	53 ft (102 ft)*	10 ft (115 ft)*	16 ft	3/4 stories approx. 86’-7”	54% of lot

Note a: 4 stories & over: 1/3 building height (least width), 2/3 building height (sum of widths)
1/3 of building height is approximately 28’-10” existing

* Numbers in parenthesis only include the High School; excluding City Hall and Central Library

Based on the dimensional requirements above, the existing building has several non-conformances. Special Permits are required where a proposed project will continue an existing non-conformity. If a proposed project would exceed an existing non-conformity, a Variance would be required.

In addition to the dimensional non-conformances, the existing site has four curb cuts located along its frontage on Highland Avenue. A maximum of two curb cuts are allowed along each street line.

Any development on the existing high school site will most likely require a Special Permit from the Zoning Board of Appeals due to the existing dimensional non-conformances. Any development on a site other than the existing high school site will most likely require a Variance from the Zoning Board of Appeals, due to the size of the high school project and the potential sites available for consideration. As the proposed building alternatives and site plans develop, SMMA will evaluate all zoning permitting requirements with the City - including parking, loading, emergency access, bicycle parking, screening, landscaping, fencing, signage and site lighting.

It is noted that the City of Somerville has proposed a new Zoning Ordinance that is currently in a draft form, with an anticipated vote by the City's Aldermen at the end of 2016 for adoption. At a meeting with the City's planning staff on December 3, 2015, it was agreed that SMMA will assume that the current zoning is applicable and will be referenced for zoning analysis purposes.

Based on a preliminary review of the development thresholds, it is not currently anticipated that a State filing will be required with the Massachusetts Environmental Policy Act (MEPA) office of the Executive Office of Energy and Environmental Affairs (EEA). As a preferred building alternative is developed, the MEPA development thresholds will be reviewed again to confirm the initial evaluation.

Further analysis of the existing site conditions can be found in Section 4 of this report, and consideration of various alternative sites for Somerville High School within the City can be found in Section 6 of this report.

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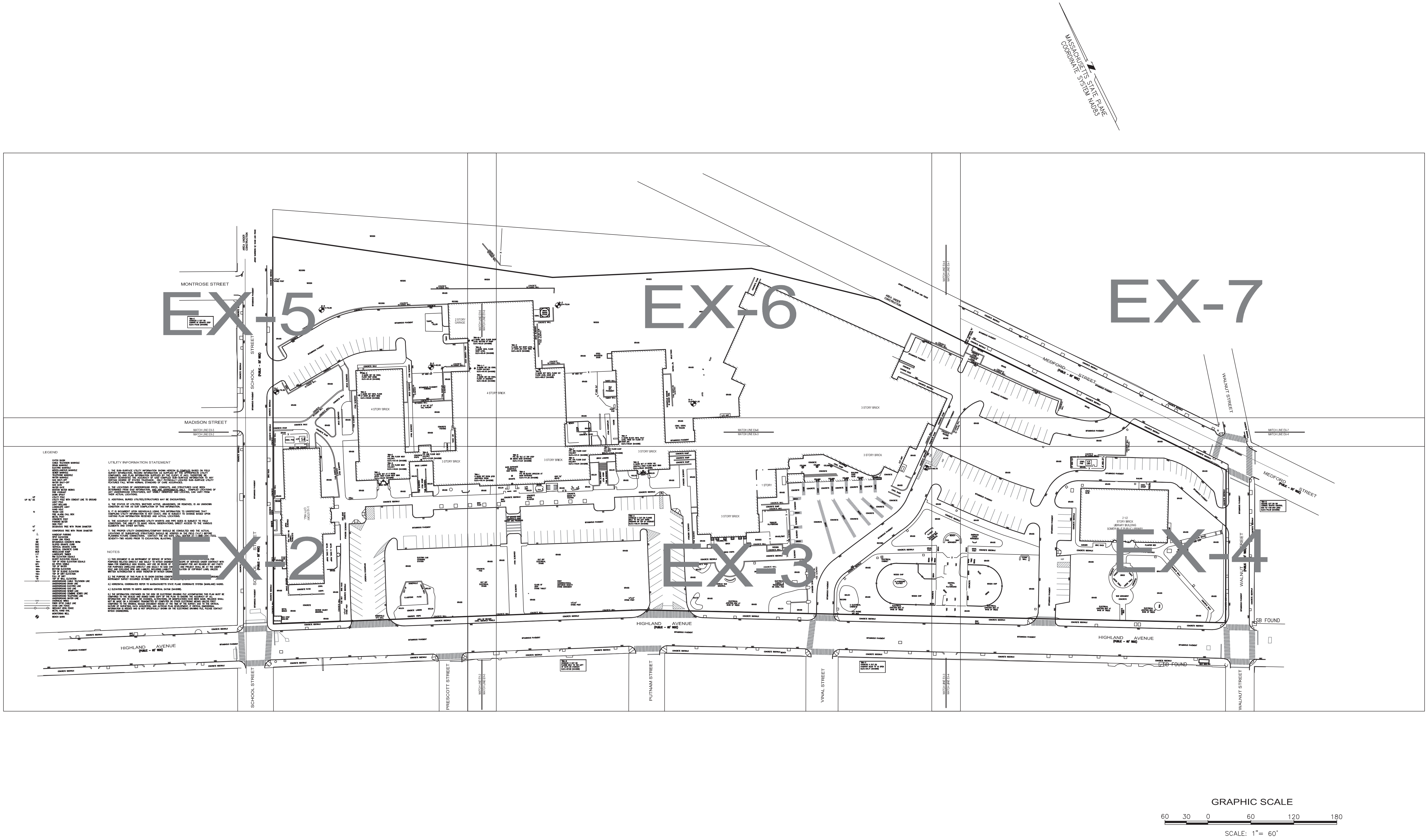

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PROJECT # 10970
FILE: 10970_TOPO1.dwg
SCALE: 1"= 60'
DATE: OCTOBER 7, 2015
PROJECT MANAGER: ADD
FIELD BOOK: 607, 623 AND 630
DRAFTED BY: TI
CHECKED BY: ADD

REV.	COMMENTS	DATE

REVISIONS

EXISTING CONDITIONS SURVEY

SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE, SOMERVILLE, MA 02143

PREPARED FOR:
SMMA
1000 MASSACHUSETTS AVENUE, CAMBRIDGE, MA 02138

SHEET:
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7 REV.

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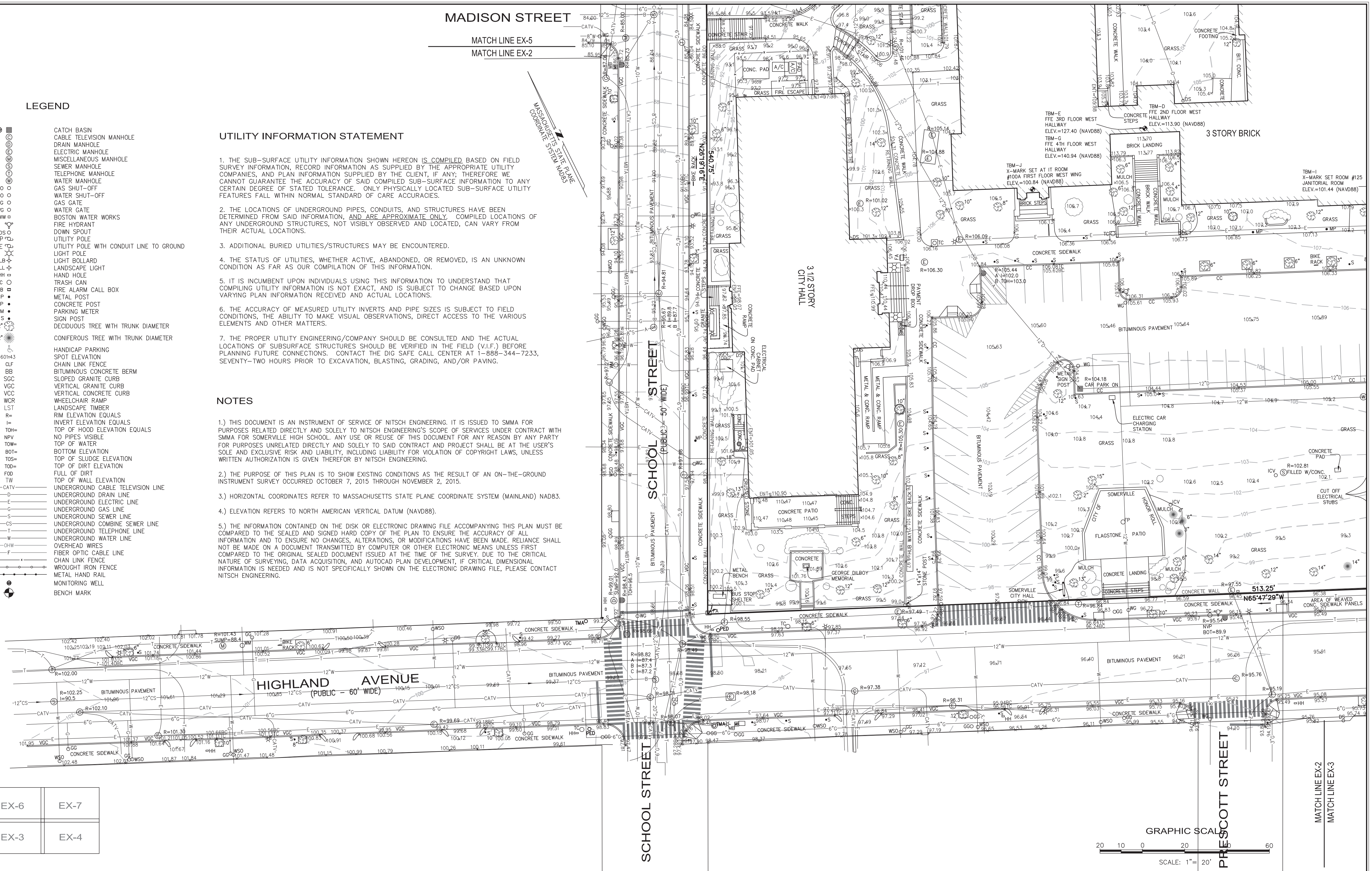

LEGEND

▦ ⊗ ▦	CATCH BASIN
Ⓒ	CABLE TELEVISION MANHOLE
Ⓓ	DRAIN MANHOLE
Ⓔ	ELECTRIC MANHOLE
Ⓜ	MISCELLANEOUS MANHOLE
Ⓢ	SEWER MANHOLE
Ⓣ	TELEPHONE MANHOLE
Ⓦ	WATER MANHOLE
GSO ○	GAS SHUT-OFF
WSO ○	WATER SHUT-OFF
GG ○	GAS GATE
WG ○	WATER GATE
BWW ▫	BOSTON WATER WORKS
	FIRE HYDRANT
DS ○	DOWN SPOUT
UP	UTILITY POLE
UP W/ UE	UTILITY POLE WITH CONDUIT LINE TO GROUND
	LIGHT POLE
LB	LIGHT BOLLARD
LL	LANDSCAPE LIGHT
HH ▭	HAND HOLE
TC ○	TRASH CAN
FACB ▭	FIRE ALARM CALL BOX
MP ●	METAL POST
CP ●	CONCRETE POST
PM ●	PARKING METER
S ●	SIGN POST
12"	DECIDUOUS TREE WITH TRUNK DIAMETER
12"	CONIFEROUS TREE WITH TRUNK DIAMETER
♿	HANDICAP PARKING
601×43	SPOT ELEVATION
CLF	CHAIN LINK FENCE
BB	BITUMINOUS CONCRETE BERM
SGC	SLOPED GRANITE CURB
VGC	VERTICAL GRANITE CURB
VCC	VERTICAL CONCRETE CURB
WCR	WHEELCHAIR RAMP
LST	LANDSCAPE TIMBER
R=	RIM ELEVATION EQUALS
I=	INVERT ELEVATION EQUALS
TOH=	TOP OF HOOD ELEVATION EQUALS
NPV	NO PIPES VISIBLE
TOW=	TOP OF WATER
BOT=	BOTTOM ELEVATION
TOS=	TOP OF SLUDGE ELEVATION
TOD=	TOP OF DIRT ELEVATION
FOD	FULL OF DIRT
TW	TOP OF WALL ELEVATION
——CATV——	UNDERGROUND CABLE TELEVISION LINE
——D——	UNDERGROUND DRAIN LINE
——E——	UNDERGROUND ELECTRIC LINE
——G——	UNDERGROUND GAS LINE
——S——	UNDERGROUND SEWER LINE
——CS——	UNDERGROUND COMBINE SEWER LINE
——T——	UNDERGROUND TELEPHONE LINE
——W——	UNDERGROUND WATER LINE
——OHW——	OVERHEAD WIRES
——F——	FIBER OPTIC CABLE LINE
——x——x——	CHAN LINK FENCE
—○—○—○—	WROUGHT IRON FENCE
—●—●—●—	METAL HAND RAIL
MW	MONITORING WELL
	BENCH MARK

UTILITY INFORMATION STATEMENT

1. THE SUB-SURFACE UTILITY INFORMATION SHOWN HEREON IS COMPILED BASED ON FIELD SURVEY INFORMATION, RECORD INFORMATION AS SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES, AND PLAN INFORMATION SUPPLIED BY THE CLIENT, IF ANY; THEREFORE WE CANNOT GUARANTEE THE ACCURACY OF SAID COMPILED SUB-SURFACE INFORMATION TO ANY CERTAIN DEGREE OF STATED TOLERANCE. ONLY PHYSICALLY LOCATED SUB-SURFACE UTILITY FEATURES FALL WITHIN NORMAL STANDARD OF CARE ACCURACIES.

2. THE LOCATIONS OF UNDERGROUND PIPES, CONDUITS, AND STRUCTURES HAVE BEEN DETERMINED FROM SAID INFORMATION, AND ARE APPROXIMATE ONLY. COMPILED LOCATIONS OF ANY UNDERGROUND STRUCTURES, NOT VISIBLY OBSERVED AND LOCATED, CAN VARY FROM THEIR ACTUAL LOCATIONS.

3. ADDITIONAL BURIED UTILITIES/STRUCTURES MAY BE ENCOUNTERED.

4. THE STATUS OF UTILITIES, WHETHER ACTIVE, ABANDONED, OR REMOVED, IS AN UNKNOWN CONDITION AS FAR AS OUR COMPILATION OF THIS INFORMATION.

5. IT IS INCUMBENT UPON INDIVIDUALS USING THIS INFORMATION TO UNDERSTAND THAT COMPILING UTILITY INFORMATION IS NOT EXACT, AND IS SUBJECT TO CHANGE BASED UPON VARYING PLAN INFORMATION RECEIVED AND ACTUAL LOCATIONS.

6. THE ACCURACY OF MEASURED UTILITY INVERTS AND PIPE SIZES IS SUBJECT TO FIELD CONDITIONS, THE ABILITY TO MAKE VISUAL OBSERVATIONS, DIRECT ACCESS TO THE VARIOUS ELEMENTS AND OTHER MATTERS.

7. THE PROPER UTILITY ENGINEERING/COMPANY SHOULD BE CONSULTED AND THE ACTUAL LOCATIONS OF SUBSURFACE STRUCTURES SHOULD BE VERIFIED IN THE FIELD (V.I.F.) BEFORE PLANNING FUTURE CONNECTIONS. CONTACT THE DIG SAFE CALL CENTER AT 1-888-344-7233, SEVENTY-TWO HOURS PRIOR TO EXCAVATION, BLASTING, GRADING, AND/OR PAVING.

NOTES

1.) THIS DOCUMENT IS AN INSTRUMENT OF SERVICE OF NITSCH ENGINEERING. IT IS ISSUED TO SMMA FOR PURPOSES RELATED DIRECTLY AND SOLELY TO NITSCH ENGINEERING'S SCOPE OF SERVICES UNDER CONTRACT WITH SMMA FOR SOMERVILLE HIGH SCHOOL. ANY USE OR REUSE OF THIS DOCUMENT FOR ANY REASON BY ANY PARTY FOR PURPOSES UNRELATED DIRECTLY AND SOLELY TO SAID CONTRACT AND PROJECT SHALL BE AT THE USER'S SOLE AND EXCLUSIVE RISK AND LIABILITY, INCLUDING LIABILITY FOR VIOLATION OF COPYRIGHT LAWS, UNLESS WRITTEN AUTHORIZATION IS GIVEN THEREFOR BY NITSCH ENGINEERING.

2.) THE PURPOSE OF THIS PLAN IS TO SHOW EXISTING CONDITIONS AS THE RESULT OF AN ON-THE-GROUND INSTRUMENT SURVEY OCCURRED OCTOBER 7, 2015 THROUGH NOVEMBER 2, 2015.

3.) HORIZONTAL COORDINATES REFER TO MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (MAINLAND) NAD83.

4.) ELEVATION REFERS TO NORTH AMERICAN VERTICAL DATUM (NAVD88).

5.) THE INFORMATION CONTAINED ON THE DISK OR ELECTRONIC DRAWING FILE ACCOMPANYING THIS PLAN MUST BE COMPARED TO THE SEALED AND SIGNED HARD COPY OF THE PLAN TO ENSURE THE ACCURACY OF ALL INFORMATION AND TO ENSURE NO CHANGES, ALTERATIONS, OR MODIFICATIONS HAVE BEEN MADE. RELIANCE SHALL NOT BE MADE ON A DOCUMENT TRANSMITTED BY COMPUTER OR OTHER ELECTRONIC MEANS UNLESS FIRST COMPARED TO THE ORIGINAL SEALED DOCUMENT ISSUED AT THE TIME OF THE SURVEY. DUE TO THE CRITICAL NATURE OF SURVEYING, DATA ACQUISITION, AND AUTOCAD PLAN DEVELOPMENT, IF CRITICAL DIMENSIONAL INFORMATION IS NEEDED AND IS NOT SPECIFICALLY SHOWN ON THE ELECTRONIC DRAWING FILE, PLEASE CONTACT NITSCH ENGINEERING.

EX-5	EX-6	EX-7
EX-2	EX-3	EX-4

GRAPHIC SCALE

20 10 0 20 40 60

SCALE: 1"= 20'

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PROJECT # 10970
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FIELD BOOK: 607, 623 AND 630
DRAFTED BY: TI
CHECKED BY: ADD

REV.	COMMENTS	DATE
	REVISIONS	

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81 HIGHLAND AVENUE, SOMERVILLE, MA 02143

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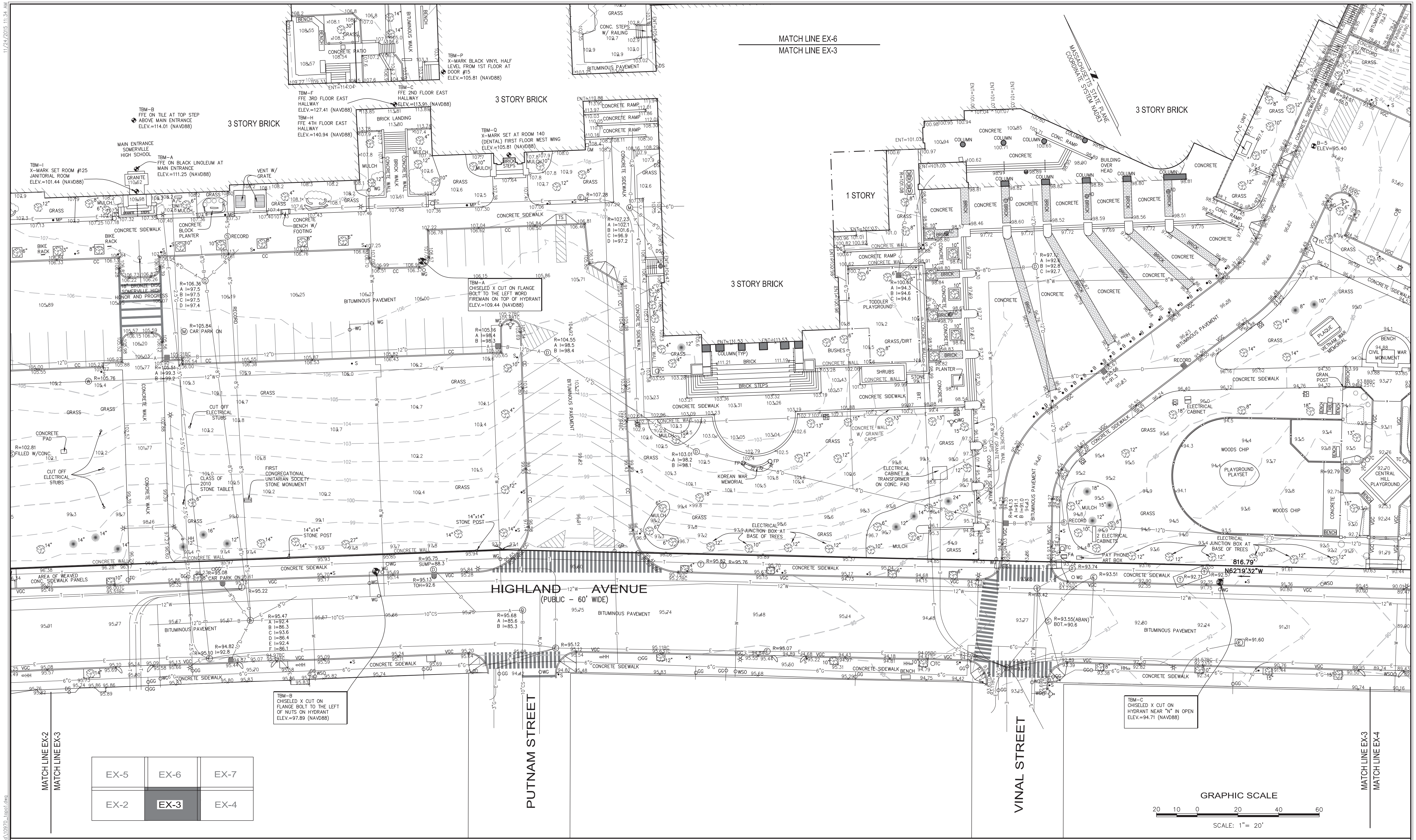

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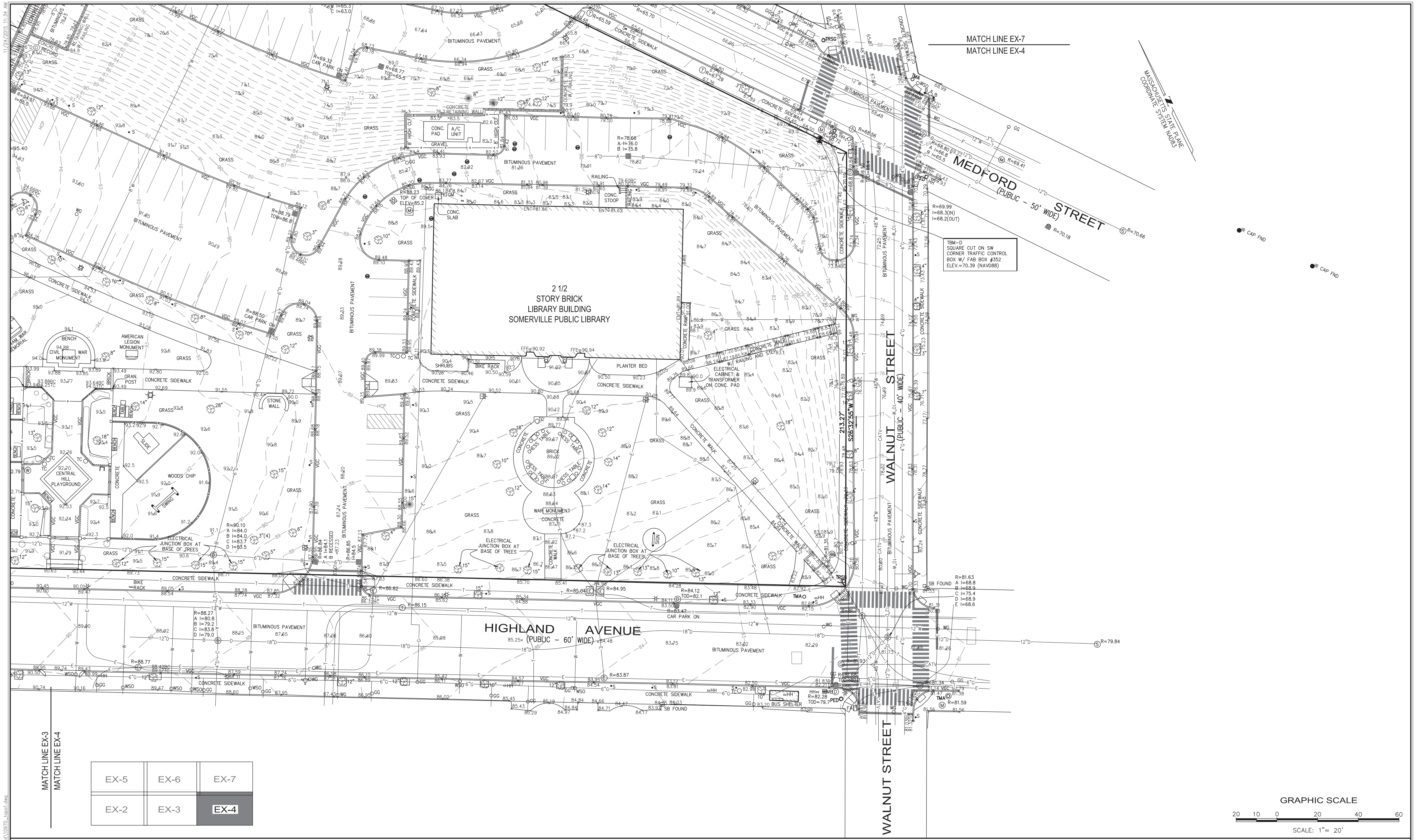

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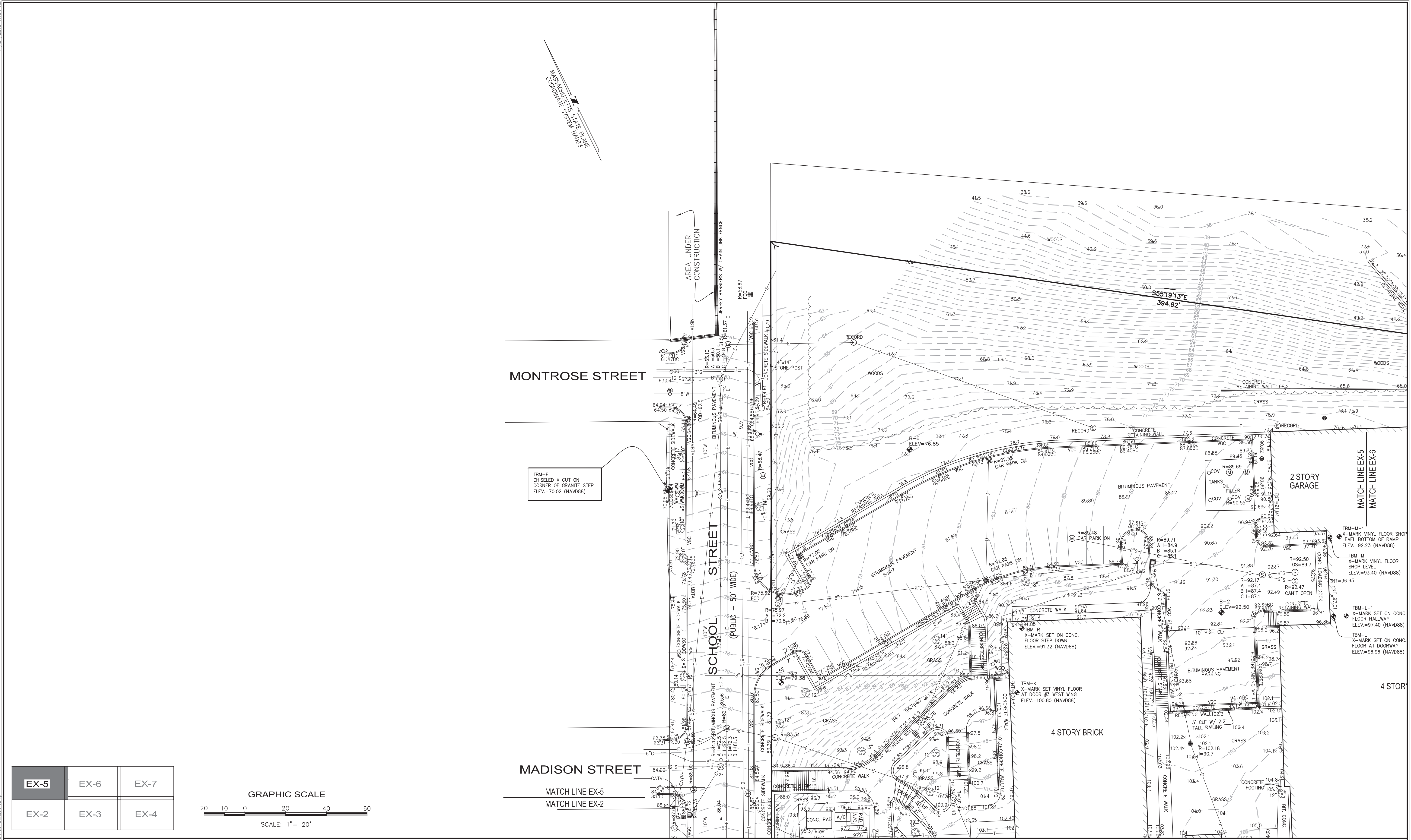

EX-5	EX-6	EX-7
EX-2	EX-3	EX-4

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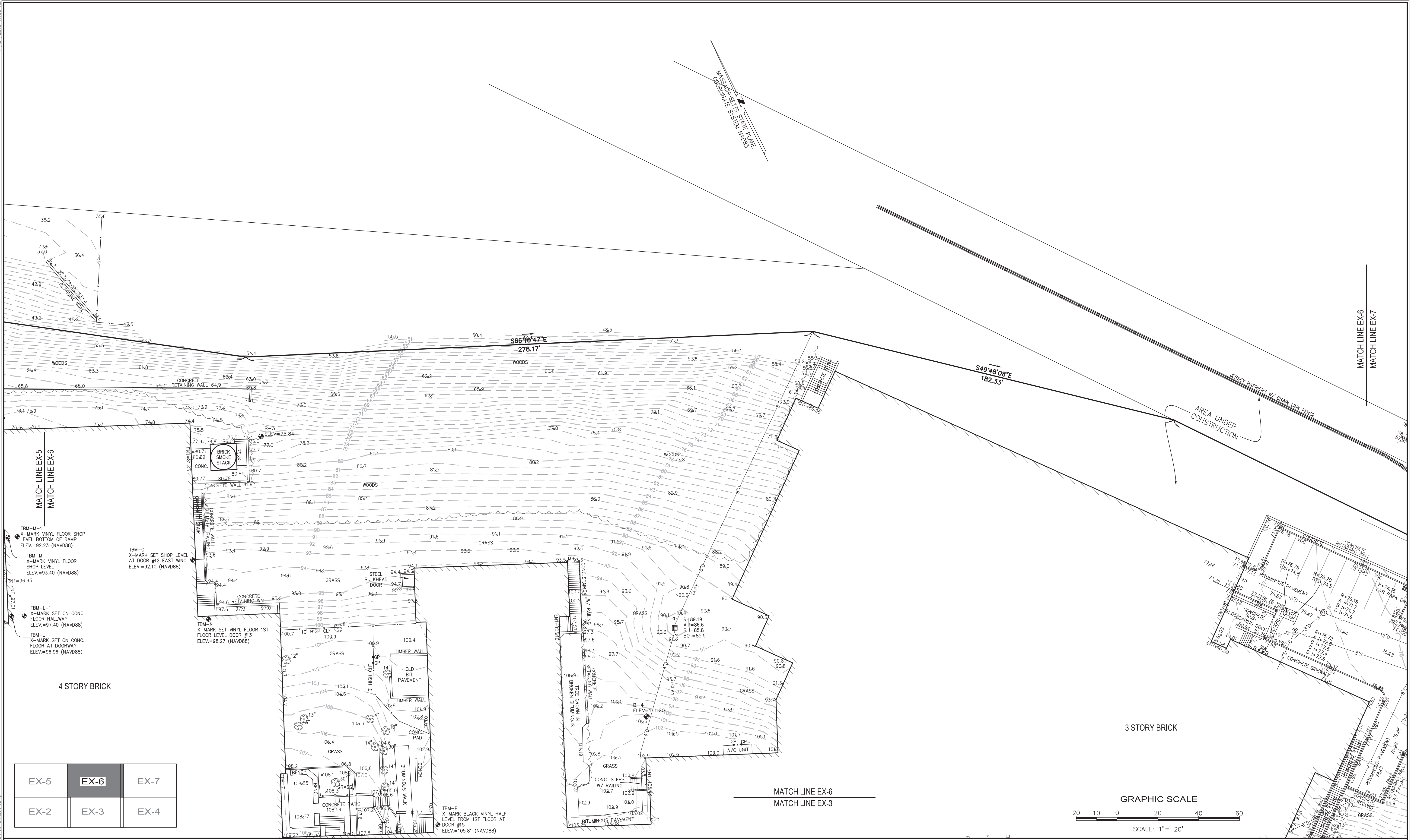

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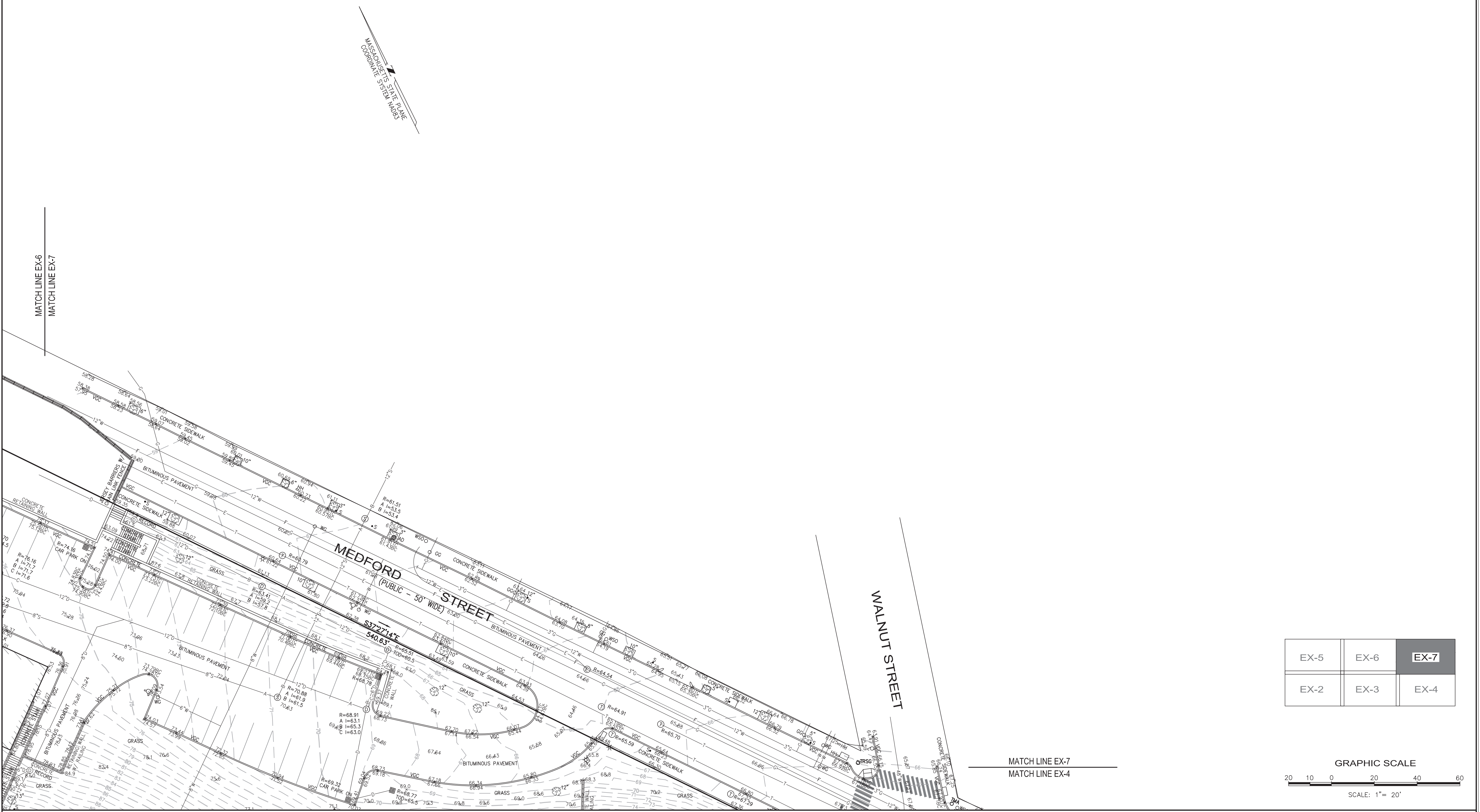

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11/17/2015 8:13 AM

LAND formerly of ~~Isaac~~ ISAAC F. Shepard ?
~~AS OF 1870 DESC.~~

MR. LEIGH ? OR LEE ?

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SHEET:
EX-1
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g:\10970_somerville_hs\survey\cad\10970_topo1.dwg me, ~~George Griggs Justice of the Peace.~~

~~Middlesex ss. June 15 1869. Rec'd Recorded.~~

~~Attest Chas B Stearns Reg~~

From MIDDLESEX SOUTH REGISTRY OF DEEDS

Sleeper
to
Town of
Somerville

U.S.
Rev. Stamps
$10.50
J.S.
June. 69.

BOOK
1086
PG.
278

"LIBRARY
PARCEL"

Know all Men by these Presents That I Jacob Sleeper of Boston in the County of Suffolk and Commonwealth of Massachusetts in consideration of Twenty thousand nine hundred and thirty three Dollars 44/100 paid by the Town of Somerville in the County of Middlesex and Commonwealth aforesaid a Corporation the receipt whereof is hereby acknowledged, do hereby give, grant, bargain, sell, and convey unto the said Town of Somerville a certain Lot of Land situated on the Northerly side of Walnut Street between Highland avenue and Medford Street in said town of Somerville and bounded and described as follows viz: Commencing at a point on the Easterly side of said Highland avenue, distant Northwesterly from Walnut Street four hundred and fifty feet; thence running South 60° 22' E. on said Highland avenue four hundred and fifty feet to Walnut Street; thence turning and running North 27° 49' East two hundred and twenty nine 30/100 feet on Walnut Street to Medford Street: thence turning and running North 36° 28' West five hundred 3/100 feet on Medford Street to other land of Grantor: thence turning and running South 27° 49' West four hundred and thirty five feet 57/100 to Highland avenue. the point of Beginning. Containing One hundred and forty nine thousand five hundred and twenty four 6/10 square feet of Land according to a survey and plan made by Frost Brothers June 1869 to be recorded herewith in Middlesex Registry of Deeds. (149,524.6 ft.) The town to build a street on the northerly line of said Lot from Highland Avenue and Medford Street forty feet in width within two years from date said Street to be taken wholly from the land above described and to adjoin said Sleeper's land. and to be used and enjoyed as a Highway. To Have and to Hold the granted premises, with all the privileges and appurtenances thereto belonging, to the said Town of Somerville its successors and assigns, to their own use and behoof forever. And I do hereby, for myself and my heirs, executors, and administrators, covenant with the said grantee and my heirs and assigns that I am lawfully seized in fee simple of the granted premises; that they are free from all incumbrances, that I have good right to sell and convey the same as aforesaid; and that I will and my heirs, executors, and administrators shall warrant and defend the same to the said grantee and, successors and assigns forever against the lawful claims and demands of all persons. And for the consideration aforesaid I Maria D. Sleeper wife of said Jacob Sleeper do hereby release unto the said grantee its successors and assigns all right of or to both dower and homestead in the granted premises. In Witness Whereof I the said Jacob Sleeper and I Maria D. Sleeper have hereunto set our hands and seals and affixed and cancelled the stamp required by law, this twelfth day of June in the year one thousand eight hundred and sixty nine. Jacob Sleeper (Seal) Maria D. Sleeper (Seal) Signed, sealed, and delivered; in presence of Gilman H. Tucker, witness to J.S. Minnie E. Harper, to M. D. S. Commonwealth of Massachusetts. Suffolk ss. June 14th 1869. Then personally appeared the above named Jacob Sleeper and acknowledged the foregoing instrument to be his free act and deed, before me. Chas S. Lincoln Justice of the Peace. Middlesex ss. June 15. 1869. Rec'd & Recorded.

1 word stricken out.

Attest Chas B Stevens Reg

BOOK
1086
PAGE
279

END OF
DOCUMENT

Wright
to
Brigham

~~Know all Men by these Presents, That I, Salmon A. Wright of Hudson in the County of Middlesex & Commonwealth of Massachusetts in consideration of Two Hundred Dollars paid by Charles Brigham of said Hudson the receipt whereof is hereby acknowledged, do hereby give, grant, bargain, sell and convey unto the said Brigham his heirs and assigns a certain parcel or tract of land situated in the Southerly part of said Hudson, containing sixty five rods more or less bounded and described as fol-~~

1123

BOOK
1123
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420

From
MIDDLESEX
SOUTH
Registry of
DEEDS

without further notice or demand, except giving notice of the time and place of sale once in each of three successive weeks in one newspaper printed in the county of Middlesex aforesaid, and in his or their own names or as the attorney of the grantor for that purpose by these presents duly authorized convey the same, absolutely and in fee simple to the purchaser or purchasers accordingly: and out of the money arising from such sale to retain all sums then secured by this deed (whether then or thereafter payable) together with interest and all costs and expenses: paying the surplus, if any, to the grantor or his assigns and such sale shall forever bar the grantor and all persons claiming under him from all right and interest in the premises at law or in equity. It being mutually agreed that the grantee or his assigns may purchase at said sale and that no other purchaser shall be answerable for the application of the purchase money. And Provided Also. That until some breach of the conditions of this deed, the grantee shall have no right to enter and take possession of the premises. In Witness Whereof. I the said William Lenox being unmarried have hereunto set my hand and seal this twelfth day of July in the year of our Lord eighteen hundred and seventy. William his + mark Lenox (seal) The printed release of dower and homestead clause and the word "sixty" at the bottom of the 2d page being erased before signing. Signed, sealed and delivered in presence of James W. Barker. Commonwealth of Massachusetts Middlesex ss. July 14. 1870. Then personally appeared the above named William Lenox and acknowledged the above instrument to be his free act and deed: Before me Jas W. Barker. Justice of the Peace.

Middlesex ss. July 16. 1870. Recd & Recorded
Attest Chas B. Stevens R

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Coleman
to
Town of
Somerville.

"SCHOOL PARCEL"

Know all Men by these Presents

That I George W. Coleman of Boston in the county of Suffolk Massachusetts Merchant. In consideration of Thirty three Thousand six hundred eighty three 76/100 Dollars paid by the Town of Somerville in the county of Middlesex in said State of Massachusetts the receipt whereof is hereby acknowledged do hereby give, grant, bargain sell and convey unto the said Town of Somerville and its successors and assigns forever all that lot of land on Central Hill so called in said Somerville Bounded and described as follows to wit: Beginning at a point on School Street seventy two and a half feet southwesterly from the center of the Boston and Lowell Rail Road and running thence S. 54° 08 E. four hundred & $\frac{08}{100}$ feet, thence S. 64°24 E three hundred fifty five $\frac{2}{100}$ feet to Medford Street thence on line of said Medford Street S. 36° 0½ E. one hundred forty seven and 64/100 feet to land conveyed to said grantee by Jacob Sleeper June 1869 thence by land of same S. 27° 49 W. four hundred thirty five & 57/100 feet to Highland Avenue thence on line of said Avenue N. 60° 25½ W. three hundred fifty one $\frac{30}{100}$ feet to an angle in said Avenue thence on same N. 64° 20 W. one hundred forty five $\frac{38}{100}$ feet to land of First Congregational Society thence northerly by land of said Society one hundred ninety eight feet thence northwesterly by land of the same one hundred and ten feet thence Southerly by land of same to Highland avenue one hundred ninety eight feet thence northwesterly on said avenue sixty three & $\frac{72}{100}$ feet to land formerly of Isaac F. Shepard thence northeasterly by same Two Hundred feet; thence northwesterly by same one hundred six feet to School House Lot thence Northeasterly by said School House Lot four & $\frac{6}{100}$ feet thence in a northwesterly direction by said School House Lot to School Street thence by line of said School Street N. 27° 49 E. to the point of beginning or however otherwise bounded containing 374264 feet more or less being same premises to me conveyed by Jacob Sleeper by deed dated May 30 1870. To Have and To Hold the granted premises with all the privileges and appurtenances thereto belonging to the said grantee and its successors and assigns to their own use and behoof forever. And I do hereby for me and my heirs executors and administrators covenant with the said grantee and its successors and assigns that I am lawfully seized in fee simple of the granted premises, that they are free from all incumbrances that I have good right to sell and convey the same as aforesaid: and that I will and my heirs executors and administrators shall warrant and defend the same to the said grantee and its

U. S.
Rev Stamp
$34.00
G. W. C.
June 15. 1870

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successors and assigns forever against the lawful claims and demands of all persons. And for the consideration aforesaid I Louise M. Coleman wife of said George W. Coleman do hereby release unto the said grantee and its successors and assigns all right of or to both dower and homestead in the granted premises. In Witness Whereof we the said George W. Coleman and Louise M. Coleman have hereunto set our hands and seals and affixed and cancelled the stamp required by law this fifteenth day of June in the year one thousand eight hundred and seventy. George W. Coleman (seal). Louise M. Coleman (seal) Signed sealed and delivered in presence of O. S. Knapp to G. W. C. Homer Sanders. Mary Louise Sanders. Commonwealth of Massachusetts. Suffolk ss. July 7. 1870. Then personally appeared the above named George W. Coleman and acknowledged the foregoing instrument to be his free act and deed Before me Oren S. Knapp Justice of the Peace.

Middlesex ss. July 16. 1870. Recd & Recorded.

Attest Chas B. Stevens Reg.

END OF DOCUMENT

Lawrence et ux
to
Wilson.

U. S.
Rev Stamp
$6.50
E. L.
July 1. 1870

~~Know all Men by these Presents~~

~~That I. Eunice Lawrence of Newton in the county of Middlesex and Commonwealth of Massachusetts and William A. husband of said Eunice. In consideration of Sixty five hundred dollars to me paid by Sarah E. Wilson wife of E. Wilson of Boston in the county of Suffolk and Commonwealth aforesaid the receipt whereof is hereby acknowledged do hereby give, grant, bargain, sell and convey unto the said Sarah E. Wilson and her heirs and assigns forever, all that lot of land in that part of said Newton called Newtonville with the buildings thereon bounded and described as follows viz: Southerly by Washington Street one hundred and forty eight feet: westerly by land of Harriet J. Goodwin one hundred forty nine feet: northerly by land of Kate B. Allen one hundred forty eight feet: and easterly by land of D. Harrington one hundred forty six feet: or however otherwise bounded and described containing about one half acre Being the same premises conveyed to me by John A. Fairbanks by deed dated May 10. 1865 and recorded with Middlesex So. Dist. Deeds. Lib. 948 fol 29. The same being subject to a mortgage of $2000 to Elijah Jenison which the grantee~~

Roberts Chas. parcel of land, being the south westerly half of lot No. 16. on a plan of an estate belonging to Anthony Brackett. John Low, surveyor. Oct 23. 1844. recorded in said registry. at the end of book 462. 5,68

Shapleigh Hannah — parcel of land. be, lot No. 41 on a plan of an estate belonging to A. Brackett. situated in Somerville surveyed by John Low. Nov. 26. 1844. recorded in said registry at the end of book 453. . . . . 14,20.

Smart Porter H. — buildings and land. being lots Nos. 12 and 14 on said last mentioned plan. 78,10

Frack Sarah H. — house and land. bounded north easterly on Flint Street. north westerly on land of Appleton and land of Gordon. south westerly and south easterly on land of Kilyon. 28,40

Welch John, — parcel of land. being lot No. 29 on a plan of eligible building lots in Somerville belonging to the heirs of S. C. Bradshaw. recorded in said registry, book of plans 14. plan 48 . . . . 5,68.

Wood Sarah H., and Whitten Alma. — parcel of land being lot No. 34. on a plan of land in Somerville. belonging to the heirs of Jotham Johnson May 1st 1855. recorded in said registry. book of plans 7 plan 40. 5,68

Thos Cunningham. Collector of Somerville. Somerville. Jan. 23th 1871.

I. Nathaniel A. Daniels of Somerville in the County of Middlesex. and Commonwealth of Massachusetts. a disinterested person hereby certify that the advertisement of which the above is a true copy. was at least three weeks before the twenty third day of February 1871. by Thomas Cunningham Collector of taxes of said Somerville. posted in three convenient and public places in his precinct viz: at the three Post Offices in said Somerville. viz at Somerville, North Somerville and East Somerville also. upon the lots or parcels of land above described. and also. that said advertisement was published three weeks successively in the newspaper called the Somerville Journal. published in said Somerville. the last publication of which was on Feb. 11. 1871. being more than one week before the said twenty third day of February 1871. Somerville. March 4. 1871. Nathaniel A. Daniels. Thos Cunningham. Collector. Subscribed and sworn to. Before me. Robert A. Vinal. Justice of the Peace. March 4th 1871.

Middlesex ss. March. 8. 1871. Recd. & Recorded.

Attest Chas B. Stevens Reg.

(25) words written over an erasure.
(1) word stricken out

"CHURCH PARCEL"

Poor
to
Town of Somerville

C/H

U.S.
Rev. Stamps
$5.00
J.R.P.
Nov. 23. 1870

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MIDDLESEX SOUTH REGISTRY
OF DEEDS

Know all Men by these Presents

That I. John R. Poor of Somerville in the County of Middlesex and State of Massachusetts. in consideration of four thousand five hundred and sixty eight and 8/10 dollars paid by the Town of Somerville — a Municipal Corporation. within said County of Middlesex. the receipt whereof is hereby acknowledged, do hereby remise, release. and forever quitclaim unto the said Town of Somerville its successors & assigns a certain lot of land of land situated in said Somerville. bounded and described as follows. to wit: southwesterly by Highland Avenue, one hundred and six feet south easterly by land formerly of Jacob Sleeper. two hundred feet. north easterly by land formerly of said Sleeper. one hundred and six feet and north westerly by land of the Town of Somerville. occupied for a High School. two hundred feet and containing 21.200 square feet. be said measurements more or less. and being the same premises conveyed to me by, Stephen Fenno and Elizabeth S. Fenno. by deed dated September first. A. D. 1870. and recorded with Middlesex So. Dist. Deeds. Lib. 1128. Fol. 256. To Have and To Hold. the granted premises. with all the privileges and appurtenances thereto belonging. to the said Town of Somerville its successors and and assigns. to their own use and behoof forever. and I do hereby. for myself and my heirs, executors, and administrators, covenant with the said grantee and his heirs and assigns that the granted premises are free from all incumbrances made or suffered by me. and that I will and my heirs. executors. and administrators shall Warrant and Defend the same to the said grantee and his heirs & assigns forever against the lawful claims & demands of all persons claiming by. through. or under me. but against none other. and for the consideration aforesaid I. Sarah S. Poor. wife of said John R. Poor. do hereby release unto the said grantee and his heirs and assigns all right of or to both dower and homestead in the granted premises In Witness Whereof. I the said John R. Poor and Sarah S. Poor. have hereunto set our hands and seals and affixed and cancelled the stamps required by law. this twenty third day of November in the year. one thousand eight hundred and seventy. John R. Poor (seal) Sarah S. Poor (seal) Signed Sealed and delivered in presence of Oren S. Knapp to J. R. P.

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Sarah Lizzie Poor. Edward C. Coker. Commonwealth of Massachusetts. Suffolk ss. December 21st 1870. Then personally appeared the above-named John R. Poor. and acknowledged the foregoing instrument to be his free act and deed. Before me, Oren S. Knapp. Justice of the Peace.

Middlesex ss. March. 8. 1871. Recd. & Recorded.

Attest/Chas. B. Stevens Reg.

END OF DOCUMENT

Russell et al
to
Allen.
P #

U.S.
Rev. Stamp
-50 cts
L. J. R.
Jan. 6th 1871

Know all Men by these Presents That I, Sarah Jeanette Russell, together with my husband John R. Russell, both of Lynn in the County of Essex and Commonwealth of Massachusetts, in consideration of two hundred dollars to me paid by John Allen of Holliston in the County of Middlesex, and Commonwealth aforesaid. the receipt whereof is hereby acknowledged do hereby give, grant. bargain. sell and convey unto the said John Allen his heirs and assigns forever a certain tract or parcel of land situated in the town of Hopkinton in said County of Middlesex. bounded and described as follows. to wit. the same containing eleven acres. two quarters and twenty four rods on the south westerly side of the road leading from Holliston to Hopkinton. beginning at said road at land of Levi R. Haven thence south westerly on land of said Haven sixty three rods and fifteen links to stake and stones. thence by land formerly of Asa Fiske. eleven rods and ten links to stake and stones. thence (S.E.) south easterly on land of Jones Fiske thirty one rods and thirteen links to stake and stones. thence north easterly by land formerly of Capt. Brown twenty four rods and six links to stake and stones at end of old wall. thence on said Browns land six rods and five links to said town road thence on said road to the bound first mentioned. being the same tract of land bought by David S. Pyler from Thomas Fiske April 21st 1856. and recorded with Middlesex So. Dist. Deeds. Book 763. Page. 560. To Have and To Hold. the above granted premises. with the privileges and appurtenances thereto belonging. the said John Allen his heirs and assigns. to his and their use and behoof forever and I the said grantor for myself and my heirs, executors. and administrators. do covenant with the said grantee. and his heirs and assigns. that I am lawfully seized in fee. simple of the aforegranted premises. that they are free from all incumbrances. that I have a good right to sell and convey the same to the said grantee, and his heirs and assigns forever. as aforesaid. and that I will, and my heirs. executors. and administrators shall Warrant and Defend the same to the said grantee. his heirs & assigns forever. against the lawful claims and demands of all persons. In Witness Whereof. I the said S. Jeanette Russell. together with John R. my husband, in token of our release of all right and title of or to both dower and homestead in the granted premises. have hereunto set our hands & seals. this sixth day of January in the year of our Lord eighteen hundred and seventy one. S. Jeanette Russell (seal) John R. Russell (seal) Signed Sealed and delivered in presence of Grace A. King - J. M. Batchelder. Commonwealth of Massachusetts. Middlesex ss. Jany. 7th 1871. Then personally appeared the above-named S. J. Russell and acknowledged the foregoing instrument to be her free act and deed. Before me. J. M. Batchelder - Justice of the Peace.

Middlesex ss. March. 8th 1871. Recd. & Recorded.

Attest/Chas. B. Stevens Reg.

Wilson
to
Poor.
P #

The debt secured by the mortgage dated May 5th 1870. and recorded with Middlesex So. Dist. Deeds. Lib. 1127. Fol. 178. has been paid to me by John R. Poor. of Somerville in the County of Middlesex in the Commonwealth of Massachusetts. and in consideration thereof I do discharge the mortgage and release the mortgaged premises to said John R. Poor and his heirs or assigns, said mortgage was made by Elizabeth L. Brown of said Somerville. to secure the payment of one thousand dollars to Walter M. Wilson, of said Somerville. Witness my hand and seal, Sept 8th A. D. 1870. Walter M. Wilson (seal) Executed and delivered in presence of Saml. S. Cushing. Mass. Suffolk ss. Boston Sept 9th A. D. 1870. Then said Walter M. Wilson acknowledged the foregoing instrument to be his free act and deed. Before me. John H. Blake. Justice of the Peace. Middlesex ss. March. 8th 1871. Recd. & Recorded.

Attest Chas. B. Stevens Reg.

Sullivan
to
Norton
P #

Know all Men by these Presents That I, J. Amory Sullivan of Malden in the County of Middlesex and Commonwealth of Massachusetts, the mortgagee named

PRELIMINARY EVALUATION OF ALTERNATIVES

6.1 SCHOOL ASSIGNMENT PRACTICES AND AVAILABLE SPACE

The Somerville Public Schools have only one high school so there are no other options for assignments.

6.2 REGIONALIZING OR TUITION AGREEMENTS WITH ADJACENT SCHOOL DISTRICTS

The Somerville Public Schools do not have any tuition agreements with adjacent school districts, and does not plan to after completing this project.

6.3 LEASING, RENTING, ACQUISITION OF EXISTING BUILDINGS FOR SCHOOL USE

The team is looking at potentially utilizing modular classrooms and/or existing elementary schools to temporarily house high school students if the project were a renovation or phased demolition/new construction option, but no feasible options exist for permanently relocating a large number of students within the City.

6.4 PROJECT GOALS

The Somerville High School Building Committee developed a list of project goals at the outset of this study. These goals were used to evaluate the site and construction alternatives included in this section and will be reviewed with the community during the Preferred Schematic design selection process. The Committee discussed and evaluated each construction alternative with the following goals in mind.

Committee

- Make the process accessible to the public - enhance community outreach.
- Bring the process to the public using alternative communications i.e. social media.

Process

- Maximize budget and funding resources.
- Promote the environmental benefits/cost savings of sustainable design.
- Develop the best project solution and champion it to the City and neighborhood.

Education

Propose a facility which:

- Promotes true comprehensive curriculum and interdisciplinary academic program through the building's design and layout.
- Delivers technology-based curriculum opportunities.
- Provides appropriate space to facilitate student collaboration.
- Provides athletic facilities to allow the curriculum to expand and to provide adequate space for current programs.
- Provides gallery and display spaces to promote student work.
- Supports diversity through an inclusionary approach to education.
- Incorporates flexible spaces to allow for evolution of the current curriculum and courses.

Community

Propose a project that:

- Provides a facility that fosters collaboration with community partners for learning.
- Maximizes opportunities for public and academic spaces that could be used for community activities.
- Facilitates community use of and access to the gym and fitness spaces.
- Facilitates community use of and access to the auditorium and support spaces.
- Facilitates community access to vocational programs with retail components.
- Connects the high school to the adjacent civic resources of City Hall and the main branch of the library
- Provides improved parking and circulation.

Building

- Student collaboration is fostered by the physical environment.
- There is no wasted space, and learning can happen anytime and anywhere.
- The Auditorium has full audio/video functionality and is an appropriate environment for musical and theatrical performances.
- Security and safety is an integral consideration for any design.
- Public access to the facility is provided with appropriate security measures in place to limit access to other areas of the building.
- Technological upgrades are supported. Provide sufficient bandwidth for 1:1 and 1:3 capability.
- High-quality and durable materials are utilized to improve longevity and reinforce the civic significance of the High School.
- Appreciation of and access to both the fine and performing arts is facilitated.
- The Media Center accommodates both the current collection and the transition to media-based literature.

Site

Propose a project in which the site:

- Improves safety and accessibility for all users.
- Provides exterior learning spaces, including classrooms and gardens.
- Uses data from traffic studies and researches opportunities to improve traffic conditions.
- Coordinates design with the planned Community Path and GLX.
- Provides additional athletic fields and facilities where possible/feasible.
- Creates an identifiable front door.

Construction

- Minimizes impacts to learning for students and staff during construction.

6.5 SITES FOR NEW CONSTRUCTION ALTERNATIVES

In preparation for the development of new construction alternatives, the city of Somerville was visually surveyed to determine possible sites for the construction of a new high school.

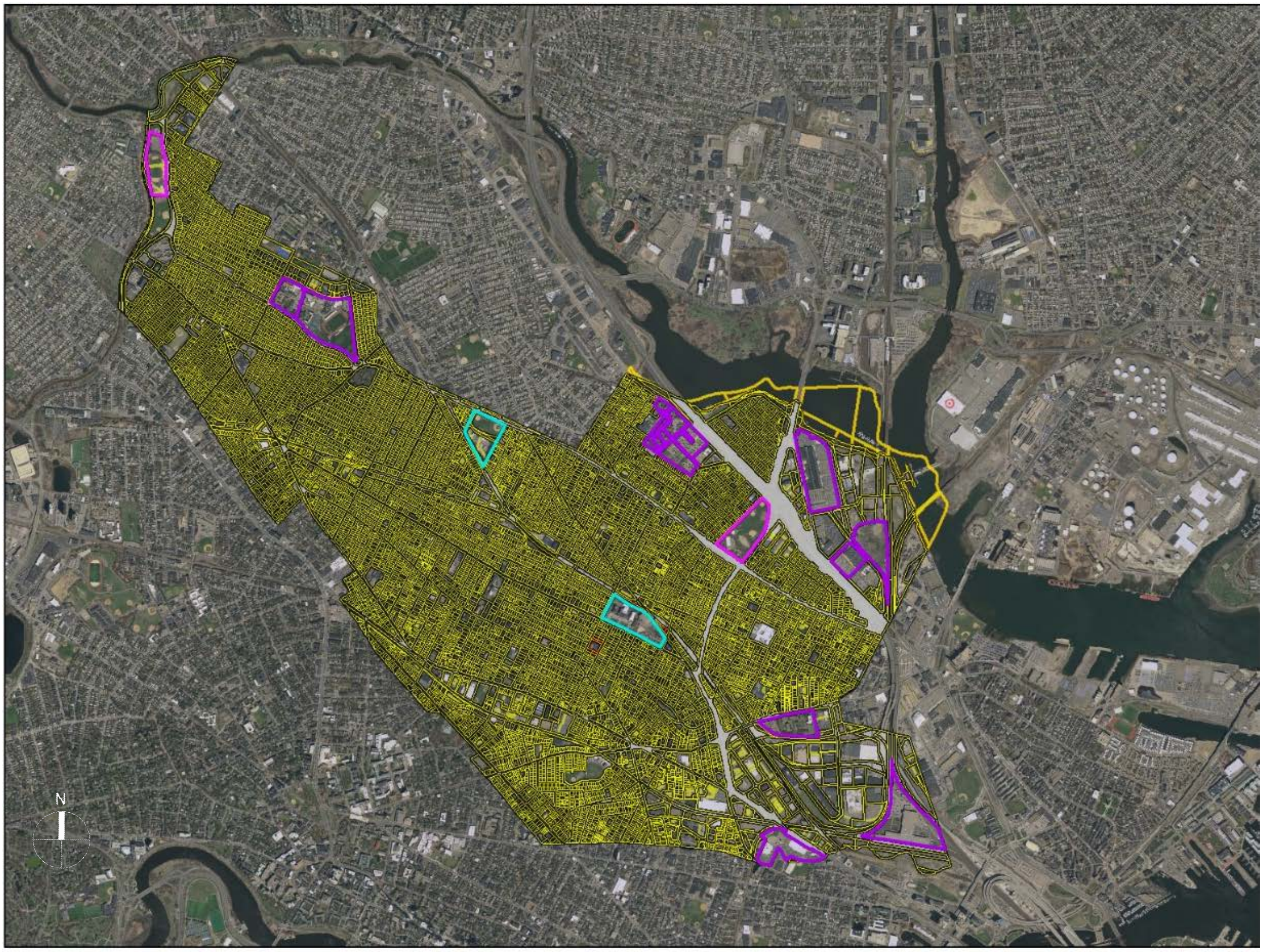
The main criterion for a feasible high school site includes:

- A minimum of 10 acres to accommodate the building, roads and parking and other site improvements facilities.
- City owned land, or land that can be acquired.
- Roadway and transportation infrastructure.
- Location.

A number of the sites that fit this criterion are park land, either owned by the state or by the City. The Massachusetts Executive Office of Environmental Affairs (EOEA) Article 97 Land Disposition Policy restricts the transfer of park land within Massachusetts. To transfer parcels involving park land, the proponent must demonstrate; exceptional circumstances show that no other alternatives exist, receive unanimous approval from the Somerville Conservation Commission and the Somerville Park Commission, and voted on by City Council and the Massachusetts State Legislature. State permitting through the Massachusetts Environmental Policy Act (MEPA) would also be required.

Based on the criterion above, many City-owned properties were excluded based on land area alone. The four sites that were considered are listed here, and described below with accompanying plans and information.

- Dilboy Auxiliary Fields
- Foss Park
- Franey Road/DPW Site
- Existing High School Site



■ Commonwealth Owned

■ Privately Owned

■ City Owned

Somerville Parcel Analysis - Lots Greater Than 10 Acres

Dilboy Auxiliary Fields

The Dilboy Auxiliary Fields are an area of land approximately 20 acres in size located to the east of the Alewife Brook extending north to the Mystic River. The land is operated and maintained by the City of Somerville, but ownership is divided between the City of Somerville, owning 7.7 acres, and the Commonwealth of Massachusetts, owning approximately 12 acres. The site is park land and would require state legislation to approve a land swap per Article 97. It is also a public entrance to Alewife Brook Parkway. Approximately 10 acres of this site are in within the regulatory floodway, which extremely limits development opportunities because construction of a new building is prohibited within the floodway. The floodplain is also restrictive and compensatory storage would have to be provided as part of a proposed project on the site. The river front associated with the Alewife Brook also limits development opportunities on the site.

Based on limiting factors of the resource areas on the site and the designation of parkland of the site it was determined not feasible for the development of a new high school.

Somerville Parcel Analysis - Dilboy Fields

Foss Park

The Foss Park site is approximately 14.5 acres of land and is located on Broadway and McGrath Highway to the south of I-93. This site is owned by the Commonwealth of Massachusetts and is adjacent to a city-owned parcel less than 1 acre with frontage along Broadway. The entire state-owned parcel is park land and would require state legislation to approve a land swap per Article 97.

Due to the highly trafficked area of McGrath Highway and I-93 and the identification of Foss Park as park land, this site was determined to not be feasible for the development of a new high school.

Somerville Parcel Analysis – Foss

🟪 Commonwealth Owned
🟪 Privately Owned
🟦 City Owned

Franey Road/DPW Site

The Franey Road/DPW Site is approximately 9.9 acres and is located on Broadway and Cedar Street and is bisected by Franey Road. MBTA rail tracks about the property to the southwest. The sites are owned by the City of Somerville with approximately a 5 acre parcel to the north devoted to park land. There is also a small 0.5 acre auxiliary parcel to the east of the site owned by the city that can function for construction activities. The northern portion of the site is parkland and would require state legislation to approve a land swap per Article 97. The southern portion of the site is currently functioning as the DPW yard. This portion of the site is not limited by a park land jurisdiction but the DPW program would need to be relocated if the site were to be selected for the high school project.

Due to the typical activities of the DPW yard, the southern portion of the site is assumed to have a moderate level of contamination. Land with pollutants or contamination shall not be considered a suitable site for school construction according to the MSBA's School Building Grant Program (963 CMR 2.05 (4)). It is unclear at this time how the site may comply with the regulations. MSBA also requires that projects maintain sustainability as a design goal and further requires projects be certified be a green building rating system. It should be noted that a prerequisite for LEED is that a contaminated site be remediated to residential use standards.

Given the potential environmental concerns and somewhat limited buildable area, the site was still considered to be a potential location of the high school project.

DPW Existing Site

Existing High School Site

The existing Somerville High School site is 13.05 acres located on Highland Avenue in between School Street and Walnut Street. The entire site is city owned land with the existing City Hall and Somerville Public Library within the same parcel boundary. No resource areas limit the developable land, but the existing buildings aforementioned and memorials will remain on the site. The north side of the site has excessive topography. Current location along a city bus route makes the site accessible via public transportation and a future MBTA Green Line stop to the north of the site in Gilman Square allows for increased access to the site.

Although the demolition of the existing Somerville High School building would cause the project to be completed in phases in order to retain swing space, this site is determined to be the best site for the project with few limitations and an ideal location.

Existing Site

6.6 CONSTRUCTION ALTERNATES INCLUDING COST ESTIMATE AND SCHEDULES

Multiple construction alternatives were developed, including a base code upgrade alternative as well as alternatives including varying levels of renovation, additions and entirely new construction. The following sections provide a description of each construction alternative:

Overview of All Alternatives Considered

Code Upgrade Alternative (No-New Build)

Alternative 0

The base repair and code upgrade alternative with no modification of existing spaces or their function meets neither the educational program nor the projected growth in student population. The existing three to four story high school is approximately 360,000 square feet, resulting in an estimated project cost of $ 74 million for this baseline alternative.

Addition/Renovations Alternatives:

Alternative 1

Complete interior gut-renovation of all finishes and systems. This alternative includes the replacement/repair of exterior systems for the existing three to four story high school, with no new addition. Interior space is reconfigured to better support modern educational goals. Exterior systems such as windows, doors and roof insulation/ membranes are replaced; exterior walls are insulated to comply with current energy codes. This alternative will involve phased renovation activities due to the lack of sufficient swing space in the City to accommodate the entirety of the high school population. The lack of additional space associated with this alternative does not address the growth in student population. The existing high school is approximately 360,000 square feet, resulting in an estimated project cost of $ 232 million for this alternative.

Alternative 2

Partial demolition and renovation of the existing three to four story high school, with new additions for cafeteria, kitchen, media center and classroom/vocational space. One major new addition is located towards the northern end of the site, with a small addition on the eastern edge of the existing building for a reconfigured culinary arts restaurant. This alternative will involve phased demolition and construction activities due to the lack of sufficient swing space in the City to accommodate the entirety of the high school population. The portion of the existing building to be demolished is approximately 152,000 square feet, the portion to remain and be renovated is approximately 208,000 square feet and the additions total approximately 168,000 square feet, for a grand total of approximately 376,000 square feet and an estimated project cost of $ 247 million.

Alternative 3

Partial demolition and renovation of the existing three to four story high school, with new additions for media center and classroom/vocational space. One major new addition is located towards the northern end of the site, with a small addition on the eastern edge of the existing building for a reconfigured culinary arts restaurant. This alternative will involve phased demolition and construction activities due to the lack of sufficient swing space in the City to accommodate the entirety of the high school population. The portion of the existing building to be demolished is approximately 106,000 square feet, the portion to remain and be renovated is approximately 254,000 square feet and the additions total approximately 139,000 square feet, for a grand total of approximately 393,000 square feet and an estimated project cost of $ 253 million.

Alternative 4

Partial demolition and renovation of the existing three to four story high school, with new additions for classroom/vocational spaces, PE support and supplementary programs. The configuration of the additions and new construction will result in a concourse configuration, connected through at the multiple levels with an open “main street” element that lends a sense of community to the overall school environment. This alternative will involve phased demolition and construction activities due to the lack of sufficient swing space in the City to accommodate the entirety of the high school population. The portion of the existing building to be demolished is approximately 137,000 square feet, the portion to remain and be renovated is approximately 222,000 square feet and the additions total approximately 173,000 square feet, for a grand total of approximately 395,000 square feet and an estimated project cost of $ 268 million.

Alternative 4A

Partial demolition and renovation of the existing three to four story high school, with new additions for classroom/vocational spaces, PE support and supplementary programs. The configuration of the additions and new construction will result in a campus configuration with disconnected individual buildings. This alternative will involve phased demolition and construction activities due to the lack of sufficient swing space in the City to accommodate the entirety of the high school population. The portion of the existing building to be demolished is approximately 137,000 square feet, the portion to remain and be renovated is approximately 222,000 square feet and the additions total approximately 173,000 square feet, for a grand total of approximately 395,000 square feet and an estimated project cost of $ 268 million.

Alternative 4B

Partial demolition and renovation of the existing three to four story high school, with new additions for the dining commons, media center, classroom/vocational spaces, PE support and supplementary programs. The additions and new construction will be predominantly located in the open area towards the eastern half of the site, between the existing E Wing and the Somerville Public Library Main Branch. This alternative will involve phased demolition and construction activities due to the lack of sufficient swing space in the City to accommodate the entirety of the high school population. The portion of the existing building to be demolished is approximately 274,000 square feet, the portion to remain and be renovated is approximately 86,000 square feet and the additions total approximately 290,000 square feet, for a grand total of approximately 376,000 square feet and an estimated project cost of $ 277 million.

New Construction Alternatives:

Alternative 5

Construction of a new three and five story high school on the existing high school site. Given the lack of available site area, the existing building would need to be demolished in its entirety to facilitate the construction of the new building. This alternative will involve phased demolition and construction activities due to the lack of sufficient swing space in the City to accommodate the entirety of the high school population. The existing building to be demolished is approximately 360,000 square feet and the new high school is approximately 364,000 square feet with an estimated project cost of $ 279 million.

Alternative 6

Construction of a new five story high school on the DPW Site located at 1 Franey Road. Construction on this alternative site will require the relocation of the existing DPW structures prior to any demolition beginning. The new building will include an underground parking garage below the entirety of the footprint, due to the compressed site area available. The new high school is approximately 364,000 square feet with an estimated project cost of $297 million.

Alternatives Conclusion:

All nine construction alternatives were developed to understand scope, schedule and budget. The following provides a description of each of the construction alternatives considered in greater detail.

Code Upgrade and Repair Alternative (No-Build)

Alternative 0

The base repair and code upgrade alternative with no modification of existing spaces or their function meets neither the educational program nor the projected growth in student population. The existing three to four story high school is approximately 360,000 square feet, resulting in an estimated project cost of $ 74 million for this baseline alternative.

Alternative 0 - No new construction, internal repairs only and code required upgrades only

Description

The code upgrade and repair alternative requires an assessment of the impact and cost of addressing the following deficiencies, without a major building project:

- Life safety code compliance;
- Accessibility code limitations;
- Energy code;
- Physical plant deterioration;
- Vulnerability to flooding;
- Hazardous materials;
- Capacity constraints;
- Program delivery impediments.

Life Safety Code Compliance

In a code minimum upgrade scenario, applicable regulations have thresholds that trigger life safety code upgrades based on the overall value of the proposed work (including the value of work that has been performed over prior years). Outside of these construction cost thresholds being crossed, there are no requirements to modify existing life safety non-conformances that were code compliant at the time of their original installation. Refer to the attached Code Compliance Considerations Report that is included as Section 4.14 for additional detail on this subject.

Based upon a review of the proposed cost for this Alternative, a new fully compliant fire protection system would be required for all sections of the existing school.

Accessibility Code Limitations

Similar to the life safety code compliance regulations, the applicable accessibility regulations include project cost thresholds that can trigger full accessibility upgrades throughout the entirety of the school. Based upon a review of the proposed cost for this Alternative, full accessibility upgrades would be required for all sections of the existing school.

Although most of the student and faculty toilet rooms have been recently renovated to be compliant with current accessibility codes, other aspects of the building and site would need to be addressed to produce a fully accessible environment. Most of the casework does not provide opportunities for accessible student use. This includes the casework in the science rooms which also lack accessibility to fume hoods and emergency shower/eyewash units. With respect to the interior doors, latch side clearances for all classrooms in the older wings will need modifications to be compliant. This will involve either replacing doors and frames to swing into the classrooms without closers (creating an operational concern), costly wall demolition or reconstruction within the hallways to provide proper floor clearance or the addition of costly and maintenance-prone power door operators to alleviate the need for proper floor clearances. Of the two elevators in the building, only one serves the third and fourth floors, but it is not of a sufficient size to properly accommodate stretcher access according to current building code. The majority of the exterior door landings incorporate steps, rendering the exits non-accessible.

Energy Code Compliance

The composition of the exterior walls vary according to the age of construction for each portion of the building. The exterior walls for the 1929 and earlier construction are comprised of un-insulated multi-wythe masonry. The exterior walls of the E Wing, completed in 1986, consist of a masonry veneer and cold formed metal stud backup. For these walls, fiberglass batt insulation is present within the metal stud cavity; however this method of exterior wall insulation produces compromised thermal performance given the thermal bridging action of the metal studs themselves. The existing metal non-thermally broken windows do incorporate insulated glazing units, but in many cases the seals on these glazing units have failed. The non-thermally broken window frames do not meet current energy code requirements, and would be replaced as part of the work.

Roof insulation, while present on multiple sections of the existing roof, has been compromised by water infiltration in many locations. With the exception of repair projects that were conducted in the past few years, the insulation that is present is not thick enough to produce the insulative value that is required by current energy code. Given that the roof membranes are failing or are at the limit of their warranty and usable life-span on the majority of the roof surfaces, new code compliant insulation would be provided as part of this Alternative.

HVAC systems are antiquated, often lack proper ventilation capabilities and create indoor temperatures that are oppressive and counteractive to learning. These antiquated systems do not meet energy codes, and waste a considerable amount of energy due to a lack of appropriate localized controls.

Physical Plant Deterioration

A comprehensive review of the Somerville High School physical plant revealed a wide range of existing system conditions, attributable to the various ages of original construction and renovations that have occurred at the building. Many of the systems located in the older construction (including HVAC, plumbing, electrical, and technology systems) are in disrepair or at the end of their useful life. Systems that were installed as part of the additions and renovations in 1986 have also begun to fail, resulting in varied levels of performance and a general lack of reliability. Additionally, there are no measures incorporated into any of the structural systems to resist lateral forces for earthquakes or similar seismic events.

Specific Physical Plant Repairs

Site work is limited within this option. Exterior doors will be made accessible with ramps and plazas will be reconstructed to address the settlement that has occurred. Structurally, the physical plant is in disrepair. A complete restructuring of the physical plant will be required if new mechanical equipment is installed inside the plant. If only repairs are performed on the mechanical equipment within the boiler room, then the structural system of the plant may remain as-is; however, it is important to note that continuing deterioration of the exterior walls of the building and the smoke stack is not compatible with new systems as the lifespan of the structure is at its functional end and needs an immediate full structural upgrade or replacement.

A structural upgrade of the plant would include adding structural steel braces to the existing steel structure, and strengthening the existing roof structure. The exterior unreinforced masonry walls would also need to be braced.

All new boilers, pumps, etc. will require new 4 to 6-inch high housekeeping pads. Repair work of an architectural nature that would be included as part of this Alternative would include the re-roofing and window replacement work noted above as part of the energy code improvements, as well as the following improvements associated with the exterior envelope.

The exterior masonry walls located in the older sections of the school (the A, B, C & D Wings) are in need of complete repointing. Additionally, several areas of brick masonry and cast stone details are currently cracked and would require replacement as part of the repair work.

HVAC work will focus on the existing systems repair and service, replacement of broken components and of some equipment to ensure the existing systems operation.

In the classrooms unit ventilators fresh air intakes will be cleaned and sealed around the perimeter; outside air motorized dampers serviced, repaired or replaced (as required); air filters replaced; fan sheaves adjusted, fan motors serviced, repaired or replaced (as required); unit ventilator cabinets cleaned from debris and repainted; heating coils cleaned or replaced (if not operational); valves and accessories serviced and replaced (if not operational); existing temperature controls serviced, repaired or replaced (if not operational).

Existing finned tube radiation cleaned, corroded sections replaced and associated valves and controls serviced, repaired and replaced (as required).

Existing exhaust fans sheaves will be adjusted, fan motors serviced, repaired or replaced (as required). Existing air conditioning equipment will be serviced, repaired or replaced in similar kind (if not operational).

In the air handling equipment air filters will be replaced; every unit component inspected and cleaned from debris; motorized air dampers serviced, repaired or replaced (if not operational), fan sheaves adjusted, fan motors serviced, repaired or replaced (if not operational), heating coils cleaned or replaced (if not operational), valves and accessories serviced, repaired or replaced (if not operational), air conditioning components serviced, repaired or replaced (if feasible), existing temperature controls serviced, repaired or replaced (if not operational).

In the heating plant boilers and associated controls will be serviced and repaired, faulty parts replaced. Boiler flues serviced, repaired and sections replaced as required. Fuel oil pumps, portions of piping, associated accessories and controls will be replaced. Fuel oil tanks serviced. Fuel oil tanks associated accessories will be serviced and replaced if not operational.

All air diffusers and registers will be cleaned and replaced if broken. The ductwork will be cleaned, pressure tested and sealed if feasible.

Steam and hot water piping leaks will be repaired. Piping will be insulated in accessible locations and if exposed. Steam to hot water heat exchanger will be serviced, cleaned and parts replaced (if broken). Pumps (associated with steam to hot water heat exchanger), valves and controls will be serviced, repaired or replaced (if not operational).

The cooling tower will be serviced, repaired or replaced in similar kind if broken.
All HVAC equipment, associated accessories and controls serving Vocational classrooms/shops will be serviced, repaired and components replaced (if broken).

In terminal heating units (such as unit heaters, cabinet unit heaters, etc.) fan sheaves adjusted, fan motors serviced, repaired or replaced (as required); unit cabinets repainted; heating coils cleaned or replaced (if not operational); valves and accessories serviced and replaced (if not operational); existing temperature controls serviced, repaired or replaced (if not operational). All HVAC equipment and systems supports will be inspected and components added if required.

The existing arrangement of heating supply from the Somerville High School to City Hall will remain as is: heating will be provided by the high school boiler plant. The associated valves, accessories and controls will be serviced, repaired and replaced, if broken.

Existing domestic cold, hot water piping, sanitary, waste and vent piping, natural gas piping, storm drainage piping, kitchen waste piping and acid waste piping are still operational but appears to be original and in poor condition, have outlived/exceeded their useful life and are not expected to last more than a few years without exhibiting widespread problems and possible failure. Perform tests in each system to identify leaks or damages in the systems to be repaired as necessary.

Plumbing repair work includes the following:

- Addition of reduced pressure backflow preventer in the existing domestic water service, separate backflow preventers for non-potable cold and hot water piping to prevent cross contamination, separate backflow preventers for detergent at mop receptors in all Janitor’s Closets to prevent cross contamination.
- The existing steam-fired storage tanks were replaced in 1984 and have exceeded their useful life and warranty. They shall be replaced with new steam fired storage tanks to eliminate ongoing maintenance issues or problems.
- Addition of pipe insulation for cold and hot water piping installed at lab sinks and classroom sinks.

- Vents through roof that are rusted and deteriorating shall be replaced with new. Existing floor drains without trap primer piping shall be removed and replaced with new and trap primer piping and trap primers shall be provided to prevent odors entering the building.
- Test existing emergency shower/eyewash stations installed in all science labs, auto shop and in boiler room. Repair all the Eye washes and emergency showers that are not in working condition. Bow venting at lab sinks shall be inspected and repair and fix incorrect installations. Lab vent through roof that is deteriorating shall be replaced with new. Emergency gas shut-off valves shall be tested and relocated to an accessible location.
- Overflow (secondary) drains or scuppers shall be installed in parapets on the roof and to avoid ponding issues.
- Some plumbing fixtures are still operational but in poor condition.
- All non-ADA fixtures shall be replaced with ADA compliant fixtures and pre-formed pipe insulations. Repair or replace all drinking fountains that are not operational.

Fire Protection work includes installation of fire pump, jockey pump, fire pump controller, jockey pump controller, double check valve assembly, wet alarm check valves, flow switches, tamper and pressure switches and all associated piping. It also includes fire protection system in A, C and D wings with a combination standpipe/sprinkler system. The system will be hydraulically calculated in accordance with NFPA requirements. Sprinkler mains will be equipped with control valves, inspector test stations, and flow switches. Sprinkler spacing shall comply with NFPA-13 requirements. Separate sprinkler zones will be provided for each floor and each wing.

Sprinklers for areas with ceilings will be recessed type, chrome plated. Mechanical rooms and other unfinished areas are to be provided with brass finish, exposed sprinklers, protected by sprinkler guards. Sprinklers for areas subject to freezing shall be dry type, including loading dock areas.

Areas of the building that will not be provided with wet-pipe type sprinkler protection are: the main electrical room, elevator machine room, and emergency electrical closets, which will be 2-hour rated construction.

The building will be protected throughout with a combination standpipe/sprinkler system. The fire main shall enter the fire pump room on the perimeter of the building. An approved type double check valve assembly will be provided on the fire service.

The standpipes shall be located in the stairwells whenever possible, and be equipped with Class 1 (2½") fire department valves. The standpipes shall be interconnected by the fire main on the First Floor level. Fire department connections and Electric Bells shall be provided. The fire department connection will match Fire Department requirements. Intermediate standpipe cabinets will be required in specific locations throughout the facility in addition to the stairwells.

Fire Protection work also includes addition of fire protection system in partially sprinklered B wing, replacement of sprinkler heads that are in poor condition, and addition of sprinkler heads in areas that are not code compliant regarding distances, obstructed sprinkler spray pattern and fixed obstructions that are more than 4 feet wide. It also includes addition of sprinkler heads in areas in E wing that are not code compliant.

Roof manifolds would be provided at each two story or greater roof areas.

With respect to electrical work, there are currently two separate services that feed the Somerville High School building. Wings A, B and C are fed from a 2000 Ampere 120/208V, 3phase, 4 wire service that is beyond its serviceable life. The vocational wing is fed from a 4000 Ampere 120/208V, 3-phase, 4 wire service that is in fair condition. Although the systems are aging and under any renovation program we would recommend a service upgrade to 277/480V, 3 phase, 4 wire, the systems installed are in compliance with the codes in which they were previously installed.

The emergency power system is served by a 150KW, 187.5KVA 120/208V, 3 phase, 4 wire generator that is undersized for the building, is in poor condition and is not compliant with current emergency systems codes, however the system is compliant with the codes in which they were previously installed in accordance to. No code required electrical upgrades would be necessary in Alternative 0.

Vulnerability to Flooding

The site is located atop a hill at one of the highest elevations in the City. There have not been any recent incidents of localized flooding on the site. The boiler room is subject to water infiltration during heavy storm events, but this is due to an absence of a proper drainage path for rainwater migrating down the hill during storms, and a sump pumping system that is currently in disrepair. The sump system would be replaced and designed to accommodate anticipated volumes as part of this Alternative.

Hazardous Materials

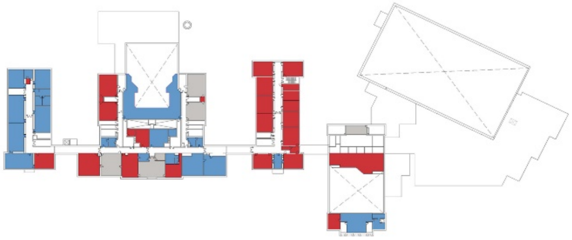
As expected for a building of this age, there are significant hazardous materials present, despite prior abatement activities that have occurred over the years. For a detailed report on the materials to be abated, see Section 4.9.

Capacity Constraints

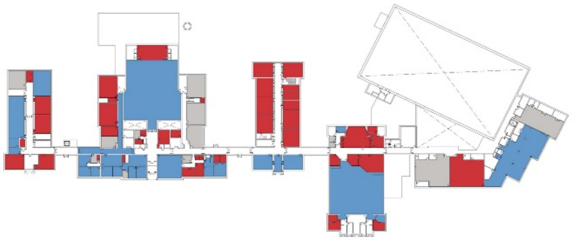
The capacity noted in the MSBA Enrollment Projection indicates a base design capacity of 1,515 students, with a potential total of 1,590 students if the Alternative High School Next Wave/Full Circle program is relocated to Somerville High School. This enrollment, and the corresponding space needs cannot be provided by a no-build option. No work related to increasing the capacity of the facility is included in the scope of this alternative.

Alternative 0
Program Deficiencies

MSBA DEFICIENCY PLANS - FOURTH FLOOR



MSBA DEFICIENCY PLANS - THIRD FLOOR



MSBA DEFICIENCY PLANS - SECOND FLOOR

MSBA DEFICIENCY PLANS - FIRST FLOOR

MSBA DEFICIENCY PLANS - SHOP LEVEL

MSBA/CH. 74 DEFICIENCY PLAN

- 🟨 NOT INCLUDED IN A TYPICAL MSBA PROJECT
- 🟦 NSF 10% GREATER THAN MSBA GUIDELINES
- 🟥 NSF AT LEAST 20% LESS THAN MSBA GUIDELINES
- ⬜ NSF MEETS MSBA GUIDELINES (-20% TO +10%)

Program Delivery Impediments

Built over more than 150 years within a densely populated urban environment, the layout of Somerville High School has been agglomerated over time. The result is an inefficient linear organization of disconnected program elements that cannot meet the cultural and pedagogical requirements of a modern comprehensive high school.

High School Requirements

Somerville High School delivers a comprehensive curriculum which is dependent on a wide range of learning environments with sufficient physical space and technology resources. However 55% of the rooms throughout the school are undersized when compared to current MSBA space standards. Academic classrooms that are located in the older wings of the building as well as classrooms that are associated with specific Chapter 74 vocational shops comprise the majority of those spaces that were found to be undersized.

The vocational programs constitute a unique and meaningful portion of the overall curriculum. This portion of the school holds tremendous potential to facilitate the type of hands-on learning that is critical to modern concepts of 21st century learning. With the extreme linear organization of the school and the position of the vocational spaces at the far end (and in many cases lowest level) of the building, the shops are hindered from a model of full integration with the general academic spaces. The enrollment for the vocational programs is also in a state of flux, with programs that have demand for additional enrollment being constrained in undersized spaces, and programs with reduced enrollments occupying large areas with numerous pieces of sizable equipment.

The science curriculum is constrained by having to operate in combination lab-classroom environments which incorporate fixed casework and are sized no larger than a general academic classroom. Student safety within these labs is compromised given the reduced room footprint, as well as a lack of modern emergency equipment such as combination eye-wash/shower units and emergency gas and power shut-offs.

The school offers a strong arts program, with a particular focus in the performing arts. While flourishing programmatically - the band, orchestra, and choral rooms are all significantly constrained in terms of square footage, and are all characterized by a lack of sufficient storage space. The band room in particular is located remote from the balance of the music spaces, and is directly across from the media center; creating a poor acoustic adjacency. The auditorium, while recently renovated following water damage from Hurricane Sandy, has an undersized stage area, lacks modern AV functionality and is characterized by an acoustic environment that is inferior for musical performance.

Collaborative teacher planning spaces are non-existent throughout the school. While some programs have small departmental offices, those that do house only department head offices, typically lacking conference rooms and similar collaborative work environments. The student body is organized into four houses as a means of creating a smaller social cohort, with each house inhabiting a centralized office within the school. While this administration structure is effective and distributed, there are no house offices located on the first floor due to a lack of appropriate space, creating a gap in administrative presence and connectivity.

Athletic facilities are inadequate for the offered programs. While the gymnasium is larger than the current MSBA standard for high schools, it is physically disconnected from associated program spaces such as locker rooms, the weight room and health classrooms. These remote programs create staffing and operational challenges for the physical education and health programs. Beyond the gymnasium, athletic resources at the high school are compromised, lacking any type of exterior play surfaces. Consequently, the athletics program is forced to hold practices for exterior sports at remote locations throughout the City. Many freshman and junior varsity level indoor sports teams are also forced to travel to remote locations for practice due to the inability of the gymnasium to accommodate a high demand. Other deficiencies are outlined in the Space Summary found in Section 4 of this report.

Schedule Overview

Alternative 0 would be implemented over 18 to 24 months; and would be phased to take advantage of two summer periods and to allow for ongoing school operations. Since the school would be fully occupied during these renovations, swing space will be created through the use of temporary modular classrooms located at the existing high school site. This Alternative would allow the project to be completed by September 2020.

Cost Overview

The estimated project cost for Alternative 0 is:
$ 74 Million

Conclusion

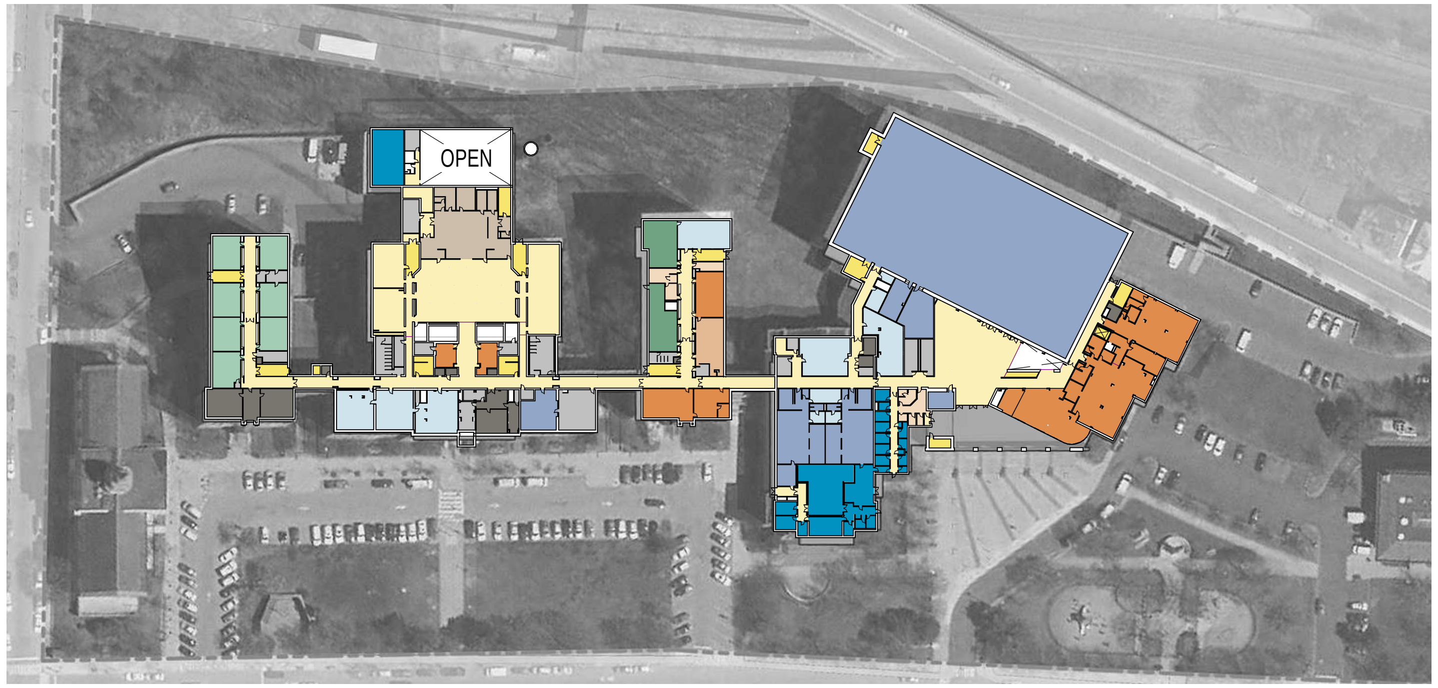
The Pros and Cons of Alternative 0 are summarized as follows:

Pros

- Cost
- Duration

Cons

- The completed construction would not accommodate the current or future curriculum.
- No space or flexibility is provided for the projected growth in student population.



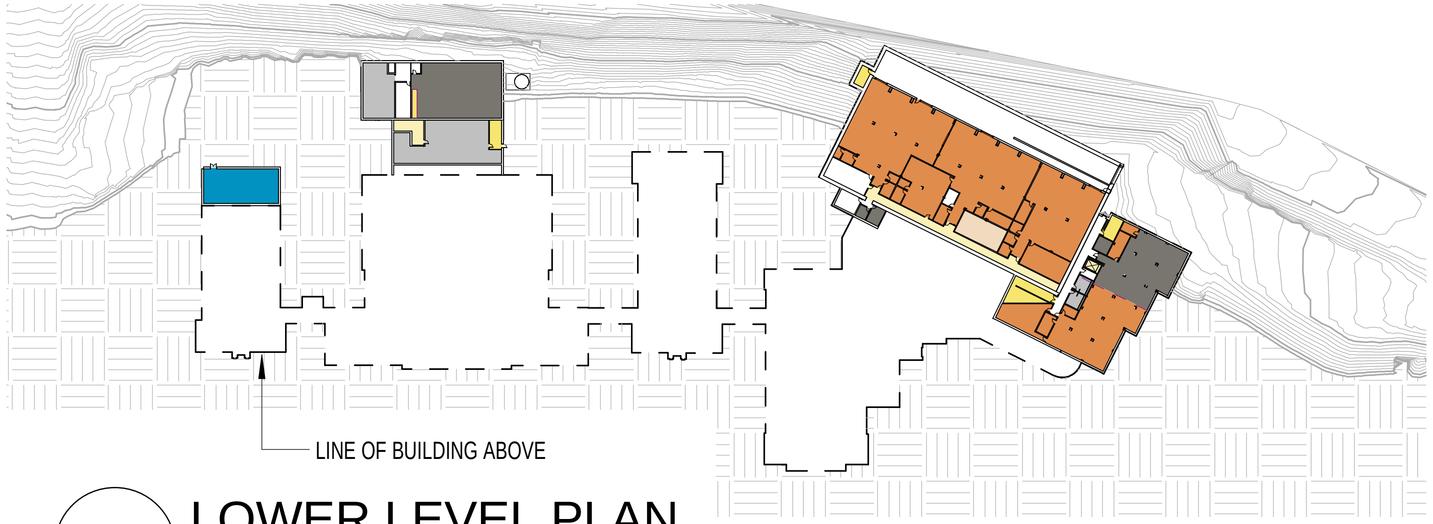
PROGRAM PLAN LEGEND

- 🟫 ADMINISTRATION / GUIDANCE / STUDENT SERVICES / NURSE
- 🟪 ART & MUSIC
- 🟪 AUDITORIUM / PERFORMING ARTS & DRAMA
- ⬛ BUILDING EQUIPMENT
- 🟨 CAFETERIA & CIRCULATION
- 🟧 CHAPTER 74
- 🟩 CLASSROOM & GENERAL EDUCATION SUPPORT
- 🟦 COMMUNITY USE
- ⬜ CUSTODIAL / MAINTENANCE / STORAGE
- 🟥 ELL / SEI
- 🟦 HEALTH & FITNESS
- 🟫 KITCHEN / SERVERY
- 🟥 MEDIA CENTER
- 🟦 OTHER
- 🟦 PHYSICAL EDUCATION & SPORT SUPPORT
- 🟩 SCIENCE CLASSROOMS & SUPPORT
- 🟩 SPECIAL EDUCATION
- 🟥 TEACHER PLANNING & SUPPORT
- 🟨 VERTICAL CIRCULATION
- 🟧 VOCATIONAL & TECHNOLOGY

1

LEVEL 1

SCALE: 1" = 160'-0"



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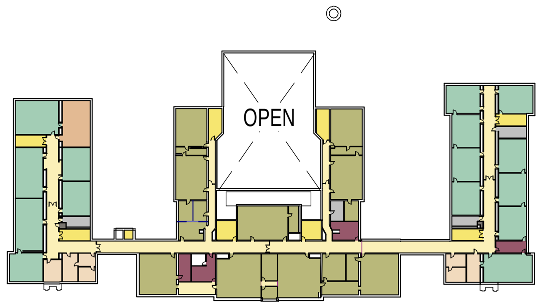
LOWER LEVEL PLAN

SCALE: 1" = 160'-0"



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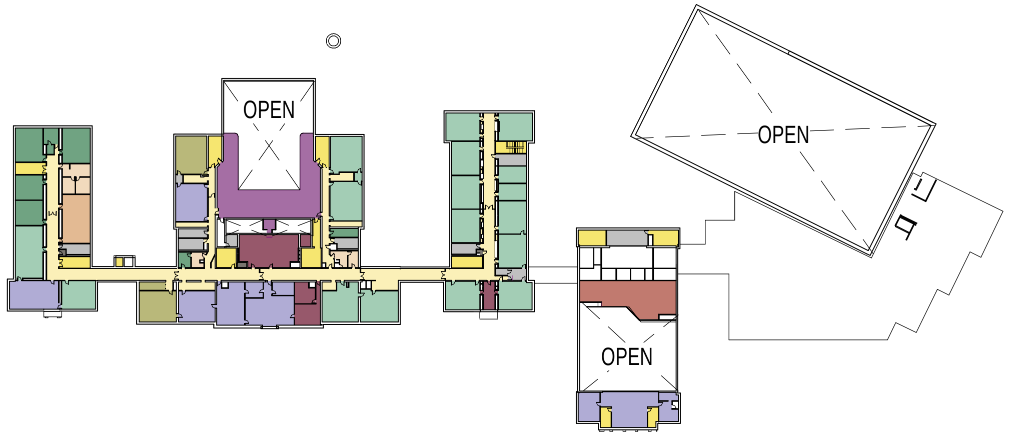
LEVEL 4

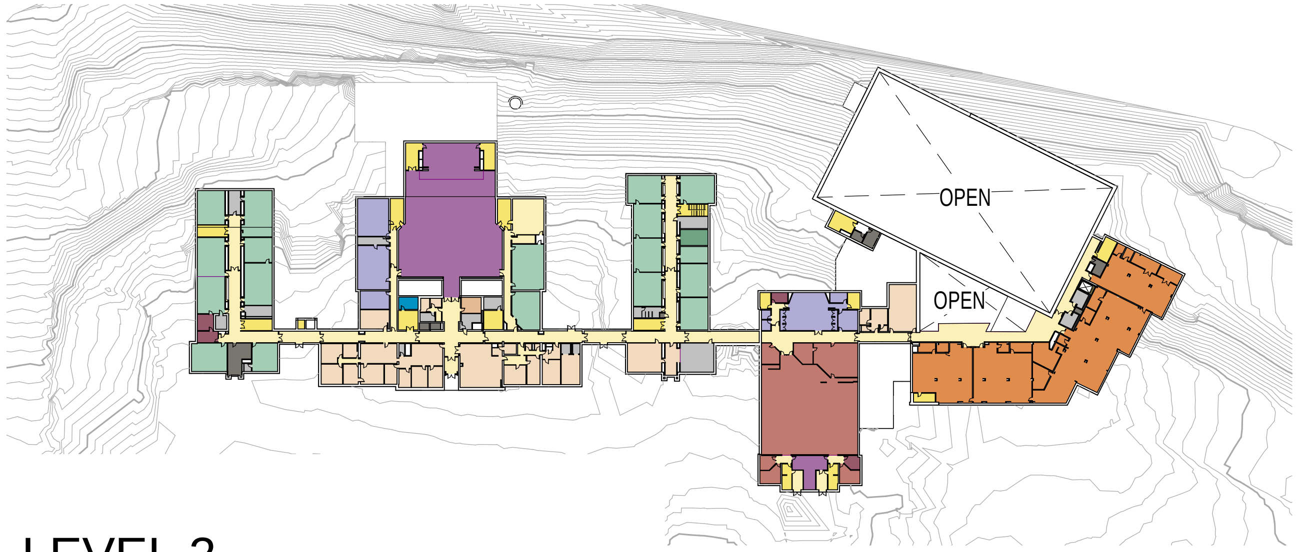
SCALE: 1" = 160'-0"



3

LEVEL 3

SCALE: 1" = 160'-0"



2

LEVEL 2

SCALE: 1" = 160'-0"

EXISTING CONDITIONS PLANS

1" = 160'-0"

Somerville High School

SMMA

Addition/Renovations Alternatives:

Alternative 1

Interior Only Renovation Option

Description

Complete interior gut-renovation of all finishes and systems. This alternative includes the replacement/repair of exterior systems for the existing three to four story high school, with no new addition. Interior space is reconfigured to better support modern educational goals. Exterior systems such as windows, doors and roof insulation/membranes are replaced; exterior walls are insulated to comply with current energy codes. This alternative will involve phased renovation activities due to the lack of sufficient swing space in the City to accommodate the entirety of the high school population. The lack of additional space associated with this alternative does not address the growth in student population. The existing high school is approximately 360,000 square feet, resulting in an estimated project cost of $ 232 million for this alternative.

Life Safety Code Compliance

The basic configuration and capacity of the egress system components (doors, hallways & stairs) appear to meet code requirements to allow the calculated population of the various building wings to safely exit the building. However, the construction of and separations surrounding these elements are non-compliant due to a combination of deficient clearances, hardware functionality, fire rating and materials. Beyond the egress components, the various life safety systems within the existing school were found to be dated. The existing fire alarm system is not compliant with current code due to inadequate device spacing and the predominant use of audible-only devices. The existing sprinkler system provides only partial coverage of the school, with compliant coverage located only in portions of the vocational wing of the building. The remainder of the school is either unprotected by sprinklers or is equipped with partial coverage in janitor’s closets and stairwells. Compounding the lack of proper sprinkler coverage in the portions of the building is the lack of sufficient fire separations to compartmentalize the building area based on use group and construction type. Given the large size of the floors in the school, additional fire barriers would need to be constructed, reducing the building areas below the permissible limits.

Accessibility Code Limitations

All spaces, systems, fixtures and equipment will be renovated, reorganized and upgraded to meet current codes and standards, including: science room and other casework, door hardware, elevator(s) and exterior exit landings.

Energy Code Compliance

All roofs, walls, windows and doors will be renovated and upgraded to meet current codes and standards. A new addressable lighting control system will be installed to comply with IECC 2012 lighting control requirements.

Physical Plant Deterioration

All major building systems, HVAC, plumbing, electrical, technology and the emergency power system are at the end of their useful life and will be renovated and upgraded to meet current codes and standards. In addition, a lateral force resisting structural system for earthquake/seismic forces will be added in the older sections of the building.

Specific Physical Plant Renovations

Exterior doors will be made accessible with ramps and plazas will be reconstructed to address the settlement that has occurred. Limited re-grading will be done to provide adequate flood compensatory storage. Parking lots and driveways will be replaced. All new utility connections will be provided, including at grade equipment pads for mechanical and electrical equipment.

Structurally, the physical plant is in disrepair. Refer to the description of structural plant repairs that would need to be undertaken within the description of Alternative 0, as those repairs would also need to be made as part of Alternative 1.

Additionally, all new roof top units will require a new supporting roof structure. This will require rooftop grillage frames to be constructed 3 to 4 feet above the existing finished roof.

All new roof penetrations for ductwork and piping will require reframing of the existing wood roofs over the 1895 structure and the bar joists roof with poured in place gypsum concrete on metal lath, over the 1929 additions. The roof over the 1986 CTE Wing addition is metal deck and will require standard angle frames, between steel beams. Standard angle frames will also be required between the bar joists of the 1929 additions.

All new floor penetrations for ductwork and piping will require reframing of the existing wood floor joist and deck within the 1895 structure and the steel bar joists floors and concrete slabs within the 1929 additions. The floors in the 1986 CTE Wing addition are composed of a concrete topping slab placed over composite metal decking metal deck and will require standard angle frames, or new steel beams between the existing steel beams and girders. Standard angle frames will also be required between the bar joists of the 1929 additions.

The level of work required for Alternative 1 is classified as Level 3 Work per the IEBC building code. This level of renovation will require a full upgrade of the structures of Wings, A, B, C, and D for lateral seismic and wind forces. The CTE 1986 addition has a lateral system built into the structure so minimal retrofit will be required there. Given the multitude of structural systems in the 1895 and 1929 structures, the lateral upgrades will be labor intensive and difficult.

All new HVAC systems will be provided in the renovated portions and in the new additions of the building to meet current codes and energy standards. Gas fired condensing hot water boilers, combustion air intakes, flues, associated accessories and controls will be provided. The hot water system will be configured with primary and secondary pumps (with VFD’s), associated valves and controls.

To prevent hot water coils from freezing 30% of propylene glycol will be added to hot water system. Chemical inhibitors will be added to prevent corrosion in hot water system. New hot water distribution piping will be provided.

Gas fired Direct Outside Air Systems (DOAS) energy recovery roof top units with DX cooling and Variable Air Volume (VAV) distribution will be providing ventilation to classrooms. The DOAS’s will provide 100% outdoor air and will exhaust air from the same spaces in order to maintain space pressurization. The ventilation air will be distributed to VAV fan powered boxes configured with hot water reheat coils for perimeter space heating.

The return air from the classrooms will be mixed at fan powered terminals with the air conditioned ventilation air from the DOAS units and then distributed back to the classrooms. Thus a partial air conditioning will be provided to the classrooms.

The exhaust air from the spaces will be removed via plenum return and transfer ducts to the corridor ceiling plenum and then exhausted by DOAS or air conditioning units.

Terminal heating units (cabinet unit heaters, finned tube radiation, etc.) serving vestibules, “back of the house” spaces, storages, etc. will be hot water based.

Gas fired heating, ventilation and air conditioning units with VAV distribution will be provided for Gym. Gas fired make-up air unit (with VAV distribution) and associated demand control ventilation exhaust air system will be provided for Kitchen. New kitchen hood exhaust fans will be provided.

Rooftop gas fired air conditioning units with DX cooling and VAV distribution will provide Displacement ventilation to Auditorium and Stage.

Rooftop gas fired air conditioning units with DX cooling and VAV distribution will serve Administration, Cafeteria/Commons, Library, and Vocational classrooms.

Exhaust fans will be provided for the Bathrooms, Janitor closets and spaces with special exhaust requirements. Laboratory fume hoods will be provided for Science Labs.

In-duct acoustic sound attenuation will be provided to supply and return ductwork at each air handling unit and for the fume hood exhausts. Split air conditioning systems will be provided for Data/Electrical rooms. All HVAC equipment will be vibrationally isolated.

The facility will be provided with a web-accessible, microprocessor-based, direct digital control (DDC) building automation system (BAS).

Plumbing work includes the following:

- Existing domestic cold and hot water systems shall be removed and replaced with new. Reduced Pressure Backflow Preventers, water meter, pipe insulation, pipe labels, flow arrows and valve tags shall be provided. High efficiency gas-fired storage tanks shall be provided.
- Existing non-potable cold and hot water systems shall be removed and replaced with new. Reduced Pressure Backflow Preventers, pipe insulation, pipe labels, flow arrows and valve tags shall be provided.
- Existing sanitary, waste and vent systems shall be removed and replaced with new and will connect by gravity to existing below slab sanitary piping, pending video piping analysis of sanitary mains.
- Existing kitchen waste system shall be removed and replaced with new and will connect by gravity to existing below slab kitchen waste piping, pending video piping analysis of kitchen waste mains. Point-of-use grease traps shall be installed to receive the waste discharge at the triple pot sink, dishwasher, tilting kettle and other grease producing kitchen equipment and floor drains. Vent piping shall be installed from the exterior grease traps back into the building and to the roof independently.
- Gasoline/oil interceptor and all associated piping, including vent piping from the interceptor back into the building and to the roof independently, in the auto shop shall be installed to receive waste discharge from floor drains.

- Existing roof drains and storm drainage system shall be removed and replaced with new and will connect by gravity to existing below slab storm piping, pending video piping analysis of storm piping mains. Overflow (secondary) drains or scuppers shall be installed.
- Existing natural gas system shall be removed and replaced with new and extended throughout the facility and serve all equipment requiring gas service like gas-fired HVAC equipment, gas-fired kitchen cooking appliances and gas turrets in Science classrooms. Prior to connection to existing gas service, the capacity and size should be verified if the existing gas service can accommodate the new gas loads. Emergency gas shut-off valves shall be located to an accessible location.
- New ADA compliant emergency shower/eyewash stations shall be installed in all science labs, auto shop and in boiler room. New tepid water system will be provided throughout the Science/Biology/Chemistry lab spaces and feed new emergency shower and eyewash units.
- Existing laboratory (acid) waste and vent systems shall be removed and replaced with new and will connect to existing below slab laboratory (acid) waste piping, pending video piping analysis of laboratory (acid) waste mains. The existing Acid Waste system dilution tank will be replaced with a new pH adjustment system and relocated to a serviceable and accessible space.
- All existing plumbing fixtures shall be removed and replaced with new and ADA compliant fixtures throughout the entire facility.

Fire Protection work includes installation of fire pump, jockey pump, fire pump controller, jockey pump controller, double check valve assembly, wet alarm check valves, flow switches, tamper and pressure switches and all associated piping. It also includes fire protection system in A, C and D wings with a combination standpipe / sprinkler system. The system will be hydraulically calculated in accordance with NFPA requirements. Sprinkler mains will be equipped with control valves, inspector test stations, and flow switches. Sprinkler spacing shall comply with NFPA-13 requirements. Separate sprinkler zones will be provided for each floor and each wing.

Sprinklers for areas with ceilings will be recessed type, chrome plated. Mechanical rooms and other unfinished areas are to be provided with brass finish, exposed sprinklers, protected by sprinkler guards. Sprinklers for areas subject to freezing shall be dry type, including loading dock areas.

Areas of the building that will not be provided with wet-pipe type sprinkler protection are: the main electrical room, elevator machine room, and emergency electrical closets, which will be 2-hour rated construction.

The building will be protected throughout with a combination standpipe/sprinkler system. The fire main shall enter the fire pump room on the perimeter of the building. An approved type double check valve assembly will be provided on the fire service.

The standpipes shall be located in the stairwells whenever possible, and be equipped with Class 1 (2 ½") fire department valves. The standpipes shall be interconnected by the fire main on the First Floor level. Fire department connections and Electric Bells shall be provided. The fire department connection will match Fire Department requirements. Intermediate standpipe cabinets will be required in specific locations throughout the facility in addition to the stairwells.

Fire Protection work also includes addition of fire protection system in partially sprinklered B wing, relocation and addition of sprinkler heads to accommodate new architectural layout in B and E wings.

Provide roof manifold at each two story or greater roof areas.

For electrical work, the existing 2000Ampere 120/208V service that serves wings A,B and C will be upgraded to a new 4000 Ampere 277/480V, 3 phase, 4 wire service. The existing 4000Ampere 120/208V service equipment that serves the vocational wing will be removed and replaced with new switchgear fed from the new 4000 Ampere 277/480V service. A system of new panelboards separated by use; lighting, mechanical and general power will be provided in dedicated electrical rooms throughout the building to serve equipment, lighting and branch circuit loads. The existing lighting will be upgraded to high efficiency LED lighting with integral dimming drivers, with exception to the auditorium lighting which was recently upgraded and will remain. A new automated addressable lighting control system with local vacancy sensors, occupancy sensors and daylight harvesting sensors will be installed in accordance with IECC 2012. The fire alarm system will be replaced with a new addressable voice evacuation system. Detection devices will be installed in egress paths for early warning and new speaker/strobe notification appliances installed throughout per NFPA 72 2010 edition. A new natural gas fired 325KW 277/480V, 3 phase, 4 wire emergency generator mounted exterior with a sound attenuated weather proof enclosure will be provided to serve life safety, optional standby and legally required loads. Separate 2-hour rated emergency closets will be built to house life safety and legally required systems.

There is an existing Honeywell building management system that also performs access control functions. Proximity readers will be located in key entry points and in the interior of the building to allow for partitioning. The new readers will be tied into the existing Honeywell system software upgrades and additional door controllers will be provided for a complete and operational system. IP CCTV cameras will be provided on the exterior of the building and interior in all corridors, large assembly spaces, and stairwells as well as other high risk areas. A new VMS system will be provided to manage and store video for up to 30 days at 30 images per second. A new intrusion detection system will be installed with door contacts on all exterior doors and motion sensors along the entire perimeter where access from the exterior is possible and in all corridors.

The technology systems infrastructure will be upgraded to Cat 6A for tel/data locations throughout. A new MDF will be constructed and will distribute OM3 laser optimized 10gig fiber optic backbone to New IDF rooms throughout the building. A new master clock system with wireless secondary clocks will be installed. A new Public address system will be installed with speakers located throughout the building designed with the ability to page an individual room or make an announcement in the entire building.

Vulnerability to Flooding

The site is located atop a hill at one of the highest elevations in the City. There have not been any recent incidents of localized flooding on the site. The boiler room is subject to water infiltration during heavy storm events, but this is due to an absence of a proper drainage path for rainwater migrating down the hill during storms, and a sump pumping system that is currently in disrepair. Existing drainage patterns would be remedied as part of the renovations, and the sump system would be replaced and designed to accommodate anticipated volumes as part of this Alternative.

Hazardous Materials

As expected for a building of this age, there are significant hazardous materials present, despite prior abatement that has occurred over the years. For a detailed report on the materials to be abated, see Section 4.9.

Capacity Constraints

The capacity noted in the MSBA Enrollment Projection indicates a base design capacity of 1,515 students, with a potential total of 1,590 students if the Alternative High School Next Wave/Full Circle program is relocated to Somerville High School. This enrollment, and the corresponding space needs cannot be provided by a no-build option. No work related to increasing the capacity of the facility is included in the scope of this alternative.

Program Delivery Impediments

The constraint of only renovating the existing space without additions will preclude the potential of meeting the needs of projected enrollment. Given a set number of available classroom spaces, the program will be forced to make due with either an insufficient quantity of rooms, or rooms that are under-sized for the ability to deliver modern 21st century educational curriculum.

High School Requirements

Refer to the description of the High School Curriculum requirements noted as part of Alternative 0.

Schedule Overview

Alternative 1 would be implemented over 36 months; and would be phased to take advantage of two summer periods and to allow for ongoing school operations. Since the school would be fully occupied during these renovations, swing space will be created through the use of temporary modular classrooms located at the existing high school site. This Alternative would allow the project to be completed by September 2021.

Cost Overview

The estimated project cost for Alternative 1 is $ 232 Million

Conclusion

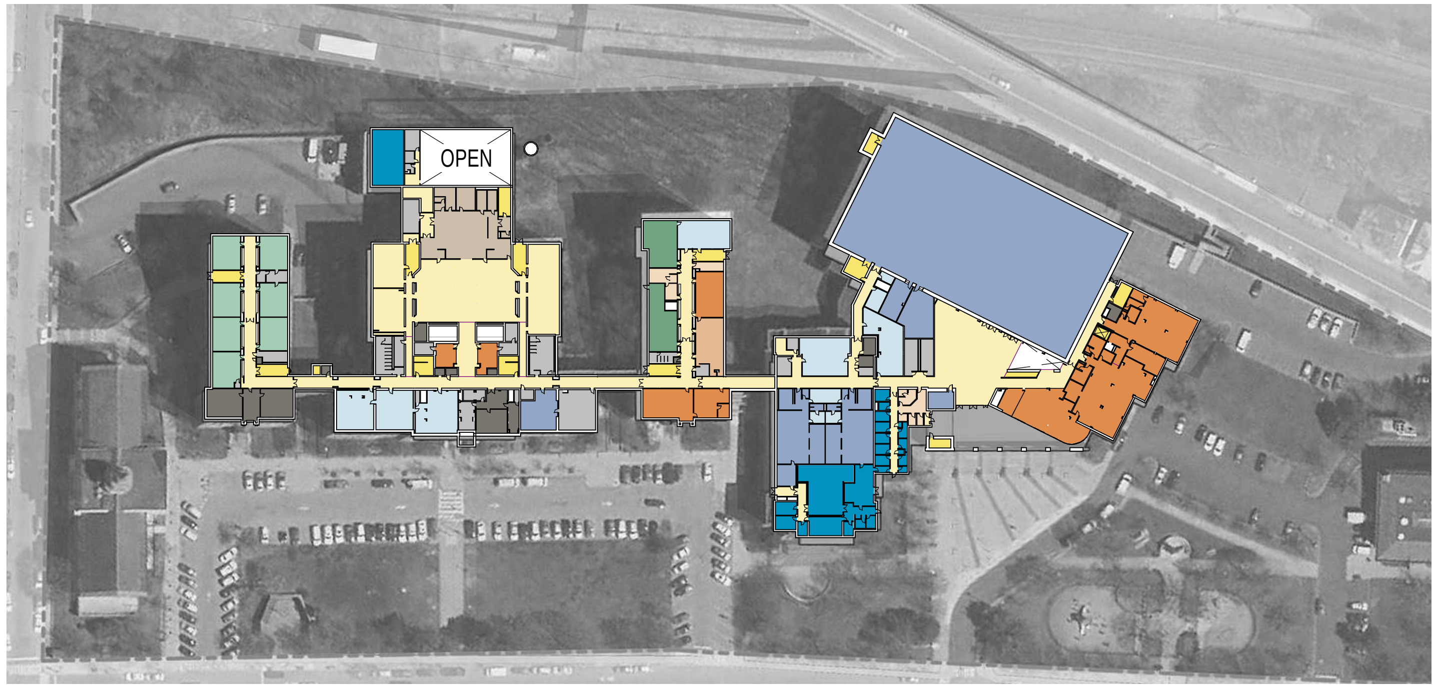
The Pros and Cons of Alternative 1 are summarized as follows:

Pros

- Lower cost (2 of 8)
- Completely renewed school with modern & functional systems
- Potential for improved energy conservation and lower operating costs
- Some response to current educational programming needs

Cons

- Neither current nor future curriculum are fully accommodated.
- Neither space nor flexibility provided for the projected growth in student population.
- Less potential for meeting community design and image goals given the ability to only refresh the existing exterior envelope.
- Complicated construction phasing
- Long construction duration
- Swing space is required
- Internal and external construction congestion

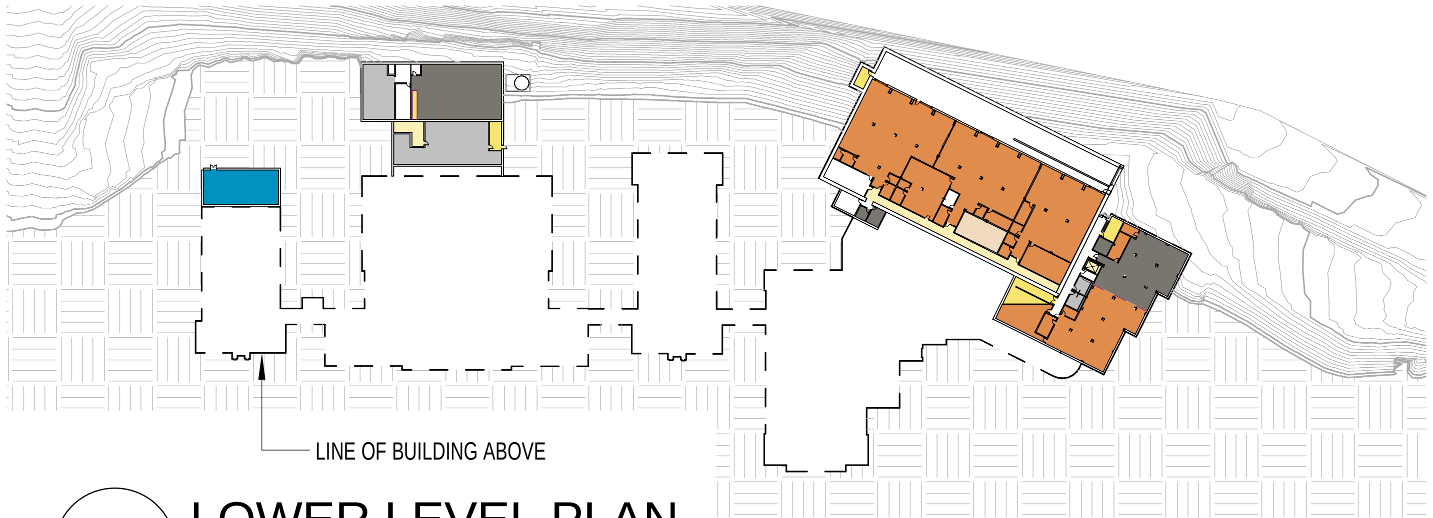


PROGRAM PLAN LEGEND

- ■ ADMINISTRATION / GUIDANCE / STUDENT SERVICES / NURSE
- ■ ART & MUSIC
- ■ AUDITORIUM / PERFORMING ARTS & DRAMA
- ■ BUILDING EQUIPMENT
- ■ CAFETERIA & CIRCULATION
- ■ CHAPTER 74
- ■ CLASSROOM & GENERAL EDUCATION SUPPORT
- ■ COMMUNITY USE
- ■ CUSTODIAL / MAINTENANCE / STORAGE
- ■ ELL / SEI
- ■ HEALTH & FITNESS
- ■ KITCHEN / SERVERY
- ■ MEDIA CENTER
- ■ OTHER
- ■ PHYSICAL EDUCATION & SPORT SUPPORT
- ■ SCIENCE CLASSROOMS & SUPPORT
- ■ SPECIAL EDUCATION
- ■ TEACHER PLANNING & SUPPORT
- ■ VERTICAL CIRCULATION
- ■ VOCATIONAL & TECHNOLOGY

1 LEVEL 1

SCALE: 1" = 160'-0"



L LOWER LEVEL PLAN

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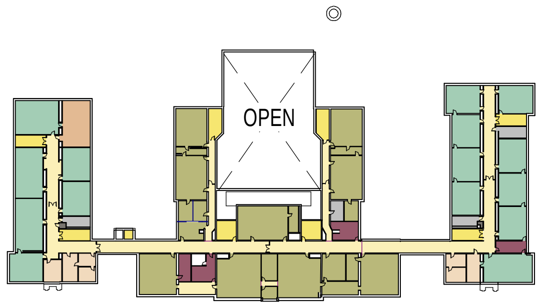
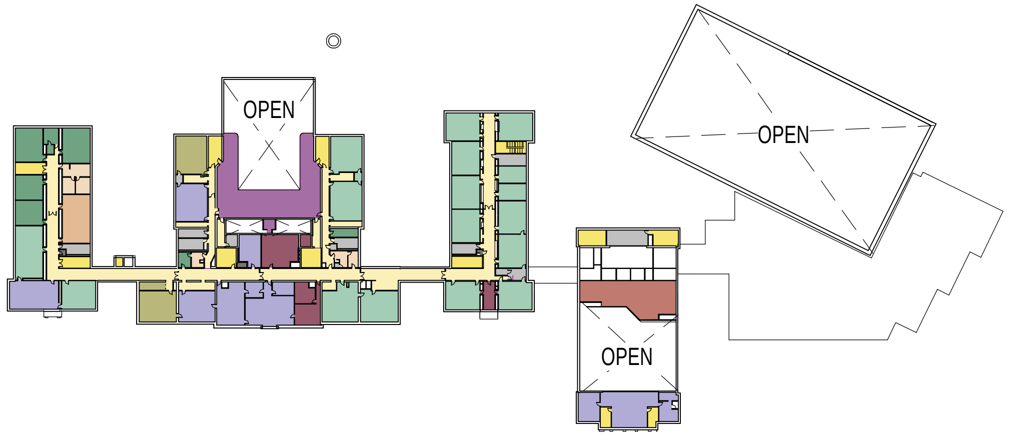


4 LEVEL 4

SCALE: 1" = 160'-0"



3 LEVEL 3

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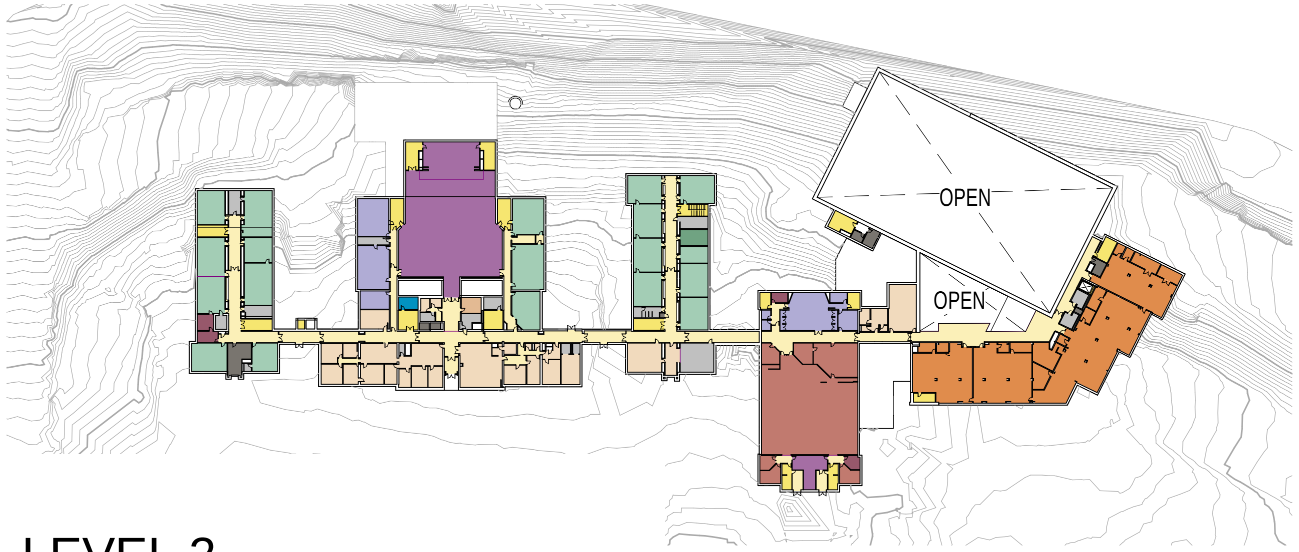


2 LEVEL 2

SCALE: 1" = 160'-0"

Alternative 2

Renovated D & E Wings and Renovated Southern-Facing Classrooms in the A, B & C Wings. Demolition of the remainder of the A, B & C Wings to allow for new addition construction.

Description

Partial demolition and renovation of the existing three to four story high school, with new additions for cafeteria, kitchen, media center and classroom/vocational space. One major new addition is located towards the northern end of the site, with a small addition on the eastern edge of the existing building for a reconfigured culinary arts restaurant.

The existing 1986 E Wing, including both the existing field house and many of the existing vocational shops, is to be fully renovated to accommodate modern curriculum. Vocational programs will be relocated within the 1986 E Wing and throughout the new addition to achieve the educational goal of better integration between the general academic and vocational components of the comprehensive high school. The existing D Wing will be renovated to accommodate the new auditorium.

The southern portions of the existing A, B & C Wings are to remain and will be renovated to maintain the cultural stature of the school that fronts the main lawn along Highland Avenue.

There is the potential to locate a two-level parking garage with an artificial turf field would be located in the northwest corner of the site. This small field would address a glaring need for an outdoor activity area that is currently missing from the existing site. The garage would utilize the steep slope of School Street for access to the two levels without any internal ramping. A portion of the garage would be maintained with two-story clearances to allow for loading to occur at the lower level.

The portion of the existing building to be demolished is approximately 152,000 square feet, the portion to remain and be renovated is approximately 208,000 square feet and the additions total approximately 168,000 square feet, for a grand total of approximately 376,000 square feet and an estimated project cost of $ 247 million.

Life Safety Code Compliance

All spaces and systems will be reorganized, upgraded and/or constructed new to meet current life safety codes and standards.

Accessibility Code Limitations

All spaces, systems, fixtures and equipment will be renovated, reorganized and/or constructed new to meet current accessibility codes and standards.

Energy Code Compliance

All existing roofs, walls, windows and doors will be replaced or renovated to meet current energy codes and standards. All new addition construction will be constructed in full compliance with the same, including the exterior envelope, HVAC and lighting systems.

Physical Plant Deterioration

All major existing building systems: HVAC, plumbing, electrical, technology and the emergency power system are at the end of their useful life and will be renovated or replaced to meet current codes and standards. In addition, a lateral force resisting structural system for earthquake/seismic forces will be added in the older sections of the building.

Specific Physical Plant Renovations

Site work within this alternative will include: the redevelopment of the vehicular and pedestrian circulation systems with pedestrian plazas, drop-off areas and outdoor class rooms, the development of a two level parking structure with a synthetic turf field on the upper deck and a connection to the future Gilman Square MBTA station. The new improvements will incorporate ADA compliant accessibility to all building entrances, parking accommodations and circulation systems. New utility connections to the building and a new stormwater management system including an on-site below-grade infiltration system will be provided. Site furnishings and plantings will be installed to compliment the new building and site.

Structurally, the physical plant is in disrepair. For the portions of the existing building that are to remain and be renovated, refer to the description of structural plant repairs that would need to be undertaken within the description of Alternative 1. A description of the structural systems for the new additions to be included as part of Alternative 2 follows.

The ground floor level will include a conventional 4" slab-on-grade reinforced with welded wire fabric in the classroom spaces, 5" slab-on-grade in the dinning commons, and 6" slab-on-grade in the mechanical and electrical rooms. The ground level parking level will consist of a 4" slab-on-grade with epoxy coated welded wire fabric.

Elevator pits will consists of 10” thick reinforced concrete foundation walls supported on a continuous 12" thick reinforced concrete mat foundation.

The structural floor framing system for new construction will consist of composite steel beams and girders framed into wide flange steel and tubular steel columns. These members will support will a 2"x 20 gage galvanized composite steel deck with 5 1/4" of lightweight concrete topping reinforced with welded wire fabric. All steel beams and girders will be spray fireproofed. The metal floor deck will not need to be fireproofed.

A portion of the existing second floor framing in Wing D will need to be reinforced in order to support a new sloping floor in the auditorium. This new floor framing system will consist of sloping composite steel beams and girders on wide flange steel columns. Floor construction will be 2" composite metal deck with 5 ¼" lightweight concrete topping reinforced with welded wire fabric. The typical roof framing will be wide flange steel beams and girders supporting a 1.5" deep x 20 gage galvanized wide rib metal roof deck. All roof framing members and the roof deck will be spray fireproofed.

The second floor and roof/fields of the parking garage will be framed with a 10” thick reinforced two-way flat slab with drop panels. All reinforcing for the flat slabs will be epoxy coated. The roof or field level will have a waterproofing membrane applied over the structural slab, and a pitched topping slab placed over the membrane.

Diagonal braced frames, composed of tubular steel sections, will be incorporated into the steel framing at the demising walls of the new construction. The roof framing under the new rooftop mechanical units will consist of composite steel beam and girders supporting a 2" galvanized composite deck with 6" of normal weight concrete topping reinforced with welded wire fabric. The concrete pads under the units will extend at least 5’ beyond the footprint of unit on all sides.

The level of work required for Alternative 2 is classified as Level 3 Work per the IEBC building code. This level of renovation will require a full upgrade of the remaining structural sections of Wings, A, B, C, and D for lateral seismic and wind forces. The CTE 1986 addition has a lateral system built into the structure so minimal retrofit will be required there. Given the multitude of structural systems in the 1895 and 1929 structures, the lateral upgrades will be labor intensive and difficult.

For plumbing, fire protection, HVAC and electrical work associated with Alternative 2, refer to the description of full renovation work associated with Alternative 1. In addition to the systems that are described for the full renovation of existing spaces in Alternative 1, analogous new systems would be provided for any new additions. Systems would be designed to operate as a whole between renovated and newly constructed components of the building, making accommodations for differential structural movement as required between various structural construction types.

Vulnerability to Flooding

The site is located atop a hill at one of the highest elevations in the City. There have not been any recent incidents of localized flooding on the site. New stormwater management systems, perimeter drainage systems and/or underslab drainage systems will be provided as required by code and at the recommendation of the geo-technical engineer to prevent any localized water infiltration.

Hazardous Materials

As expected for a building of this age, there are significant hazardous materials present, despite prior abatement that has occurred over the years. For a detailed report on the materials to be abated, see Section 4.9.

Capacity Constraints

The capacity noted in the MSBA Enrollment Projection indicates a base design capacity of 1,515 students, with a potential total of 1,590 students if the Alternative High School Next Wave/Full Circle programs are relocated to Somerville High School. This total enrollment and the corresponding space will be provided for by the renovations and additions proposed as part of this Alternative.

Program Delivery Impediments

The pedagogical requirements of a modern comprehensive high school will be provided for by the renovations and additions proposed as part of this Alternative.

High School Requirements

All elements of Somerville's robust curriculum would be accommodated in spaces that meet current standards by these renovations and additions. In addition, vocational education programs would be housed in modern facilities with desirable adjacencies to other academic disciplines.

Schedule Overview

Alternative 2 would be implemented over 36 months; and would be phased to take advantage of two summer periods and to allow for ongoing school operations. Since the school would be fully occupied during the construction activities, swing space will be created through the use of temporary modular classrooms located at the existing high school site. This Alternative would allow the project to be completed by September 2021.

Cost Overview

The estimated project cost for Alternative 2 is: $ 247 million

Conclusion

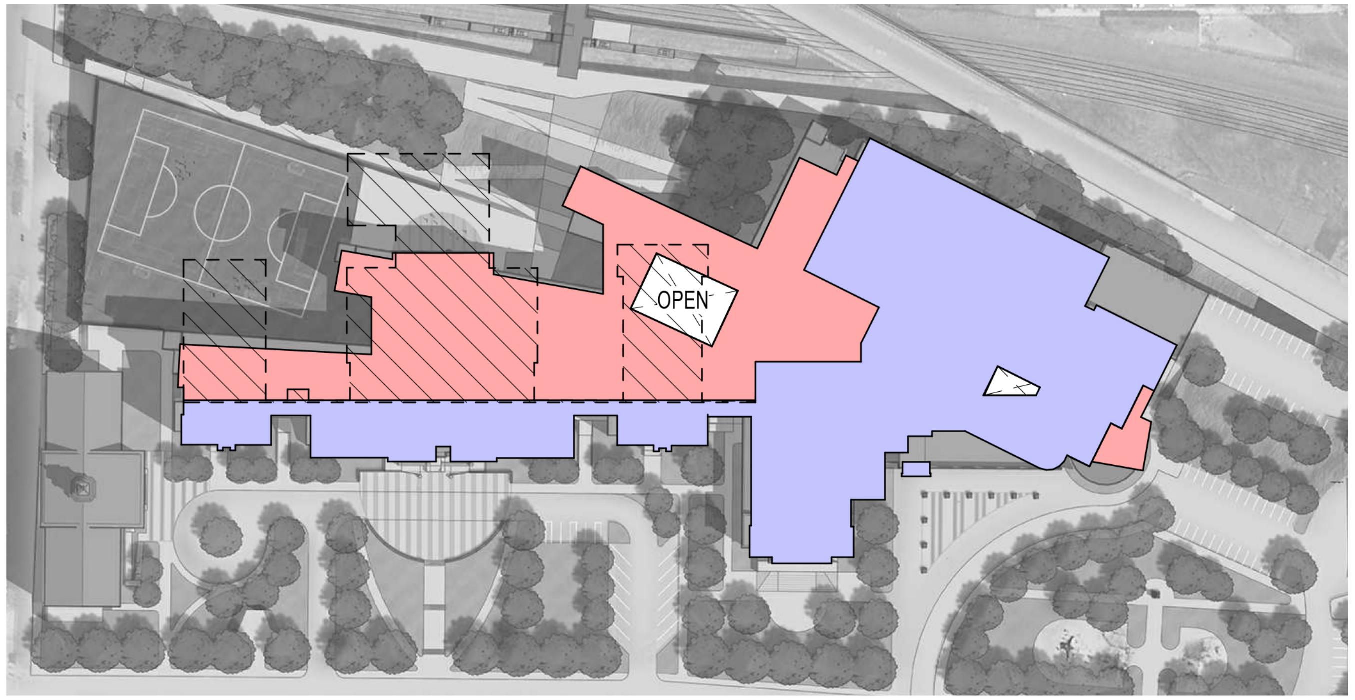
The Pros and Cons of Alternative 2 are summarized as follows:

Pros

- Completely renewed school, leveraging the most recent construction on site for renovation economy
- Potential energy conservation and lower operating costs
- Response to current educational programming needs
- Full accommodation of current and future curriculum
- Space and flexibility is provided for the projected growth in student population
- Potential for meeting community design and image goals
- Preserves the historic assets of the highest-value construction facing the main lawn.

Cons

- Third highest cost (3 of 8)
- Complicated construction phasing
- Long construction duration
- Swing space is required
- Internal and external construction congestion



CONSTRUCTION LEGEND

🟥 ADD 🟦 RENO ⬜ ROOF

1 LEVEL 1

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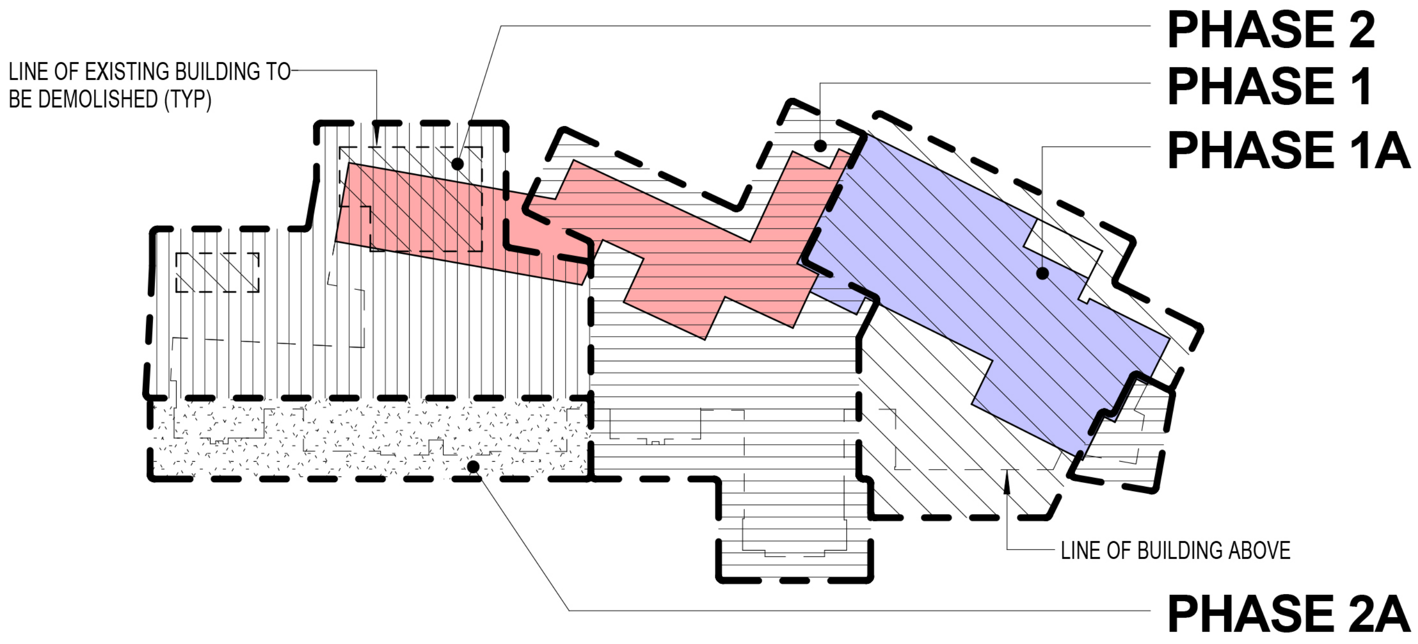

L LOWER LEVEL

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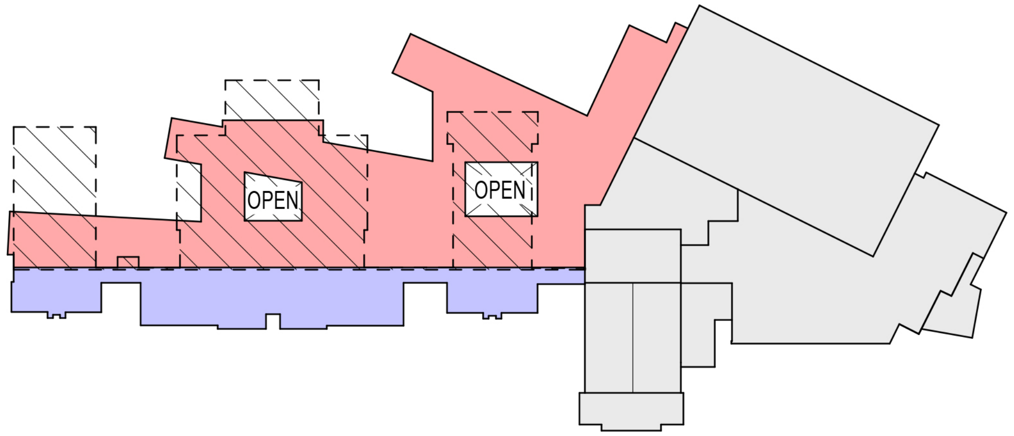

4 LEVEL 4

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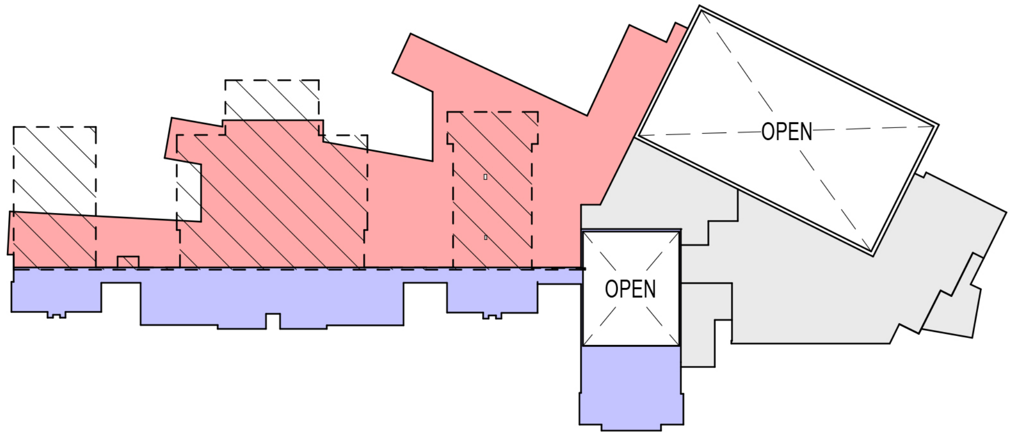

3 LEVEL 3

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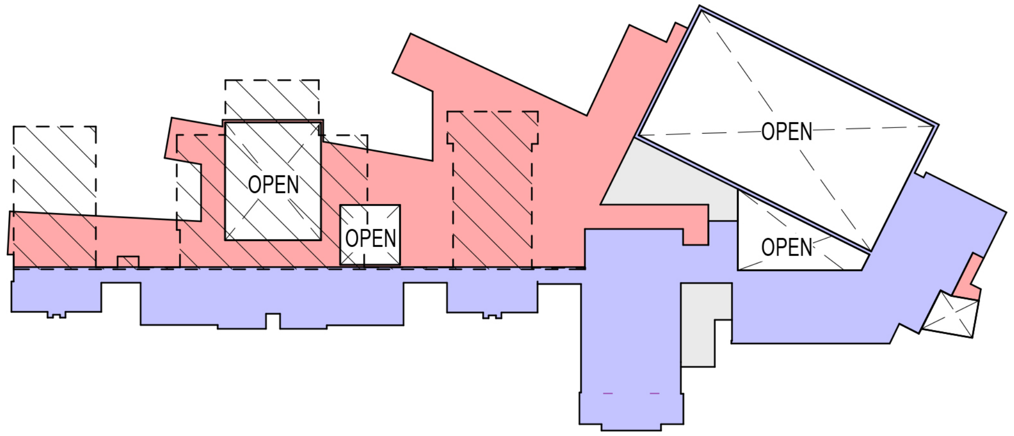

2 LEVEL 2

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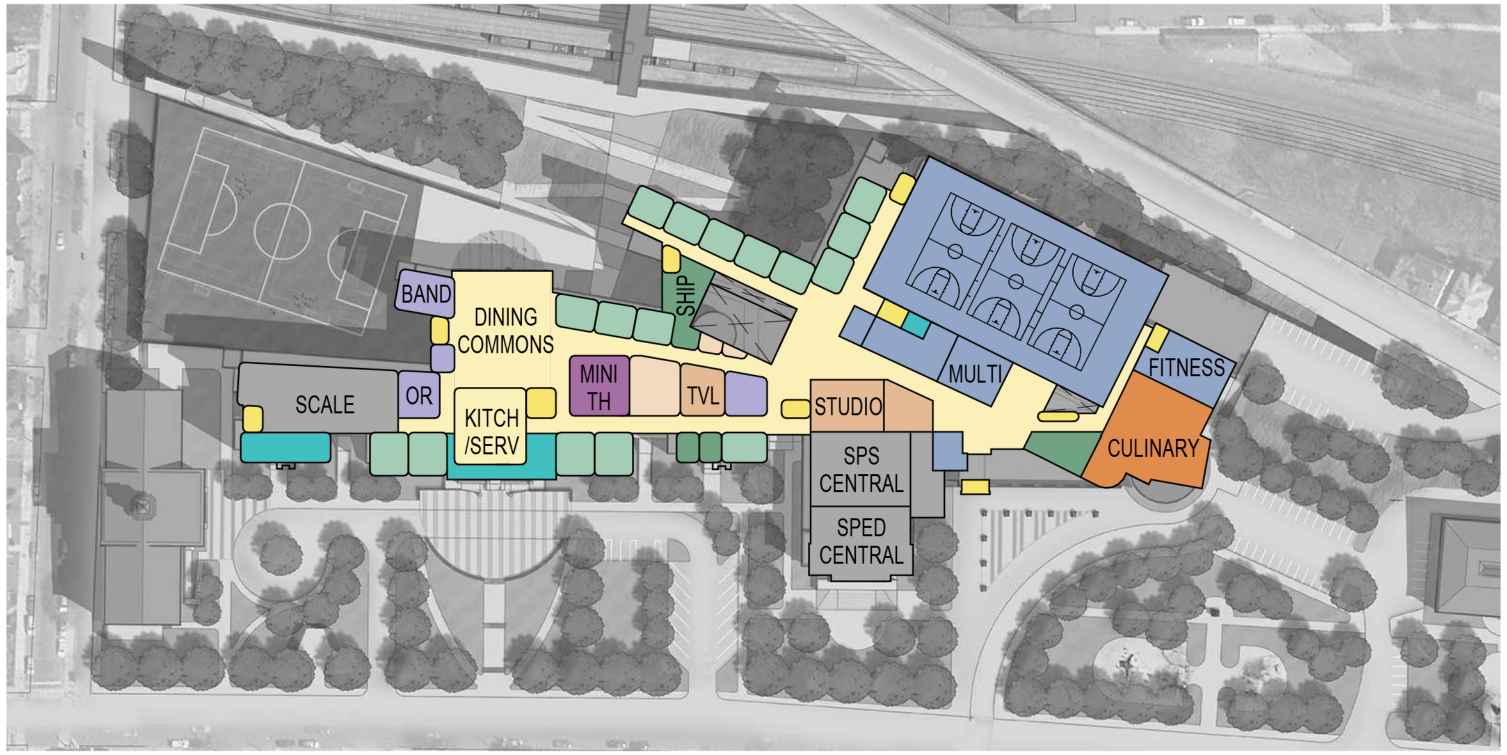
ADD RENO SCOPING PLANS - ALTERNATIVE 2

1" = 160'-0"

Somerville High School

SMMA



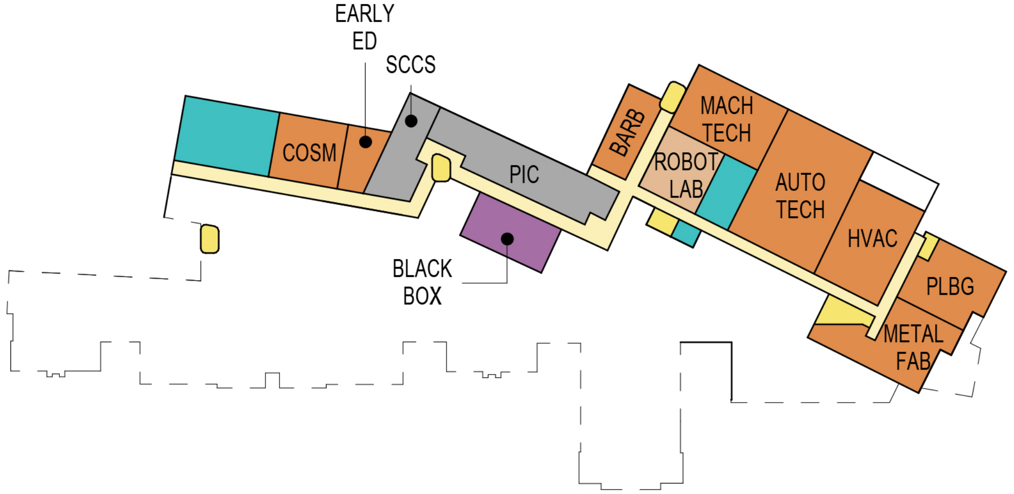
PROGRAM AREAS

- ▨ ADMIN
- ▨ ARTS
- ▨ AUDITORIUM/DRAMA
- ▨ CH 74
- ▨ CIRCULATION
- ▨ CR
- ▨ HEALTH/PE
- ▨ MEDIA CENTER
- ▨ NWFC
- ▨ OFF-SITE AUXILIARY
- ▨ ROOF
- ▨ SCIENCE
- ▨ SPED
- ▨ STAIR/ELEV
- ▨ SUPPORT
- ▨ TECH

1

LEVEL 1

SCALE: 1" = 160'-0"



L

LOWER LEVEL

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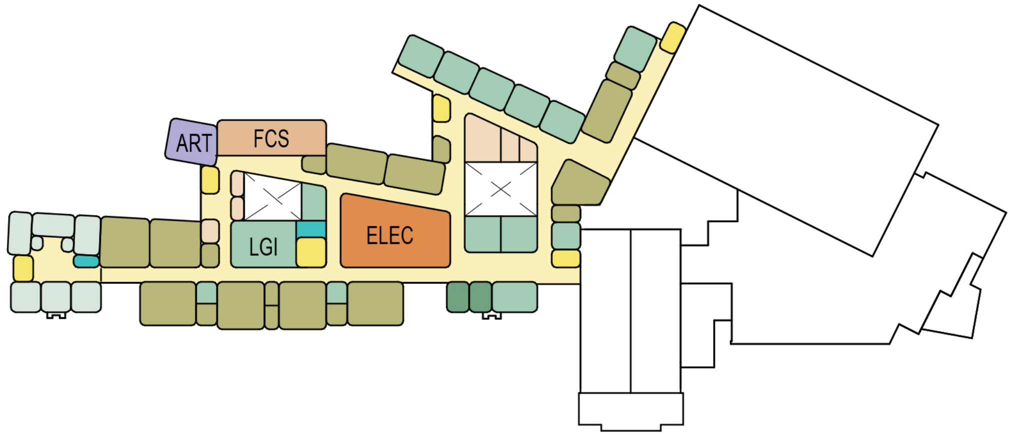

4

LEVEL 4

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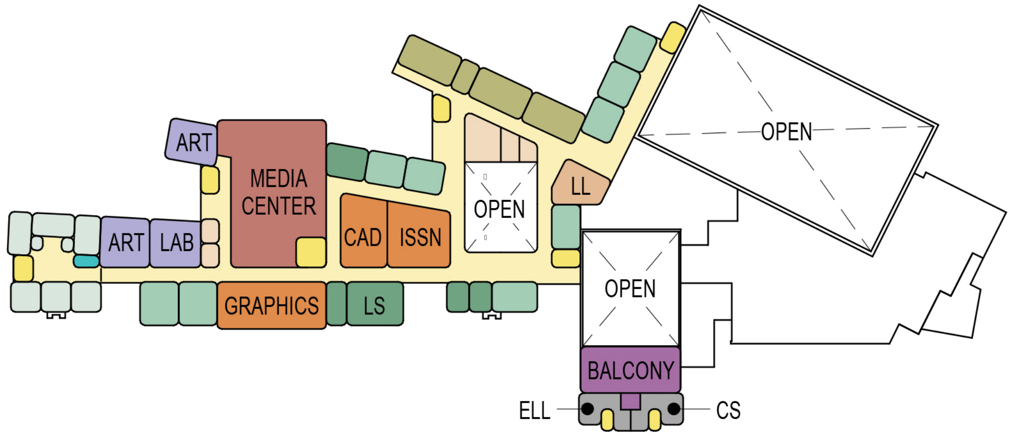

3

LEVEL 3

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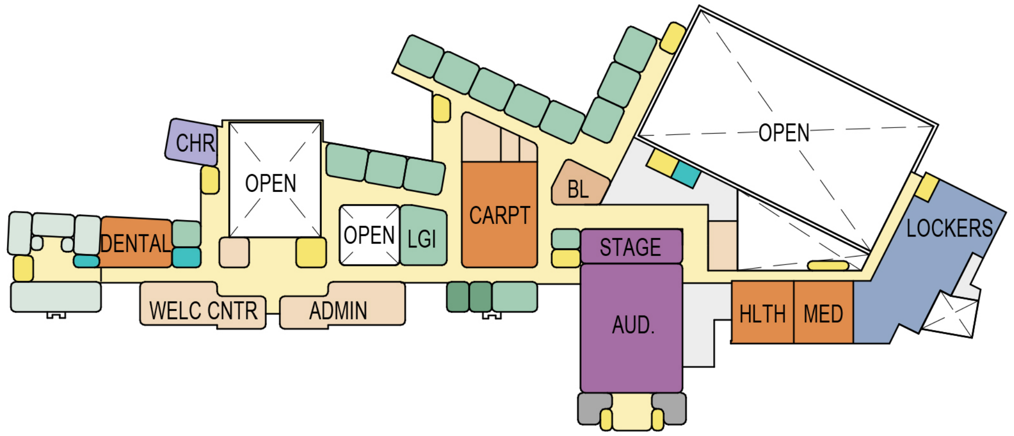


2

LEVEL 2

SCALE: 1" = 160'-0"

PROGRAM PLANS - ADD/RENO - ALTERNATIVE 2

1" = 160'-0"

Somerville High School

SMMA

Alternative 3

Renovated D & E Wings, Renovated Auditorium and Renovated Southern-Facing Classrooms in the A, B & C Wings.

Demolition of the remainder of the A, B & C Wings to allow for new addition construction.

Description

Similar in approach to Alternative 2, Alternative 3 would include partial demolition and renovation of the existing three to four story high school, with new additions to accommodate the media center and classroom/vocational space. One major new addition is located towards the northern end of the site, with a small addition on the eastern edge of the existing building for a reconfigured culinary arts restaurant.

The existing 1986 E Wing, including both the existing field house and many of the existing vocational shops, is to be fully renovated to accommodate modern curriculum. Vocational programs will be relocated within the 1986 E Wing and throughout the new addition to achieve the educational goal of better integration between the general academic and vocational components of the comprehensive high school. The existing D Wing will be renovated to accommodate the dining commons and kitchen.

The southern portions of the existing A, B and C Wings are to remain and will be renovated to maintain the cultural stature of the school that fronts the main lawn along Highland Avenue. The auditorium within the B Wing would remain and be renovated. While the auditorium was recently renovated in 2014 following damage from Hurricane Sandy, further renovations would be required as part of this Alternative to improve the acoustic and audio-visual performance and provide necessary seismic upgrades.

As with Alternative 2, there is the potential to locate a two-level parking garage with an artificial turf field would be located in the northwest corner of the site. This small field would address a glaring need for an outdoor activity area that is currently missing from the existing site. The garage would utilize the steep slope of School Street for access to the two levels without any internal ramping. A portion of the garage would be maintained with two-story clearances to allow for loading to occur at the lower level.

The portion of the existing building to be demolished is approximately 106,000 square feet, the portion to remain and be renovated is approximately 254,000 square feet and the additions total approximately 139,000 square feet, for a grand total of approximately 393,000 square feet and an estimated project cost of $ 253 million.

Life Safety Code Compliance

All spaces and systems will be reorganized, upgraded and/or constructed new to meet current life safety codes and standards.

Accessibility Code Limitations

All spaces, systems, fixtures and equipment will be renovated, reorganized and/or constructed new to meet current accessibility codes and standards.

Energy Code Compliance

All existing roofs, walls, windows and doors will be replaced or renovated to meet current energy codes and standards. All new addition construction will be constructed in full compliance with the same, including the exterior envelope, HVAC and lighting systems.

Physical Plant Deterioration

All major existing building systems: HVAC, plumbing, electrical, technology and the emergency power system are at the end of their useful life and will be renovated or replaced to meet current codes and standards. In addition, a lateral force resisting structural system for earthquake/seismic forces will be added in the older sections of the building.

Specific Physical Plant Renovations

Refer to the description of Specific Physical Plant Renovations associated with Alternative 2.

Vulnerability to Flooding

Refer to the description of Vulnerability to Flooding associated with Alternative 2.
Hazardous Materials

Refer to the description of Hazardous Materials associated with Alternative 2.

Hazardous Materials

Refer to the description of Hazardous Materials associated with Alternative 2.

Capacity Constraints

Refer to the description of Capacity Constraints associated with Alternative 2.
Program Delivery Impediments

Refer to the description of Program Delivery Impediments associated with Alternative 2.

High School Requirements

Refer to the description of High School Requirements associated with Alternative 2.

Schedule Overview

Alternative 3 would be implemented over 36 months; and would be phased to take advantage of two summer periods and to allow for ongoing school operations. Since the school would be fully occupied during the construction activities, swing space will be created through the use of temporary modular classrooms located at the existing high school site. This Alternative would allow the project to be completed by September 2021.

Cost Overview

The estimated project cost for Alternative 3 is: $ 254 million

Conclusion

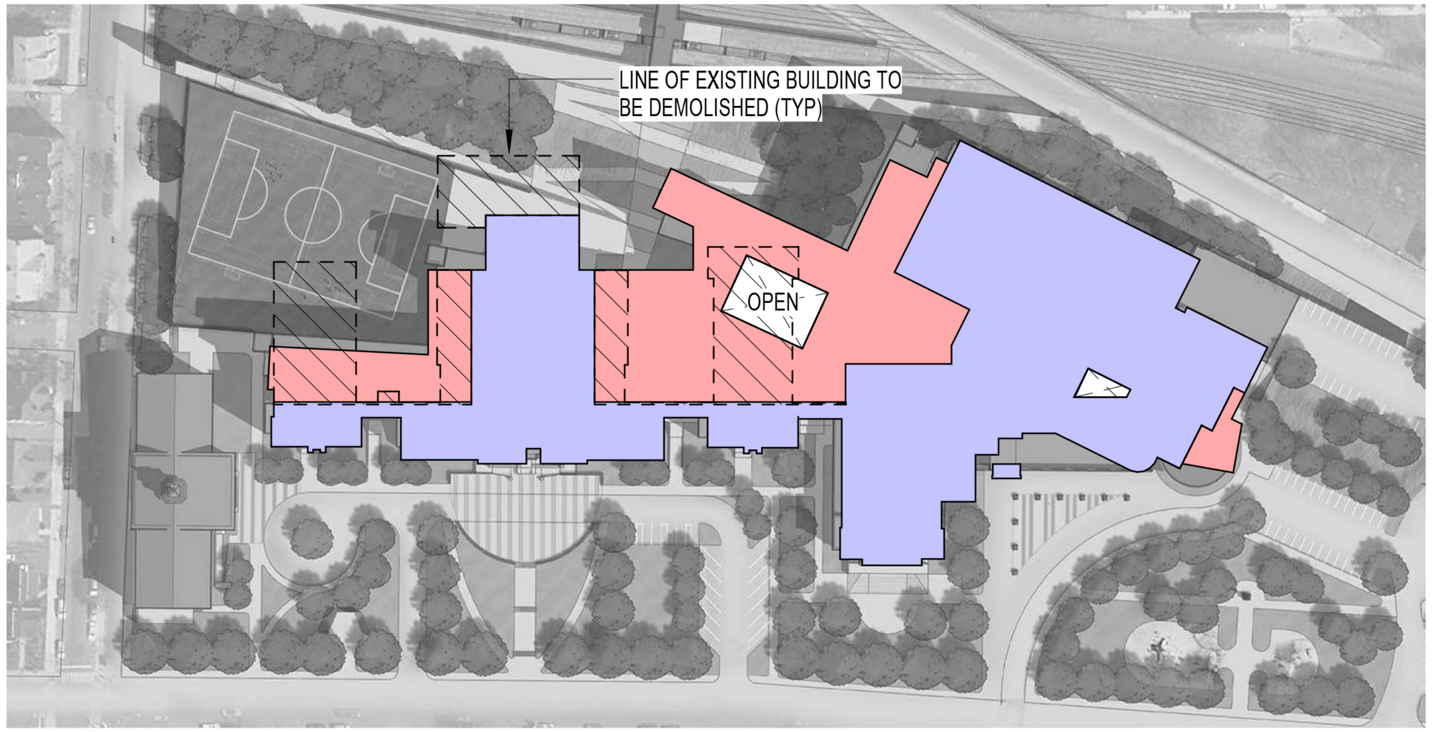
The Pros and Cons of Alternative 3 are summarized as follows:

Pros

- Completely renewed school, leveraging the most recent construction on site for renovation economy
- Potential for energy conservation and lower operating costs
- Response to current educational programming needs
- Full accommodation of current and future curriculum
- Space and flexibility is provided for the projected growth in student population
- Potential for meeting community design and image goals
- Preserves the historic assets of the highest-value construction facing the main lawn.

Cons

- Fourth highest cost (4 of 8)
- Complicated construction phasing
- Long construction duration
- Swing space is required
- Internal and external construction congestion



CONSTRUCTION LEGEND

🟥 ADD 🟪 RENO ⬜ ROOF

1

LEVEL 1

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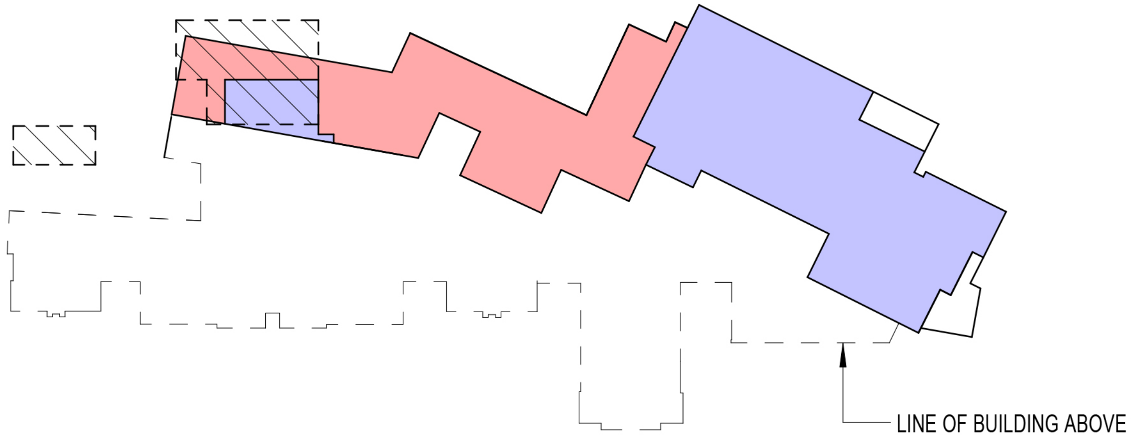

L

LOWER LEVEL

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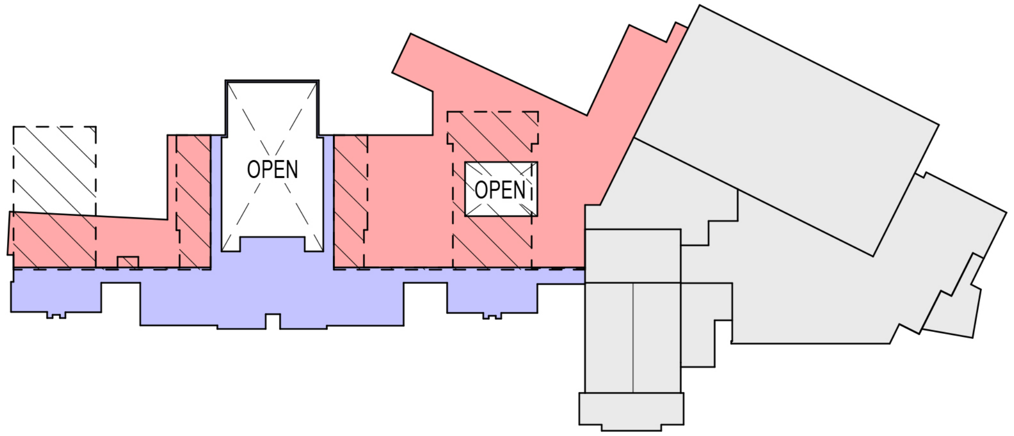

4

LEVEL 4

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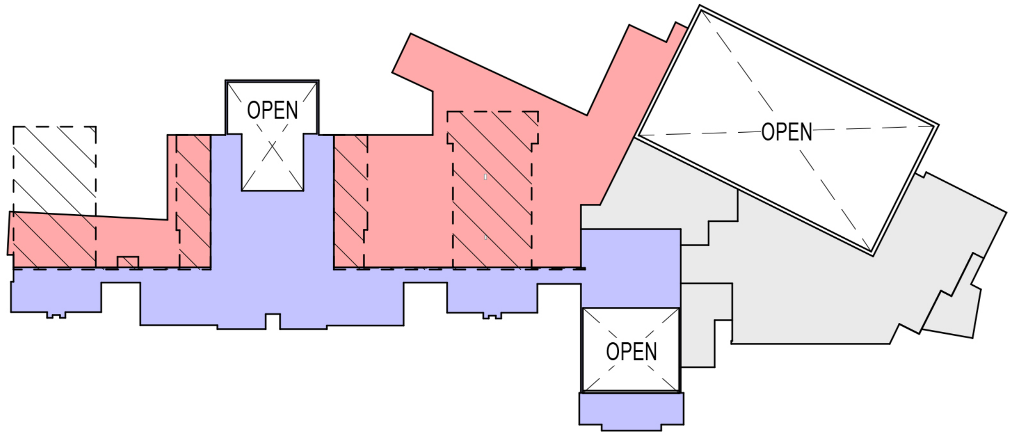
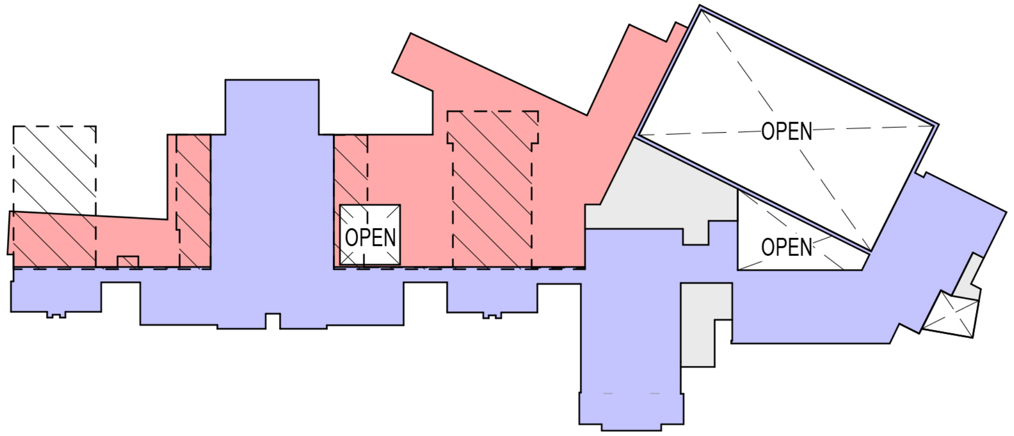


3

LEVEL 3

SCALE: 1" = 160'-0"



2

LEVEL 2

SCALE: 1" = 160'-0"

ADD RENO SCOPING PLANS - ALTERNATIVE 3

1" = 160'-0"

Somerville High School

SMMA

Alternative 4

Renovated B & E Wings, New Additions to the B & E Wings resulting in a connected concourse organization.

Demolition of the A, C & D Wings to allow for new additions and new construction.

Description

Partial demolition and renovation of the existing three to four story high school, with new additions for classroom/vocational spaces, cafeteria, media center and supplementary programs.

The configuration of the additions and new construction will feature a central concourse, connected through at the multiple levels with an open “main street” element that lends an active sense of community to the overall school environment. The main street will incorporate not only circulation space, but also program areas that function well in an open environment, such as the cafeteria, media center and small group instruction areas.

The existing 1986 E Wing, including both the existing field house and many of the existing vocational shops, is to be fully renovated to accommodate modern curriculum. Vocational programs will be relocated within the 1986 E Wing and throughout the new addition to achieve the educational goal of better integration between the general academic and vocational components of the comprehensive high school.

The majority of the existing B Wing is to remain and will be renovated to maintain the cultural stature of the school that fronts the main lawn along Highland Avenue. Within that wing, the existing auditorium would remain and be renovated.

As with both Alternatives 2 and 3, there is the potential to locate a two-level parking garage with an artificial turf field would be located in the northwest corner of the site. This small field would address a glaring need for an outdoor activity area that is currently missing from the existing site. The garage would utilize the steep slope of School Street for access to the two levels without any internal ramping. A portion of the garage would be maintained with two-story clearances to allow for loading to occur at the lower level.

The portion of the existing building to be demolished is approximately 137,000 square feet, the portion to remain and be renovated is approximately 222,000 square feet and the additions total approximately 173,000 square feet, for a grand total of approximately 395,000 square feet and an estimated project cost of $ 268 million.

Life Safety Code Compliance

All spaces and systems will be reorganized, upgraded and/or constructed new to meet current life safety codes and standards.

Accessibility Code Limitations

All spaces, systems, fixtures and equipment will be renovated, reorganized and/or constructed new to meet current accessibility codes and standards.

Energy Code Compliance

All existing roofs, walls, windows and doors will be replaced or renovated to meet current energy codes and standards. All new addition construction will be constructed in full compliance with the same, including the exterior envelope, HVAC and lighting systems.

Physical Plant Deterioration

All major existing building systems: HVAC, plumbing, electrical, technology and the emergency power system are at the end of their useful life and will be renovated or replaced to meet current codes and standards. In addition, a lateral force resisting structural system for earthquake/seismic forces will be added in the older sections of the building.

Vulnerability to Flooding

Refer to the description of Vulnerability to Flooding associated with Alternative 2.

Hazardous Materials

Refer to the description of Hazardous Materials associated with Alternative 2.

Capacity Constraints

Refer to the description of Capacity Constraints associated with Alternative 2.
Program Delivery Impediments
Refer to the description of Program Delivery Impediments associated with Alternative 2.

High School Requirements

Refer to the description of High School Requirements associated with Alternative 2.

Schedule Overview

Alternative 4 would be implemented over 36 months; and would be phased to take advantage of two summer periods and to allow for ongoing school operations. Since the school would be fully occupied during the construction activities, swing space will be created through the use of temporary modular classrooms located at the existing high school site. This Alternative would allow the project to be completed by September 2021.

Cost Overview

The estimated project cost for Alternative 4 is: $ 268 million

Conclusion

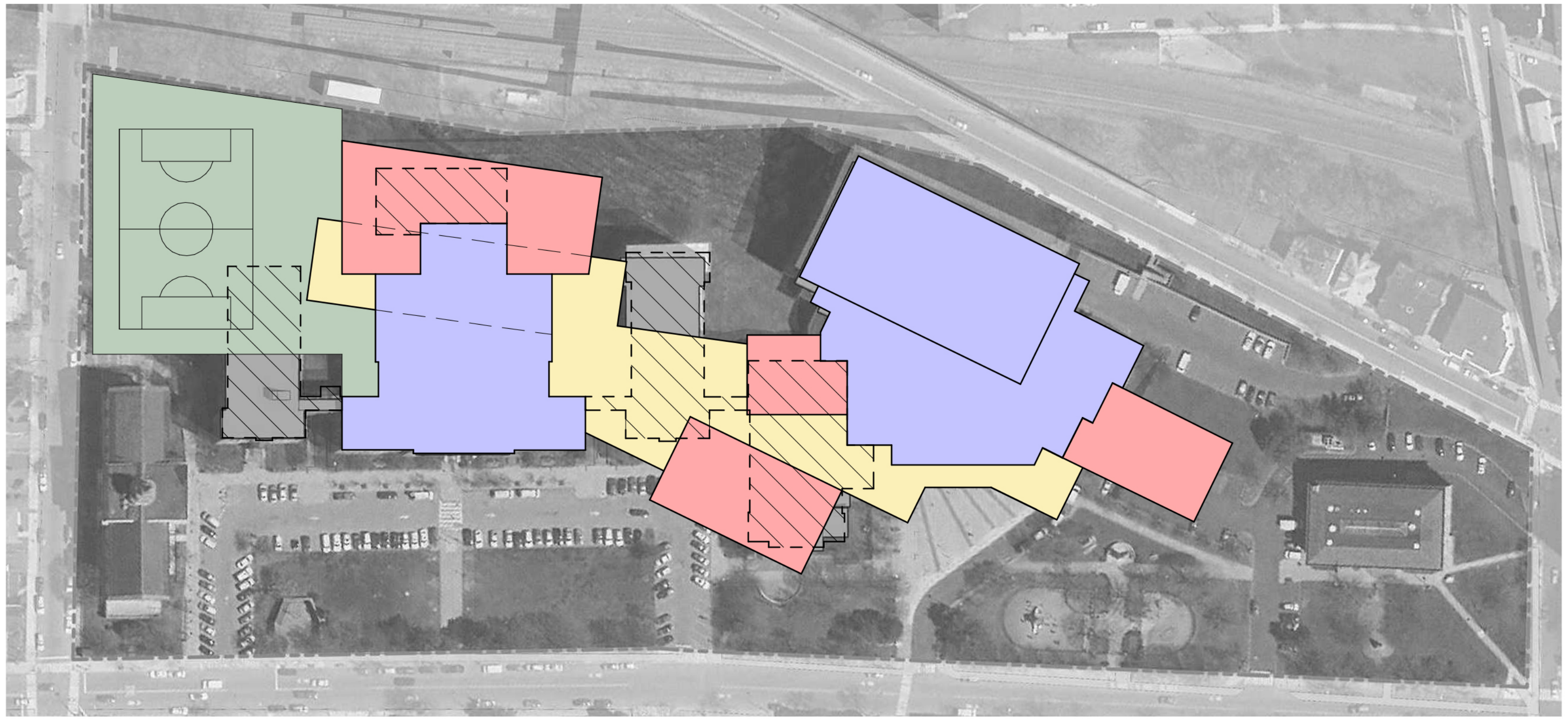
The Pros and Cons of Alternative 4 are summarized as follows:

Pros

- Completely renewed school, leveraging the most recent construction on site for renovation economy
- Potential for energy conservation and lower operating costs
- Response to current educational programming needs
- Full accommodation of current and future curriculum
- Space and flexibility is provided for the projected growth in student population
- Potential for meeting community design and image goals

Cons

- Fifth highest cost (5 of 8)
- Complicated construction phasing
- Long construction duration
- Swing space is required
- Internal and external construction congestion



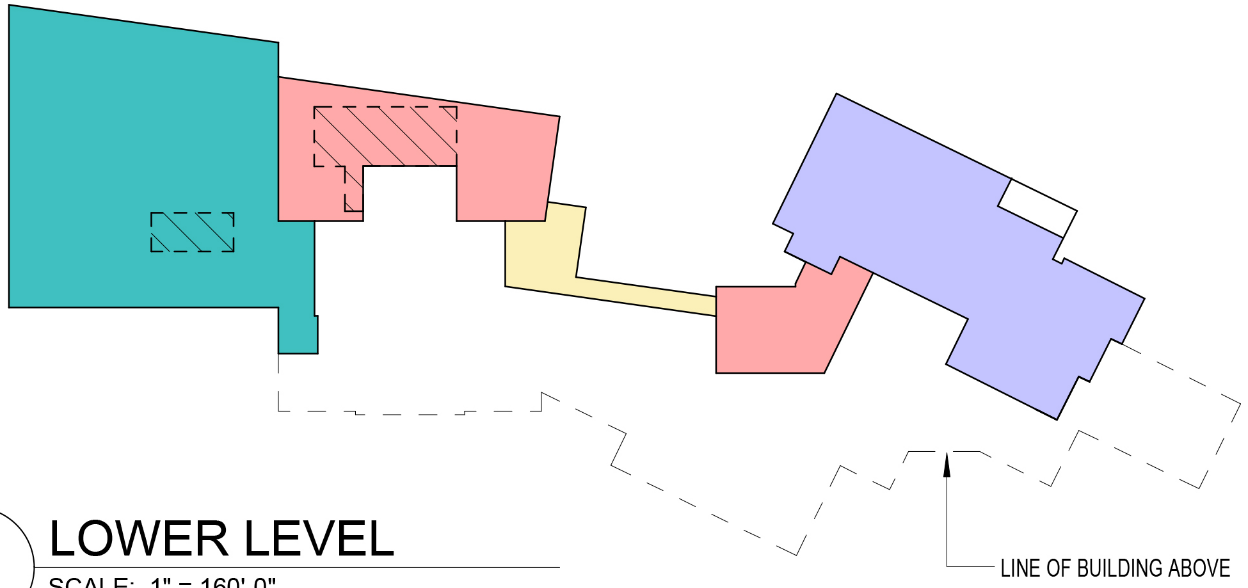
CONSTRUCTION LEGEND

- 🟥 ADD
- 🟩 FIELD
- 🟨 MAIN STREET
- 🟦 PARKING
- 🟪 RENO
- ⬜ ROOF

1

LEVEL 1

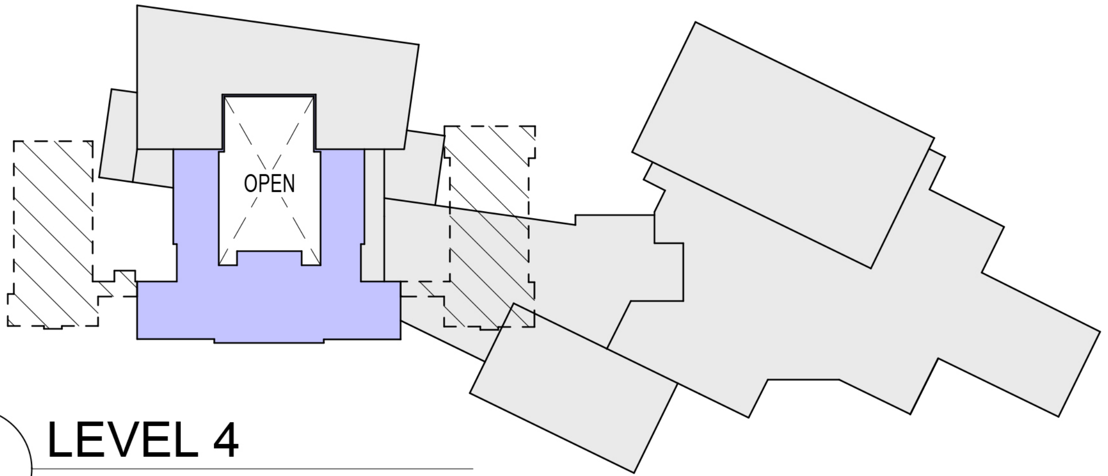
SCALE: 1" = 160'-0"



5

LOWER LEVEL

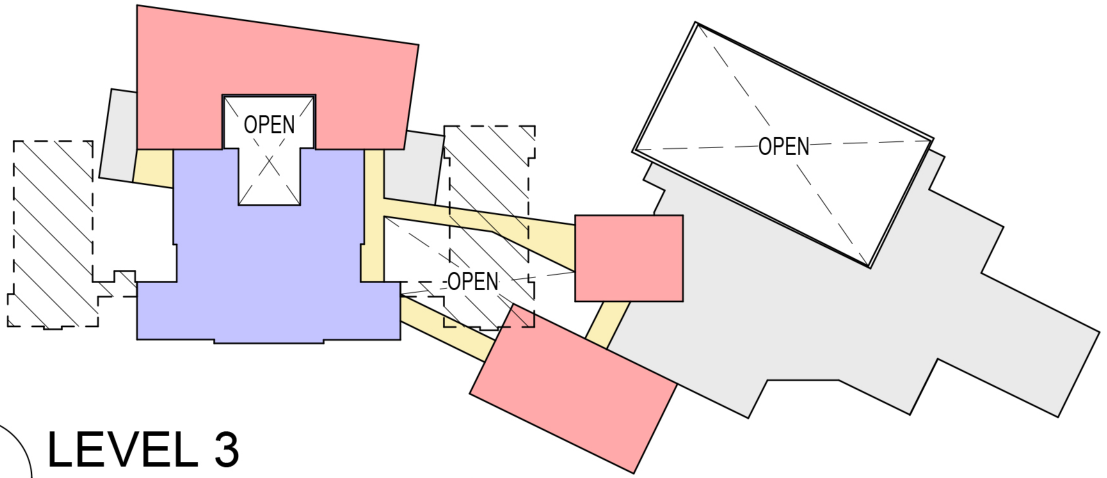
SCALE: 1" = 160'-0"



4

LEVEL 4

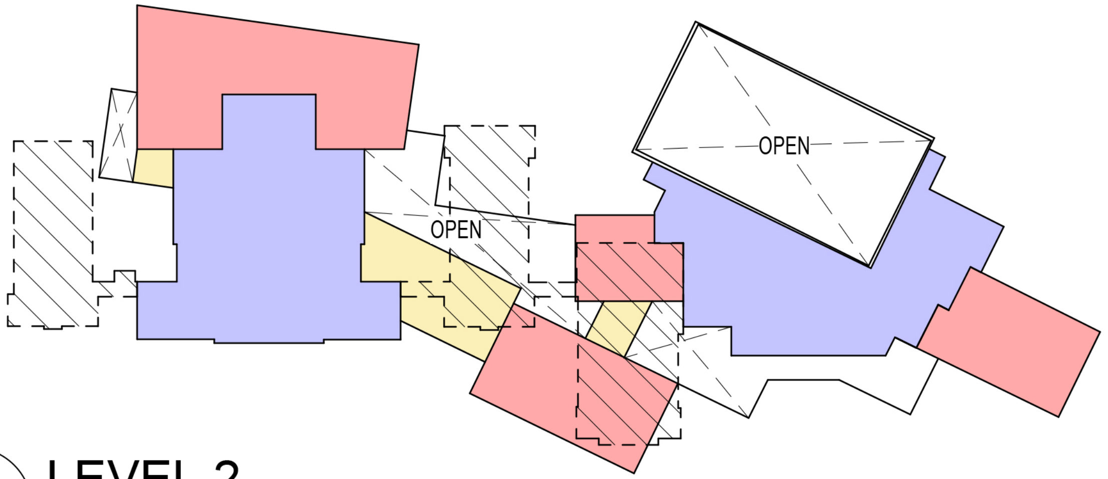
SCALE: 1" = 160'-0"



3

LEVEL 3

SCALE: 1" = 160'-0"



2

LEVEL 2

SCALE: 1" = 160'-0"

ADD RENO SCOPING PLANS - ALTERNATIVE 4

1" = 160'-0"

Somerville High School

SMMA

Alternative 4A

Renovated B & E Wings, New Additions to the B & E Wings resulting in a disconnected campus organization of school buildings.

Description

Partial demolition and renovation of the existing three to four story high school, with new additions for classroom/vocational spaces, cafeteria, media center, PE support and supplementary programs.

The configuration of the additions and new construction will result in a campus configuration with disconnected individual buildings. The intent of this option is to create a facility in which individual buildings can be isolated from an operations standpoint while also reducing the perceived scale of the high school by breaking up the mass of the overall structure. Additionally, a series of exterior courtyards can be created to provide outdoor learning environments and facilitate student circulation amongst the various buildings on the campus.

The existing 1986 E Wing, including both the existing field house and many of the existing vocational shops, is to be fully renovated to accommodate modern curriculum. Within the E Wing, only the footprint of the gymnasium and the vocational shop spaces located directly below would be renovated in their existing configurations. The remainder of the E Wing would be demolished to allow for new additions and to improve pedestrian site circulation.

The majority of the existing B Wing is to remain and will be renovated to maintain the cultural stature of the school that fronts the main lawn along Highland Avenue. Within that wing, the existing auditorium would remain and be renovated.

Alternative 4A includes the potential to locate a two-level parking garage covered by an artificial turf field on the eastern side of the site. This small field would address a glaring need for an outdoor activity area that is currently missing from the existing site. The garage would utilize the steep slope between Medford Street and the ambient grade on the eastern side of the site for two levels of parking with an internal ramp.

The portion of the existing building to be demolished is approximately 137,000 square feet, the portion to remain and be renovated is approximately 222,000 square feet and the additions total approximately 173,000 square feet, for a grand total of approximately 395,000 square feet and an estimated project cost of $ 268 million.

Life Safety Code Compliance

All spaces and systems will be reorganized, upgraded and/or constructed new to meet current life safety codes and standards.

Accessibility Code Limitations

All spaces, systems, fixtures and equipment will be renovated, reorganized and/or constructed new to meet current accessibility codes and standards.

Energy Code Compliance

All existing roofs, walls, windows and doors will be replaced or renovated to meet current energy codes and standards. All new addition construction will be constructed in full compliance with the same, including the exterior envelope, HVAC and lighting systems.

Physical Plant Deterioration

All major existing building systems: HVAC, plumbing, electrical, technology and the emergency power system are at the end of their useful life and will be renovated or replaced to meet current codes and standards. In addition, a lateral force resisting structural system for earthquake/seismic forces will be added in the older sections of the building that are scheduled to remain and be renovated.

Vulnerability to Flooding

Refer to the description of Vulnerability to Flooding associated with Alternative 2.

Hazardous Materials

Refer to the description of Hazardous Materials associated with Alternative 2.

Capacity Constraints

Refer to the description of Capacity Constraints associated with Alternative 2.

Program Delivery Impediments

Refer to the description of Program Delivery Impediments associated with Alternative 2.

High School Requirements

Refer to the description of High School Requirements associated with Alternative 2.

Schedule Overview

Alternative 4A would be implemented over 36 months; and would be phased to take advantage of two summer periods and to allow for ongoing school operations. Since the school would be fully occupied during the construction activities, swing space will be created through the use of temporary modular classrooms located at the existing high school site. This Alternative would allow the project to be completed by September 2021.

Cost Overview

The estimated project cost for Alternative 4A is: $ 268 million

Conclusion

The Pros and Cons of Alternative 4A are summarized as follows:

Pros

- Completely renewed school.
- Potential for energy conservation and lower operating costs
- Response to current educational programming needs
- Full accommodation of current and future curriculum
- Space and flexibility is provided for the projected growth in student population
- Potential for meeting community design and image goals
- Greater ability to isolate operations of individual buildings for improved security and energy consumption during after-hours use.

Cons

- Fifth highest cost (5 of 8)
- Complicated construction phasing
- Long construction duration
- Swing space is required
- Internal and external construction congestion
- Maintaining a secure campus is more complicated due to multiple buildings and multiple entry points.
- Increased grossing requirements associated with multiple buildings to account for additional stairs, elevators, toilet rooms and similar support services.
- Disconnected buildings compromise day-to-day operations of the school, with the potential to reinforce curriculum separation, rather than unification.

CONSTRUCTION LEGEND

🟥 ADD

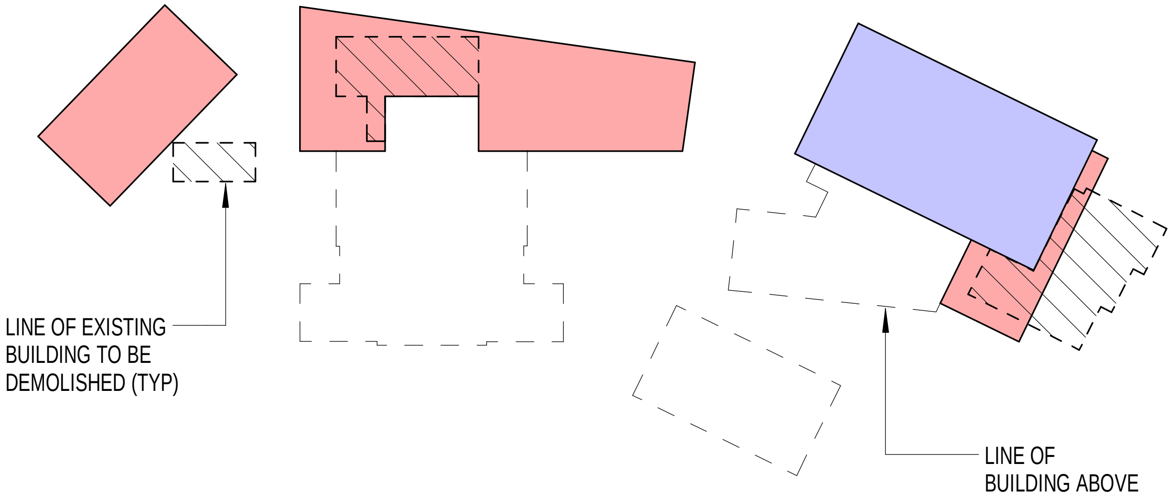
🟩 FIELD

🟦 RENO

⬜ ROOF

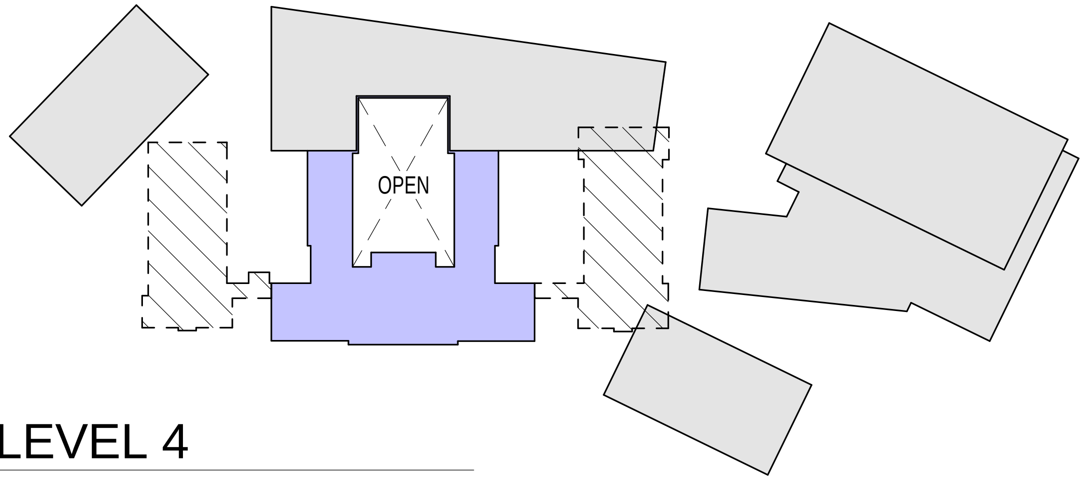
1 LEVEL 1

SCALE: 1" = 160'-0"



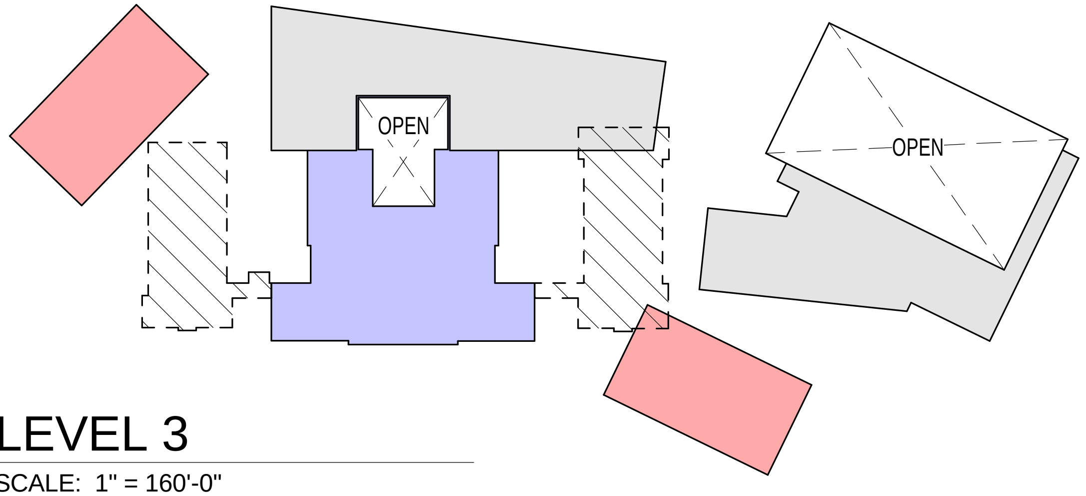
L LOWER LEVEL

SCALE: 1" = 160'-0"



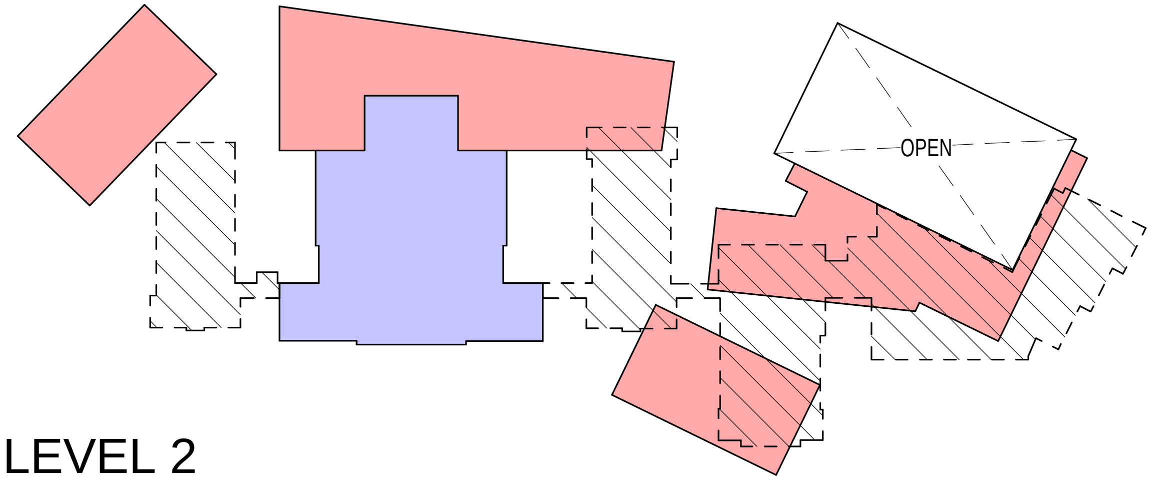
4 LEVEL 4

SCALE: 1" = 160'-0"



3 LEVEL 3

SCALE: 1" = 160'-0"



2 LEVEL 2

SCALE: 1" = 160'-0"

ADD RENO SCOPING PLANS - ALTERNATIVE 4A - CAMPUS PLAN

1" = 160'-0"

Somerville High School

SMMA

Alternative 4B

Renovated D & E Wings, New Additions to the D & E Wings resulting in a high school facility that is shifted towards the eastern side of the overall Central Hill site.

Description

Partial demolition and renovation of the existing three to four story high school, with new additions for the dining commons, media center, classroom/vocational spaces, PE support and supplementary programs.

The additions and new construction will be predominantly located in the open area towards the eastern half of the site, between the existing E Wing and the Somerville Public Library Main Branch. This Alternative proposes construction on the most open and available portion of the overall Central Hill site in an effort to simplify phasing and new construction logistics. Consequently, the majority of the A, B & C Wings could remain in operation through the duration of construction, with only a portion of the C Wing needing to be demolished in order to complete the new addition activities. Vocational and PE programs located in the existing E Wing would need to be shifted to alternate locations throughout the duration of construction.

The existing 1986 E Wing, including both the existing field house and many of the existing vocational shops, is to be fully renovated to accommodate modern curriculum. Within the E Wing, only the footprint of the gymnasium and the vocational shop spaces located directly below would be renovated in their existing configurations. The remainder of the E Wing would be demolished to allow for new additions and improve educational adjacencies.

The majority of the existing D Wing would remain and be renovated. The existing media center and band spaces located on Level 2 and above would be reconfigured to accommodate the auditorium and stage.

The portion of the existing building to be demolished is approximately 274,000 square feet, the portion to remain and be renovated is approximately 86,000 square feet and the additions total approximately 290,000 square feet, for a grand total of approximately 376,000 square feet and an estimated project cost of $ 277 million.

Life Safety Code Compliance

All spaces and systems will be reorganized, upgraded and/or constructed new to meet current life safety codes and standards.

Accessibility Code Limitations

All spaces, systems, fixtures and equipment will be renovated, reorganized and/or constructed new to meet current accessibility codes and standards.

Energy Code Compliance

All existing roofs, walls, windows and doors will be replaced or renovated to meet current energy codes and standards. All new addition construction will be constructed in full compliance with the same, including the exterior envelope, HVAC and lighting systems.

Physical Plant Deterioration

All major existing building systems: HVAC, plumbing, electrical, technology and the emergency power system are at the end of their useful life and will be renovated or replaced to meet current codes and standards. In addition, a lateral force resisting structural system for earthquake/seismic forces will be added in the older sections of the building that are scheduled to remain and be renovated.

Vulnerability to Flooding

Refer to the description of Vulnerability to Flooding associated with Alternative 2.

Hazardous Materials

Refer to the description of Hazardous Materials associated with Alternative 2.

Capacity Constraints

Refer to the description of Capacity Constraints associated with Alternative 2.
Program Delivery Impediments
Refer to the description of Program Delivery Impediments associated with Alternative 2.

High School Requirements

Refer to the description of High School Requirements associated with Alternative 2.

Schedule Overview

Alternative 4B would be implemented over 36 months; and would be phased to take advantage of two summer periods and to allow for ongoing school operations. Since the school would be fully occupied during the construction activities, swing space will be created through the use of temporary modular classrooms located at the existing high school site. This Alternative would allow the project to be completed by September 2021.

Cost Overview

The estimated project cost for Alternative 4B is: $ 277 million

Conclusion

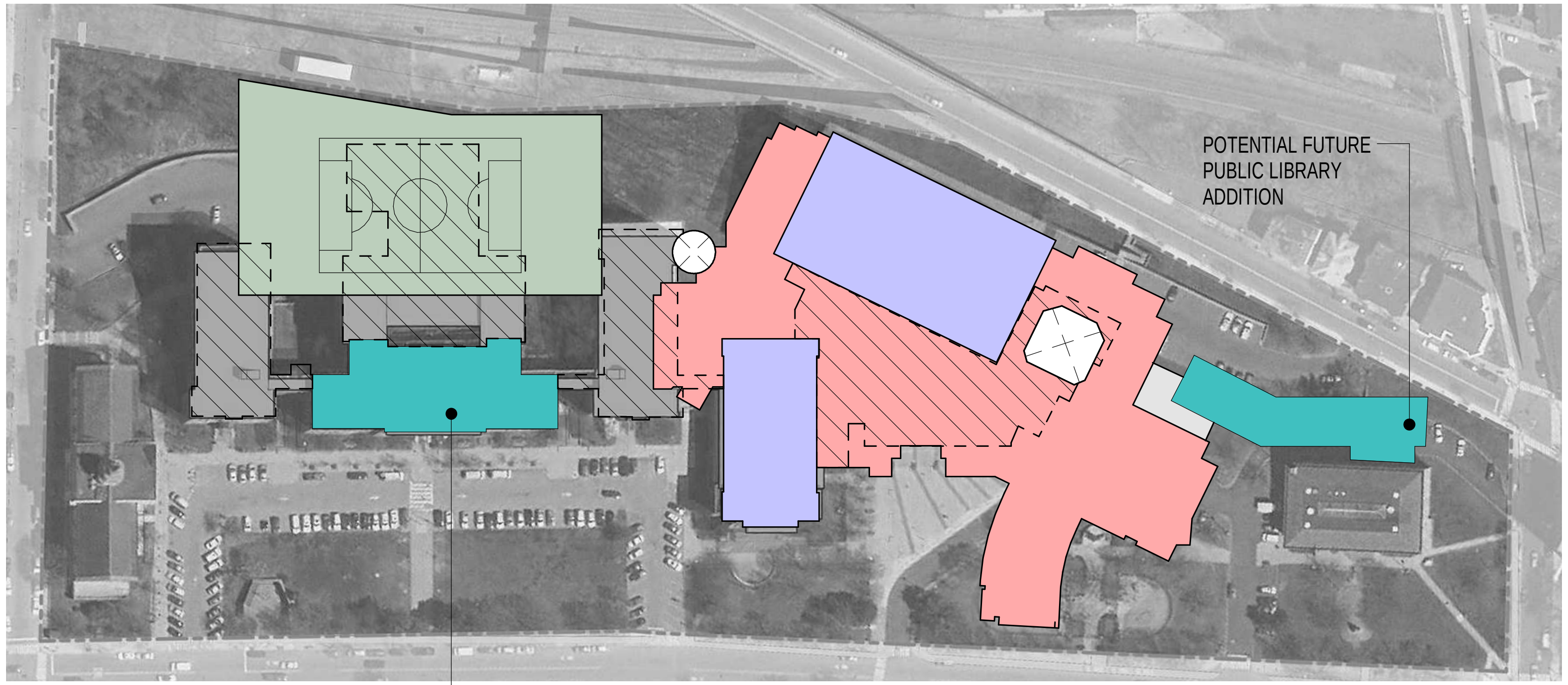
The Pros and Cons of Alternative 4B are summarized as follows:

Pros

- Completely renewed school.
- Potential for energy conservation and lower operating costs
- Response to current educational programming needs
- Full accommodation of current and future curriculum
- Space and flexibility is provided for the projected growth in student population
- Potential for meeting community design and image goals
- Simplified phasing approach by building new addition on a relatively open portion of the site.
- Allows for a potential future addition connection to the Somerville Public Library Main Branch building

Cons

- Sixth highest cost (6 of 8)
- Long construction duration
- Swing space is required for the heavy vocational shops given the extent of proposed construction in the E Wing.
- External construction congestion



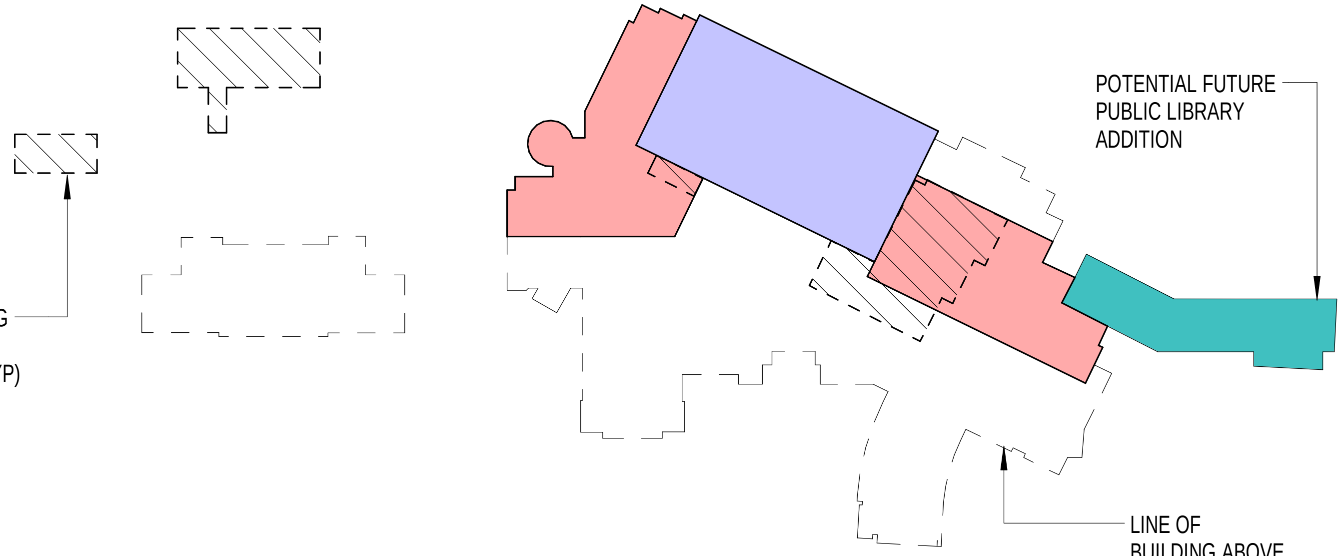
POTENTIAL FUTURE RE-USE OF 1895 STRUCTURE FOR CITY OFFICES (TYP. FOR FOUR FLOORS)

CONSTRUCTION LEGEND

🟥 **ADD** 🟩 **FIELD** 🟦 **FUTURE** 🟪 **RENO** ⬜ **ROOF**

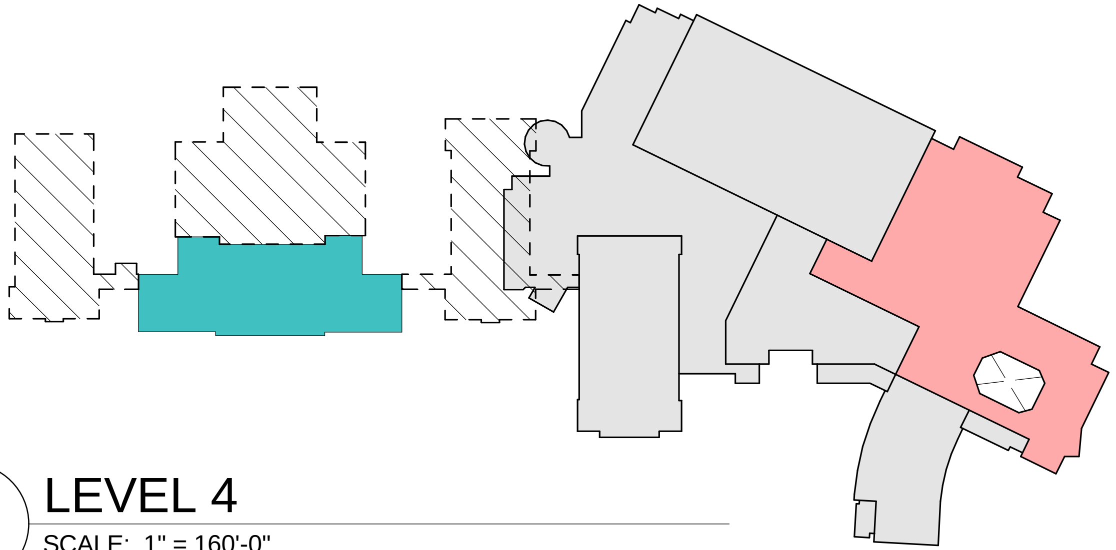
1 LEVEL 1

SCALE: 1" = 160'-0"



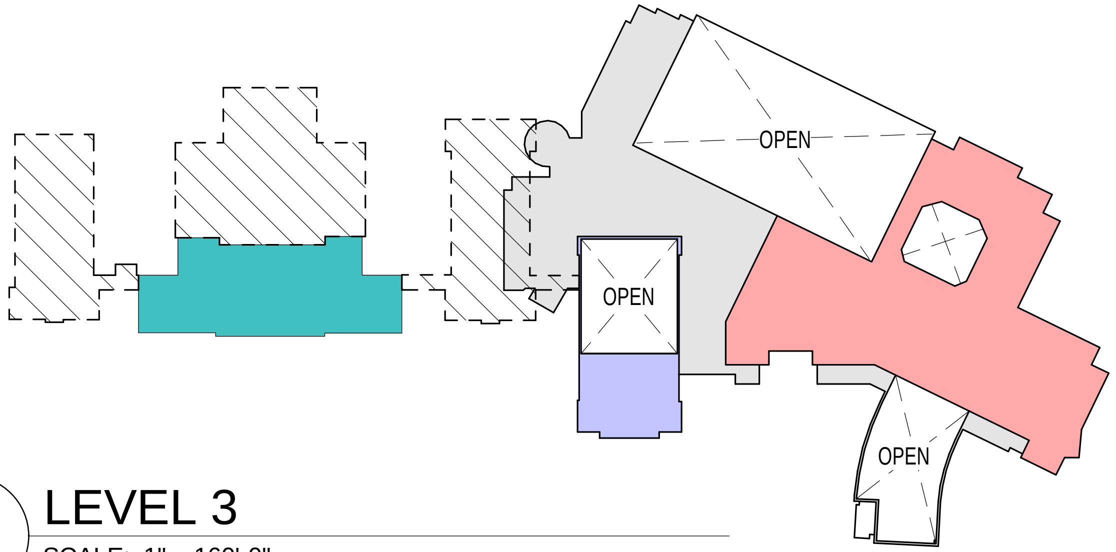
L LOWER LEVEL

SCALE: 1" = 160'-0"



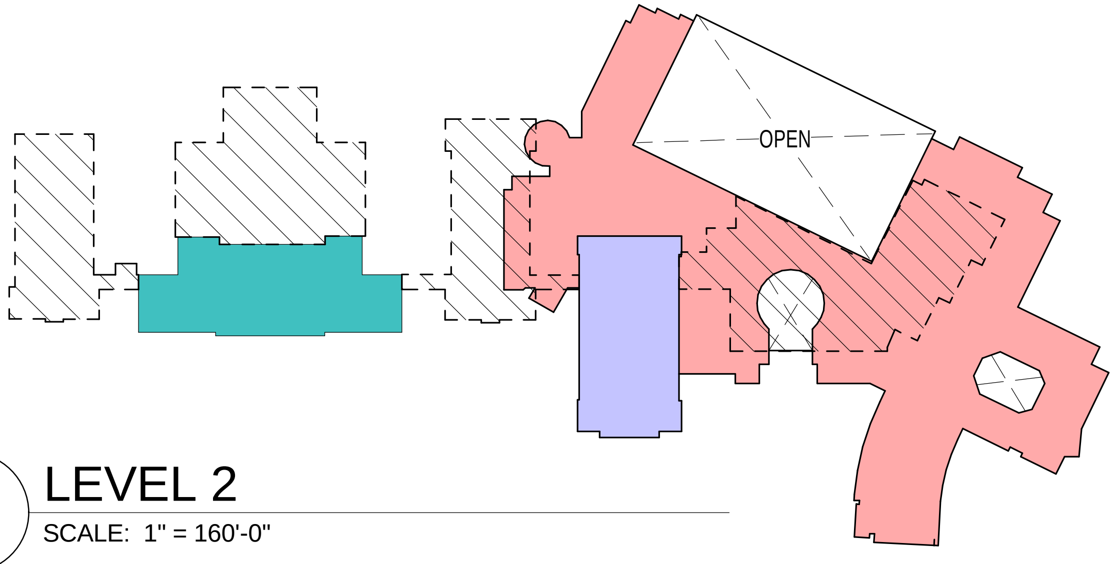
4 LEVEL 4

SCALE: 1" = 160'-0"



3 LEVEL 3

SCALE: 1" = 160'-0"



2 LEVEL 2

SCALE: 1" = 160'-0"

ADD RENO SCOPING PLANS - ALTERNATIVE 4B

1" = 160'-0"

Somerville High School

SMMA

New Construction Alternatives:

Alternative 5

Construction of a new three and five story high school on the existing high school site

Description

Construction of a new three and five story high school on the existing high school site. Given the lack of available site area, the existing building would need to be completely demolished in phases to facilitate the construction of the new building.

The new school would consist of two wings with a central core area. The westernmost wing would include the new gymnasium, associated programs and many of the vocational programs – and would be built as part of an initial phase of construction. The easternmost wing would include a combination of vocational and general academic classroom space. The central core would be organized around the auditorium, including the cafeteria, media center and a complement of arts, vocational and classroom spaces.

The existing building to be demolished is approximately 360,000 square feet and the new high school is approximately 364,000 square feet with an estimated project cost of $ 279 million.

Life Safety Code Compliance

All spaces and systems will be designed to meet current life safety codes and standards.

Accessibility Code Limitations

All spaces, systems, fixtures and equipment will be new, and designed to meet current accessibility codes and standards.

Energy Code Compliance

All roofs, walls, windows, doors and systems will be new, and designed to meet current energy codes and standards.

Physical Plant Deterioration

In this Alternative, the entirety of the existing physical plant will be demolished, replacing it with a new modern physical plant. Refer to the description of new materials and systems identified in Alternative 2 for the scope of work associated with the new physical plant.

Vulnerability to Flooding

Refer to the description of Vulnerability to Flooding associated with Alternative 2.

Hazardous Materials

Refer to the description of Hazardous Materials associated with Alternative 2. All hazardous materials would be abated from the project as required prior to the complete demolition of the existing building.

Capacity Constraints

Refer to the description of Capacity Constraints associated with Alternative 2.
Program Delivery Impediments

Refer to the description of Program Delivery Impediments associated with Alternative 2.

High School Requirements

Refer to the description of High School Requirements associated with Alternative 2.

Schedule Overview

Alternative 5 would be implemented over 36 months. While each element of the new construction could be built more quickly than associated renovation work, the new construction would have to be conducted in two major phases. Since the school would be fully occupied during the construction activities, swing space will be created through the use of temporary modular classrooms located at the existing high school site. This Alternative would allow the project to be completed by September 2021.

Cost Overview

The estimated project cost for Alternative 5 is $279 million

Conclusion

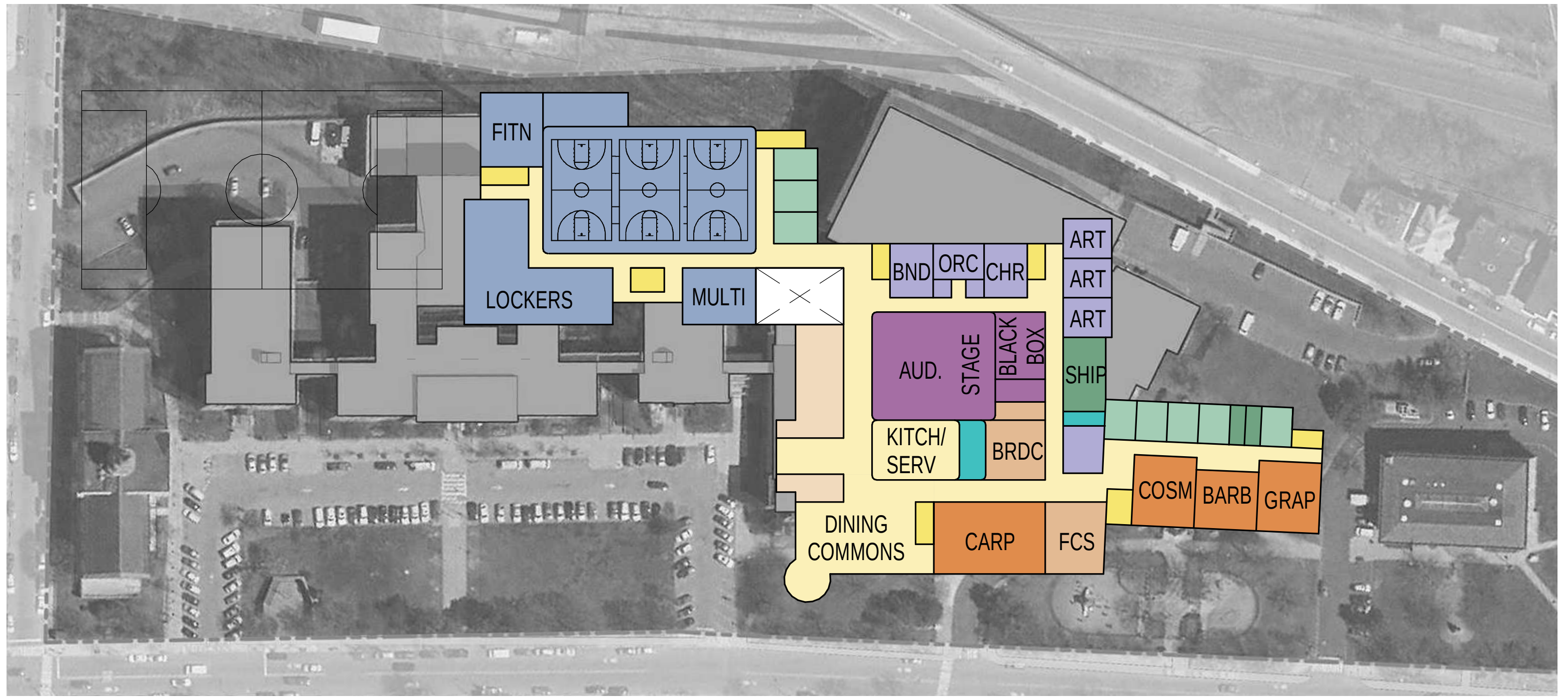
The Pros and Cons of Alternative 5 are summarized as follows:

Pros

- Completely new school
- Simplified construction
- Greatest potential energy conservation and lowest operating cost
- Response to current educational programming needs
- Full accommodation of current and future curriculum
- Space and flexibility is provided for the projected growth in student population
- Potential for meeting community design and image goals

Cons

- Seventh highest cost (7 of 8)
- Complicated construction phasing
- Long construction duration
- Swing space is required
- External construction congestion
- No indoor track program given the new, smaller gymnasium size.

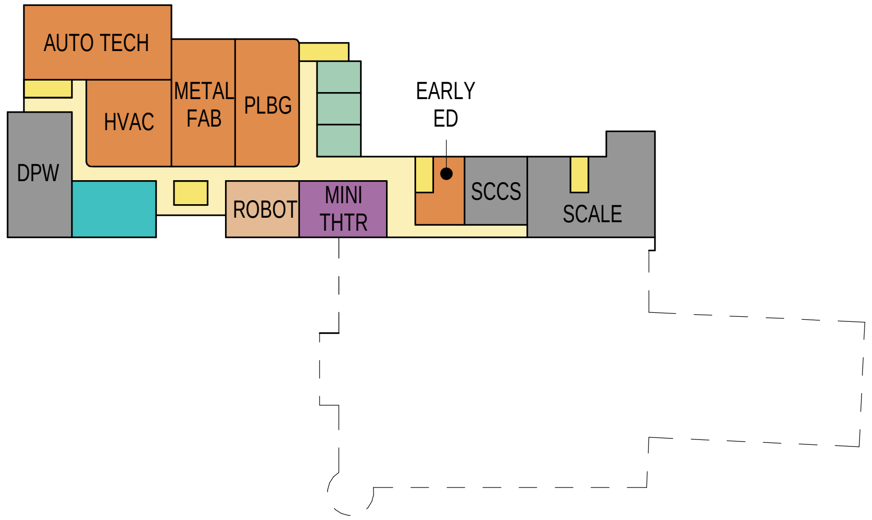


PROGRAM AREAS

- ■ ADMIN
- ■ ARTS
- ■ AUDITORIUM/DRAMA
- ■ CH 74
- ■ CIRCULATION
- ■ CR
- ■ HEALTH/PE
- ■ MEDIA CENTER
- ■ NWFC
- ■ OFF-SITE AUXILIARY
- ■ SCIENCE
- ■ SPED
- ■ STAIR/ELEV
- ■ SUPPORT
- ■ TECH

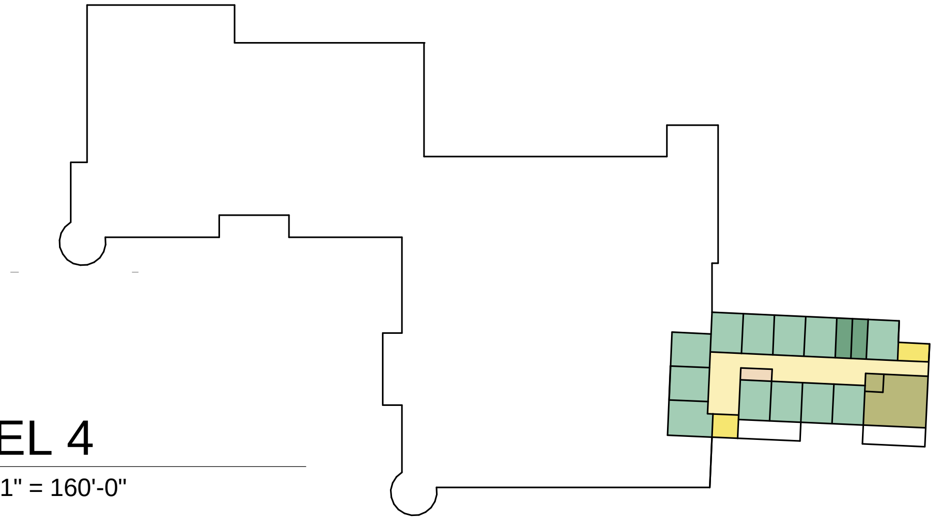
1 LEVEL 1

SCALE: 1" = 160'-0"



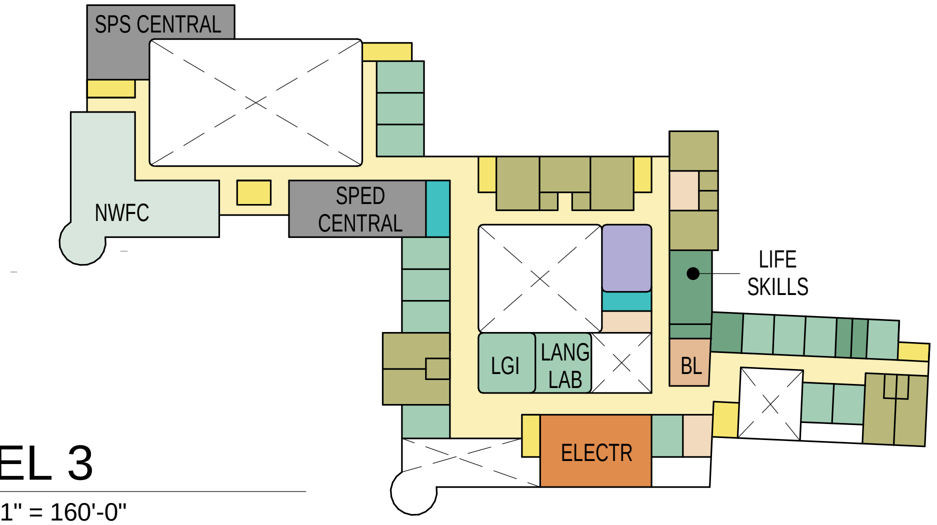
L LOWER LEVEL

SCALE: 1" = 160'-0"



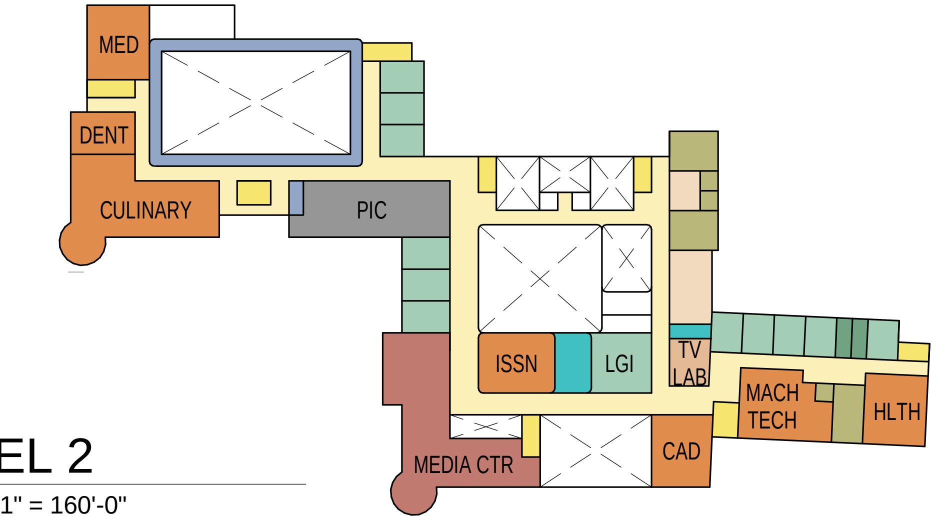
4 LEVEL 4

SCALE: 1" = 160'-0"



3 LEVEL 3

SCALE: 1" = 160'-0"



2 LEVEL 2

SCALE: 1" = 160'-0"

PROGRAM PLANS - ALTERNATIVE 5 - NEW CONSTRUCTION

1" = 160'-0"

Somerville High School

SMMA

Alternative 6

Construction of a new five story high school on the DPW site adjacent to Trum Field.

Description

Construction of a new five story high school on the DPW Site located at 1 Franey Road. Construction on this site will require the demolition of the existing DPW structures prior to any demolition beginning. In order to complete that demolition, a new or temporary location for DPW operations would have to be established elsewhere in the City. Given this predecessor activity, the overall schedule for this Alternative would be extended when compared to any of the previous Alternatives under consideration.

The new building includes the potential for an underground parking garage below the entirety of the footprint, due to the compressed site area available and inability of the surrounding densely populated residential community to provide sufficient street parking.

The new high school is approximately 364,000 square feet with an estimated project cost of $297 million.

Life Safety Code Compliance

All spaces and systems will be designed to meet current life safety codes and standards.

Accessibility Code Limitations

All spaces, systems, fixtures and equipment will be new, and designed to meet current accessibility codes and standards.

Energy Code Compliance

All roofs, walls, windows, doors and systems will be new, and designed to meet current energy codes and standards.

Physical Plant Deterioration

The entirety of the existing physical plant will be demolished, replacing it with a new modern physical plant. Refer to the description of new materials and systems identified in Alternative 2 for the scope of work associated with the new physical plant.

Vulnerability to Flooding

The existing DPW site is positioned at a much lower elevation than the existing school. The potential for flooding at this site, combined with the need for an underground parking garage at the lowest elevation, would mandate the need for extensive waterproofing and drainage systems to provide the necessary resiliency.

Hazardous Materials

Some hazardous materials and environmental remediation is assumed to be part of the existing DPW building demolition. While not explicitly part of the school construction project scope, it is assumed that the environmental remediation in particular will add to the overall schedule of this Alternative.

Capacity Constraints

Refer to the description of Capacity Constraints associated with Alternative 2.

Program Delivery Impediments

The pedagogical requirements of a modern comprehensive high school will be provided for by the new construction.

High School Requirements

Refer to the description of High School Requirements associated with Alternative 2.

Schedule Overview

Alternative 6 would be implemented over 36 months, however this timeline would not be started for 24 months while the enabling work associated with the existing DPW site is completed. This Alternative would allow the project to be completed by September 2023.

Cost Overview

The estimated project cost for Alternative 6 is $ 297 million

Conclusion

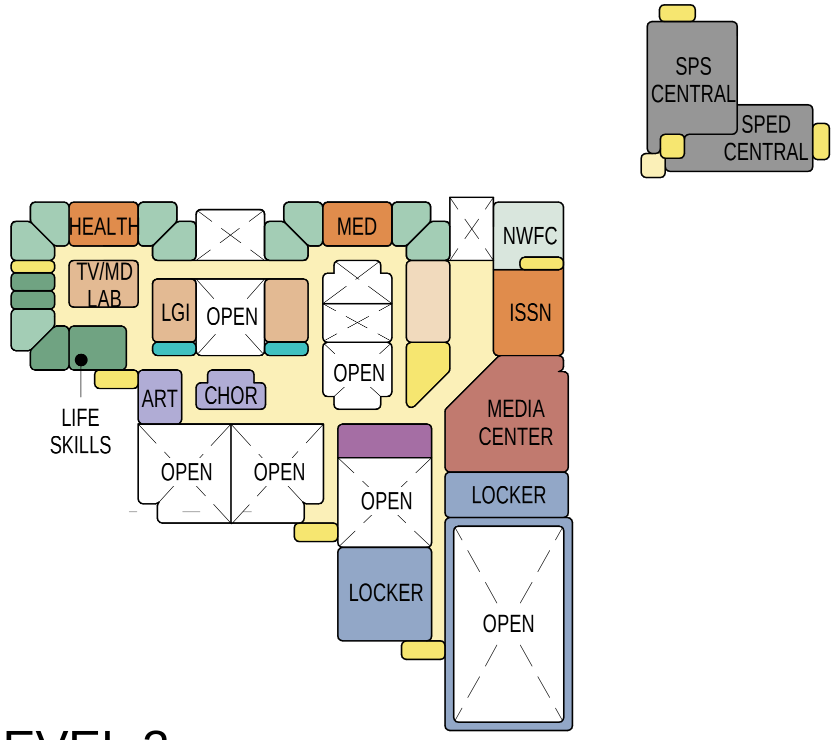
The Pros and Cons of Alternative 6 are summarized as follows:

Pros

- Completely new school
- Greatest potential energy conservation and lowest operating cost
- Response to current educational programming needs
- Full accommodation of current and future curriculum
- Space and flexibility is provided for the projected growth in student population
- Potential for meeting community design and image goals
- No swing space is required

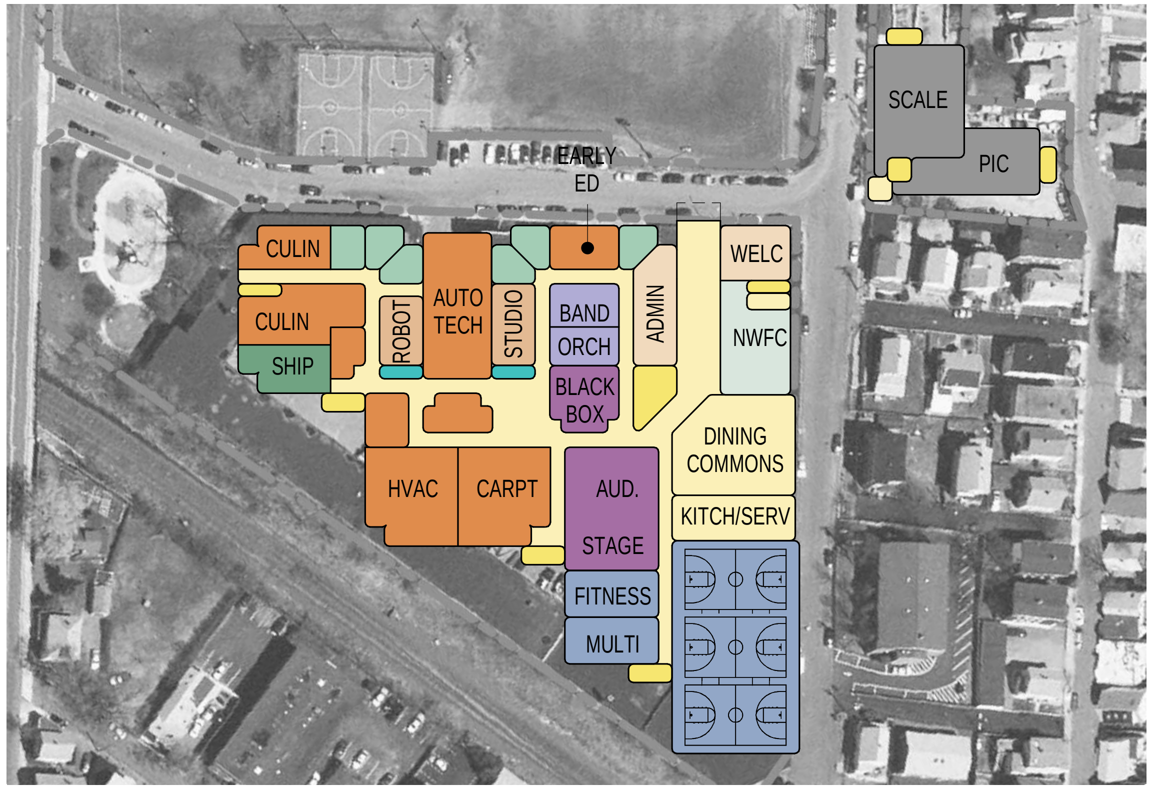
Cons

- Highest cost
- Complicated construction involving underground parking garage below the entire footprint of the school
- Longest overall project schedule
- External construction congestion
- No indoor track program given the new, smaller gymnasium size



2 LEVEL 2

SCALE: 1" = 160'-0"

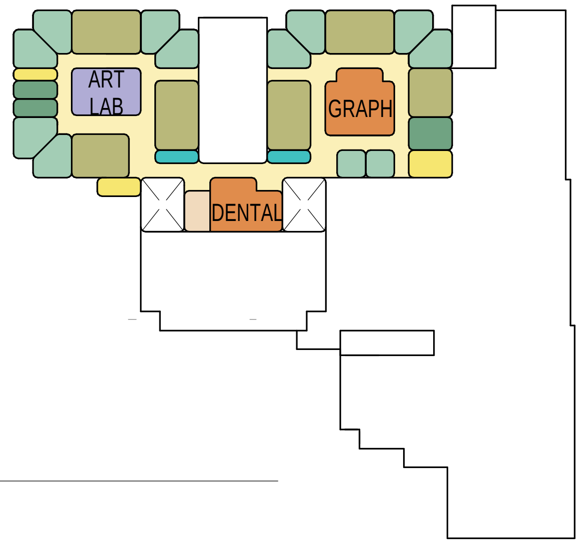


1 LEVEL 1

SCALE: 1" = 160'-0"

PROGRAM AREAS

- ■ ADMIN
- ■ ARTS
- ■ AUDITORIUM/DRAMA
- ■ CH 74
- ■ CIRCULATION
- ■ CR
- ■ HEALTH/PE
- ■ MEDIA CENTER
- ■ NWFC
- ■ OFF-SITE AUXILIARY
- ■ SCIENCE
- ■ SPED
- ■ STAIR/ELEV
- ■ SUPPORT
- ■ TECH



5 LEVEL 5

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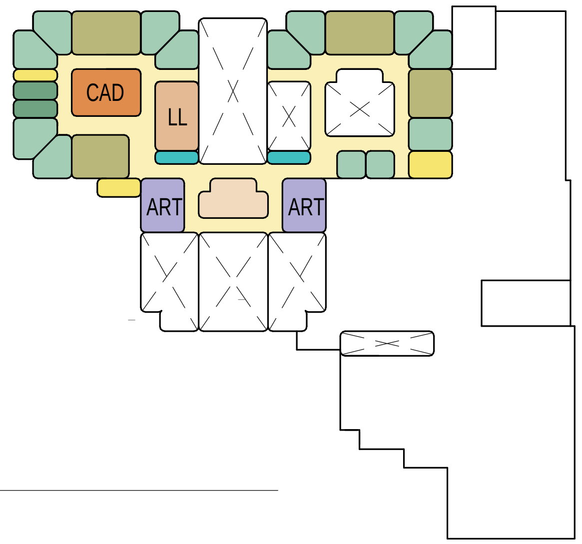
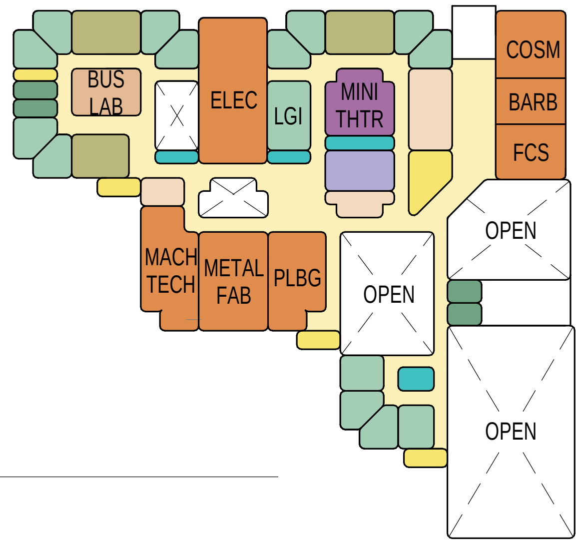


4 LEVEL 4

SCALE: 1" = 160'-0"



3 LEVEL 3

SCALE: 1" = 160'-0"

PROGRAM PLANS - NEW CONSTRUCTION - ALTERNATIVE 6

1" = 160'-0"

Somerville High School

SMMA

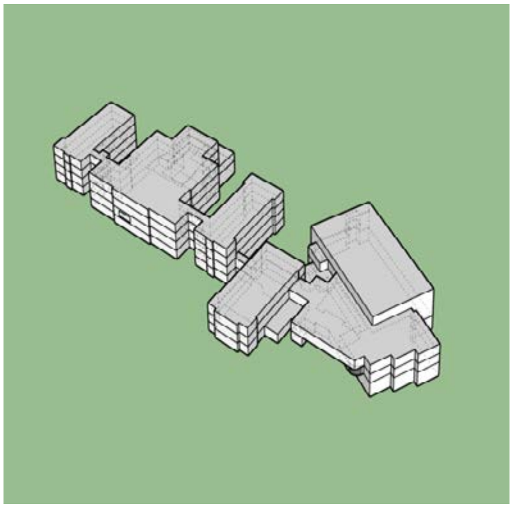
Sustainability Analysis

Each of the alternative types was analyzed using a simplified energy model to understand relative differences in potential for energy consumption, the results of which are illustrated on the subsequent pages. A baseline for this analysis was established using the existing building as a benchmark.

As alternatives are further developed during the feasibility study phase, these simplified energy models will be utilized to study the relative performance impacts of multiple design decisions. This approach of study is referred to as performance based design, and can help inform such factors as building form, glazing amounts and locations, shading strategies, insulation levels and other similar considerations.

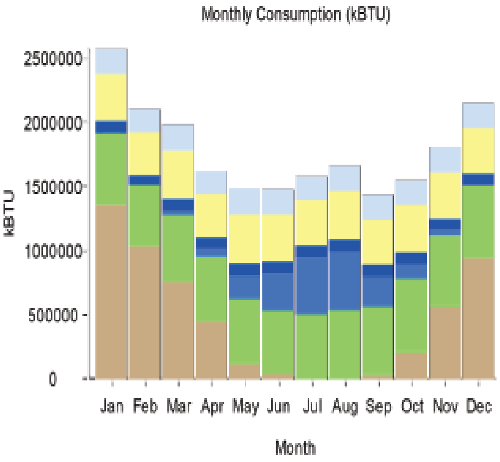
While the parameters used to generate the simplified energy models are representative of macro-scale systems, construction types and operations that would be assumed for use in each alternative, the early stage of the project development mandates that the absolute values being reported are relative in nature. This means that the results stemming from these energy models are best used as a comparative metric to evaluate the relative energy usage of one particular option in comparison to another. Absolute energy usage and building performance, and the consequent monetary implications for building operation cannot yet be accurately assumed for each alternative. Subsequent phases of energy modeling in later project stages will provide that level of operational information for consideration.

Existing Conditions

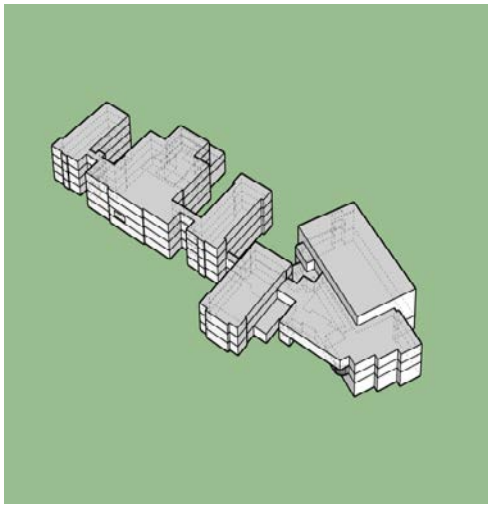


Sq ft: 369,900
Roof - R-value: R-13
Walls - R-value: R-8
Glazing U-factor: 1.00
Window to wall ratio: 25%
Lighting power density: 1.4W/sf
Equipment power density: 0.75 W/sf
HVAC Type: VAV with reheat
Heating efficiency: 80%
Cooling COP: 2.5

Total Energy Use: 21,409,000
EUI: 58

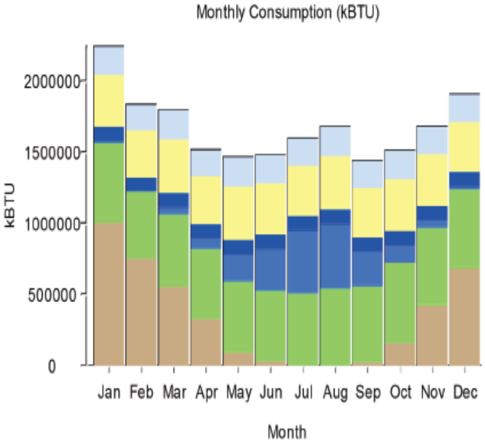


ALT 0

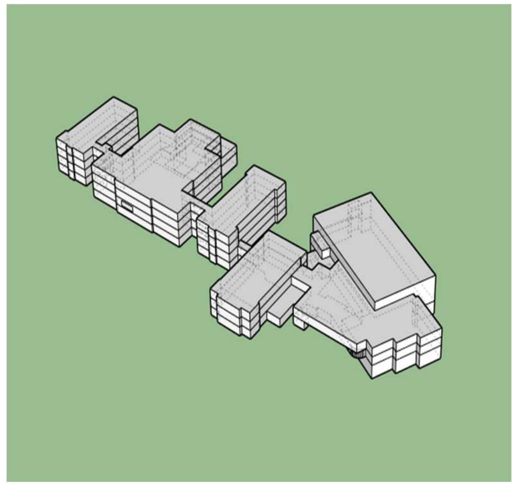


Sq ft: 369,900
Roof - R-value: R-33.4
Walls - R-value: R-8
Glazing U-factor: 0.34
Window to wall ratio: 25%
Lighting power density: 1.4W/sf
Equipment power density: 0.75 W/sf
HVAC Type: VAV with reheat
Heating efficiency: 95%
Cooling COP: 2.5

Total Energy Use: 20,207,000
EUI: 55

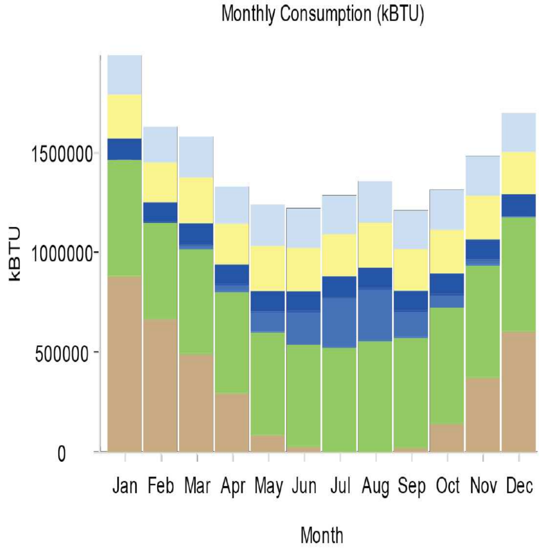


ALT 1

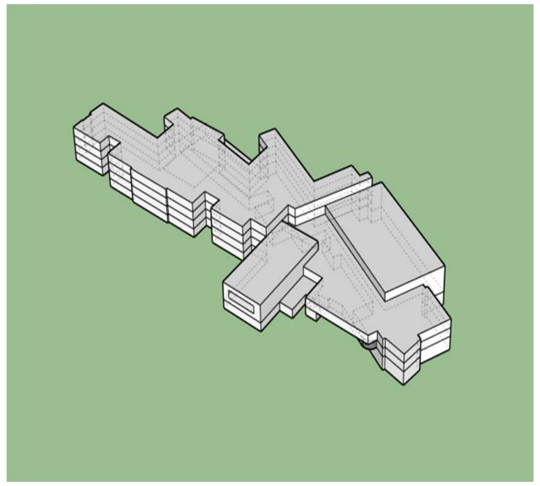


Sq ft: 369,900
Roof - R-value: R-33.4
Walls - R-value: R-25
Glazing U-factor: 0.34
Window to wall ratio: 25%
Lighting power density: 0.78W/sf
Equipment power density: 0.75 W/sf
HVAC Type: VAV with reheat
Heating efficiency: 95%
Cooling COP: 3.7

Total Energy Use: 17,350,000 kBTU
EUI: 47

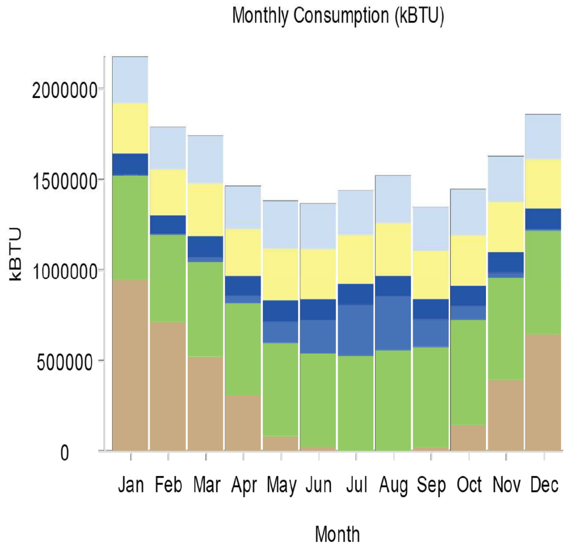


ALT 2-3

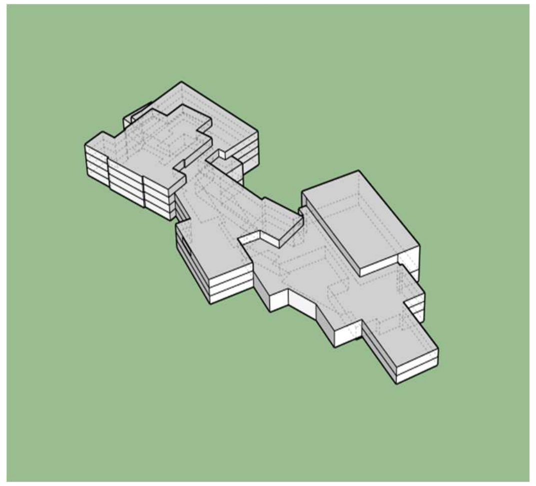


Sq ft: 472,700
Roof - R-value: R-33.4
Walls - R-value: R-25
Glazing U-factor: 0.34
Window to wall ratio: 25%
Lighting power density: 0.78W/sf
Equipment power density: 0.75 W/sf
HVAC Type: VAV with reheat
Heating efficiency: 95%
Cooling COP: 3.7

Total Energy Use: 19,198,000 kBTU
EUI: 41

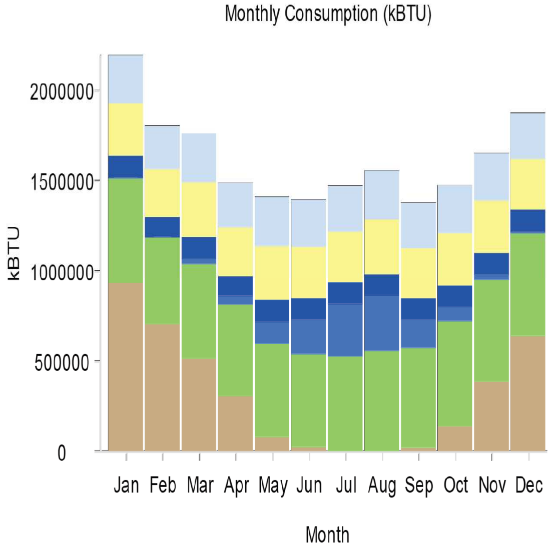


ALT 4

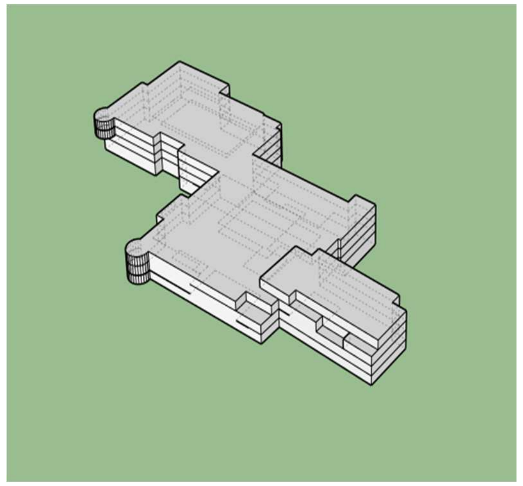


Sq ft: 491,800
Roof - R-value: R-33.4
Walls - R-value: R-25
Glazing U-factor: 0.34
Window to wall ratio: 25%
Lighting power density: 0.78W/sf
Equipment power density: 0.75 W/sf
HVAC Type: VAV with reheat
Heating efficiency: 95%
Cooling COP: 3.7

Total Energy Use: 19,504,000 kBTU
EUI: 40

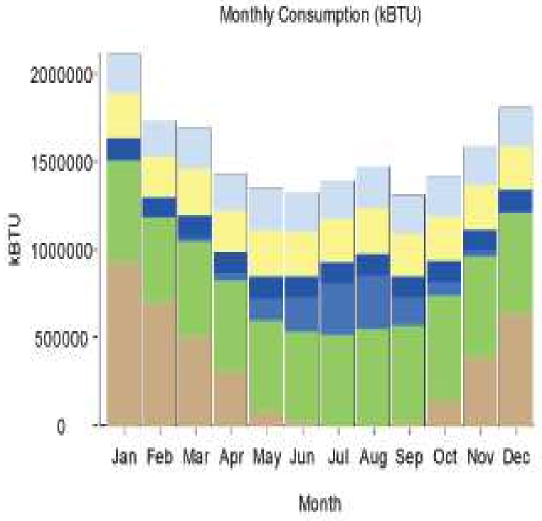


ALT 5

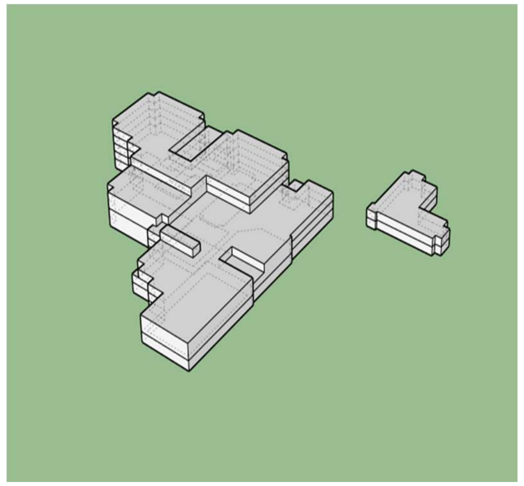


Sq ft: 428,700
Roof - R-value: R-33.4
Walls - R-value: R-25
Glazing U-factor: 0.34
Window to wall ratio: 25%
Lighting power density: 0.78W/sf
Equipment power density: 0.75 W/sf
HVAC Type: VAV with reheat
Heating efficiency: 95%
Cooling COP: 3.7

Total Energy Use: 18,643,000 kBTU
EUI: 43

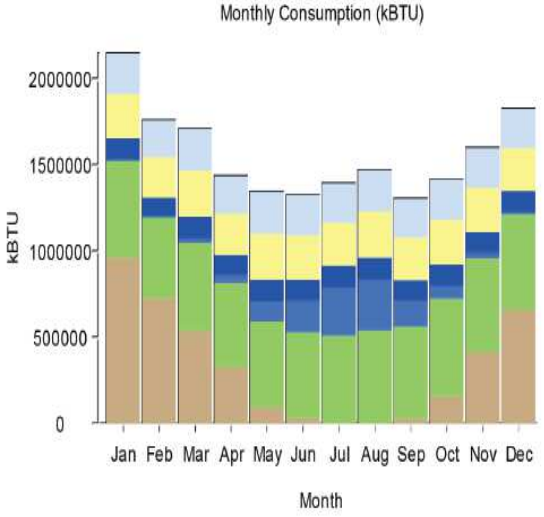


ALT 6



Sq ft: 437,800
Roof - R-value: R-33.4
Walls - R-value: R-25
Glazing U-factor: 0.34
Window to wall ratio: 25%
Lighting power density: 0.78W/sf
Equipment power density: 0.75 W/sf
HVAC Type: VAV with reheat
Heating efficiency: 95%
Cooling COP: 3.7

Total Energy Use: 18,802,000 kBTU
EUI: 43



🟦 Appliances	🟦 Cooling
🟨 Lighting	🟩 Hot Water
🟦 Fan	🟫 Space Heating
	🟥 Electric Heating

*Note – All predicted energy use values noted above are for reference and comparison purposes only. At this early stage of the feasibility study, results will be used to review macro-level parameters (building massing & orientation) which have impact on energy consumption. These parameters, along with additional variables (higher R-value envelopes, differing HVAC systems, etc.) will then be studied during the Preferred Schematic phase to influence the design process and help reduce energy consumption.

Overall Conclusions

The addition/renovation Alternatives (Alternatives 2, 3, 4, 4A and 4B) best meet the project goals and educational program. Program, schedule, phasing, building configuration and cost efficiencies for each of these five alternatives will be studied further, leading to a preferred alternative.

PRELIMINARY - ROUGH ORDER OF MAGNITUDE "CONSTRUCTION COSTS" AND "SOFT COSTS" - PRELIMINARY - 2/22/16

SOMERVILLE HIGH SCHOOL PROJECT - HIGH LEVEL COST SCENARIOS

		PRELIMINARY DESIGN PROGRAM (PDP) CONCEPTS												
		Alternative 0	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**	**Alternative 4A**	**Alternative 4B**	**Alternative 5**	**Alternative 6**	**Alternative X1**	**Alternative X2**	**Alternative X3**	**Alternative X4**
DATA IS ROUGH ORDER MAGNITUDE ESTIMATE OF CONCEPTS		**Base Repair Code Upgrades**	**Fully Renovate Existing**	**Addition / Renovation - w/ New Auditorium, Existing Field House to Remain**	**Addition / Renovation - w/ Renovated Auditorium, Existing Field House to Remain**	**Addition / Renovation - Concourse w/ Reno Auditorium, Existing Field House to Remain**	**Addition / Renovation - Campus w/ Reno Auditorium, Existing Field House to Remain**	**Addition / Renovation - East Side of Site, Existing Field House to Remain**	**New Construction Existing Site 4 Story 18,000 SF Gym**	**New Construction Trum Field / DPW 5 Story 18,000 SF Gym**	**Add Auxiliary Spaces to Program @ $350/SF**	**Add Parking Garage to Program as Part of Alternative 2, 3 or 4**	**Add Parking Garage to Program as Part of Alternative 5**	**Add Parking Garage to Program as Part of Alternative 6**
TOTAL BUILT GSF:		**360,150**	**360,150**	**376,285**	**392,575**	**394,575**	**394,575**	**376,285**	**364,290**	**364,290**	**51,648**	**2 Story w/ Field**	**2 Story w/ Field**	**1 Story Below Bldg**
DEMOLITION GSF:			**0**	**152,324**	**105,897**	**137,525**	**137,525**	**274,384**	**360,150**	**0**	-	-	-	-
LIGHT RENOVATION GSF:		**NA - SEE DESCRIPTION OF SPECIFIC REPAIRS**	**25,779**	**25,779**	**25,779**	**25,779**	**25,779**	**0**	**0**	**0**	-	-	-	-
MODERATE RENOVATION GSF:			**68,161**	**68,161**	**68,161**	**68,161**	**68,161**	**0**	**0**	**0**	-	-	-	-
HEAVY RENOVATION GSF:			**291,989**	**113,886**	**160,313**	**128,685**	**128,685**	**85,766**	**0**	**0**	-	-	-	-
NEW CONSTRUCTION/ADDITION GSF:			**0**	**168,459**	**138,322**	**171,950**	**171,950**	**290,519**	**364,290**	**364,290**	-	-	-	-
DEVELOPED SITE AREA GSF:		**20,000**	**401,300**	**385,400**	**380,800**	**301,015**	**341,015**	**381,015**	**415,400**	**91,900**	-	-	-	-
NUMBER OF STRUCTURED PARKING SPOTS:		-	-	-	-	-	-	-	-	-	-	**180**	**300**	**220**
TURF FIELD OVER GARAGE SF:		-	-	-	-	-	-	-	-	-	-	**40,000**	**70,000**	-
NUMBER OF MODULAR CLASSROOMS REQUIRED (IN ADDITION TO CUMMINGS SCHOOL):		**47**	**47**	**47**	**47**	**47**	**47**	**18**	**77**	**0**	-	-	-	-
New Building Construction Costs at $350/SF ($380/SF for Alt 4A due to Quantity of Stairs/Elevators/Envelope & Alt 6 due to 2 yrs add'l Escalation)	350 $/SF	-	-	$58,960,650	$48,412,700	$65,341,000	$65,341,000	$101,681,650	$127,501,500	$138,430,200	$18,076,800	-	-	-
Repair Only Costs	91 $/SF	$32,817,550	-	-	-	-	-	-	-	-				
Premium Renovation Costs for Code Upgrades at Existing Auditorium Stairs		-	-	-	$450,000	$450,000	$450,000	-	-	-				
Light Renovation Costs	135 $/SF	-	$3,480,165	$3,480,165	$3,480,165	$3,480,165	$3,480,165	-	-	-	-	-	-	-
Moderate Renovation Costs	250 $/SF	-	$17,040,250	$17,040,250	$17,040,250	$17,040,250	$17,040,250	-	-	-	-	-	-	-
Heavy Renovation Costs	300 $/SF	-	$87,596,700	$34,165,800	$48,093,900	$38,605,500	$38,605,500	$25,729,800	-	-	-	-	-	-
Remove Hazardous Materials		$1,000,000	$2,748,240	$2,748,240	$2,748,240	$2,748,240	$2,748,240	$2,748,240	$3,629,440	$500,000	-	-	-	-
Demolish Existing Building (Alt's 2, 3 & 4B include $1 mil premium for shoring during demolition)	10 $/SF	-	-	$2,523,240	$2,058,970	$1,375,250	$1,375,250	$3,743,840	$3,601,500	$750,000	-	-	-	-
Soils Remediation		-	-	$314,050	$314,050	$314,050	$314,050	$314,050	$314,050	$5,953,500	-	-	-	$20,837,250
Selective Demolition of Existing Building	15 $/SF	$500,000	$1,000,000	-	-	-	-	-	-	-	-	-	-	-
Parking Garage ($30k - $40k per spot)		-	-	-	-	-	-	-	-	-	-	$5,400,000	$9,000,000	$8,800,000
Turf Field Over Parking Garage Costs	37 $/SF	-	-	-	-	-	-	-	-	-	-	$1,480,000	$2,590,000	-
Sitework at 8%	26 $/SF	**$2,625,404**	**$8,649,369**	**$9,091,749**	**$9,398,161**	**$9,993,353**	**$9,993,353**	**$10,192,916**	**$10,200,120**	**$11,074,416**	**-**	**-$680,414**	**-$1,190,725**	**-**
Sub-Total		**$36,942,954**	**$120,514,724**	**$128,324,144**	**$131,996,436**	**$139,347,808**	**$139,347,808**	**$144,410,496**	**$145,246,610**	**$156,708,116**	**$18,076,800**	**$6,199,586**	**$10,399,275**	**$29,637,250**
General Conditions	7%	$2,586,007	$8,436,031	$8,982,690	$9,239,751	$9,754,347	$9,754,347	$10,108,735	$10,167,263	$10,969,568	$1,265,376	$433,971	$727,949	$2,074,608
Sub-Total		**$39,528,961**	**$128,950,755**	**$137,306,834**	**$141,236,187**	**$149,102,155**	**$149,102,155**	**$154,519,231**	**$155,413,873**	**$167,677,684**	**$19,342,176**	**$6,633,557**	**$11,127,225**	**$31,711,858**
General Requirements	2%	Incl in GC/OH	Incl in GC/OH	Incl in GC/OH	Incl in GC/OH	Incl in GC/OH	Incl in GC/OH	Incl in GC/OH	Incl in GC/OH	Incl in GC/OH	Incl in GC/OH	Incl in GC/OH	Incl in GC/OH	Incl in GC/OH
Sub-Total		**$39,528,961**	**$128,950,755**	**$137,306,834**	**$141,236,187**	**$149,102,155**	**$149,102,155**	**$154,519,231**	**$155,413,873**	**$167,677,684**	**$19,342,176**	**$6,633,557**	**$11,127,225**	**$31,711,858**
Bonds	0.85%	$400,750	$1,307,321	$1,392,036	$1,431,872	$1,511,618	$1,511,618	$1,566,537	$1,563,261	$1,686,619	$164,408	$56,385	$94,581	$269,551
Insurance	1.2%	$565,765	$1,845,629	$1,965,227	$2,021,466	$2,134,049	$2,134,049	$2,211,582	$2,206,957	$2,381,110	$232,106	$79,603	$133,527	$380,542
Permit (Assumes Fees Waived)		-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-Total		**$40,495,476**	**$132,103,704**	**$140,664,097**	**$144,689,525**	**$152,747,822**	**$152,747,822**	**$158,297,350**	**$159,184,091**	**$171,745,413**	**$19,738,691**	**$6,769,545**	**$11,355,333**	**$32,361,951**
CM@R OH and Fee	2%	$962,272	$3,139,107	$3,342,523	$3,438,177	$3,629,662	$3,629,662	$3,761,532	$3,753,666	$4,049,871	$462,096	$158,480	$265,836	$757,616
Total Fixed Construction Cost - Today's Dollars		**$41,457,747**	**$135,242,812**	**$144,006,620**	**$148,127,702**	**$156,377,484**	**$156,377,484**	**$162,058,882**	**$162,937,757**	**$175,795,283**	**$20,200,787**	**$6,928,025**	**$11,621,169**	**$33,119,566**
Calculated $ / SF		**$115.11**	**$375.52**	**$382.71**	**$377.32**	**$396.32**	**$396.32**	**$430.68**	**$447.27**	**$482.57**				
Phasing Premium (2% for Reno, 1% for New)	2%	$738,859	$2,410,294	$2,566,483	$2,639,929	$2,786,956	$2,786,956	$2,888,210	$1,452,466	$1,567,081				
Escalation (5% per annum to the midpoint of construction, Fall 2019)	5%	$6,879,245	$22,441,365	$23,895,577	$24,579,405	$25,948,323	$25,948,323	$26,891,059	$27,046,754	$29,181,032	$3,366,129	$1,154,441	$1,936,477	$5,518,831
Sub-Total		**$47,147,065**	**$153,802,414**	**$163,768,895**	**$168,455,520**	**$177,837,434**	**$177,837,434**	**$184,298,500**	**$183,913,093**	**$198,425,797**	**$22,708,305**	**$7,787,998**	**$13,063,701**	**$37,230,688**
GMP Contingency (3%)	3%	$1,443,407	$4,708,661	$5,013,785	$5,157,266	$5,444,493	$5,444,493	$5,642,299	$5,630,499	$6,074,806	$592,161	$203,086	$340,660	$970,859
Design and Pricing Contingency (carry 10% at FS/SD)	10%	$4,811,358	$15,695,536	$16,712,616	$17,190,886	$18,148,310	$18,148,310	$18,807,662	$18,768,331	$20,249,353	$1,973,869	$676,954	$1,135,533	$3,236,195
Total Including Projected Costs		**$55,330,617**	**$180,498,668**	**$192,195,080**	**$197,695,187**	**$208,705,566**	**$208,705,566**	**$216,288,112**	**$215,835,808**	**$232,867,555**	**$26,132,945**	**$8,962,507**	**$15,033,839**	**$42,845,450**
MSBA Calculated Total $ / SF		**$153.63**	**$501.18**	**$510.77**	**$503.59**	**$528.94**	**$528.94**	**$574.80**	**$592.48**	**$639.24**				

		PRELIMINARY DESIGN PROGRAM (PDP) CONCEPTS												
		Alternative 0	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 4**	**Alternative 4A**	**Alternative 4B**	**Alternative 5**	**Alternative 6**	**Alternative X1**	**Alternative X2**	**Alternative X3**	**Alternative X4**
DATA IS ROUGH ORDER MAGNITUDE ESTIMATE OF CONCEPTS		**Base Repair Code Upgrades**	**Fully Renovate Existing**	**Addition / Renovation - w/ New Auditorium, Existing Field House to Remain**	**Addition / Renovation - w/ Renovated Auditorium, Existing Field House to Remain**	**Addition / Renovation - Concourse w/ Reno Auditorium, Existing Field House to Remain**	**Addition / Renovation - Campus w/ Reno Auditorium, Existing Field House to Remain**	**Addition / Renovation - East Side of Site, Existing Field House to Remain**	**New Construction Existing Site 4 Story 18,000 SF Gym**	**New Construction Trum Field / DPW 5 Story 18,000 SF Gym**	**Add Auxiliary Spaces to Program @ $350/SF**	**Add Parking Garage to Program as Part of Alternative 2, 3 or 4**	**Add Parking Garage to Program as Part of Alternative 5**	**Add Parking Garage to Program as Part of Alternative 6**
TOTAL BUILT GSF:		**360,150**	**360,150**	**376,285**	**392,575**	**394,575**	**394,575**	**376,285**	**364,290**	**364,290**	**51,648**	**2 Story w/ Field**	**2 Story w/ Field**	**1 Story Below Bldg**
DEMOLITION GSF:			**0**	**152,324**	**105,897**	**137,525**	**137,525**	**274,384**	**360,150**	**0**	-	-	-	-
LIGHT RENOVATION GSF:		**NA - SEE DESCRIPTION OF SPECIFIC REPAIRS**	**25,779**	**25,779**	**25,779**	**25,779**	**25,779**	**0**	**0**	**0**	-	-	-	-
MODERATE RENOVATION GSF:			**68,161**	**68,161**	**68,161**	**68,161**	**68,161**	**0**	**0**	**0**	-	-	-	-
HEAVY RENOVATION GSF:			**291,989**	**113,886**	**160,313**	**128,685**	**128,685**	**85,766**	**0**	**0**	-	-	-	-
NEW CONSTRUCTION/ADDITION GSF:			**0**	**168,459**	**138,322**	**171,950**	**171,950**	**290,519**	**364,290**	**364,290**	-	-	-	-
DEVELOPED SITE AREA GSF:		**20,000**	**401,300**	**385,400**	**380,800**	**301,015**	**341,015**	**381,015**	**415,400**	**91,900**	-	-	-	-
NUMBER OF STRUCTURED PARKING SPOTS:		-	-	-	-	-	-	-	-	-	-	**180**	**300**	**220**
TURF FIELD OVER GARAGE SF:		-	-	-	-	-	-	-	-	-	-	**40,000**	**70,000**	-
NUMBER OF MODULAR CLASSROOMS REQUIRED (IN ADDITION TO CUMMINGS SCHOOL):		**47**	**47**	**47**	**47**	**47**	**47**	**18**	**77**	**0**	-	-	-	-
PROJECT SOFT COST DATA IS BASED UPON PERCENTAGE OF CONSTRUCTION COSTS FOR ALL OPTIONS														
PROJECT SOFT COSTS (ROUGH ORDER MAGNITUDE PROJECT BY PMA)		$14,421,123	$39,529,734	$41,944,016	$43,044,037	$45,246,113	$45,246,113	$45,602,622	$48,072,162	$48,003,511	$5,576,589	$1,792,501	$3,006,768	$8,569,090
Reimbursable Soft Cost Allowance per MSBA (20% of Construction Costs)		$11,066,123	$36,099,734	$38,439,016	$39,539,037	$41,741,113	$41,741,113	$43,257,622	$43,167,162	$46,573,511	$5,226,589	$1,792,501	$3,006,768	$8,569,090
FF&E and IT Allowance @ $1200/student each (Incl Above)		-	-	-	-	-	-	-	-	-	$300,000	-	-	-
OPM Costs (Incl Above)		-	-	-	-	-	-	-	-	-	-	-	-	-
Architect / Engineering Fees (Incl Above)		-	-	-	-	-	-	-	-	-	-	-	-	-
Legal Fees, Owner / Architect Subconsultants & Testing Costs (Incl Above)		-	-	-	-	-	-	-	-	-	-	-	-	-
Utilities Allowance (Incl Above)		-	-	-	-	-	-	-	-	-	-	-	-	-
Movers Allowance (Est)		$150,000	$225,000	$300,000	$300,000	$300,000	$300,000	$300,000	$500,000	$150,000	$50,000	-	-	-
Swing Space Allowance (Est)		$1,925,000	$1,925,000	$1,925,000	$1,925,000	$1,925,000	$1,925,000	$765,000	$3,125,000	-	-	-	-	-
FF&E over and above standard $1200/student due to 640 CTE Students (increase to $2200/student)		$640,000	$640,000	$640,000	$640,000	$640,000	$640,000	$640,000	$640,000	$640,000	-	-	-	-
IT over and above standard $1200/student due to 640 CTE Students (increase to $2200/student)		$640,000	$640,000	$640,000	$640,000	$640,000	$640,000	$640,000	$640,000	$640,000	-	-	-	-
Total Project Cost		**$69,751,740**	**$220,028,402**	**$234,139,097**	**$240,739,224**	**$253,951,680**	**$253,951,680**	**$261,890,735**	**$263,907,970**	**$280,871,066**	**$31,709,534**	**$10,755,008**	**$18,040,607**	**$51,414,540**
Owner Construction Contingency (Est. 6%)	6%	$3,319,837	$10,829,920	$11,531,705	$11,861,711	$12,522,334	$12,522,334	$12,977,287	$12,950,149	$13,972,053	$1,567,977	$537,750	$902,030	$2,570,727
Owner Soft Cost Contingency (Est. 4%)	4%	$576,845	$1,581,189	$1,677,761	$1,721,761	$1,809,845	$1,809,845	$1,824,105	$1,922,886	$1,920,140	$223,064	$71,700	$120,271	$342,764
Total Project Budget		**$73,648,422**	**$232,439,511**	**$247,348,562**	**$254,322,697**	**$268,283,858**	**$268,283,858**	**$276,692,126**	**$278,781,005**	**$296,763,259**	**$33,500,575**	**$11,364,459**	**$19,062,908**	**$54,328,031**

PRELIMINARY - ROUGH ORDER OF MAGNITUDE "CONSTRUCTION COSTS" AND "SOFT COSTS" - PRELIMINARY - 2/22/16

LOCAL ACTIONS AND APPROVALS

Throughout this process, the Somerville High School Building Committee (SHSBC) has endeavored to maintain a public, transparent and open process. The Committee has attempted to reach out to the community in as many different avenues as possible in an effort to gain input and feedback; through open public forums, the Project's website, cable television, social media, local papers and the formation of key working groups.

Design alternatives have been developed through an open public process with significant community participation. The Committee has sponsored multiple public forums with the community and committees to review and discuss the renovations and additions alternatives, new construction alternatives, additional site alternatives and sustainable design initiatives.

Additionally, the Committee has engaged in formal and informal dialog with representatives of City constituent groups, representing a wide spectrum of the general public.

A listing of the meetings to date and The Committee's approval to submit this Preliminary Design Program follows.

CITY OF SOMERVILLE, MASSACHUSETTS
JOSEPH A. CURTATONE
MAYOR
MARY SKIPPER
SUPERINTENDENT OF SCHOOLS

February 11, 2016

Ms. Diane Sullivan
Senior Capital Program Manager
40 Broad Street
Boston, Massachusetts 02109

Dear Ms. Sullivan:

The Somerville High School Building Committee ("SBC") has completed its review of the Feasibility Study *Preliminary Design Program* for the Somerville High School project (the "Project"), and on February 10, 2016 the SBC voted to approve and authorize the Owner's Project Manager to submit the Feasibility Study related materials to the MSBA for its consideration. A certified copy of the SBC meeting minutes, which includes the specific language of the vote and the number of votes in favor, opposed, and abstained, are attached.

Since the MSBA's Board of Directors invited the District to conduct a Feasibility Study on November 19, 2014, the SBC has held nine meetings regarding the proposed project, in compliance with the state Open Meeting Law. Public posting of the notice for every meeting and the corresponding meeting agendas were posted on The City of Somerville's website (http://www.somervillema.gov/calendar) through the city's communication department. These meetings include:

Somerville High School Building Committee Meetings

September 09, 2015 – 05:35PM – Gallery 81, Somerville High School

T. Pierantozzi provided an overview of the project to date and a history of the building. T. Pierantozzi updated the committee on a conference call had with DESE, confirming that Next Wave and Full Circle alternative school programs could be included into the education plan for the new high school.
S. Burke of PMA presented a Project Communication Plan/Flow Diagram. The importance of team communication and project transparency was stressed.

T. Pierantozzi provided an overview of the City's Decision Making Process. MSBA, City Representatives, School Department, School Committee, Board of Aldermen, Capital Projects, Project Consultants and City Hall will all be determining factors. Tony's role will be communicating this information to and from all parties and the School Building Committee.

M. Rossetti suggested setting up a website where key information can be posted, all agreed that this would be beneficial for outreach and transparency. R. King to follow up with the City's communication department to have a project website set up.

A. Pitkin of SMMA suggested assembling working groups to make recommendations on specific topics to the SBC. L. Finnegan (SMMA) will make recommendations for some group topics (ie site, interior, exterior, cost, phasing, education, safety/security, MEPFP, etc) and solicit interest at next SBC meeting.

A. Pitkin of SMMA presented background information on SMMA and provided sample project adjacencies, meeting structures and visioning. An overview of design options to be studied was provided, including new construction, addition/renovation, renovation only, and a base code required upgrades only option. SMMA noted that the add-reno layouts proposed include "Space Mining" to optimize the use of the space at the rear of the building. Currently the only two sites being evaluated are the Franey Rd DPW Site and the existing school site, SMMA will continue to explore other site options to determine viability. Some of the challenges of the existing school site were reviewed, including parking, pedestrian flow and possible restrictions related to the existing façade.

September 23, 2015 – 05:30PM – Gallery 81, Somerville High School

T. Pierantozzi provided an update on recent progress, HS staff interviews are underway, SMMA has created a recommended working group list, and the project website has been established.

R. King reported that a project website will be up and running the day after the meeting. PMA was tasked with providing copies of documents to be uploaded to webpage, including meeting minutes, agendas, and handouts provided at public meetings. Additional communication methods to provide increased project visibility and public transparence were discussed, including Social Media, Ward meetings, press releases, engaging alumni groups, neighbors and abutters, holding public forums, developing a process to make FAQs available to the public.

A. Pitkin, updated the committee on the development of the educational program. SMMA continues to work with School staff and conduct interviews. A list of working groups will be circulated for interested individuals to review and join groups that interest them. Ideal group size is 5-6 members, PMA and SMMA will also be part of these groups.

MSBA space allowance was discussed, the allowable square footage is based upon anticipated enrollment using the MSBA's pre-defined formula. A concern about the new building attracting higher enrollment was discussed, the Team noted that the MSBA formula allows for ~15% growth. Chapter 74 space allowances are calculated using DESE guidelines and are in addition to the MSBA standard space summary allocation. M. Rossetti stated that in conversations with Jack McCarthy of the MSBA, he stressed constant communication in the event that the projected enrollment changes. Updated enrollment data will be available on October 1, 2015. PMA cautioned that MSBA has recently stated that a re-review of approved enrollment figures would require that the project be placed on hold while the enrollment is re-reviewed.

October 14, 2015 – 05:30PM – Gallery 81, Somerville High School

T. Pierantozzi reported that the school staff meetings are complete and educational visioning sessions are scheduled for 10/20 and 11/9. Student and Alumni sessions are scheduled for 11/4. The visioning session are intended to start producing decisions which will help further define the Educational Plan for the new high school. Additional conversations in the visioning will be held to determine which programs should be consolidated into the new high school building.

Committee members were asked to add their names to the working groups which they would like to take part in. Members could also sign up through Google Docs sign-up sheet or by contacting PMA. The groups' membership and participation level will be reviewed at the 11/4 meeting.

SMMA shared a PowerPoint presentation, reviewing the project schedule and updating their progress. The educational program meetings are progressing with a goal of a PDP submission in Feb 2016. SMMA was collecting data to move the process forward. SMMA reported that all staff meetings have been complete. J. Oteri was to confirm that no school staff or departments were missed. Upcoming visioning sessions, to be held at SMMA, were scheduled for Oct 20 & Nov 9. Continuous communication with staff and teachers was noted as continuing throughout the process. Ed Program drafts were being updated with M. Skipper, every two weeks. When the Ed Program draft is completed, it was noted that the Ed Program subcommittee will report to the Building Committee, who will report to the School Committee and other attendees requested by the School committee, the Board of Aldermen, and Mayor. SMMA has presented to school committees in the past and offered to provide provide assistance. The School Committee asked what the opportunity for public comment was. A. Pitkin discussed hosting a community forum, the purpose of of which is to share the overall goal and purpose of the high school project with the community. A community forum was scheduled for November 19th. A. Pitkin reiterated that the PDP will include all options and that no final decisions are made at the time the PDP. A. Pitkin suggested that it would make more sense to show the community the options included in the PDP as it would yield more fruitful discussions in coming to determination on a final design. Each option will have an order of magnitude cost included in the PDP. The chairman noted that it is important to get project information out to the public. Additional Public outreach will be done after PDP is finalized and before the Schematic Design. There was suggestion to have a project update on SCATV after the PDP is submitted.

SMMA reported on their review of all potential sites in the City around and over 10 acres, both state owned and city owned. Trum Field/DPW yard appeared to be the only other site which would warrant further investigation due to size, location and current ownership.

The Committee asked for a report on how many spaces in the building are currently undersized by MSBA standards. SMMA indicated that this would be provided at the next meeting.

PMA and SMMA agreed to work, with the Committee's availability, to schedule tours of some recently constructed high schools. Essex Tech, Quincy High School and Winchester High School were decided upon to be the first set of tours scheduled. The CTE director and students would be invited to join the tours.

November 04, 2015 – 05:30PM – Gallery 81, Somerville High School

T. Pierantozzi provided a brief overview of visioning meetings, upcoming outreach, working groups, and project information and fact sheet for distribution to the public.

D. Taylor from the Somerville Communications Department was present and offered to assist the SBC with outreach efforts starting with an announcement for the upcoming Community Forum on 11/19; PMA and SMMA to provide support information and images. SMMA intended to compile a presentation for Forum on 11/19 using SBC presentation slides. N. Braga to work with students & SMMA to create an informational brochure for the 11/28 Craft Fair, ~500 copies to be printed and distributed. A project announcement and direction where more info can be obtained will be provided at the upcoming ResiStat meetings. T. Pierantozzi was to arrange filming for events with cable department where appropriate.

A. Pitkin was scheduling DESE follow up meeting to discuss SPED & c.74 program, tentatively targeting 12/1/15. SMMA reported that Geotech reports are forthcoming. Geo-environmental testing, noise monitoring and traffic studies have been scheduled (existing site only). Visioning meeting #2 was scheduled for 11/9/15. Educational Program development was ongoing, with draft Educational Program targeted for 11/25/15. SMMA presented floor plans identifying which spaces are compliant with MSBA's space summary guidelines. Space summary and floorplans were to be further refined and reviewed for compliance with MSBA guidelines through the feasibility phase.

December 02, 2015 – 05:30PM – Gallery 81, Somerville High School

T. Pierantozzi provided an update from the site tours at Quincy and Essex; a tour of the Winchester High School tour is scheduled for 12/9. SBC expressed interest in touring the Everett HS as well, PMA & M. Skipper to coordinate the tour.

The first was a great success and well attended. A recap of the Community Forum was provided by PMA and a memo outlining the discussion was distributed. A second community Forum will be scheduled in late February or early March at one of the elementary schools. The updated fact sheet has been posted to the project website. 500 informational brochures are available for distribution, M. Rosetti will take some for local distribution, PMA to post on project website. A property tax newsletter is also being mailed out soon, E. Bean to contact Communications Director to see if a high school project update can be included as part of that newsletter. Student participation in Design Workgroups and possibly site visits was requested, J. Oteri to coordinate. The option of providing a project update via Our Schools / Our City was also identified for consideration.

PMA provided an updated working group list. The education plan working group meeting will be scheduled shortly after receipt of new draft educational plan template from the MSBA.

SMMA distributed visioning meeting notes to the SBC. SMMA provided an overview of the meetings. SMMA has contacted DESE to set up a meeting to discuss new c.74 programs, no response received yet, a meeting will hopefully occur in the coming weeks. SMMA also provided a report on recent site studies (geotech, geoenv, hazmat, survey, etc). Preliminary investigations did not reveal anything unexpected, PMA/SMMA to distribute copies of the reports to SBC members.

SMMA reported that Analysis of other sites within the City suggests that the existing site appears to be the preferred location. SMMA will include this analysis and results in the PDP submission.

A draft copy of the new construction option space summary was distributed by SMMA and discussed at length. M. Rosetti inquired about the possibility of accessible green roof space. While this is possible it is highly unlikely that the MSBA would participate in any of the costs due to the 8% sitework cost cap or $299/SF building allowance. The possibility of adding a c.74 Media program to work with City Cable was discussed. The various programs which may be part of the project were discussed, it was agreed that all proposed programs should remain part of the project during the early portion of the feasibility study. SMMA to update Space Summary based upon feedback received and re-issue.

January 06, 2016 – 05:40PM – Library - Somerville High School

The meeting began with a discussion about building committee member attendance concerns. T. Pierantozzi informed the committee that the intent was to replace R. Melillo with V. McKay as a voting member as recommended by the School Committee. With the Mayor's approval the SBC member form would be updated and submitted to the MSBA for approval. T. Pierantozzi added that the School Committee had also recommended adding one student member to the SBC. A motion was made by S. Roix, and seconded by S. Koty to recommend that the Mayor add a student as a voting member, J. Oteri was to work with student council to identify a student to represent the student body. A vote, 11-0 in favor, indicated unanimous approval to recommend that the Mayor add a voting student member to the building committee.

T. Pierantozzi reported that public outreach efforts are ongoing. Project documents had been updated on the project website. R. King was to confer with city communications department about next outreach effort.

The educational plan working group met on 1/5/16 to review the Ed Plan draft outline. M. Skipper provided an update about approach to development, input from site visits, exemplars reviewed w/ SMMA's guidance. The educational program development was an inclusive process which included two visioning seminars and a community meeting to obtain feedback. The outline had been drafted with input from the School Committee, department heads, teachers, students, support staff (guidance, nurse, etc). S. Morgan had taken the lead on development and assembling the plan. J. Oteri spoke about the process, how SMMA helped them to "think outside of the box." SHS staff had been pleased with the outcome of the sessions & information gathered at site tours. S. Morgan added that the visioning process also included community partners. A timeline of the process was provided: 12/23/15 first rough draft sent to SMMA | 1/5/16 first draft discussed with working group | 1/8/16 updated draft will be provided from SBC, SC and BOA review | 1/11/16 SC will review at their meeting | 1/13/16 all comments due | 1/15/16 final draft to be issued. T. Ciccariello asked if 100% of department feedback was received – to which the answer was yes. S. Morgan added that comments to be provided via MS Word tracking feature if possible. M. Rosetti expressed concern about whether or not input from site visits would be included in the Ed Program. M. Skipper would review site visit input and incorporate where/if appropriate. SMMA added that this is the first step in the process and will not, in itself, fully define the building; details would be refined as design develops. Final draft of Ed Plan would be discussed at 1/20/16 SBC meeting.

SMMA provided a design update presentation with the latest PDP concepts. There were a total of 6 concepts (base repair, renovation, add/reno using existing auditorium, add/reno with new auditorium, new build on existing site, new build on Trum/DPW site). M. Rossetti expressed desire to save the existing auditorium if possible due to recent investments, a sentiment which was echoed by others. SMMA responded that unfortunately the auditorium comes with a good deal of compromised "bad" space around and underneath it. A cost analysis was being performed as part of the PDP development to determinate if it is logical to save the existing auditorium. T. Pierantozzi spoke about including a campus concept with multiple buildings on the existing site as one of the alternatives, SMMA was to develop this additional option to include with the PDP.

SMMA provided an overview of existing and potential zoning non-conformities (ie setback, building height, fence height). A meeting with OSPCD on 12/3/15 confirmed that a special permit should be sufficient provided existing non-conformities are not made worse in the preferred option. On 12/14/15 another meeting occurred to review the latest GLX project design and potential implications. It is understood that there is an easement in place for utilities supporting GLX on HS property that may affect design. It is also understood that the Homan's site has been offered to DOT as laydown space for the GLX project with the understanding that they would abate and demolish the building. The City indicated a need to better understand timing of the GLX project to determine if there is an opportunity for the HS project to use the Homan's site for laydown as it would be incredibly advantageous to the high school project.

PMA provided a presentation about current construction market data, both nationally and MSBA project specific. Items like inflation and escalation were reviewed. Current cost/SF was reviewed. MSBA categorically ineligible costs were reviewed. MSBA data indicates upper range of construction costs for SD estimates in 2015 is $441/SF. With annual escalation anywhere from 4.5%-8% through 2018, this could translate to an avg cost/SF in excess of $500 for SHS. Unfortunately SHS project may be on the upper end of MSBA data, due to challenging site, urban market conditions, constraints w/ existing building, etc. MSBA cost/SF cap is currently at $299/SF, this creates a challenge for many urban projects as it results in a high percentage of ineligible costs (recently approved Brookline school was profiled, where only 56% of total budget was "eligible" for reimbursement). PDP order of magnitude cost would be reviewed in detail at the 1/20/16 SBC meeting.

<u>January 20, 2016 – 05:40PM – Library - Somerville High School</u>

Proposed changes to the SBC membership were discussed; Max Nadeau was introduced as the proposed student voting member. Max is a SHS freshman who has previously expressed interest in the project and who had attended school tours at Winchester HS and Everett HS. Rick Melillo would also be replaced by Vince McKay on the SBC. Lastly, Omar Boukili (on the "SHS Building Task Force") was to be replaced by Tim Snyder on the proposed staffing update submission to the MSBA. The proposed changes would become official upon receipt of MSBA approval of the change. Site visits were also discussed, comments about which included: 1) MJR concern that QHS had a freshmen academy that was underutilized; SMMA advised that this was a result of the economic downturn and funding cuts. 2) MJR liked the lecture hall idea, SMMA noted that this type of space was in the current draft of the SHS Ed Program. 3) MJR liked the IT grant in Essex where equipment was bought at cost, MS to look into developing business relationships, JO spoke about some if the partnerships already existing. 4) TP spoke about the lecture hall at Biogen, design is optimal and he would like to see something like it considered. 5) SR and others were not a fan of the café/kitchen at Everett, no windows, felt confined. 6) AS liked the size of the classrooms at Everett, Essex Tech classrooms were too small as a result of the breakout space in the corridor. T. Pierantozzi thanked all for their attendance and feedback at the tours.

Next SBC meetings to be at elementary schools, 2/3 will be at Argenziano, 2/10 will be at ESCS. S. Roix inquired if an outreach working group will be created; all agreed that this would be beneficial. The SBC meeting on 2/3 was to focus on outreach and forming a working group and developing the outreach plan, representation from communications and City should be included on the working group.

The education plan was distributed to all, J. Oteri made a motion to approve, seconded by T. Ciccariello. Discussion followed. M. Skipper provided an overview, stated that lots of feedback was received, SM worked to incorporate feedback wherever possible while maintaining the overall vision. TP asked if anybody wanted to review the Ed Plan development process. MJR inquired if feedback was mostly from educators? MS replied that it was mostly from educators, many comments were focused on areas that required additional detail or related to linkage between sections or takeaways from site visits. MRJ asked if the School Committee reviewed the Next Wave and Full Circle program inclusion. MS replied that these were folded into a larger programmatic review, and to pull these programs out now would be premature. MJR commented about a lack of building sustainability/energy efficiency in the educational program. SMMA explained that sustainability is addressed in other sections of the Feasibility/Schematic process. MJR inquired about the centralization of guidance, JO responded that the idea is to maintain maximum flexibility through collaboration, the house structure will still be accommodated. MJR presented a question about adding HVAC to CTE, this program was cut due to low enrollment years ago. JO responded that the Regional Education Board has identified HVAC as an in demand vocation. NB had a question about collaboration between academic & CTE programs, would like the Ed Plan to better reflect integration. TC expressed concern about the short timeline for reviewing, asked that future changes are tracked. TC believed it was a good foundational document, some redundancy in CTE but generally seemed to capture all input and the evolution in the document is evident from rough to final draft. J Oteri and T Ciccariello agreed to table the motion/vote pending final revisions to be completed by 2/10/16.

SMMA presented the Concourse and Campus alternatives. One of the major challenges with both alternatives was the distance between the existing auditorium and gymnasium. These alternatives would be included in the PDP submission.

SMMA provided a breakdown of SPED spaces contained within the space summary.

Cost analysis for new campus/concourse alternatives was being developed. T. Pierantozzi and E. Bean explained the debt exclusion and proposition 2½ override processes and challenges that the SBC will likely face. E. Bean explained the difference between the two, a debt exclusion is a temporary property tax increase for the life of the loan, an override is permanent. If project funding question is to be included on the November 2016 ballot then the ballot question would need to be approved by the secretary of state by 8/3/16, and a Board of Alderman 2/3 majority vote would be required prior to 8/3/16. It was noted that this is out of sequence in the MSBA process (ballot vote usually comes *after* MSBA board vote), but other districts have done it this way before so it would not be unprecedented. If this course of action will be taken, PMA recommended informing and consulting with the MSBA as soon as possible. PMA also cautioned that appropriate contingencies need to be in place if the target budget is to be set so soon in Schematic Design, so the estimated cost will need to be on the higher/safe side since the detailed design and detailed estimates will not yet be available. T. Ciccariello and others expressed concern about the timeline getting to a vote in November, indicating a need to increase outreach efforts ASAP.

February 03, 2016 – 05:43PM –Conference Room - Argenziano School

Tony P. outlined the PDP process; approval was being sought by SBC on 2/10, then it would need to go to SC and City Hall for approvals and sign-off. Once submitted to MSBA, they will review for approximately 2 weeks and provide comments. Mary Jo R. requested that copies of MSBA comments are forwarded to the SBC members. PMA added that responsibility will be assigned for response to each of the MSBA comments (indicating City, School, PMA, SMMA responsibility). Mary Jo R. requested an updated status of SBC membership changes, Mary S responded that it is with the Mayor for signature and will be submitted to the MSBA immediately after. Mary Jo R. inquired what the "task force" is on the SBC approval form, Tony P responded that the task force was the group responsible for development of the Statement of Interest (SOI) submission to the MSBA. A copy of the MSBA's approved changes to the SBC will be forwarded to all members once received.

A public outreach committee was formed consisting of Mary Jo R. (chair), Tony P, Steve R, Susanna M, Rob K, Nelia B, City Hall Communications and Mary S (when necessary). Mary Jo to coordinate first meeting for the following week. The approach needed to be multipronged, key critical information needs to be identified and distributed, working group should work with City Communications to find good information to distribute. Tony P suggested distributing an updated version of the brochure that already exists. Working met and reported back at a future SBC meeting.

The Education Program working group had a conference call with the MSBA on Friday 1/29/16 to discuss c.74/DESE protocol. A new format for reporting c.74 information in the Ed Program was provided by the MSBA, and this new form will require translation of the current information in narrative format to a simplified table format. Leo DeSimone to work on new format and work with DESE to obtain pre-approvals for new programs. It was noted by John O. that the MSBA's new requirement for pre-approval is being discussed internally at DESE, since pre-approvals are only good for two years, this is actually more of a pre-pre-approval.

A new "Central Hill East" alternative was briefly discussed; this option was in the early stages of development and would be developed further in a design charrette meeting on Friday 2/5/16. The purpose of this new option was to provide additional flexibility on the Central Hill site with options going forward under the MSBA program. T. Bent and others stressed that the high school needs to remain the primary goal of the committee.

SMMA updated the space summary to confirm accurate interpretation of the Educational Program in order to eliminate inefficiencies and design a "right-sized" building. An updated copy would be provided to the SBC with the PDP draft documents the day after this meeting.

Order of magnitude cost data was forthcoming. Costs presented would utilize general market data and are for comparison of each of the alternatives to one another to identify the preferred schematic option. T. Pierantozzi cautioned that detailed design and estimates for a specific option will not be fully developed until completion of Schematic Design and MSBA project scope & budget approval in January 2017. SMMA advised that if any new furniture is being purchased for the building that the school consult with them to ensure that it can be used in the new program.

John O. distributed correspondence to and from the New England Association of Schools & Colleges (NEASC). In their communication, NEASC stressed the importance of implementation of a plan for replacing the aging High School building. John O. also distributed the district's response to NEASC's 5-year report & NEASC's most recent letter commending Somerville for their efforts related to the School Building Project. Tony P. stressed the importance of maintaining accreditation for Somerville HS.

February 10, 2016 – 05:36PM – Media Center – East Somerville Community School

Committee Member and Project team introductions were made. T. Pierantozzi outlined the MSBA and PDP processes, stressed that it is not the intent of tonight's meeting to select an option, merely to approve the submission of the 9 building alternatives, education plan, and supporting documents to the MSBA. MJ Rossetti inquired about the process of narrowing down the 9 options and if it would make sense to review 3 options at each of the 3 next SBC meetings? T. Pierantozzi replied that it may not be necessary to review all 9 in depth, the MSBA requires that we investigate certain scenarios to demonstrate due diligence and in Somerville's case a few of those scenarios would not satisfy the education plan or contain other major impediments.

MJ. Rossetti provided an update on the outreach working group meeting held on 2/9/16. There were 13 people in attendance, including 4 from the City's communications department and 3 from PMA. The project's website is in the process of being revamped for interactivity with constituents, the main page will contain FAQs & and a project overview. MJ. Rossetti will notify SBC members when new website is 'live'. The website will contain a means for public comment but it was noted that responses may need to be selective in order to maintain overall schedule and process. Facebook and Twitter accounts will also be set up and monitored by the City where quick responses to questions can be provided. Informational brochures were circulated, the brochures were created by N. Braga's graphics class and will be updated for the next Community Forum in about 6 weeks. MJ. Rossetti is also working to document all community groups to be engaged as part of the outreach effort. It was noted that any and all media questions should be forwarded to T. Pierantozzi for review and response.

SMMA presented a new, 9th alternative building option "4B". This is an add-reno option at the east side of the site that centers around the 80s wing field-house. The other 8 alternatives were also reviewed. Challenges related to implementation of the Ed Plan in the base repair and base renovation options were discussed. Challenges related to the Article 97 open space protection policy were discussed as they relate to the Trum Field/DPW alternative. MJ. Rossetti inquired about the reference to a parking garage in the traffic study, SMMA responded that there is an option for a garage in some of the alternatives. MJR expressed concern about some of the problem traffic intersections referenced in the study, requested that more detailed information be provided prior to selection of a preferred option. T. Pierantozzi added that the project's impact to traffic patterns will be minimal if the existing site is utilized, traffic studies in scenarios where new traffic is being introduced at new sites are often more complex. SMMA added that school impact to traffic is less than other office type buildings since most students utilize alternative forms of transportation. Lastly, MJ. Rossetti requested that SMMA outline any OSPCD variances required for each alternative prior to selection of a preferred option.

Upcoming activities and dates were reviewed: School Committee Finance & Facilities subcommittee presentation on 2/11/16, SC approval of PDP on 2/22/16, Mayor approval of PDP by 2/29/16, PMA to submit PDP on 3/1/16. Still awaiting MassHistoric response to Project Notification Form. Project remains on target for 7/20/16 MSBA board approval to proceed into Schematic Design.

T. Bent asked for clarification on what stage costs are firmed up, T. Pierantozzi & PMA responded that until Schematic Design has been completed late this year, there is no tangible set of design documents (detailed drawings & specifications) to perform a detailed, project specific estimate on. At the moment we are using order of magnitude costs for the purpose of comparing each of the 9 alternatives to each other only, with the goal of identifying the preferred option and developing those costs further. The order of magnitude costs in the PDP are on a square foot basis using general market data, the true cost of the project and the district's share will not be set until the January 25, 2017 MSBA Board meeting. MJ Rossetti added that it will be important for SBC members to understand ineligible costs for each scenario in order to make an educated decision on the preferred option.

Prior to a vote on the PDP, MJ. Rossitti motioned that the rules of the meeting be foregone and that public be allowed prior to the committee vote. The motion was unanimously approved (12-0).

Public comments:

- Laura H (resident) – Is the Education Program the only component being submitted at this time? T. Pierantozzi – No, the full PDP is being submitted, including the Ed Plan, Alternatives, Existing Conditions Study and Subconsultant Reports.

- Richard W (resident) – If the plan [PDP] is submitted to the MSBA on 3/1/16, when will it be accessible to residents? T. Pierantozzi – the PDP will be posted to the project website once it has been submitted to the MSBA.

A motion was made by S. Koty to approve the Preliminary Design Program package in its entirety as submitted, the motion was seconded by T. Bent. T. Pierantozzi asked those present if there were any other discussion items relating to the PDP submission package, there were none.
Vote: 12 in favor, 0 opposed, 0 abstained. Unanimously in favor to approve the PDP in its entirety..

In addition to the SBC meetings listed above, the District held one public meeting, which was posted in compliance with the state Open Meeting Law, at which the Project was discussed. This meeting included:

Somerville High School Project Community Forum

November 19, 2015 – 06:30PM – Library – Somerville High School

A Community forum was held to present the Somerville High School Project, and process to the Somerville Community.

SMMA provided a presentation on the state and condition of the current school building and discussed the need for a new High School in Somerville. SMMA highlighted the limitation on the educational plan imposed by the current building and provided information as to how a new or renovated space could provide educators the resources to support the City's visions for a 21st century education model. SMMA explained the role of the MSBA and the opportunity it affords the City via construction cost reimbursements through their grant program. SMMA highlighted the different options being considered, including location of a new high school to remain on the existing site or moving to DPW/Trum Field. SMMA provided a history of the current site, Central Hill, as well as a history of the school building and gave a brief overview of the geotechnical, acoustic and traffic studies which had been performed as part of the site investigations. SMMA provided detail on the Existing High School Program layout within the current building. They recapitulated the meetings and interviews held with the school staff as well as the Visioning Workshop performed as part of the development of the educational plan.

PMA gave an overview of the MSBA modules and related the module key dates to milestones dates in an explanation of the overall project schedule. A link to the project website was provided to inform the public of where to access project information.

Q&A/Public was held. Questions from the meeting were compiled and added to the FAQ section of the Project Fact Sheet and posted to the project website.

School Committee Finance & Facilities Sub Committee Meeting

February 11, 2016 – 06:30PM – Edgerly Education Center

S. Roix introduced SMMA and PMA to the sub-committee and gave a brief overview of the PDP process. He noted that the PDP was approved by the Somerville High School Building Committee on February 10th and that the School Committee would be asked for their endorsement of the PDP at their next meeting on February 22.

T. Pierantozzi expressed his excitement around the project and conveyed to the committee the vast amount of work that has gone into the creation of the PDP. He discussed the relationship of the Educational Plan, which the School Committee has seen, to the building space summary. He noted that while the MSBA provides guidelines for traditional education spaces, they do not provide guidelines for Ch.74 spaces. The team has worked with the MSBA and DESE and is utilizing state CH. 74 guidelines to determine the CVTE program space needs.

T. Pierantozzi gave a brief history of the Central Hill site, the location of the current High School. He highlighted for the School Committee members that the only registered historic buildings on the current site are City Hall and the library.

T. Pierantozzi explained that with the PDP submission, the city will not be telling the MSBA what the city's preferred option is; only informing the MSBA of all of the alternatives being considered. After submission of the PDP, the committee expects comments back from the MSBA in 2-3 weeks. PMA will assign responsibilities to team members and coordinate a response to the MSBA. The response will be shared with the School Committee by their Building Committee representative.

A. Pitkin reviewed the PSR process and how the two order of magnitude estimates would be performed, one by SMMA and one by PMA to ensure accuracy and appropriateness. It was also noted that the project cost would likely be presented as a range of cost rather than a hard number. Question around funding the project arose. T. Pierantozzi stated that the Board of Alderman would have to vote to fund the project and then the method of funding would be determined; which could include a city budget allocation or require a ballot question for a proposition 2 ½ debt exclusion vote. T. Pierantozzi stated that when the budget for the preferred option was determined, he would bring the project team back to report to the sub-committee and answer their questions.

M. Skipper explained the MSBA grant programs, specially related to eligibility of project cost and current $299/SF cost cap. A. Pitkin explained specific examples of ineligible costs; the current field house and large auditorium square footage over the space summary allowance.

A. Pitkin gave a brief overview of the SD process and described it as a rigorous process to ensure valid numbers and estimates are being presented to the city so that the project can move forward.

To the best of my knowledge and belief, each of the meetings listed above complied with the requirements of the Open Meeting Law, M.G.L. c. 30A, §§ 18-25 and 940 CMR 29 *et seq*.

If you have any questions or require any additional information, please contact (*insert name, title, and contact information*).

By signing this Local Action and Approval Certification, I hereby certify that, to the best of my knowledge and belief, the information supplied by the District in this Certification is true, complete, and accurate.

By: Hon. Joseph Curtatone

Title: Chief Executive Officer

Date: 2/22/16

By signing this Local Action and Approval Certification, I hereby certify that, to the best of my knowledge and belief, the information supplied by the District in this Certification is true, complete, and accurate.

Mary Skipper

By: Mary Skipper

Title: Superintendent of Schools

Date: 2/22/16

By signing this Local Action and Approval Certification, I hereby certify that, to the best of my knowledge and belief, the information supplied by the District in this Certification is true, complete, and accurate.

By: Caroline L. Normand

Title: Chair of the School Committee

Date: 2/22/16

Somerville High School Building Committee Meeting Minutes

PROJECT: **Somerville HS Project** **MEETING DATE:** **February 10, 2016**
LOCATION: **ESCS Library**

ATTENDEES: *(Absent in Italics)*

Bldg. Cmte:	☐ *Mayor Curtatone (JC)*	☐ Tony Pierantozzi (TP)	☐ Tony Ciccariello (TC)	☐ Rob King (RK)
	☐ Steve Roix (SR)	☐ Mary Skipper (MS)	☐ Stan Koty (SK)	☐ John Oteri (JO)
	☐ *Richard Melillo (RM)*	☐ Ed Bean (EB)	☐ Tom Bent (TB)	
	☐ Nelia Braga (NB)	☐ Adda Santos (AS)	☐ Mary-Jo Rossetti (MJR)	
PMA:	☐ *Chris Carroll*	☐ Chad Crittenden	☐ Sean Burke	☐ *Walter Hartley*
SMMA:	☐ Alex Pitkin	☐ *Lorraine Finnegan*	☐ Matt Rice	☐ *Erin Prestileo*
Others:	☐ SEE ATTACHED SIGN-IN SHEET			

Meeting Chair TP called the meeting to order at 5:36P.M. Draft minutes from the 2/3/16 SBC meeting were reviewed. A motion to approve the minutes was made by TC, second by SR. Discussion: MJR requested clarification on the School Committee 2/11 presentation referenced in item 9/09:12, TP replied that it was a Finance & Facilities subcommittee presentation on the PDP. No further questions or comments. Vote: Minutes approved unanimously (11-0, (SK late)).

General

Item	Responsible	Due	Notes
9/09:01	SBC	3/14/16	**General Update: Update 2/3/16:** Tony P. outlined the PDP process, approval is being sought by SBC on 2/10, then it needs to go to SC and City Hall for approvals and sign-off. Once submitted to MSBA, they will review for approximately 2 weeks and provide comments. Mary Jo R. requested that copies of MSBA comments are forwarded to the SBC members. PMA added that responsibility will be assigned for response to each of the MSBA comments (indicating City, School, PMA, SMMA responsibility). Mary Jo R. requested an updated status of SBC membership changes, Mary S responded that it is with the Mayor for signature and will be submitted to the MSBA immediately after. Mary Jo R. inquired what the "task force" is on the SBC approval form, Tony P responded that the task force was the group responsible for development of the Statement of Interest (SOI) submission to the MSBA. A copy of the MSBA's approved changes to the SBC will be forwarded to all members once received. **Update 2/10/16:** Project team introductions were made. TP provided an overview of the agenda, and suggested a change in meeting sequence moving the XQ video first, followed by an outreach update and lastly the PDP presentation and discussion. TP also outlined the MSBA and PDP processes, stressed that it is not the intent of tonight's meeting to select an option, merely to approve the submission of 9 alternatives, education plan, and supporting documents to the MSBA. MJR inquired about the process of narrowing down the 9 options, does it makes sense to review 3 options at each of the 3 next SBC meetings? TP replied that it may not be necessary to review all 9 in depth, the MSBA requires that we investigate certain scenarios to demonstrate due diligence and in Somerville's case a few of those scenarios would not satisfy the education plan or contain other major impediments.

9/09:04	SBC	3/14/16	**Public Outreach: Update 1/20/16:** Next SBC meetings to be at elementary schools, 2/3 will be at Argenziano, 2/10 will be at ESCS. S. Roix inquired if an outreach working group will be created; all agreed that this would be beneficial. The SBC meeting on 2/3 will focus on outreach and forming a working group and developing the outreach plan, representation from communications and City should be included on the working group. **Update 2/3/16:** A public outreach committee was formed consisting of Mary Jo R. (chair), Tony P, Steve R, Susanna M, Rob K, Nelia B, City Hall Communications and Mary S (when necessary). Mary Jo to coordinate first meeting for next week. The approach needs to be multipronged, key critical information needs to be identified and distributed, working group should work with City Communications to find good information to distribute. Tony P suggested distributing an updated version of the brochure that already exists. Mary S added that the XQ challenge video also may aid the outreach effort. Working group to meet and report back at a future SBC meeting. **Update 2/10/16:** MJR provided an update on the outreach working group meeting held on 2/9/16. There were 13 people in attendance, including 4 from the City's communications department and 3 from PMA. The project's website is in the process of being revamped for interactivity with constituents, the 1st page will contain FAQs & and a project overview, MJR to notify SBC members when new website is 'live'. The website will contain a means for public comment but it was noted that responses may need to be selective in order to maintain overall schedule and process. Facebook and Twitter accounts will also be set up and monitored by the City where quick responses to questions can be provided. Informational brochures were circulated, the brochures were created by NB's graphics class and will be updated for the next Community Forum in ~6 weeks. MJR is also working to document all community groups to be engaged as part of the outreach effort. It was noted that any and all media questions must be forwarded to TP for review and response.
9/09:06		Closed	**Working Groups (sub-committees): Update 2/3/16:** The Education Plan working group had a conference call with the MSBA on Friday 1/29/16 to discuss c.74/DESE protocol. A new format for reporting c.74 information in the Ed Plan has been provided by the MSBA, this new form will require translation of the current information in narrative format to a simplified table format, Leo DeSimone to work on new format and work with DESE to obtain pre-approvals for new programs. It was noted by John O. that the MSBA's new requirement for pre-approval is being discussed internally at DESE, since pre-approvals are only good for two years, this is actually more of a pre-pre-approval. **Update 2/10/16:** Ongoing, no updates. This item to be closed and tracked under new items for each individual working group going forward.
9/23:01		Closed	**XQ Super School Challenge:** http://xqsuperschool.org/ **Update 12/2/15:** SHS "Community Campus" concept submission has been made, feedback is expected in January. February 1st is the next XQ deadline. **Update 1/6/16:** Initial meeting with Quaglia Institute for Student Aspirations has occurred. Concepts to be shared with SBC, idea is to create a videography from a student perspective. **Update 1/20/16:** M. Skipper working with Charlie LaFauci on video, idea is to have students act out the concept. May be possible for SBC to view video sample at meeting on 2/10. M. Rossetti asked when the award will be made, M Skipper replied that the first round of approvals will be made in May. **Update 2/3/16:** Mary S. advised all that the video should be ready by the 2/10 SBC meeting. Susanna M noted that the XQ submission deadline has been extended to 2/11, Susanna to forward new timeline. **Update 2/10/16:** MS provided an explanation of the XQ Challenge to all present. The XQ submission is due tomorrow. Somerville's 8-minute video submission was previewed and the extraordinary effort by all involved was commended. TP stated that this item will no longer appear on the SBC's agenda, it started out on a parallel path due to similarities to the Ed Plan requirements but has since evolved into a separate process that has no impact to the School Building Project effort. This item closed.

Design

Item	Responsible	Due	Notes
9/09:07	SMMA	3/14/16	**General Design Update: Update 2/3/16:** The new "Central Hill East" alternative was briefly discussed; this option is in the early stages of development and will be developed further in a design charrette meeting on Friday 2/5/16. The purpose of this new option is to provide additional flexibility with options going forward under the MSBA program. Tom B. and others stressed that the HS goal needs to remain the primary goal. **Update 2/10/16:** SMMA presented the new 9th alternative "4B", this is an add-reno option at the east side of the site that centers around the 80s wing field-house. The other 8 alternatives were also presented, challenges related to implementation of the Ed Plan in the base repair and base renovation options were discussed. Challenges related to the Article 97 open space protection policy were discussed as they relate to the Trum Field/DPW alternative. MJR inquired about the reference to a parking garage in the traffic study, SMMA responded that there is an option for a garage in some of the alternatives. MJR expressed concern about some of the problem traffic intersections referenced in the study, requested that more detailed information be provided prior to selection of a preferred option. TP added that the project's impact to traffic patterns will be minimal if the existing site is utilized, traffic studies in scenarios where new traffic is being introduced at new sites are often more complex. SMMA added that school impact to traffic is less than other office type buildings since most students utilize alternative forms of transportation. Lastly, MJR requested that SMMA outline any OSPCD variances required for each alternative prior to selection of a preferred option.
9/09:09		Closed	**Site Selection: Update 1/6/16:** SMMA provided an overview of existing and potential zoning non-conformities (ie setback, building height, fence height). A meeting with OSPCD on 12/3/15 confirmed that a special permit should be sufficient provided existing non-conformities are not made worse in the preferred option. On 12/14/15 another meeting occurred to review the latest GLX project design and potential implications. It is understood that there is an easement in place for utilities supporting GLX on HS property that may affect design. It is also understood that the Homan's site has been offered to DOT as laydown space for the GLX project with the understanding that they would abate and demolish the building. Need to better understand timing of the GLX project to determine if there is an opportunity for the HS project to use the Homan's site for laydown as it would be incredibly advantageous. **Update 2/10/16:** Site selection is captured in the PDP submission, no further discussion required, this item closed.
9/09:10	SMMA	3/14/16	**Space Summary: Update 1/6/16:** The possible addition of Next Wave to the building and Ed Plan was discussed. MSBA approved enrollment was 1515 (base), plus 50 (full circle), plus 25 (next wave). School to include NW in Ed Plan for now and re-evaluate prior to PSR submission. M. Rossetti voiced a concern about size DPW storage spaces in the program. S. Koty explained that DPW is the school's maintenance provider, those spaces will store supplies and equipment to be used for the School Dept. SMMA provided an overview of the updated Ed Plan, changes include the addition of a 3rd gym station, SMMA has had luck demonstrating the need for the 3rd station to the MSBA in the past on schools this size. M. Rossetti requested a breakdown of SPED spaces, what is included? M. Rice to follow up with clarification. **Update 1/20/16:** SMMA provided a breakdown of SPED spaces contained within the space summary. **Update 2/3/16:** SMMA is updated the space summary to confirm accurate interpretation of the Educational Plan in order to eliminate inefficiencies and design a "right-sized" building. An updated copy will be provided to the SBC with the PDP draft documents tomorrow. **Update 2/10/16:** SMMA discussed the two versions of the space summary (new and add/reno) being submitted with the PDP. TB inquired about the building size in option 4B, SMMA responded that all add/reno options are approximately the same size.

Cost / Schedule

Item	Responsible	Due	Notes
9/09:11	PMA	3/14/16	**Project Schedule: Update 1/6/16:** PMA presented an updated master schedule. PSR approval is now targeted for July Board Meeting (previously September) and Schematic Design duration has been reduced by 8 weeks. Schedule was accelerated to maintain project momentum, updated schedule will allow for groundbreaking in Spring 2018. There is no change to project completion or occupancy date at this time, still tentatively targeting Fall 2021 occupancy. **Update 1/20/16:** On target for July 2016 MSBA Board meeting, PMA to outline key steps/dates in a simplified lookahead schedule format at 2/3/16 SBC meeting. **Update 2/10/16:** PMA reviewed the 4 week lookahead schedule, focus is on PDP approvals, signatures and submission to MSBA by 3/1/16. A copy of the lookahead schedule is attached to the minutes.
9/09:12	PMA	3/14/16	**Next Steps: Update 12/2/15:** Draft Mass Historic PNF submission by end of Dec | OSPCD meeting on 12/3/15 | DESE meeting in mid December | Winchester site tour on 12/9. Site visit notes to be collected by J. Oteri after final visit for discussion by SBC at 1/6/16 meeting. **Update 1/6/16:** 2/3/16 SBC Meeting will focus on Community Outreach. 2/10/16 Meeting to approve PDP. MassHistoric PNF response anticipated in early February. **Update 2/10/16:** School Committee Finance & Facilities subcommittee presentation on 2/11/16, SC approval of PDP on 2/22/16, Mayor approval of PDP by 2/29/16, PMA to submit PDP on 3/1/16. Still awaiting MassHistoric response to Project Notification Form. Project remains on target for 7/20/16 MSBA board approval to proceed into Schematic Design.
1/06:01	PMA SMMA	3/14/16	**Project Budget: Update 1/20/16:** Cost analysis for new campus/concourse alternatives is being developed. T. Pierantozzi and E. Bean. explained the debt exclusion and proposition 2½ override processes and challenges that the SBC will likely face. E. Bean explained the difference between the two, a debt exclusion is a temporary property tax increase for the life of the loan, an override is permanent. If project funding question is to be included on the November 2016 ballot then the ballot question will need to be approved by the secretary of state by 8/3/16, a Board of Alderman 2/3 vote will be required prior to 8/3/16. This is out of sequence in the MSBA process (ballot vote usually comes *after* MSBA board vote), but other districts have done it this way before so it would not be unprecedented. PMA cautioned that appropriate contingencies need to be in place if the target budget is to be set so soon in Schematic Design, the estimated cost will need to be on the higher/safe side since the detailed design and detailed estimates will not yet be available. T. Ciccariello and others expressed concern about the timeline getting to a vote in November, need to increase outreach efforts ASAP. **Update 2/3/16:** Order of magnitude cost data is forthcoming. Costs presented utilize general market data and are for comparison of each of the alternatives to one another to identify the preferred schematic option. Tony P cautioned that detailed design and estimates for a specific option will not be fully developed until completion of Schematic Design and MSBA project scope & budget approval in January 2017. SMMA asked that if any new furniture is being purchased for the building that the school consult with them to ensure that it can be used in the new program. **Update 2/10/16:** TB asked for clarification on what stage costs are firmed up, TP & PMA responded that until Schematic Design has been completed late this year, there is no tangible set of design documents (detailed drawings & specifications) to perform a detailed, project specific estimate on. At the moment we are using order of magnitude costs for the purpose of comparing each of the 9 alternatives to each other only, with the goal of identifying the preferred option and developing those costs further. The order of magnitude costs in the PDP are on a square foot basis using general market data, the true cost of the project and the district's share will not be set until the January 25, 2017 MSBA Board meeting. MJR added that it will be important for SBC members to understand ineligible costs for each scenario in order to make an educated decision on the preferred option.

2/10:01	ALL	3/14/16	**Public Comment:** MJR made a motion to take public comments prior to the PDP vote, second by SR. Unanimously approved (12-0). Public comments: • Sal G (media) – Will the XQ challenge aid the project in any way? TP – no, the XQ effort began at the same time due to similarities with the MSBA's educational program requirements, but it has evolved into a separate process with separate goals. The XQ challenge is entirely independent from a school construction project and would not reduce the burden on Somerville. • Laura H (resident) – Is the Education Program the only component being submitted at this time? TP – No, the full PDP is being submitted, including the Ed Plan, Alternatives, Existing Conditions Study and Subconsultant Reports. • Richard W (resident) – If the plan [PDP] is submitted to the MSBA on 3/1/16, when will it be accessible to residents? TP – the PDP will be posted to the project website once it has been submitted to the MSBA.
2/10:02		Record	**Preliminary Design Program (PDP) Submission:** A motion was made by SK to approve the Preliminary Design Program package in its entirety as submitted, the motion was seconded by TB. TP asked those present if there were any other discussion items relating to the PDP submission package, there were none. **Vote: 12 in favor, 0 opposed, 0 abstained. Unanimously in favor to approve the PDP in its entirety.**

A motion was made by MJR to adjourn the meeting, second by TC. All approved.

Meeting Adjourned: 7:12P.M.

Next meeting dates are below, all meetings at 5:30PM.

3/14/16 (Kennedy School Library)
3/28/16 (West Somerville Library)
4/11/16 (Healey Library)
5/09/16 (Capuano Conference Room)
5/23/16 (SHS Library)

The author of these minutes assumes, to the best of his or her knowledge, that the above content of these Meeting Minutes depict all that transpired during this Project meeting. All attendees are required to address by memo or via e-mail, any omissions, errors or inconsistencies in the reporting of these Meeting Minutes, to the writer, within two (2) business days of receipt of these Meeting Minutes.

Prepared By: **Chad Crittenden, PMA Consultants**

Signed: ____________________ **Date:** **2/11/16**

THIS IS TO CERTIFY that the attached meeting minutes of the Somerville High School Building Committee meeting dated February 10th, 2016 is a True Record Attest on file.

Tony Pierantozzi
SHS School Building Committee Chair

TONY PIERANTOZZI
NOTARY PUBLIC
Commonwealth of Massachusetts
My Commission Expires
March 20, 20[illegible]

Somerville High School Building Committee

Meeting Sign in Sheet

PROJECT: Somerville HS
LOCATION: ESCS
MEETING DATE: February 10, 2016

Building Committee

	Signature
Mayor Curtatone	
Tony Pierantozzi	Tony Pierantozzi
Adda Santos	Adda Santos
Ed Bean	
John Oteri	John Oteri
Mary Skipper	Mary Skipper
Mary-Jo Rossetti	M. J. Rossetti
Nelia Braga	Nelia Braga
Richard Melillo	
Rob King	
Stan Koty	
Steve Roix	Roix
Tom Bent	Tom Bent
Tony Ciccariello	Tony Ciccariello

OPM: PMA Consultants

Chris Carroll	
Chad Crittenden	
Sean Burke	
Walter Hartley	

Architect: SMMA

Alex Pitkin	Alex P
Lorraine Finnegan	
Matt Rice	
Phil Poinelli	
Erin Prestileo	

Frequent Guests (please print):

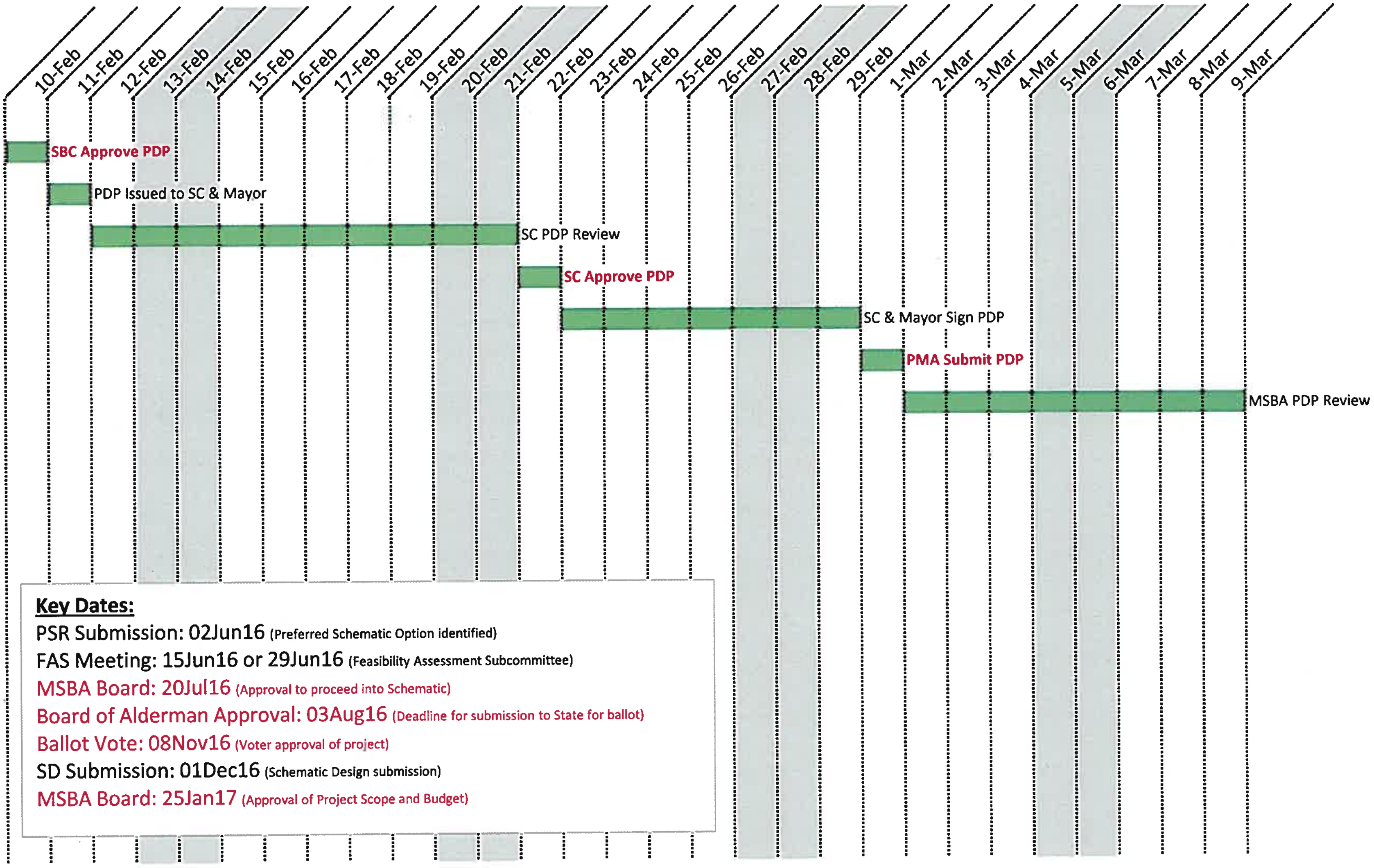
Vince McKay (SBC Nominee)	
Max Nadeau (SBC Nominee)	Max Nadeau
Tim Snyder (Task Force Nominee)	
Denise Taylor	
Susana Morgan	
Natalie Vieira	Natalie Vieira

Others Present (please print):

Richard Wood
Laura Haas
Salvatore Lauria
Shauna Rosa

Danielle McLean - Somerville Journal
PAUL BOCKMAN
Charlie LaFau

SOMERVILLE HS PROJECT - 4 WEEK LOOKAHEAD SCHEDULE (2/10/16)



Key Dates:

PSR Submission: 02Jun16 (Preferred Schematic Option identified)

FAS Meeting: 15Jun16 or 29Jun16 (Feasibility Assessment Subcommittee)

MSBA Board: 20Jul16 (Approval to proceed into Schematic)

Board of Alderman Approval: 03Aug16 (Deadline for submission to State for ballot)

Ballot Vote: 08Nov16 (Voter approval of project)

SD Submission: 01Dec16 (Schematic Design submission)

MSBA Board: 25Jan17 (Approval of Project Scope and Budget)

CITY OF SOMERVILLE
MEETING NOTICE

POSTED IN ACCORDANCE WITH THE PROVISIONS OF M.G.L. CHAPTER 39 SECTION 23A AMENDED.

NAME OF COMMITTEE/BOARD: Somerville HS School Building Committee

LOCATION OF MEETING: 81 Highland Ave, Somerville, MA 02143 (Somerville High School, Gallery 81)

DATE & TIME: Wednesday, September 9th 2015, 5:30 pm

AUTHORIZED PERSON: John Oteri

Somerville HS School Building Committee Agenda
Wednesday, September 9th, 2015
5:30 P.M.
Somerville High School – Gallery 81

		Estimated Time Frame
I.	**Chair Tony Pierantozzi** Call to Order	5:30 P.M.
II.	**Mayor Joe Curtatone** Opening Statement	5:35 P.M.
III.	**03-20-15 Meeting Minutes** Discussion Motion and Second Needed **Vote** to Approve	5:45 P.M.
IV.	**Overview of Meeting Agenda** Tony Pierantozzi – SBC Chair	5:50 P.M.
V.	**Team Introductions** School Building Committee Members OPM - PMA Consultants Architect - Symmes Maini & McKee Associates (SMMA)	5:55 P.M.
VI.	**Project Communication Plan (PMA)**	6:05 P.M.
VII.	**Project Master Schedule (PMA/SMMA)** MSBA Process Overview SMMA Workplan Review	6:15 P.M.
VIII.	**Early Design Concept Presentation (SMMA)**	6:30 P.M.
IX.	**Educational Program Development (SMMA)** Information Gathering Sessions	7:10 P.M.
X.	**City Decision Making Process (Tony)** Identify liaisons / subcommittees	7:20 P.M.
XI.	**Next Steps (PMA)**	7:35 P.M.
XII.	**Public Comment Period**	7:45 P.M.
XIII.	**New Business**	7:55 P.M.

CITY OF SOMERVILLE
MEETING NOTICE

POSTED IN ACCORDANCE WITH THE PROVISIONS OF M.G.L. CHAPTER 39 SECTION 23A AMENDED.

NAME OF COMMITTEE/BOARD: Somerville HS School Building Committee

LOCATION OF MEETING: 81 Highland Ave, Somerville, MA 02143 (Somerville High School, Gallery 81)

DATE & TIME: Wednesday, September 23, 2015, 5:30 pm

AUTHORIZED PERSON: John Oteri

Somerville HS School Building Committee Agenda
Wednesday, September 23, 2015
5:30 P.M.
Somerville High School – Gallery 81

		Estimated Time Frame
I.	**Chair Tony Pierantozzi** Call to Order	5:30 P.M.
II.	**09-09-15 Meeting Minutes** Discussion Motion and Second Needed **Vote** to Approve	5:35 P.M.
III.	**Overview of Meeting Agenda** Tony Pierantozzi – SBC Chair	5:40 P.M.
IV.	**Old Business** a. General Update b. Public Outreach c. Program Consolidation d. Working Groups (sub-committees) e. Design Update f. Model School Program g. Site Selection h. Space Summary	5:45 P.M.
V.	**Project Master Schedule (PMA)**	7:15 P.M.
VI.	**New Business** a. Staff Meeting Updates b. Education Plan	7:25 P.M.
VII.	**Public Comment Period**	7:45 P.M.

CITY OF SOMERVILLE
MEETING NOTICE

POSTED IN ACCORDANCE WITH THE PROVISIONS OF M.G.L. CHAPTER 39 SECTION 23A AMENDED.

NAME OF COMMITTEE/BOARD: Somerville HS School Building Committee

LOCATION OF MEETING: 81 Highland Ave, Somerville, MA 02143 (Somerville High School, Gallery 81)

DATE & TIME: Wednesday, October 14, 2015, 5:30 pm

AUTHORIZED PERSON: John Oteri

Somerville HS School Building Committee Agenda
Wednesday, October 14, 2015
5:30 P.M.
Somerville High School – Gallery 81

Estimated Time Frame

I. **Chair Tony Pierantozzi** 5:30 P.M.

Call to Order

II. **09-23-15 Meeting Minutes** 5:35 P.M.

Discussion
Motion and Second Needed
Vote to Approve

III. **Overview of Meeting Agenda** 5:40 P.M.

Tony Pierantozzi – SBC Chair

IV. **Old Business** 5:45 P.M.

- a. General Update
- b. Public Outreach
- c. Program Consolidation
- d. Working Groups
- e. XQ Super School Challenge
- f. General Design Update
- g. Site Selection
- h. Space Summary

V. **Project Master Schedule** 6:45 P.M.

- a. Project Schedule Update
- b. Next Steps

VI. **New Business** 7:00 P.M.

- a. Site Visits

VII. **Public Comment Period** 7:15 P.M.

CITY OF SOMERVILLE
MEETING NOTICE

POSTED IN ACCORDANCE WITH THE PROVISIONS OF M.G.L. CHAPTER 39 SECTION 23A AMENDED.

NAME OF COMMITTEE/BOARD: Somerville HS School Building Committee

LOCATION OF MEETING: 81 Highland Ave, Somerville, MA 02143 (Somerville High School, Gallery 81)

DATE & TIME: Wednesday, November 4, 2015, 5:30 pm

AUTHORIZED PERSON: John Oteri

Somerville HS School Building Committee Agenda
Wednesday, November 4, 2015
5:30 P.M.
Somerville High School – Gallery 81

		Estimated Time Frame
I.	**Chair Tony Pierantozzi** Call to Order	5:30 P.M.
II.	**10-14-15 Meeting Minutes** Discussion Motion and Second Needed **Vote** to Approve	5:35 P.M.
III.	**Overview of Meeting Agenda** Tony Pierantozzi – SBC Chair	5:40 P.M.
IV.	**Old Business** a. General Update b. Public Outreach c. Program Consolidation d. Working Groups e. XQ Super School Challenge f. General Design Update g. Site Selection h. Space Summary	5:45 P.M.
V.	**Project Master Schedule** a. Project Schedule Update b. Next Steps & Site Visits	6:45 P.M.
VI.	**New Business** Geo-Technical Update HazMat Survey Update Environmental Noise Monitoring Update Education Programming Meetings Update	7:00 P.M.
VII.	**Public Comment Period**	7:15 P.M.

CITY OF SOMERVILLE
MEETING NOTICE

POSTED IN ACCORDANCE WITH THE PROVISIONS OF M.G.L. CHAPTER 39 SECTION 23A AMENDED.

NAME OF COMMITTEE/BOARD: Somerville HS School Building Committee

LOCATION OF MEETING: 81 Highland Ave, Somerville, MA 02143 (Somerville High School, Gallery 81)

DATE & TIME: Wednesday, December 2, 2015, 5:30 pm

AUTHORIZED PERSON: John Oteri

Somerville HS School Building Committee Agenda

Wednesday, December 2, 2015
5:30 P.M.
Somerville High School – Gallery 81

Estimated Time Frame

I. Chair Tony Pierantozzi 5:30 P.M.
Call to Order

II. 11-4-15 Meeting Minutes 5:35 P.M.
Discussion
Motion and Second Needed
Vote to Approve

III. Overview of Meeting Agenda 5:40 P.M.
Tony Pierantozzi – SBC Chair

IV. Old Business 5:45 P.M.
- a. General Update
- b. Public Outreach
  - i. 11/19 Community Forum update
  - ii. 11/28 Craft Fair update
  - iii. ResiStat update
  - iv. Fact sheet revisions
- c. Program Consolidation
- d. Working Groups
  - i. Upcoming meetings / agendas
- e. XQ Super School Challenge
- f. General Design Update
  - i. Visioning meeting #2 update
  - ii. DESE updates (SPED & c.74)
- g. Site Selection
- h. Space Summary

V. Project Master Schedule 6:45 P.M.
- a. Project Schedule Update
- b. Next Steps
  - i. Site Visits

VI. New Business 7:00 P.M.
Geo-Technical Update

VII. Public Comment Period 7:15 P.M.

CITY OF SOMERVILLE
MEETING NOTICE

POSTED IN ACCORDANCE WITH THE PROVISIONS OF M.G.L. CHAPTER 39 SECTION 23A AMENDED.

NAME OF COMMITTEE/BOARD: Somerville HS School Building Committee

LOCATION OF MEETING: 81 Highland Ave, Somerville, MA 02143 (Somerville High School, Gallery 81)

DATE & TIME: Wednesday, January 6, 2016, 5:30 pm

AUTHORIZED PERSON: John Oteri

Somerville HS School Building Committee Agenda
Wednesday, January 6, 2016
5:30 P.M.
Somerville High School – Gallery 81

Estimated Time Frame

I. Chair Tony Pierantozzi 5:30 P.M.
Call to Order

II. 12-2-15 Meeting Minutes 5:35 P.M.
Discussion
Motion and Second Needed
Vote to Approve

III. Overview of Meeting Agenda 5:40 P.M.
Tony Pierantozzi – SBC Chair

IV. Old Business 5:45 P.M.

a. General Update
    i. Site Visit Discussion
b. Public Outreach
c. Working Groups
    i. Upcoming meetings / agendas
    ii. Education plan
d. XQ Super School Challenge
e. General Design Update
f. Site Selection
g. Space Summary

V. Project Master Schedule 6:45 P.M.

a. Project Schedule Update
    i. Accelerated Schedule / Re-Baseline
b. Next Steps
    i. Everett Site Visit

VI. New Business 7:00 P.M.

a. Enrollment

VII. Public Comment Period 7:15 P.M.

CITY OF SOMERVILLE
MEETING NOTICE

POSTED IN ACCORDANCE WITH THE PROVISIONS OF M.G.L. CHAPTER 39 SECTION 23A AMENDED.

NAME OF COMMITTEE/BOARD: Somerville HS School Building Committee

LOCATION OF MEETING: 81 Highland Ave, Somerville, MA 02143 (Somerville High School, Gallery 81)

DATE & TIME: Wednesday, January 20, 2016, 5:30 pm

AUTHORIZED PERSON: John Oteri

Somerville HS School Building Committee Agenda
Wednesday, January 20, 2016
5:30 P.M.
Somerville High School – Gallery 81

		Estimated Time Frame
I.	**Chair Tony Pierantozzi**	5:30 P.M.
	Call to Order	
II.	**1-13-16 Meeting Minutes**	5:35 P.M.
	Discussion	
	Motion and Second Needed	
	Vote to Approve	
III.	**Overview of Meeting Agenda**	5:40 P.M.
	Tony Pierantozzi – SBC Chair	
IV.	**Old Business**	5:45 P.M.
	a. General Update	
	i. Everett Site Visit Discussion	
	b. Public Outreach	
	c. Working Groups	
	i. Upcoming meetings / agendas	
	ii. Education plan	
	d. XQ Super School Challenge	
	e. General Design Update	
	i. New “Concourse” Alternative	
	f. Site Selection	
	g. Space Summary	
V.	**Project Master Schedule & Budget**	6:45 P.M.
	a. Project Schedule Update	
	b. Project Budget	
VI.	**New Business**	7:15 P.M.
VII.	**Public Comment Period**	7:30 P.M.

CITY OF SOMERVILLE
MEETING NOTICE

POSTED IN ACCORDANCE WITH THE PROVISIONS OF M.G.L. CHAPTER 39 SECTION 23A AMENDED.

NAME OF COMMITTEE/BOARD: Somerville HS School Building Committee

LOCATION OF MEETING: 290 Washington Street, Somerville, MA 02143
(Argenziano School at Lincoln Park)

DATE & TIME: Wednesday, February 3, 2016, 5:30 pm

AUTHORIZED PERSON: John Oteri

Somerville HS School Building Committee Agenda
Wednesday, February 3, 2016
5:30 P.M.
Albert F. Argenziano School – Conference Room

		Estimated Time Frame
I.	**Chair Tony Pierantozzi** Call to Order	5:30 P.M.
II.	**1-20-16 Meeting Minutes** Discussion Motion and Second Needed **Vote** to Approve	5:35 P.M.
III.	**Overview of Meeting Agenda** Tony Pierantozzi – SBC Chair	5:40 P.M.
IV.	**Old Business** a. General Update b. Public Outreach i. Outreach working group c. Working Groups i. Upcoming meetings / agendas ii. Education plan d. XQ Super School Challenge e. General Design Update f. Site Selection g. Space Summary	5:45 P.M.
V.	**Project Master Schedule** a. Project Schedule Update	6:45 P.M.
VI.	**New Business** a. NEASC SHS Accreditation Report Discussion b. Upcoming meeting s & location(s)	7:15 P.M.
VII.	**Public Comment Period**	8:00 P.M.

CITY OF SOMERVILLE
MEETING NOTICE

POSTED IN ACCORDANCE WITH THE PROVISIONS OF M.G.L. CHAPTER 39 SECTION 23A AMENDED.

NAME OF COMMITTEE/BOARD: Somerville HS School Building Committee

LOCATION OF MEETING: 50 Cross St, Somerville, MA 02145
(East Somerville Community School)

DATE & TIME: Wednesday, February 10, 2016, 5:30 pm

AUTHORIZED PERSON: John Oteri

Somerville HS School Building Committee Agenda
Wednesday, February 10, 2016
5:30 P.M.

East Somerville Community School – Media Center

		Estimated Time Frame
I.	**Chair Tony Pierantozzi** Call to Order	5:30 P.M.
II.	**2-03-16 Meeting Minutes** Discussion Motion and Second Needed **Vote** to Approve	5:35 P.M.
III.	**Overview of Meeting Agenda** Tony Pierantozzi – SBC Chair	5:40 P.M.
IV.	**Old Business** a. General Update b. Public Outreach i. Outreach working group c. Working Groups i. Upcoming meetings / agendas ii. Education plan d. XQ Super School Challenge e. General Design Update f. Site Selection g. Space Summary	5:45 P.M.
V.	**Project Master Schedule** a. Project Schedule Update	6:45 P.M.
VI.	**New Business** a. PDP Approval Vote b. Other	
VII.	**Public Comment Period**	8:00 P.M.

APPENDIX

The Appendix contains the following documents:

Massachusetts School Building Authority

Next Steps to Finalize Submission of your FY 2013 Statement of Interest

Thank you for submitting your FY 2013 Statement of Interest (SOI) to the MSBA electronically. **Please note, the District's submission is not yet complete**. The District is required to print and mail a hard copy of the SOI to the MSBA along with the required supporting documentation, which is described below.

Each SOI has two Certification pages that must be signed by the Superintendent, the School Committee Chair, and the Chief Executive Officer*. Please make sure that **both** certifications contained in the SOI have been signed and dated by each of the specified parties and that the hardcopy SOI is submitted to the MSBA with **original signatures**.

SIGNATURES: Each SOI has two (2) Certification pages that must be signed by the District.

In some Districts, two of the required signatures may be that of the same person. If this is the case, please have that person sign in both locations. Please do not leave any of the signature lines blank or submit photocopied signatures, as your SOI will be incomplete.

**Local chief executive officer: In a city or town with a manager form of government, the manager of the municipality; in other cities, the mayor; and in other towns, the board of selectmen unless, in a city or town, some other municipal office is designated as the chief executive office under the provisions of a local charter.*

VOTES: Each SOI must be submitted with the proper vote documentation. This means that (1) the required governing bodies have voted to submit each SOI, (2) the specific vote language required by the MSBA has been used, and (3) the District has submitted a record of the vote in the format required by the MSBA.

- **School Committee Vote:** Submittal of all SOIs must be approved by a vote of the School Committee.
    - For documentation of the vote of the School Committee, Minutes of the School Committee meeting at which the vote was taken must be submitted with the original signature of the Committee Chairperson. The Minutes must contain the actual text of the vote taken which should be substantially the same as the MSBA's SOI vote language.
- **Municipal Body Vote:** SOIs that are submitted by cities and towns must be approved by a vote of the appropriate municipal body (e.g., City Council/ Aldermen/Board of Selectmen) in addition to a vote of the School Committee.
    - Regional School Districts do not need to submit a vote of the municipal body.
    - For the vote of the municipal governing body, a copy of the text of the vote, which shall be substantially the same as the MSBA's SOI vote language, must be submitted with a certification of the City/Town Clerk that the vote was taken and duly recorded, and the date of the vote must be provided.

CLOSED SCHOOLS: Districts that have reported closed school information must download the report from the "Closed School" tab, which can be found on the District Main page. Please print this report, which then must be signed by the Superintendent, the School Committee Chair, and the Chief Executive Officer. A signed report, with original signatures must be included with the District's hard copy SOI submittal. **If a District submits multiple SOIs, only one copy of the Closed School information is required.**

ADDITIONAL DOCUMENTATION FOR SOI PRIORITIES #1 AND #3: If a District selects Priority #1 and/or Priority #3, the District is required to submit additional documentation with its SOI.

- If a District selects Priority #1, Replacement or renovation of a building which is structurally unsound or otherwise in a condition seriously jeopardizing the health and safety of the school children, where no alternative exists, the MSBA requires a hard copy of the engineering or other report detailing the nature and severity of the problem and a written professional opinion of how imminent the system failure is likely to manifest itself. The District also must submit photographs of the problematic building area or system to the MSBA.

- If a District selects Priority #3, Prevention of a loss of accreditation, the MSBA requires the full accreditation report (s) and any supporting correspondence between the District and the accrediting entity.

ADDITIONAL INFORMATION: In addition to the information required with the SOI hard copy submittal, the District may also provide any reports, pictures, or other information they feel will give the MSBA a better understanding of the issues identified at a facility.

If you have any questions about the SOI process please contact Brian McLaughin at 617-720-4466 or Brian.McLaughlin@massschoolbuildings.org.

Massachusetts School Building Authority

School District Somerville

District Contact Skip Bandini TEL: (617) 625-6600

Name of School Somerville High

Submission Date 4/8/2013

SOI CERTIFICATION

To be eligible to submit a Statement of Interest (SOI), a district must certify the following:

- ☑ The district hereby acknowledges and agrees that this SOI is NOT an application for funding and that submission of this SOI in no way commits the MSBA to accept an application, approve an application, provide a grant or any other type of funding, or places any other obligation on the MSBA.
- ☑ The district hereby acknowledges that no district shall have any entitlement to funds from the MSBA, pursuant to M.G.L. c. 70B or the provisions of 963 CMR 2.00.
- ☑ The district hereby acknowledges that the provisions of 963 CMR 2.00 shall apply to the district and all projects for which the district is seeking and/or receiving funds for any portion of a municipally-owned or regionally-owned school facility from the MSBA pursuant to M.G.L. c. 70B.
- ☑ The district hereby acknowledges that this SOI is for one existing municipally-owned or regionally-owned public school facility in the district that is currently used or will be used to educate public PreK-12 students and that the facility for which the SOI is being submitted does not serve a solely early childhood or Pre-K student population.
- ☑ After the district completes and submits this SOI electronically, the district must sign the required certifications and submit one signed original hard copy of the SOI to the MSBA, with all of the required documentation described under the "Vote" tab, on or before the deadline.
- ☑ The district will schedule and hold a meeting at which the School Committee will vote, using the specific language contained in the "Vote" tab, to authorize the submission of this SOI. This is required for cities, towns, and regional school districts.
- ☑ Prior to the submission of the hard copy of the SOI, the district will schedule and hold a meeting at which the City Council/Board of Aldermen or Board of Selectmen/equivalent governing body will vote, using the specific language contained in the "Vote" tab, to authorize the submission of this SOI. This is not required for regional school districts.
- ☑ On or before the SOI deadline, the district will submit the minutes of the meeting at which the School Committee votes to authorize the Superintendent to submit this SOI. The District will use the MSBA's vote template and the vote will specifically reference the school and the priorities for which the SOI is being submitted. The minutes will be signed by the School Committee Chair. This is required for cities, towns, and regional school districts.
- ☑ The district has arranged with the City/Town Clerk to certify the vote of the City Council/Board of Aldermen or Board of Selectmen/equivalent governing body to authorize the Superintendent to submit this SOI. The district will use the MSBA's vote template and submit the full text of this vote, which will specifically reference the school and the priorities for which the SOI is being submitted, to the MSBA on or before the SOI deadline. This is not required for regional school districts.
- ☑ The district hereby acknowledges that this SOI submission will not be complete until the MSBA has received all of the required vote documentation and certification signatures in a format acceptable to the MSBA.

Chief Executive Officer *	**School Committee Chair**	**Superintendent of Schools**
(print name)	(print name)	(print name)
(signature)	(signature)	(signature)
Date	Date	Date

* Local chief executive officer: In a city or town with a manager form of government, the manager of the municipality; in other cities, the mayor; and in other towns, the board of selectmen unless, in a city or town, some other municipal office is designated to the chief executive office under the provisions of a local charter.

Massachusetts School Building Authority

School District Somerville

District Contact Skip Bandini TEL: (617) 625-6600

Name of School Somerville High

Submission Date 4/8/2013

Note

Mr.Skip Bandini
1 Franey Road someville, MA 02145
(617) 625-6600

Somerville is spelt incorrectly

The following Priorities have been included in the Statement of Interest:

1. ☐ Replacement or renovation of a building which is structurally unsound or otherwise in a condition seriously jeopardizing the health and safety of school children, where no alternative exists.
2. ☐ Elimination of existing severe overcrowding.
3. ☐ Prevention of the loss of accreditation.
4. ☐ Prevention of severe overcrowding expected to result from increased enrollments.
5. ☑ Replacement, renovation or modernization of school facility systems, such as roofs, windows, boilers, heating and ventilation systems, to increase energy conservation and decrease energy related costs in a school facility.
6. ☐ Short term enrollment growth.
7. ☑ Replacement of or addition to obsolete buildings in order to provide for a full range of programs consistent with state and approved local requirements.
8. ☐ Transition from court-ordered and approved racial balance school districts to walk-to, so-called, or other school districts.

SOI Vote Requirement

☑ I acknowledge that I have reviewed the MSBA's vote requirements for submitting an SOI which are set forth in the Vote Tab of this SOI. I understand that the MSBA requires votes from specific parties/governing bodies, in a specific format using the language provided by the MSBA. Further, I understand that the MSBA requires certified and signed vote documentation to be submitted with the SOI. I acknowledge that my SOI will not be considered complete and, therefore, will not be reviewed by the MSBA unless the required accompanying vote documentation is submitted to the satisfaction of the MSBA.

Potential Project Scope: Potential New School

Is this SOI the District Priority SOI? YES

School name of the District Priority SOI: 2013 Somerville High

District Goal for School: Please explain the educational goals of any potential project at this school

To provide a modern facility for a comprehensive academic and vocational 4 year high school program. Somerville High School was originally constructed in 1872, with additions in 1930 and in 1985. Replacement or renovation to the existing building is needed in order to provide a full range of programs consistent with state and appproved local authorities. Modernization of the heating and HVAC systems; inproved energy efficiency; updated electrical and communication systems; and update of the science labs are goals of this project. Vocational programs located in the building include Automotive Technology, Carpentry, Cosmetology, Culinary Arts, Drafting, Early Education and Care, Electriicity, Graphic Communications, Health Assisting, Dental Hygienic, Machine Tool Technology, Marketing, Metal Fabrication and Painting and Design Technology. Special programs at the schoool include Special Education and English Language Learners.

District's Proposed Schedule: What is the District's proposed schedule to achieve the goal(s) stated above?

The Mayor of Somerville has formed a Somerville High School Task Force which will begin meeting the month of March, 2013.

Is this part of a larger facilities plan? NO

If "YES", please provide the following:

Facilities Plan Date:

Planning Firm:

Please provide an overview of the plan including as much detail as necessary to describe the plan, its goals and how the school facility that is the subject of this SOI fits into that plan:

Please provide the current student to teacher ratios at the school facility that is the subject of this SOI: 9 students per teacher

Please provide the originally planned student to teacher ratios at the school facility that is the subject of this SOI: 25 students per teacher

Does the District have a Master Educational Plan that includes facility goals for this building and all school buildings in District? YES

If "YES", please provide the author and date of the District's Master Educational Plan.

NESDEC analyzed demographic date and PK-12 enrollment trends and projected and increase of 481 students over the next decade. Along with demographic date, NESDEC completed an analysis of present and planned school programs and the facilities needed to provide these programs. The plan presents 3 options for reconfiguration of 8 school buildings. New England School Development Council, June 2012

Is there overcrowding at the school facility? NO

If "YES", please describe in detail, including specific examples of the overcrowding.

Has the district had any recent teacher layoffs or reductions? NO

If "YES", how many teaching positions were affected? 0

At which schools in the district?

Please describe the types of teacher positions that were eliminated (e.g., art, math, science, physical education, etc.).

Has the district had any recent staff layoffs or reductions? NO

If "YES", how many staff positions were affected? 0

At which schools in the district?

Please describe the types of staff positions that were eliminated (e.g., guidance, administrative, maintenance, etc.).

Please provide a description of the program modifications as a consequence of these teacher and/or staff reductions,including the impact on district class sizes and curriculum.

Does not Apply

Please provide a detailed description of your most recent budget approval process including a description of any

budget reductions and the impact of those reductions on the district's school facilities, class sizes, and educational program.

Budget develoment occurs between December and May each year. A public hearing is held by the School Committee in May. On May 30, 2012, the School Committe voted to approve the Superintendent's FY13 budget after the public hearing. The Approved School Committee budget was presented and voted by Board of Alderman at a public meeting on June 12, 2012. The last budget reduction was in 2009, when the FY2010 budget was reduced by $1,081,666 or 2.2% from the prior year budget. while no progrrams were cut, approximately 25 positions were eliminated mainly in the area of support staff.

General Description

BRIEF BUILDING HISTORY: Please provide a detailed description of when the original building was built, and the date(s) and project scopes(s) of any additions and renovations (maximum of 5000 characters).

Somerville High School is located at 81 Highland Avenue. Originallly constructed of 194,132sf in 1872, the building is located on a five-sided lot of 568, 665 sf bordered by paved streets on four sides and MBTA commuter rail tracks on the fourth. Somerville High School shares this lot with City Hall, the Main Libarary and a large open commons area. In 1930, a 94,132 sf addition was constructed. Lastly, a field house and vocational education shops and classrooms totaling 105,868 sf was added in 1985.

TOTAL BUILDING SQUARE FOOTAGE: Please provide the original building square footage PLUS the square footage of any additions.

394132

SITE DESCRIPTION: Please provide a detailed description of the current site and any known existing conditions that would impact a potential project at the site. Please note whether there are any other buildings, public or private, that share this current site with the school facility. What is the use(s) of this building(s)? (maximum of 5000 characters).

The building is located on a five-sided lot 568,665 sf bordered by paved streets on four side and MBTA commuter rail tracks on the fourth. Somerville High School shares this lot with City Hall, the Main Library and a large open commons areas.

ADDRESS OF FACILITY: Please type address, including number, street name and city/town, if available, or describe the location of the site. (Maximum of 300 characters)

81 Highland Ave, Somerville Ma

BUILDING ENVELOPE: Please provide a detailed description of the building envelope, types of construction materials used, and any known problems or existing conditions (maximum of 5000 characters).

Somerville High School consists of structural masonry with metal framed windows. There is significant issues with the building envelop as described by the MaGuire Group in their Exterior Envelope Study performed April, 11, 2011. The total cost of repair at that time was $9.5M. The majority of the roofs are .060" single ply EPDM, others are Sarnifil PVC. The EPDM roofs have reached their life expectacy since most roofs date from 1986.

Has there been a Major Repair or Replacement of the EXTERIOR WALLS ? NO
Year of Last Major Repair or Replacement: 0
Description of Last Major Repair or Replacement:

Has there been a Major Repair or Replacement of the ROOF? YES
Year of Last Major Repair or Replacement: 2012
Type Of ROOF: PVC
Description of Last Major Repair or Replacement:

Due to Hurrican Sandy the roof at the Auditorium was comprimised and was replaced with a Sarnifil PVC roof.

Has there been a Major Repair or Replacement of the WINDOWS? YES
Year of Last Major Repair or Replacement: 1977
Type Of WINDOWS: Aluminum Double Glazed
Description of Last Major Repair or Replacement:

Replacement of frames and glazing

MECHANICAL and ELECTRICAL SYSTEMS: Please provide a detailed description of the current mechanical and electrical systems and any known problems or existing conditions (maximum of 5000 characters).

Presently the heating plant consists of (4) Cleaver Brooks fire tube boilers with three of them having a rating of 6M b.t.u.'s each and a summer boiler of 2M b.t.u's. The original construction and the addition is 1930 consists of a steam heating plant with steam traps. The addition in 1985 is steam converted from the Cleaver Brooks boilers to hot water through a heat exchanger. The 1985 addition consists of H&V coils and minimal baseboard heat. Other than windows there are no sources of fresh air to the classrooms. This is due to many of the louvers no longer work or have been covered over, removed and infilled with brick for various reasons. Also air is exhausted throw the undercut of door, down the corridor to an exhaust fan at the bathrooms. The system does have a DDC Honeywell system roughly 15 years old. The electrical system consists of 120/208v 3 phase with a 2000A original service, with the addition in 1985 a 4000A service was added and in 2002 another 800 A service was added to support educatonal needs and computers.

Has there been a Major Repair or Replacement of the BOILERS? YES
Year of Last Major Repair or Replacement: 1984
Description of Last Major Repair or Replacement:
My sense is steam boilers were replaced with the 4 Cleaver Brooks fire tube boilers now in place.

Has there been a Major Repair or Replacement of the HVAC SYSTEM ? NO
Year of Last Major Repair or Replacement: 0
Description of Last Major Repair or Replacement:

Has there been a Major Repair or Replacement of the ELECTRICAL SERVICES AND DISTRIBUTION SYSTEM? NO
Year of Last Major Repair or Replacement: 0
Description of Last Major Repair or Replacement:

BUILDING INTERIOR: Please provide a detailed description of the current building interior including a description of the flooring systems, finishes, ceilings, lighting, etc. (maximum of 5000 characters).

Walls are painted horse hair gypsum and have certainly past its life expectancy. The building consists of 4 floors and the flooring is a mixture of V.C.T., V.A.T.?, terrazzo, carpet and in 2011 the entire second floor was replaced with 2x2 rubber flooring. Lighting has been upgraded to T-8, but not sure if upgraded to Super T-8's.

PROGRAMS and OPERATIONS: Please provide a detailed description of the current programs offered and indicate whether there are program components that cannot be offered due to facility constraints, operational constraints, etc. (maximum of 5000 characters).

Somerville High School is a comprehensive, academic and vocational, 4 year program for grades 9 through 12. The school provides special programs for special education students and for sheltered English learners. Vocational programs include Automotive Collision Repair and Refinishing, Automotive Technology, Carpentry, Cosmetology, Culinary Arts, Drafting, Early Education and Care, Electricity, Exploratory, Graphic Communications, Health Assisting, Machine Tool Technology, Marketing, Metal Fabrication, Painting and Design Technologies

CORE EDUCATIONAL SPACES: Please provide a detailed description of the Core Educational Spaces within the facility, a description of the number and sizes (in square feet) of classrooms, a description of science rooms/labs including ages and most recent updates, and a description of the media center/library (maximum of 5000 characters).

The first floor of the high school includes the following: 24 classrooms, cafeteria and kitchen, field house including girl's and boy's locker rooms and fitness room, Culinary arts café and classroom, cosmology room, auditorium and stage, and large atrium area. The second floor includes: 26 classrooms, guidance suite, main office and principal's conference room, library, computer repair and electrical shops, graphic communications shop and painting and decorating classroom. Both the third floor and the fourth floors have 36 classrooms. Shop areas for Auto Body, Auto Repair, Carpentry, Metal Fab and Machine Shop are located in the basement of the building. There are 9 science labs; 7 were last renovated in 1986, and 2 were renovated in early 1970. The science department also has 1 dedicated computer lab with 12 computers.

CAPACITY and UTILIZATION: Please provide a detailed description of the current capacity and utilization of the school facility. If the school is overcrowded, please describe steps taken by the administration to address capacity issues. Please also describe in detail any spaces that have been converted from their intended use to be used as classroom space (maximum of 5000 characters).

All classrooms in the building are fully occupied.

MAINTENANCE and CAPITAL REPAIR: Please provide a detailed description of the district's current maintenance practices, its capital repair program, and the maintenance program in place at the facility that is the subject of this SOI. Please include specific examples of capital repair projects undertaken in the past, including any override or debt exclusion votes that were necessary (maximum of 5000 characters).

The facility is maintained by the Department of Public Works. Scheduled maintenance of the HVAC system is by outside contracted vendor (Honeywell Systems). All other systems receive annual in-house maintenance during summer months when the facility is less active. Unscheduled maintenance is initiated by reports from school or custodial staff to a computerized work order system. Capital improvements such as the aforementioned roof and HVAC renovations are conducted as part of a continually evolving five-year Capital Improvements Plan. All projects are subject to funding availability. No previous work has required overrides or debt exclusion.

Priority 5

Question 1: Please provide a detailed description of the issues surrounding the school facility systems (e.g., roof, windows, boilers, HVAC system, and/or electrical service and distribution system) that you are indicating require repair or replacement. Please describe all deficiencies to all systems in sufficient detail to explain the problem.

The steam heating system is antiquated an not efficient, traps have failed and on numerous occasions you see windows opened on frigid days.

The four Cleaver Brooks fire tube boilers are nearing their life expectancy and should be replaced with more efficient condensing boilers.

The Honeywell DDC system is vintage and could use an update to control more points. Motors should be changed to NEMA motors.

The building does not have demand control ventilation for larger spaces such as the auditorium or the gym.

The main electrical systems should be infrared scanned for potential issues. The motor controllers are antiquated and need to be replaced.

Doors and hardware are antiquated.

Priority 5

Question 2: Please describe the measures the district has already taken to mitigate the problem/issues described in Question 1 above.

The district has participated in an ESCO with Honeywell to identify and correct some energy efficiency concerns.

As repairs are needed the maintenance staff addresses and performs corrective maintenance as needed. Regarding major renovations of building systems, the need for subsidiary funding is quite evident and we are looking forward to be selected by MSBA as a candidate for selection to resolve these issues.

Priority 5

Question 3: Please provide a detailed explanation of the impact of the problem/issues described in Question 1 above on your district's educational program. Please include specific examples of how the problem prevents the district from delivering the educational program it is required to deliver and how students and/or teachers are directly affected by the problem identified.

It is difficult to maintain consistent temperatures within educational spaces. The inability to provide consistent environmental comfort to students and staff affects the ability to fully utilize the existing program.
In addition, this situation can lead to health, safety and morale issues.

Windows appear to be single pane and should be changes to a double thermo pane window.
Single pane windows are inadequate to keep heat in the classrooms. The educational impact on student learning is a concern for the educators.

Door hardware does not meet A.D.A. requirements. Various doors throughout the school are in need of replacing.

Priority 5

Question 4: Please describe how addressing the school facility systems you identified in Question 1 above will extend the useful life of the facility that is the subject of this SOI and how it will improve your district's educational program.

This is a significant question that can only be answered once the systems in place are analyzed by engineering and architectural professionals.

Please also provide the following:

Have the systems identified above been examined by an engineer or other trained building professional?: NO

If "YES", please provide the name of the individual and his/her professional affiliation (maximum of 250 characters)::

The date of the inspection::

A summary of the findings (maximum of 5000 characters)::

N/A

Priority 7

Question 1: Please provide a detailed description of the programs not currently available due to facility constraints, the state or local requirement for such programs, and the facility limitations precluding the programs from being offered.

While Somerville High School provides all required state and local programming, facility issues preclude expansion of the following programs from taking place in the building

In-district Special education programs: Major room renovation is required to accommodate special education requirements for handicapped students. There is no Physical Therapy/Occupational Therapy area. Changing areas and showers must be created. Poor climate control make building less than ideal for physically involved students.
CVTE programs:
Barbering program cannot be offered due to inadequate plumbing; facilities to offer HVAC program do not exist; current auto repair program cannot perform open fuel work due to poor ventilation; growth in certain programs is limited due to space constraints. Poor ventilation and lack of climate control create less than ideal environment.

Music, Art, Dance and Physical Education programs: Single large ensemble room is currently too small, limiting growth of program, and the room has no secure storage. This is no designated dance, drama or classroom performance space; or no adaptive physical education space.

Laboratory Sciences: Lab classrooms are limited to 24 students. Only 6 out of 12 classrooms are fully equipped. Safety concerns include lack of working gas pipes, no doors between classrooms, lack of spill
wall, inadequate drains and safety showers.

Lack of climate control in most areas of the building severely limits use of the building during summer months. The Somerville High School summer school program has been held at an alternative site.

Priority 7

Question 2: Please describe the measures the district has taken or is planning to take in the immediate future to mitigate the problem(s) described above.

Of immediate concern is the damage to the facility from Hurricane Sandy. The auditorium is totally off-line and cannot be used. All programs and activities have been moved off-site. The kitchen and
cafeteria were also heavily damaged. Short term fixes were made in the cafeteria, modifying the existing
space to allow for meal service. Given the modifications to serving lines, students can now get behind the serving lines, creating a safety hazard. The seating is in three separate areas which is not optimal for supervision.
We are evaluating the renovation of a classroom to accommodate a new special education classroom. This would allow students who currently attend school in-district transition to Somerville High School. Currently these students need to be placed in out-of-district settings.

The Somerville High School Building Taskforce is a city/school collaboration created to examine both short-term and long-term solutions to the facility issues at the high school.

Priority 7

Question 3: Please provide a detailed explanation of the impact of the problem described in this priority on your district's educational program. Please include specific examples of how the problem prevents the district from delivering the educational program it is required to deliver and how students and/or teachers are directly affected by the problem identified.

The problems identified above, in addition to limiting program expansion, also prevent the district from delivering educational programs in the safest and most efficient manner. Environmental issues include safety and security concerns, poor lighting, ventilation and climate control. A recent report on the building envelope detail water penetration through walls and ceilings.

Name of School Somerville High

Vote

Vote of Municipal Governing Body YES: 11 NO: 0 Date: 3/14/2013

Vote of School Committee YES: 9 NO: 0 Date: 3/11/2013

Vote of Regional School Committee YES: NO: Date:

Massachusetts School Building Authority

Steven Grossman
Chairman, State Treasurer

John K. McCarthy
Executive Director

November 19, 2014

The Honorable Joseph A. Curtatone, Mayor
City of Somerville
93 Highland Avenue
Somerville, MA 02143

Re: City of Somerville, Somerville High School

Dear Mayor Curtatone:

I am pleased to report that the Board of the Massachusetts School Building Authority (the "MSBA") has voted to invite the City of Somerville (the "City") to collaborate with the MSBA in conducting a Feasibility Study for the Somerville High School. The Board's vote follows the City's timely completion of all of the requirements of the MSBA's Eligibility Period.

I do want to emphasize that this invitation to collaborate on a Feasibility Study is ***not*** approval of a project, but is strictly an invitation to the City to work with the MSBA to explore potential solutions to the problems that have been identified. Moving forward in the MSBA's process requires collaboration with the MSBA, and communities that "get ahead" of the MSBA without MSBA approval will not be eligible for grant funding. To qualify for any funding from the MSBA, local communities must follow the MSBA's statute, regulations, and policies which require MSBA collaboration and approval at each step of the process.

During the Feasibility Study phase, the City and the MSBA will collaborate pursuant to the terms of the Feasibility Study Agreement to find the most fiscally responsible and educationally appropriate solution to the problems identified at the Somerville High School. The Feasibility Study, which will be conducted pursuant to the MSBA's regulations and policies, requires the City to work with the MSBA on the procurement of an Owner's Project Manager and Designer, which will help bring the City's Feasibility Study to fruition.

We will be contacting you soon to discuss these next steps in more detail. In the meantime, however, I wanted to share with you the Board's decision and provide a brief overview of what this means for the City of Somerville.

I look forward to continuing to work with you as part of the MSBA's grant program. As always, feel free to contact me or my staff at (617) 720-4466 should you have any questions.

Sincerely,

John K. McCarthy
Executive Director

Cc: Legislative Delegation
William A. White, Jr., President, Somerville Board of Aldermen
Christine T. Rafal, Chair, Somerville School Committee
Anthony Pierantozzi, Superintendent, Somerville Public Schools
File: 10.2 Letters (Region 4)

Massachusetts School Building Authority

Steven Grossman
Chairman, State Treasurer

John K. McCarthy
Executive Director

September 9, 2014

The Honorable Joseph A. Curtatone, Mayor
City of Somerville
93 Highland Avenue
Somerville, MA 02143

Re: City of Somerville, Somerville High School

Dear Mayor Curtatone:

I would like to thank your team for meeting with Massachusetts School Building Authority (the "MSBA") staff on June 26, 2014, providing follow-up information on July 7, 2014, participating in the telephone conference on July 28, 2014 and providing additional follow-up information on August 20, 2014 regarding enrollment projections and methodologies for the Somerville High School in the City of Somerville (the "District"). As discussed, the next critical step is for the MSBA and the District to agree on a study enrollment for Somerville High School.

Somerville High School presently serves the District's grade 9-12 enrollment. The MSBA understands that the District would like to include the Full Circle High School (alternative high school serving grades 9-12) at Somerville High School. The MSBA also understands that the District wishes to include the Next Wave Junior High School (alternative middle school serving grades 6-8) in the proposed project. This analysis will be particularly focused on the enrollment projections for grades 9-12.

The table below illustrates Somerville's K-12 enrollment during the most recent ten year period, including enrollment for the current school year (2013-2014) as reported by the Department of Elementary and Secondary Education (the "DESE"). K-5 enrollment was on a declining trend through 2007, at which time it started to grow. Grade 6-8 enrollment trends follow the K-5 trends where enrollment declined through 2011 and has grown in the last two years. The total 9-12 enrollment in Somerville as reported by the District for the current school year is 1,317 students which reflects a decrease of 322 students (-20%) from the 9-12 enrollment reported in 2004-2005, which was the maximum 9-12 enrollment reported in the preceding ten years. Additionally, the current year's 9-12 enrollment reflects a decline of approximately 122 students (-8%) from the average 9-12 enrollment reported during the preceding ten year period.

YEAR	K-5	6-8	9-12
2004	2,345	1,175	1,639
2005	2,209	1,120	1,576
2006	2,189	1,055	1,505
2007	2,178	1,019	1,468
2008	2,243	949	1,449

2009	2,297	965	1,352
2010	2,264	945	1,388
2011	2,330	912	1,378
2012	2,384	956	1,319
2013	2,384	939	1,317

The MSBA understands that the District initially proposed a design enrollment to accommodate approximately 1,897 students in grades 9-12 and is currently proposing a design enrollment of 1,800.

The MSBA's base enrollment forecast indicates Somerville's K-5 enrollment will continue to grow through approximately 2025. Grades 6-8 enrollment will continue to grow through about 2030. Grades 9-12 enrollment will continue to decline from 1,317 students for the 2013-2014 school year through the next school year then experience an increasing trend through the 2033-2034 school year. The average 9-12 enrollment forecast for the 10-year projected period through the 2023-2024 school year is 1,340 students.

As a result of a sensitivity analysis performed by the MSBA on this base enrollment projection and further discussion with the District, the following adjustments have been made to the base enrollment projection:

- Sustained Enrollment Growth
    - The MSBA default methodology is based on the average future enrollment projected over a 10-year period. Enrollment projections for Somerville predict sustained enrollment growth in each grade group significantly beyond the 10-year projection period.
    - Based on the discussions between the District and the MSBA and the additional data provided by the District, the MSBA base model has been adjusted to use the average future enrollment projected over a 20-year period.
    - This adjustment added approximately 135 students to the average 9-12 enrollment as compared to the projection without this adjustment.
- Out-of-District Enrollment
    - In order to adjust for fluctuations to the out-of-district enrollment patterns of the District's residents over time, the MSBA has made an adjustment to the base enrollment projection.
    - In order to make this adjustment, the MSBA adjusted the grade to grade survival ratios for 9-12 by a total of 3.3% throughout a four year period in the projection.
    - This adjustment added approximately 15 students to the 20-year average 9-12 enrollment, as compared to the projection without this adjustment.

- Development
  - In response to additional information provided by the District and discussion regarding future housing development, the District may experience increased in-migration beyond the historically typical range. Therefore, the MSBA model has been adjusted to use the 5-year 75th percentile cohort survival rate rather than the 5-year average survival rate which is utilized in the base enrollment methodology.
  - This adjustment added approximately 25 students to the 20-year average 9-12 enrollment using the 5-year average survival rate for the grade configurations to be studied.

As stated previously, the MSBA understands that the District would also like to house the alternative Full Circle High School and the alternative Next Wave Junior High School at Somerville High School. An analysis of the historic grade 6-12 enrollments served by those two programs over the last 10 years results in an average total enrollment of 50 students in the Full Circle High School and 25 students in the Next Wave Junior High School. Accordingly, it would be acceptable to assume space for 75 additional students in the design enrollment for the Somerville High School to accommodate the students re-located from the Full Circle High School and the Next Wave Junior High School.

Based on the historical enrollment trends of the District and the adjustments, analysis and discussions with the District described above, the MSBA recommends the following study enrollments for the potential project at Somerville High School:

- 1,515 students – for grades 9-12 without inclusion of the Full Circle High School and the Next Wave Junior High School students.

- 1,565 students – for grades 9-12 including the Full Circle High School students.

- 1,590 students – for grades 9-12 including the Full Circle High School and the Next Wave Junior High School students.

If the inclusion of the Full Circle High School and the Next Wave Junior High School students is determined to be the Preferred Solution, the District will be required to demonstrate in the Preferred Schematic Report that the proposed inclusion of these alternative educational programs has been approved by the Massachusetts Department of Elementary and Secondary Education, the Somerville School Committee and necessary District officials. Further, the MSBA will also require a written plan from the District describing the process for determining local support for potentially including these programs into the proposed project.

The MSBA believes that this study enrollment recommendation will position the District to efficiently meet space capacity needs throughout future enrollment variations. Please sign and return the attached certification within 21 calendar days to confirm agreement on this study enrollment. If the District feels that this design enrollment does not meet the needs of the District, please respond to this letter via e-mail to Katie Loeffler and propose three meeting/conference call times for which the District can be available to discuss enrollment.

If you have any questions, please do not hesitate to contact me or Katie Loeffler (Katie.Loeffler@MassSchoolBuildings.org) at 617-720-4466.

Sincerely,

Mary Pichetti

Mary Pichetti
Director of Capital Planning

Cc: Legislative Delegation
William A. White, Jr., President, Somerville Board of Aldermen
Christine T. Rafal, Chair, Somerville School Committee
Anthony Pierantozzi, Superintendent, Somerville Public Schools
File: 1.2 Enrollment Projections (Region 4)

MASSACHUSETTS SCHOOL BUILDING AUTHORITY

CITY OF SOMERVILLE
SOMERVILLE HIGH SCHOOL
STUDY ENROLLMENT CERTIFICATION

As a result of a collaborative analysis with the Massachusetts School Building Authority (the "MSBA") of enrollment projections and space capacity needs for the proposed project at the Somerville High School, the City of Somerville hereby acknowledges and agrees that the design of preliminary options which may be evaluated as part of the feasibility study for the proposed project at the Somerville High School shall be based in accordance with the following:

Enrollment for Grades 9-12 at Somerville High School	**Enrollment for Grades 9-12 at Somerville High School which includes the Full Circle High School**	**Enrollment for Grades 9-12 at Somerville High School which includes the Next Wave Junior High School and the Full Circle High School**
1,515 students	1,565 students	1,590 students

The space allowance for each alternative evaluated shall assume no more than the enrollments as detailed in the table above. The City of Somerville acknowledges and agrees that it has no right or entitlement to any particular study enrollment, square feet per student space allowance, or total square footage referenced in the table above for the preliminary options, and further acknowledges and agrees that it shall not bring any or action, legal or equitable, against the MSBA, or any of its officers or employees, for the purpose of obtaining an increase in the study enrollment of the Somerville High School that it has acknowledged and agreed herein. The City of Somerville further acknowledges and agrees that the study enrollment presented herein is only applicable to the evaluation of preliminary options conducted as part of the feasibility study for the proposed Somerville High School project. Upon receipt of the District's recommendation of a Preferred Schematic Design for the proposed Somerville High School project, and subject to the MSBA's review of such recommendation, the MSBA shall forward a Design Enrollment Certification with a design enrollment specific to the recommended and approved Preferred Schematic Design, which shall supersede this certification.

The undersigned, for themselves and the City of Somerville, hereby certify that they have read and understand the contents of this Study Enrollment Certification and that each of the above statements is true, complete and accurate. The undersigned hereby certify that they have been duly authorized by the appropriate governmental body to execute this Certification on behalf of the City of Somerville and to bind the City of Somerville to its terms.

Mayor, City of Somerville

9/18/14
Date

Christine T-Rafal
Duly Authorized Representative of School Committee

9/22/14
Date

Superintendent of Schools

9.23.14
Date

Pierantozzi, Tony

From: Pierantozzi, Tony
Sent: Tuesday, September 09, 2014 12:19 PM
To: Katie Loeffler (Katie.Loeffler@MassSchoolBuildings.org); John Jumpe (John.Jumpe@MassSchoolBuildings.org); Joseph Buckley (Joseph.Buckley@MassSchoolBuildings.org); Diane Sullivan (Diane.Sullivan@MassSchoolBuildings.org)
Cc: Boukili, Omar; brawson@somervillema.gov; Ciccariello, Tony; Marques, Patti; Durette, Pat (pdurette@k12.somerville.ma.us); Curtatone, Joseph
Subject: information re alternative programs in the SPS

Re: number of students in Full Circle -alternative HS program
and Next Wave - alternative MS program.

Next Wave – historical averages:
Based on October 1 report 2004 to 2013 - 27 student average
Based on Oct 1 report 2010 to 1013 -28 student average

Full Circle – historical averages
October 2009 to 20113 - 48 student average
June 2010 to 2014 - 52 students average

The October 1 report represents a lower number than the month to month average. Students are referred to the program during the school year.
In any year, students enter and leave during the year.
For example, in 4 of the last 5 years, the enrollment increased significantly after October 1. In three of those years the total enrollment was in the high 80's.

The staffing at Next Wave MS can accommodate 40 students per year.
The staffing at Full Circle HS can accommodate 64 students per year.

With the passing of Chapter 222 of the Acts of 2012 which took effect on July 1, 2014, public school districts are responsible for the education of all suspended students.
I anticipate that this program will be maximized in the future and will/may need to expand in the future.

I recommend that we anticipate 104 students in the two programs not 75.

Thank you.
Tony

Tony Pierantozzi
Superintendent of Schools
Somerville Public Schools
42 Cross Street

Somerville, MA 02145-3246
tpierantozzi@k12.somerville.ma.us
phone: 617-625-6600, X6005
fax: 617-666-1130

Symmes Maini & McKee
Associates

SMMA

Project:	Somerville High School	Project No.:	15070
Prepared by:	Matt Rice	Meeting Date:	9/18/2015
Re:	Programming Meetings: Counseling	Meeting No:	1
Distribution:	PMA, Building Committee (MF)		

Project Minutes

Attendees:	Justin LaBerge, Traci Small, Melanie Kessler – Somerville High School Matt Rice, Phil Poinelli – SMMA

On September 18, 2015 in the Gallery 81 conference room, SMMA met with the staff of the Counseling Department at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	**Action**	**Discussion**
1.		<u>School / Class Organization</u> • SHS House System o Each House has a housemaster, counselor, secretary o All in one room, confuses kids as to the reason they are sent to the “office”. o College and Career Resource Center o Conference Rooms • Four houses are broken down by alphabet • Counseling includes o Social/Emotional support o Academic counseling o Parent meeting events o Works with Special Education o Wants to be a safe, open, welcoming space o Doors need to have transparency • Counseling offices should include a desk, chairs and small tables for parent meetings (4-5 person capacity) • Department Meetings are 9-12 people … need a conference room that can accommodate this
2.		<u>Operations</u> • Housemaster is associated with Discipline + Attendance • Counsellor is associated with Support • At a central location, would like to have a College and Career Prep Center – a space that is welcoming and visible to students and easily observed by staff members. Would include:

1000 Massachusetts Avenue
Cambridge, MA 02138
617.547.5400

www.smma.com

Item #	Action	Discussion
		o An office for the a registrar – transcript monitoring (not a current staff member) o Secretary desk o Redirect counselling classroom near central suite • Advisory Program is different than counseling o Goal is to prep students for all post-secondary paths o Happens for all students at the same time o Would like a 80-100 student size meeting area to do larger group Advisory Meetings o Need more student computer access during advisory o Advisory Groups = 25 students with 2 teachers • Not a lot of pull-out specialized learning currently occurring as part of counseling • How is differentiated learning diagnosed? o IEP for Special Education students o Teacher identified for general academic instruction o Typically does not involve counselors
3.		<u>Areas for Improvement</u> • The staff used to be located in a Counselling Suite but are currently spread amongst the Houses in House offices. Preference would be to go back to the Suite configuration. o Central Support Suite would be great for a variety of reasons: ▪ Homeless liaison could be located there ▪ Therapists could be located there ▪ Increases presence within the school from a student perspective o Housemasters could be spread throughout the school and not in the suite, should be discussed with the housemasters • Counselling is currently adjacent to main Admin office which is problematic. o Would be better if removed and centralized with other counsellors.
4.		<u>Existing Plan Review</u> • SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by the Counseling Department.
5.	SHS Counseling Staff	<u>Action Items</u> • Staff to generate list of current offices/staff that SMMA can reference for design moving forward

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

Symmes Maini & McKee
Associates

SMMA

Project:	Somerville High School	Project No.:	15070
Prepared by:	Matt Rice	Meeting Date:	9/18/2015
Re:	Programming Meetings: Health and Physical Education	Meeting No:	1
Distribution:	PMA, Building Committee (MF)		

Project Minutes

Attendees:
Steve Simolang, Gianna Sardella – Somerville High School
Matt Rice, Phil Poinelli – SMMA

On September 18, 2015 in the Gallery 81 conference room, SMMA met with the staff of the Health & Physical Education Department at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		School / Class Organization • 9 Teachers in PE are currently located at the high school • PE and Health Credits are required for graduation o 1 Health Semester 9th 2.5 credits each o 1 PE Semester 10th 4 times per week for half a year o 1 Health Semester 11TH o 1 PE Semester 12TH • Department has many electives (some of which fall under Health and Family & Consumer Sciences [FCS]): o Nutrition o Fashion o Child Study – Academic human growth and development, which is a different focus than CTE Early Childcare Program o Parenting o Sports Medicine • Teen Health Center (run by the Cambridge Health Alliance [CHA]) and the SHS School Nurse are co-located. School Nurse is an SHS employee.
2.		Operations • In the future the department will evolve into a holistic health and wellness approach • Physical education impacts the quality of education that other disciplines can provide by affecting a students' well-being and aptitude for learning • FCS needs:

Item #	Action	Discussion
		o Classroom with cooking equipment, which could be shared with Culinary Arts o Fashion is used as a means to tie into technology and engineering … currently has sewing machines ▪ Fashion would like to be next to Art Department and Science Department o Parenting curriculum could use a project-based area to encourage creativity. • Visual proximity of Support Spaces (such as the training room) and Secondary Athletic Spaces to Gym would be preferable from safety, functionality and staff-utilization standpoints
3.		<u>Areas for Improvement</u> • Would prefer to have an Physical Education department head office at the High School • Would like health classes to be in lab setting for applied learning • Would like to review potential for alternative furniture to support different types of learning: o Fit desk o Standing desks o Yoga balls o Spark book opportunities for movement in the classrooms o Use of Lab/Collaboration furniture is desired • Health rooms could be located adjacent to PE space … would allow computers to analyze data from PE • Desire better technology integration o Would allow for better student familiarity with assessments o Could use heart rate monitors connected with wifi o Technology implementation needs to be supported by professional development for staff to be successful o Desire more access to computer labs • Neither fitness nor weight rooms are currently large enough • Cultural backgrounds of a diverse student body can drive decision-making in terms of activities being done for PE curriculum • Would like to review the potential of a rock climbing activity area
4.		<u>Existing Plan Review</u>

Item #	Action	Discussion
		• SMMA reviewed the existing high school plans with the staff and confirmed which spaces are currently in use by the Health & Physical Education Department.
5.		Action Items • None at the present time.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

Symmes Maini & McKee
Associates
SMMA

Project:	Somerville High School	Project No.:	15070
Prepared by:	Matt Rice	Meeting Date:	9/18/2015
Re:	Programming Meetings: Information Technology Services	Meeting No:	1
Distribution:	PMA, Building Committee (MF)		

Project Minutes

Attendees:
John Breslin – Somerville High School
Matt Rice, Phil Poinelli – SMMA

On September 18, 2015 in the Gallery 81 conference room, SMMA met with the staff of the Information Technology Services Department at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		<u>School / Class Organization</u> • (9) IT Staff total for SPS District, with (4) full-time and 1 half-time staff located at SHS • IT Services does not involve direct student teaching, but staff does work with them for support issues • Staff helps teachers with integrating tech into curriculum • SHS currently has a bring-your-own-device [BYOD] policy, but there has only been limited adoption • Central IT Office at SHS is the Main SPS District Central Server … any renovations will need to be coordinated so as to minimize district operational impact • SHS IT system currently has 18 IDF cabinets located throughout the building in makeshift locations.
2.		<u>Operations</u> • 1:1 Pilot to be started this upcoming year for individual classes at several K-8 schools in the district o TBD whether devices stay at school overnight or go home with students as part of the 1:1 implementation • Current IT resources at SHS involves a mix of devices/manufacturers … 1:1 would probably feature Chromebooks • District may give a stipend for teacher laptops moving forward… though choice between desktop and laptops will be offered to teachers

Item #	Action	Discussion
		• IT Office receives a lot of deliveries, so should be on same level as loading/receiving area to minimize traffic & transport within the building • Housemasters have a Motorola Phone System that was recently installed, which includes equipment and an antenna on the roof. Should be considered for salvage or replaced as part of the new school • Phone System at SHS is operated by the City's IT department, not the school's/district's IT department. • Security System, Camera and Swipecard systems are all run by DPW.
3.		Areas for Improvement • Would like a help desk setup when entering the IT area • Current physical space is very tight. Need same or slightly more in new building • Printers should be located in supervised areas
4.		Existing Plan Review • SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by the Information Technology Services Department.
5.	SMMA	Action Items • SMMA to contact George Wood at City Hall to review scope for the TV Studio below the Media Center. TV Studio is not SHS owned or operated.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

Symmes Maini & McKee
Associates

SMMA

Project:	Somerville High School	Project No.:	15070
Prepared by:	Matt Rice	Meeting Date:	9/18/2015
Re:	Programming Meetings: Science and World Languages	Meeting No:	1
Distribution:	PMA, Building Committee (MF)		

Project Minutes

Attendees:	Susan Schmidt, Ana Caldeira, Mike Maloney, Karen Woods (Science) Gino Colantuono, Jim Nocito (World Language) – Somerville High School Matt Rice, Phil Poinelli – SMMA

On September 18, 2015 in the Gallery 81 conference room, SMMA met with the staff of both the Science and World Language Departments at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		<u>School / Class Organization</u> • <u>World Languages:</u> o Currently have an ideal language lab and would love to replicate that in the new building. Was built within the past three years and has state-of-the-art language lab technology: ▪ DKL Language Lab ▪ Is 1 of only 5 currently installed in Massachusetts o 1:1 Device approach could remove the need for a dedicated language lab, though considerations for testing need to be made, and technology must be appropriate for the tasks. • <u>Science:</u> o There is no dedicated computer lab that is currently part of the science department. No need for this type of space in anticipated. o Each classroom/lab currently has at least 12 computers. o There is pervasive use of computers in Physics currently, utilizing “labware” software. o Science department prefers laptops for classroom computing devices. o Biology classrooms/labs located near the Health and Dental Assisting spaces would be great for

1000 Massachusetts Avenue
Cambridge, MA 02138
617.547.5400

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Item #	Action	Discussion
		collaboration. Physics classrooms/labs near the heavy shops would be valuable. o Improved connection between Math and Science is desired… better for computer science. o Goal of the department is to establish a PLC: Professional Learning Community
2.		Operations • World Languages: o Remote/distributed language rooms are not viable/desirable. Rooms would ideally be located in a cluster. o Language Lab should be close to Language Classrooms • Science: o Ideal would be to have students work in groups of two. o Flipping of classrooms currently occurs in some science courses. o There is some current inter-disciplinary interaction occurring between Biology and Art classes o Chemistry would prefer to have a central chemical stockroom, located in proximity to the chemistry classrooms/labs. o Science disciplines could be slightly dispersed, but not too far. o Departmental workrooms were discussed: ▪ There is a need for a shared Science Department area. ▪ Shared departmental clusters can make it difficult to establish collegiality between different departments. ▪ Scheduling makes inter-disciplinary staff workrooms tough to use ▪ o Intra- or Inter-departmental scheduling is viable, but is not currently done. The main impediment to this occurring is seen to be the schedule. ▪ Teachers are currently given 55 minutes or double that for planning time each day … which equates to a total of seven hours per week. o SHS is moving towards more AP classes, so it should be a consideration when planning out spaces.

<table>
<tr><th>Item #</th><th>Action</th><th>Discussion</th></tr>
<tr><td>3.</td><td></td><td><u>Areas for Improvement</u>
• The Science Labs should be treated more as “workshops” with no traditional fixed lab tables. The current MSBA science lab design guidelines were reviewed, and were agreed by all to be the target model for the new high school labs.
o Concern from the Chemistry staff is having students put student belongings on moveable surfaces with chemicals. Casters (if provided) would be designed to be lockable. Student belongings will need to be managed within the lab environment.
• High school is not completely happy with the current schedule. Science would like some longer periods but World Language does not prefer a 4x4 block schedule approach, as it does not allow for enough regular class time exposure during the course of every week. World Language could see a 70 minute block schedule approach as perhaps being viable.
• There is a desire for a functional roof garden (or an at-grade garden), a photo-voltaic panel area. In general any type of exterior area for experiments would be appreciated.
• Whiteboard walls are desired, with an intent of maximizing teaching flexibility
• There is a desire for a space that could accommodate large group instruction within the school. No good space currently exists for this.</td></tr>
<tr><td>4.</td><td></td><td><u>Existing Plan Review</u>
• SMMA reviewed the existing high school plans with the staff and confirmed which spaces are currently in use by both the Science and World Languages Departments.</td></tr>
<tr><td>5.</td><td></td><td><u>Action Items</u>
• None at the present time.</td></tr>
</table>

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

Symmes Maini & McKee
Associates

SMMA

Project:	Somerville High School	Project No.:	15070
Prepared by:	Matt Rice	Meeting Date:	9/18/2015
Re:	Programming Meetings: Special Education	Meeting No:	1
Distribution:	PMA, Building Committee (MF)		

Project Minutes

Attendees: C. Trevisone, Pat Gill, Evelyn Gibson – Somerville High School
Matt Rice, Phil Poinelli – SMMA

On September 18, 2015 in the Gallery 81 conference room, SMMA met with the staff of the Special Education Department at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		School / Class Organization • One New Program - Transition o Transition program for 18-22 year old students with cognitive disability o 6-8 students maximum o One dedicated room • "SHIP" Somerville High School Intensive Program o Serves fragile students, both mental and physical o Includes a full time nursing post o Needs direct/secure access to exterior space o Air quality is imperative (requires a dedicated system with high filtration) o (4) Students total in this program currently. • Life Skills Classroom o Needs kitchen, and should be apartment-like in its setup o Ideally would like to have a small grocery store area within the room o Currently accommodates eight students, but the program typically accommodates between 12-15 students. • Ideal Number of Spaces: o Three different classrooms for Transition, SHIP and Life Skills. Ideally these rooms would be located in close proximity to each other for staffing & support purposes.

Item #	Action	Discussion
		• No Autism Spectrum Disorder [ASD] sub-separate classrooms are currently at the high school level, but there are some at the elementary level o Students that have difficulty managing the high school environment are currently located at the alternative Next Wave program. o Severe anxiety students (who could use a self-contained resource room) typically leave at middle school level • <u>Resource Room Classrooms</u>: Focus on particular student deficit areas o Pull-out Classrooms typically accommodate 7-14 kids, but no more than 15. Staff includes one teacher and one para-professional o Students occasionally have personal aids o Even though student count is 15, a full size classroom is needed. DESE regulates the size of the resource rooms. o Resource room locations should be distributed along with academic departments o Need a total of four resource rooms for Math and English moving forward, with two classrooms for each subject. o There are no self-contained Science or History classrooms currently ▪ Approach for these subject is push-in with General Ed classrooms • <u>Study Skills class</u> o 7-8 sections of this class are run each semester, or approximately at least 1 class each period o Needs (1) full sized classroom that can accommodate 15 students
2.		<u>Operations</u> • SPED teachers are grouped departmentally o Ideally SPED teachers would have offices located near general education departmental offices, with dividers or separate offices for privacy purposes. o Offices could be located or combined with the Resource Rooms o There are a total of 8-10 SPED teachers, and each office could accommodate two staff. Consequently, each office should be capable of accommodating two computers. • SPED Department Head will be added, so this staff member will need an office

Item #	Action	Discussion
		• There are a total of 7-8 SPED buses that drop off and pick up at the school o Would be ideal to have windows from inside the building to the drop-off areas o Transition/Life Skills/Ship Students are the students who are being bused
3.		<u>Areas for Improvement</u> • Would like access to departmental resource rooms. There would ideally be one of these rooms per department (Math, Science, English & History), for a total of four. o A half-sized sized classroom is ideal for a size. o Should be a room that adjoins the general education department classrooms. o Should have all of the technology/features found in the standard classrooms. o Should not incorporate an operable wall to the general education classroom. • Would like a dedicated work area to collaborate with other SPED teachers.
4.		<u>Existing Plan Review</u> • SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by the Special Education Department.
5.		<u>Action Items</u> • None at the present time.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

Symmes Maini & McKee
Associates

SMMA

Project:	Somerville High School	Project No.:	15070
Prepared by:	Matt Rice	Meeting Date:	9/18/2015
Re:	Programming Meetings: Visual Arts	Meeting No:	1
Distribution:	PMA, Building Committee (MF)		

Project Minutes

Attendees:	Luci Prawdzik – Somerville High School Matt Rice, Phil Poinelli – SMMA

On September 18, 2015 in the Gallery 81 conference room, SMMA met with the staff of the Visual Arts Department at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		<u>School / Class Organization</u> • Art classes are comprised of up to 24 students • Currently have a traditional chemical dark room with 8-10 enlargers • Currently have a photography classroom… ideally this would be located next to the dark room, but this is not currently the case. • Need a dedicated ceramics rooms (3D class) • Computer art class is run in a lab with 25 computers • Calligraphy is a manual art activity that is best done in a 2D art room • Architectural Drawing is a current course offering, consisting of: o Working with the City's Historic Preservation Department o Hand drawing activities – no computer involvement o Allows for creativity of façade design o Some 3D work includes manual perspective drawing o No floor plans are drawn as part of the process • *see attached reference material provided by the Visual Arts Department for additional input*
2.		<u>Operations</u> • Ventilation is critical. • Curriculum incorporates both digital and analog photography

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Cambridge, MA 02138
617.547.5400

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Item #	Action	Discussion
		• In addition to the art computer lab, would like a mobile computer cart for student access • Current project based learning [PBL] activities are tied into parallel coursework that students are pursuing in other courses or based on a student's own culture • Most electives are semester-long electives (except for Art major foundations, which is a full year.) • *see attached reference material provided by the Visual Arts Department for additional input*
3.		Areas for Improvement • Art staff has made due with a 55 minute schedule, but students are allowed to come in early and late to work on projects. The 55 minute schedule has inherent limitations. • *see attached reference material provided by the Visual Arts Department for additional input*
4.		Existing Plan Review • SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by the Visual Arts Department.
5.		Action Items • None at the present time.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

ART Dept
Feedback
617.629.5256
X 5256

Topics for Architects-Meeting September 18, 2015-Art 12:10-12:55 PM

Art Department- Dr. Luci Prawdzik, K12 Art Supervisor-

Art Teachers: Sean Bianchi; May Chau; Dorothy Contos; Tom Linville-Teach 16 different Electives

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What do you like about your current teaching environment / space?
The number of art rooms for the 16 electives and specific labs for Photography and Computer Art
- How much of the school / grounds do you use for teaching? Corridors, public spaces, exterior spaces, etc
Several of my art staff use above spaces for studio art drawing/sketching/photography
- What would you like to do, that the current environment is hindering or preventing you from doing?
Accommodate more students in art classes and have more space to create art content:
Ceramocs/Painting/Sculpture/2-D and 3-D art
- What subject adjacencies would you like to have?
All art classes should be in one wing and adjacent as teachers use more than one space for a variety of art projects
- What changes would improve project based learning and interdisciplinary opportunities?
The Art curriculum foundation thrives on Project Based Learning (PBL) format-studio space and art rooms conducive to art electives
- What changes would improve student centric learning opportunities? Self directed learning?
Technology as well as studio space and proper ventilation in each art room
- Thoughts on: sustainability of the school building? Integration of sustainability into the curriculum?
Display spaces to showcase and rotate student art 2-D and 3-D
- Student involvement in the programming and design process?
- How would you like to integrate technology into the curriculum?
Art uses technology as part of the curriculum…however, not all art rooms have space/access tfor technology for a class of 20-24
- 1:1, technology for every student-This would be an asset for the art curriculum
- Do you envision the exterior environment being part of the overall teaching environment? How?-
Art would definitely be able to integrate the exterior environment into the curriculum (Photography/Drawing/and other studio media)
- Does the building environment allow for differentiated instruction?
- How might the inter-relationship between general and vocational education be reinforced or augmented?
- Other thoughts?
Tha art department needs an office for the Department Head-we currently do not have an adequate office space similar to other department heads.

Proper Ventilation is critical in the art rooms-HEPA filters and ventilation for art materials should be a priority. Sink sizes, storage spaces, storage room for supplies/materials and adequate work spaces for ceramics/photography/studio arts is critical for student safety and success for Project Based Learning (PBL) the foundation for the Arts.
Following these initial meetings, if you have additional thoughts you are welcome (and encouraged to) follow up with
written comments channeled through the high school administration.
PJP/ /

- Restrooms for Staff on each floor
- Seperate Space for Kilns - (Fire walls for Protection)
- Ventilation fans for Spraying/adhesives)

Prawdzik, Luci

From: Bianchi, Sean
Sent: Friday, September 18, 2015 10:23 AM
To: Prawdzik, Luci
Subject: new school wishlist

Hi Luci,

Here are my answer to the questions the architecture firm asked:

- I appreciate the amount of space in both of my rooms. My computer lab a good size to hold 25 computers (24 student/1 instructor) and provides space to comfortably walk around, along with some space in the back for students who want to work traditionally in art. My lab also has a smart board, which I utilize every day and is necessary to teach digital art. My studio room is the perfect size for all types of art making, from drawing to large-scale sculpture; additionally, it has only 1 built-in cabinet, making it easy to arrange the room as it best suits my needs.
- I only use my classrooms for teaching. Rarely have I ever taken a class outside, as it is a safety concern
- I have separate issues in both of my classrooms. In my computer lab, the electrical set up is atrocious. All of the electrical wiring is run along the top of floor, which creates a nasty trip hazard everywhere. Additionally, this also makes it easy for plugs and Ethernet ports to become easily damaged, making instruction difficult at times. Any conduits and Ethernet cables should drop down from the ceiling, or come up through the sub floor, and be suspended so as to avoid any contact with students. In my studio room, I need to have a better sink situation and have much more access to technology. My current sink is a single-basin, and is awkwardly placed in the corner of the room next to a large ventilation unit; this creates a long line and only allows 1-2 students at max to clean materials at a time. A double sink should be in its place, in a better location, to double the access to the sink. Additionally, digital art will continue to grow in the art field, and I need more plugs and Ethernet ports in my studio space. This will also allow for easier access to any other small appliances that may need to be plugged in
- I think all of the art rooms should be together. It may not be necessary to have adjoining doors, though.
- To improve student learning, the physical changes mentioned prior would address many of these, as the physical issues detract from my abilities to teach at times. Additionally, in studio rooms, there should be peg boards and smart boards to display student work and deliver curriculum more effectively. Also, each art room should have a dedicated section outside for displaying artwork in the school. It would also be great for the ceramics room to have a display case built into the wall outside of the ceramics studio.
- For sustainability, I think that the art rooms should take wear and tear into heavy consideration. For example, in my computer lab, I have carpet. Similarly, in my studio space, I have hardwood floors. Neither of these materials wear well and require maintenance to look good and work efficiently.
- I think a select group of students should be involved in the design process to have input over their school. For example, they all want student restrooms on every floor, and would greatly appreciate a designated space for them to have as a congregation area. Currently, either the atrium or cafeteria are student congregation areas, but aren't comfortable or well-designed for that purpose. An interior courtyard would also be a great addition.
- As time progresses, the art curriculum will integrate more technology. For this purpose, each studio space should also be equipped to handle 5-6 computers in each room. Simply adding more electrical outlets and additional Ethernet ports in every room, along with Smart Boards in all art rooms will allow students to better utilize technology. This will also aid more effective teaching and learning.
- The exterior of the new school would benefit from having enclosed outside areas where classes can take place, and students can even eat outside in those areas. I recommend they either by enclosed by the school structure or at least have some enclosure so that it does not create any safety concerns.
- I think that because of the commercial nature of the vocational programs, along with the noise level from the labor-intensive programs, that vocational areas should be physically layed out so that they do not impact the general and elective educational programs. Perhaps vocational should be in a separate area with some hall way in between?

- My final thoughts: take into consideration the physical space needs of the art staff and consider that our department will continue to grow over time. Additionally, make the building more secure and easier to navigate. The current footprint does not compliment the needs of our students or our schedule. It takes too long to walk from one of the building to the other. I also recommend having house masters in smarter positions where they can observe the students and hallways from their offices; it might be nice to have their offices with glass enclosures with blinds so that students acknowledge their presence on each floor.

Art Room – 323 D. Contos

1. Take down support posts in room. Need larger room to accommodate 7 work tables. (Large rectangular)
2. Bulletin boards to display art work in classrooms (rm. 323) and around School
3. Lab classroom available for all art classes – more computers in all art classrooms.
4. Better ventilation in classrooms.
5. A.C. in all classrooms (centralized)
6. Smart Board centered in classroom for all students to see.
7. No fluorescent lights in classrooms (bad for eyes).

Student Suggestions

1. Less ugly colors on walls
2. Wider lockers for bigger backpacks
3. A.C.
4. Lighting too dark in school (better lights). No fluorescent lights.
5. High school indoor pool
6. High school multi-sport field located just outside the building
7. More organized classroom room numbers.
8. Round tables in cafeteria
9. Bathrooms on each floor for students and teachers; (girls, boys, gender-neutral options available at each location)
10. Ventilation in all bathrooms
11. Smart boards in the middle of classroom, not off to the side wall.
12. School map of classrooms available on the first floor for students and parents.
13. Students cannot walk in with backpacks on in cafeteria because of structure posts in the way.

Topics for Architects-Meeting September 18, 2015-Art 12:10-12:55 PM

Art Department- Dr. Luci Prawdzik, K12 Art Supervisor-

Art Teachers: Sean Bianchi; May Chau; Dorothy Contos; Tom Linville-Teach 16 different Electives

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What do you like about your current teaching environment / space?
- I like the quantity and quality of natural light-large windows,Photo darkroom

How much of the school / grounds do you use for teaching? Corridors, public spaces, exterior spaces, etc
- I use virtually the entire school property on a regular basis for teaching –especially photo classes

What would you like to do, that the current environment is hindering or preventing you from doing?
- I would like to have access to large common areas-either inside or outside to teach drawing ,photography classes

- What subject adjacencies would you like to have?

What changes would improve project based learning and interdisciplinary opportunities?
- More flexible spaces(modular?) to accommodate large scale projects or multiple class interactions

What changes would improve student centric learning opportunities? Self directed learning?
- spaces specifically for research that are connected directly to library/technology and voc. Ed

Thoughts on: sustainability of the school building? Integration of sustainability into the curriculum?
- Sustainability a must-green building concepts easily integrated into architecture and other art curricula.

Student involvement in the programming and design process?

- How would you like to integrate technology into the curriculum?
- 1:1, technology for every student
- Do you envision the exterior environment being part of the overall teaching environment? How?
- Does the building environment allow for differentiated instruction?
- How might the inter-relationship between general and vocational education be reinforced or augmented?
- Other thoughts?

Following these initial meetings, if you have additional thoughts you are welcome (and encouraged to) follow up with
written comments channeled through the high school administration.

PJP/ / Student Comments:
- wider hallways
- Secure Bike parking on School Grounds
- Lockers that hold Backpack (with Books!!)
  Also Lockers with ports to charge phones/ Lock for Security
- Bathrooms for Boys/Girls on every floor

Topics for Architects-Meeting September 18, 2015-Art 12:10-12:55 PM

Art Department- Dr. Luci Prawdzik, K12 Art Supervisor-

Art Teachers: Sean Bianchi; May Chau; Dorothy Contos; Tom Linville-Teach 16 different Electives

RE: Intro and Advanced Ceramics, Studio Art, Architectural Drawing, and Special Art

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What do you like about your current teaching environment / space?
Ceramics room: Overtall, floor space and storage is good, but very limiting because of the fixed storage space. Not enough flexibility to convert space to the relative to the courses that I teach – not enough display areas to conduct critiques or group work. Also, the rooms are incredibly hot throughout the school year.

- How much of the school / grounds do you use for teaching? Corridors, public spaces, exterior spaces, etc

I use corridors to conduct critiques or to keep kids from overheating in the classroom. I did use the outdoor classroom but stopped because of the poison ivy and unevenness of the landscape. There was not enough level ground for the kids to utilize in group activity. Occasionally, I would have class out in front of the building but since the trees are no longer along the main walkway, students could not get the shade so it made the experience uncomfortable.

- What would you like to do, that the current environment is hindering or preventing you from doing?

I would like to do more group projects with other students in their disciplines, however, due to space constraints, it is not always a reality.

- What subject adjacencies would you like to have?

I think that the arts – visual, music, dance, theater, however the current setup is fine; history and science.

- What changes would improve project based learning and interdisciplinary opportunities?

I need the space, technology, an open floor plan to conduct group discussions and related activities.

- What changes would improve student centric learning opportunities? Self directed learning?

Same as above i.e. smartboard; 5-6 computers so students can do group research projects; dry—erase boards so students can spill out into their brainstorming sessions.

- Thoughts on: sustainability of the school building? Integration of sustainability into the curriculum?

Versatility – rooms that can be easily modified to adapt to what I mentioned before regarding group dynamics. I find that an open floor plan works best for me.

- Student involvement in the programming and design process?

This is essential because they are ultimately why we are here.

- How would you like to integrate technology into the curriculum?
- 1:1, technology for every student

That would be ideal but at least two computers for every two students in my courses because I can rotate them in intervals.

- Do you envision the exterior environment being part of the overall teaching environment? How?

Yes, as long as there is some coverage to sun exposure. – My courses that have drawing as a component will benefit, and other mixed media assignments will benefit.

- Does the building environment allow for differentiated instruction? Some, but there is always other disciplines competing for the same space.
- How might the inter-relationship between general and vocational education be reinforced or augmented?

Create space opportunities to invite these opportunities.

- Other thoughts?

Ceramics studio: Because of the ceramic medium - silica as the potential health hazard, our studio is need of HEPA filters to keep the air clean and dust-free. Also, our kilns are out in the open which is also another hazard. Students are very curious and so I have had occasions where a student or two have been so close to opening the kilns. With the typical fire temperature of 1888 Fahrenheit, it is a constant battle to keep kids away.

Following these initial meetings, if you have additional thoughts you are welcome (and encouraged to) follow up with written comments channeled through the high school administration.

PJP/ /

Symmes Maini & McKee
Associates

SMMA

Project:	Somerville High School	Project No.:	15070
Prepared by:	Matt Rice	Meeting Date:	9/21/2015
Re:	Programming Meetings: Athletics	Meeting No:	1
Distribution:	PMA, Building Committee (MF)		

Project Minutes

Attendees:

Nicole Viele – Somerville High School
Matt Rice, Phil Poinelli – SMMA

On September 21, 2015 in the Gallery 81 conference room, SMMA met with the staff of the Athletics Department at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	**Action**	**Discussion**
1.		<u>School / Class Organization</u> • <u>Track & Field:</u> o Outdoor track and field is currently done at Dilboy Field. o SHS has one of the largest indoor tracks for a high school in the state. Total length is 1/11th of a mile track. • <u>Basketball:</u> o Currently freshmen have to go off-site to other Somerville K-8 schools for practice. o Need three (3) full size courts (basketball) ideally for afternoon/evening practices. Field house appears to have the physical space for this, but cross court striping would have to extend over track markings. • <u>Football:</u> o Football teams put on uniforms and get taped at the high school and then go to Dilboy Field for practice. Earlier access to Dilboy costs the school additional money since there is an associated fee, and there is no health equipment there for a trainer. • Soccer: o 72 boys playing soccer causes o Lacrosse / field hockey would be nice
2.		<u>Operations</u> • The field house gets a lot of weekend use

Item #	Action	Discussion
		o SHS needs to hire two custodians for any weekend in order to use both classrooms and the gym for functions o DPW operates the building, and so DPW staff must be present. They treat the CTE wing and the older portions of the school as 2 buildings • AD currently has two sets of track and field pads (indoor and outdoor) … need to account for storage of these • There are currently 46 paid staff in athletics (part-time coaches). The coaches have no office spaces, which is problematic from an operational standpoint. Coaches cannot use PE offices due to security and overlapping use issues. • Athletic trainer's space currently has a small portable whirlpool. They used to have a larger one, but it did not get used and was subsequently replaced. • Athletic trainer does work with visiting doctors and nurse practitioner. Would be ideal to have facilities to accommodate that temporary staff. • Evening-Use Field House Issues o Only 2 changing areas present a problem for team activities. If a girls' basketball team game follows a boys' basketball team game, scheduling is compromised because the girls teams cannot utilize the locker rooms until both boys teams have changed and left. o No place to change for referees aside from PE office. Windows from PE office into the locker rooms compromise the use of the offices for this purpose. o Team rooms would be ideal (two at a minimum, but four would be preferred to allow for improved scheduling flexibility) o Officials do shower, so they need shower facilities… could be combined with coaches' showers/offices.
3.		<u>Areas for Improvement</u> • There is currently no smartboard in the field house – there would be applications for this if it could be added • Alternative PE Spaces (dance, health, etc.) should also be technology rich. • No visibility between weights/fitness/trainer is a problem from a staffing and oversight perspective. • There are no doors currently on lockers in the locker rooms. This creates security issues and causes most

Item #	Action	Discussion
		students to keep bags with them, or leave wallets & phones with teachers during activities. • Track cannot be run at the time as basketball unless a continuous curtain is added. • Ideally would like to have three practice volleyball courts. • Need a location to view film (team room with a smartboard would be an ideal location). It would be ideal to have something in the gymnasium as well. o No place currently for coaches to talk to players. • Athletics expressed a desire for a concession stand. • Look into potential of using field house for indoor tennis o Multi-purpose flooring surface is necessary for the field house regardless of the activities going on in the space.
4.		Existing Plan Review • SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by the Athletics Department.
5.	SHS Athletics / SMMA	Action Items • SMMA indicated that they would like a list of sports being played from the athletics department, including the total number of teams and the number of students playing. In addition, a list of what sports would be like to be played should be included. • SMMA to check size of basketball courts to determine if 84' or 94'.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

Symmes Maini & McKee
Associates

SMMA

Project:	Somerville High School	Project No.:	15070
Prepared by:	Matt Rice	Meeting Date:	9/21/2015
Re:	Programming Meetings: English	Meeting No:	1
Distribution:	PMA, Building Committee (MF)		

Project Minutes

Attendees:	Jodi Remington – Somerville High School Matt Rice, Phil Poinelli – SMMA

On September 21, 2015 in the Gallery 81 conference room, SMMA met with the staff of the English Department at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		<u>School / Class Organization</u> • Department is desirous of a college-like atmosphere that would engender a love of learning. o Qualities such as: open, airy, green and campus-like help students to feel like academic learners • Department needs flexible classroom spaces that allow for multiple uses, and that can shift on a daily basis to support curriculum • Department would like to be located in one area within the building • Classroom design should allow for the reinforcement of peer to peer learning • Department sees value in informal learning areas for small group work/discussions • Interdisciplinary learning requires planning opportunities for teachers to collaborate o Teacher planning currently happens in classrooms which is not conducive to collaboration • Current English Department relationship to the Learning Commons: o Used primarily for computer lab access, which provides access to journalism software.
2.		<u>Operations</u> • English Department currently runs the Drama program, but there is no dedicated space for this activity. • Would like to have the ability to bring two classes together, but current classroom configurations do not allow for this to occur

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		o Would like a space with tiered seating for these large group activities and Drama program use. • Teachers currently have their own classrooms. • Would ideally like to have access to departmental work spaces and collaborative meeting spaces • English Department Head currently teaches two classes, and English teachers typically teach five classes. • Shifting classrooms takes away students learning time • English Department currently collaborates with local colleges and universities. Students can take courses at these schools (off-campus from Somerville High School) but this does not happen during the school day. • Some 8th Grade middle school students currently come to the high school to take Math, but there are no high school English courses currently being attended by Somerville middle school students.
3.		Areas for Improvement • Furniture needs to reinforce a collaborative classroom environment. Would like lightweight, ergonomic furniture to support those goals. • There is currently no English Department Head Office. • Department needs separate planning and eating areas for teachers. • The current schedule is a compromise. One idea about how the schedule might be reconfigured were discussed: o Move 8th grade into high school and split the high school into an upper (11-12) and lower school (9-10) model o Longer periods are necessary in general for improved learning opportunities, and the upper/lower school model would allow for a different schedule for the two schools o Grades 11 and 12 can benefit from more sophisticated learning methodologies that are offered by longer periods
4.		Existing Plan Review • SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by the English Department.
5.		Action Items • None at the present time.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

Project: **Somerville High School**
Meeting Date: **9/21/2015**
Meeting No.: 1

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

Symmes Maini & McKee
Associates
SMMA

Project:	Somerville High School	Project No.:	15070
Prepared by:	Matt Rice	Meeting Date:	9/21/2015
Re:	Programming Meetings: Headmaster & Housemasters	Meeting No:	1
Distribution:	PMA, Building Committee (MF)		

Project Minutes

Attendees: Harry Marckett, Sibby LaGambina, Jane Cummings, David Green, John Oteri – Somerville High School – Somerville High School
Matt Rice, Phil Poinelli – SMMA

On September 21, 2015 in the Gallery 81 conference room, SMMA met with the Headmaster and Housemasters at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		School / Class Organization • Four (4) Houses by alphabet with mixed grade levels o Discipline o Communication o Counselling o Administration o Housemaster = Assistant Principal o Broadway, Beacon, Highland and Elm • Housemasters form part of the administrative team that informs schedule decisions
2.		Operations • Alternative house configurations have been considered in the past but current practice/organization is working o Significant discussions would need to occur with Superintendent's office if a revised house configuration were to be considered • Co-Locating of Guidance and Discipline functions in the Housemaster offices is not seen as detrimental to student experience … in fact is seen as a strong benefit to student experience and a team-oriented approach. o Discipline should involve a therapeutic aspect, and a shared Housemaster office approach allows for that approach o Ideally student issues are dealt with in-room • Focus on individual departments has been successful for improving student performance, and are now looking at

Item #	Action	Discussion
		collaborative approaches moving forward, the goal is to improve performance even more.
3.		Areas for Improvement • House offices should have a conference area each • House offices should be dispersed (per floors/areas) o No houses are currently located on Level 1. o Dispersing house offices on different floors is helpful for oversight • Communication between CTE and Academic programs could be improved to identify student strengths. • New building should not dictate operations, but rather allow for flexibility. • Key System needs improvement o Use of card access system o Students have IDs. o Can attendance and hallway presence be connected to the card system? • Camera system needs improvement • Focus on maximizing the teaching wall surfaces in the classrooms • Antenna and repeaters for communications system was recently put in.
4.		Existing Plan Review • SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by the Headmaster & Housemasters.
5.		Action Items • None at the present time.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

Symmes Maini & McKee
Associates

SMMA

Project:	Somerville High School	Project No.:	15070
Prepared by:	Matt Rice	Meeting Date:	9/21/2015
Re:	Programming Meetings: Library & Media Services	Meeting No:	1
Distribution:	PMA, Building Committee (MF)		

Project Minutes

Attendees:	Charlie LaFauci – Somerville High School Matt Rice, Phil Poinelli – SMMA

On September 21, 2015 in the Gallery 81 conference room, SMMA met with the staff of the Library & Media Services Department at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		<u>School / Class Organization</u> • Library o Currently have collaboration areas and computer stations … going forward 1:1 may remove need for fixed lab/computer stations o There should be a high focus on both good artificial lighting and good day-lighting … with the design goal being a welcoming environment o 6,000 volumes currently. Department is not interested in building new/more shelves for books due to a general shift towards e-books • Media Lab o A wired environment with equipment to support the development of various types of media projects • TV Studio o Currently broadcasts both City TV (on channels 13 & 22) and the Educational Channel (channel 15) o Point of contact for TV Studio is George Wood with the City (not SHS) o City TV is currently the only group that broadcasts live … for educational channel SHS provides City TV with pre-recorded material to broadcast on Channel 15
2.		<u>Operations</u> • Students all have Google drive accounts, would ideally like to have gMail that is accessible only to other SHS students – would

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		facilitate secure/dedicated communication that is education-centric • Students are currently using Google Classroom • 1:1 Pilot Program roll-out is currently planned for Christmas ’15. o Chrome Books will be used for the roll-out at Healy and Winter Hill • Students under department guidance produce the online SHS Newspaper – “The Piper”

3.		Areas for Improvement
		• Library
		    o Should have air conditioning
		    o Multiple projection areas with multiple teaching station inputs is desired for the new space
		    o Wireless device feeds to public screens would be a good way of facilitating the exhibition of student work
		    o Should move towards a learning commons-type space rather than a traditional library
		    o New space should incorporate a maker space that features
		        ▪ Collaboration Area
		        ▪ STEM involvement
		        ▪ Working with Robotics
		• Media Lab
		    o TV/MAC lab to be located in proximity to the SHS TV Studio
		• TV Studio
		    o Department would like to do a radio show
		    o Could be live or recorded program
		    o Would best be done in a dedicated space adjacent to the TV Studio
		• Improvements could be made in terms of project based education delivery
		    o Middle School Project is one example of holistic project-based learning occurring within the SPS … but is not at SHS
		    o Social Studies and Science are current advocates of project-based learning at the high school
		    o Needs consensus buy-in in order to maximize value and opportunity for the students

4.		Existing Plan Review • SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by the Library & Media Services Department.
5.		Action Items • None at the present time.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

Symmes Maini & McKee
Associates

SMMA

Project:	Somerville High School	Project No.:	15070
Prepared by:	Matt Rice	Meeting Date:	9/21/2015
Re:	Programming Meetings: Math	Meeting No:	1
Distribution:	PMA, Building Committee (MF)		

Project Minutes

Attendees:	Margaret O'Connell, Marie Foreman, Patricia Murphy-Sheehy, Justine Hebert – Somerville High School Matt Rice, Phil Poinelli – SMMA

On September 21, 2015 in the Gallery 81 conference room, SMMA met with the staff of the Math Department at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		<u>School / Class Organization</u> • Math and Computer Science are both under the umbrella of the Math Department at SHS • <u>Math:</u> o Future classrooms in math may require larger tables for student devices and would need access to power. • <u>Computer Science:</u> o Hardware and software knowledge is necessary for computer science o At some point in the future, it will be likely that computer science will be a high school requirement. o Computer science curriculum could capitalize on maker space resources
2.		<u>Operations</u> • Curriculum needs to make use of the latest teaching technologies, so future flexibility is critical in space layout and technology infrastructure • Need 4- to 5-student round tables for work area in addition to traditional computer labs • Schedule is difficult from a class-time perspective. Block schedule could be ok, but need to meet 2.5 times per week at minimum for effective education. • Having more than one teaching wall would be very useful for all classes. • Standardized testing often dictates current curriculum.

Item #	Action	Discussion
		• A goal of the new building should be to support additional student learning in groups.
3.		Areas for Improvement • Flipped culture/classrooms were discussed as potentially being valuable moving forward, but this was not necessarily seen as an educational panacea. • Math department is currently spread throughout the building, which is detrimental to collegiality and collective planning. • A disconnect currently exists between analogous programs in vocational and general academic programs, but finding ways to use applied math and computer science skills through the vocational programs would be a good thing. • There is currently some duplication of instruction between the IT Repair program in the CTE side of the school and the computer science program in general academics. Would be good to find a way of letting each program strengthen the other. • The high school project should review: o The potential of creating a flexible schedule to allow for more opportunities for a diverse range of learners. o Overall school organization to be more student-centric … perhaps not a classical schedule, classroom size, etc. A change in the physical environment can change the culture of a place.
4.		Existing Plan Review • SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by the Math Department.
5.		Action Items • None at the present time.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

Symmes Maini & McKee
Associates

SMMA

Project:	Somerville High School	Project No.:	15070
Prepared by:	Matt Rice	Meeting Date:	9/21/2015
Re:	Programming Meetings: Social Studies	Meeting No:	1
Distribution:	PMA, Building Committee (MF)		

Project Minutes

Attendees: Alicia Kersten, Mark Quinones, Claire Aloe, Ted Blake – Somerville High School
Matt Rice, Phil Poinelli – SMMA

On September 21, 2015 in the Gallery 81 conference room, SMMA met with the staff of the Social Studies Department at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		<u>School / Class Organization</u> • Social Studies aspirations for new building: o A space to conduct both senate and trial simulations o Spaces to conduct debates … would be ideal to have tiered opposing seating areas o Spaces to accommodate visiting speakers, such as tiered large group instruction rooms. A large group instruction room that could accommodate 100-150 students would be highly utilized o Having spaces that allow for a variety of educational environments • The culture of a place can improve the student experience. Things that could improve the culture and provide a more welcoming environment: o Places to stop in the walkways o Places to work after school in rooms that are not locked o Avoiding cavernous cafeteria • The wood floors that are currently found in the older classrooms lend a nice sense of history and place to the classroom environment. • Atrium space is currently the only space in the building where small groups can get together. • Additional small group rooms could be used to great educational benefit.
2.		<u>Operations</u> • Testing drives (and can adversely affect) the level of collaboration with other disciplines (MCAS/PARC), etc. If testing significance

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		could be reduced, there would be more opportunity for curriculum innovation. • Cross-discipline collaboration is currently most viable in elective courses – so these could be investigated for further opportunities. • Department could make use of simple video-conferencing technology located in classrooms to allow easier participation by outside speakers and to allow for remote conversations with students in foreign country classrooms. o This type of activity could be a potential opportunity to collaborate with the ELL program. Translation opportunities could emerge. • High school staff typically remain at school from 2:32 (end of school) to 3:15pm • The library/media center was discussed as a resource that should be leveraged as a resource in the school: o Spaces within the library should be designed to be age appropriate … with perhaps a focus on teen rooms like those that are found at public libraries. Those types of spaces can typically house 40-50 kids. o Library is currently open until 4:00 PM o Having a space in the school that is open until 5 or 6pm would be very useful for student studying & resource access. o Students are currently remaining at SHS until evening hours. o Adult activities in the library during the evening takes away the opportunity for students to use the resource on those days
3.		Areas for Improvement • Outdoor amphitheater/classroom would be well-utilized if designed for this purpose. A garden space would also be valuable as a learning environment. • Staff expressed a desire for common teacher planning spaces • Water fountain bottle filling stations should be located at all drinking fountains • The auditorium should be outfitted with a built-in projector to improve AV functionality • Having useable roof space was seen as an efficient method of dealing with a constrained urban site • Accommodations should be made for teachers biking to work, which would include both dedicated and secure teacher bike racks as well as teacher showers • Would like to have plentiful amounts of tack-able surfaces in the hallways for student displays • Current SHS main entrance is overwhelming. There are no reception/welcoming spaces.

4.		Existing Plan Review • SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by the Social Studies Department.
5.		Action Items • None at the present time.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

Symmes Maini & McKee
Associates
SMMA

Project: Somerville High School
Prepared by: Kate Jessup
Re: Programming Meetings – CTE Director
Distribution: PMA, Building Committee (MF)

Project No.: 15070
Meeting Date: 9/25/2015
Meeting No: 1

Project Minutes

Attendees: Leo DeSimone - Director of CTE, Matt Rice / SMMA, Kate Jessup / SMMA, Alex Pitkin / SMMA

On September 25, 2015 in the Gallery 81 conference room, SMMA met with the Director of Career and Technical Education (CTE) at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		<u>School/ Class Organization</u> • Separation from academic portions of the building is not conducive to being one school. • 1988 addition includes space for CTE programs. Additional space in "C" wing used for dental assisting and child development programs. • School store is part of the CTE programs however it is for students only. School store would benefit from access by the community. • Medical careers and graphic communications was recently renovated. Dental assisting program is in its second year. • Many of the shops are outdated and too small for the needs of the program. Spaces are poorly ventilated and classroom space within shops is inadequate. • MSBA does not address CTE programs as part of their typical high school project. • Each CTE space must have an instructional classroom space in addition to shop space. • Restrooms and changing areas must be provided for both boys and girls. • All restrooms in the CTE wing except the main restroom at the entry level are for faculty use only. Students who must change into a uniform for their CTE programs spend valuable instruction time going to the restroom to change. • Poor access to the loading dock make it difficult to effectively bring in materials for programs.
2.		<u>Curriculum</u>

		• Current Chapter 74 programs include: Automotive technology, carpentry, cosmetology, culinary arts, dental assisting, drafting, early education and care, electricity, exploratory, graphic communications, health assisting, information support services and networking, machine tool technology, metal fabrication and joining technologies • Future programs may include: barbering, HVAC, medical fields, and plumbing • Union program wanted to work with the school however there is no space for the piping and concrete. • Electrical and carpentry are overprescribed – significant student interest but not enough space to enroll more students. • No common planning time makes it difficult to work with teachers outside of CTE for any project based learning or interdisciplinary instruction. • 65% of students take the exploratory. • Painting and Auto Body programs do not exist anymore
3.		Areas for Improvement • Would like to see a stronger retail front for programs and a connection to the community. • Would like to see incorporation throughout the school. Health careers and cosmetology would benefit from being proximal to science classrooms.
4.		Existing Plan Review SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by the CTE Department.
5.		Action Items None at the present time.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

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Symmes Maini & McKee
Associates
SMMA

Project: Somerville High School
Prepared by: Kate Jessup
Re: Programming Meetings – ELL Director
Distribution: PMA, Building Committee (MF)

Project No.: 15070
Meeting Date: 9/25/2015
Meeting No: 1

Project Minutes

Attendees: Sunita Mehrohra - Director of ELL, Matt Rice / SMMA, Kate Jessup / SMMA, Alex Pitkin / SMMA

On September 25, 2015 in the Gallery 81 conference room, SMMA met with the Director of ELL at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		School/ Class Organization • Incorporation of a language lab is important to an ELL student because listening types of instruction can be difficult in a traditional classroom. Students need access to headphones and need to be able to practice language skills • SHS has estimated 300 ELL students currently • Lack of space in the building means that students can only receive push-in services which can be distracting to other students in the classrooms. • 5 dedicated ESL classrooms currently. • 6 SIFE (Students with interrupted formal education) students. SHS program called SAFE. It is a challenge to support these students for graduation because that is not always the aim. • Currently, students and families receive ELL support from the welcome center, adjacent to the main entry. Location is good but need more space • ESL classrooms should be departmentalized. ELL classrooms want to be more exclusive rather than inclusive. • Staff includes 5 liaisons (3 full time, 2 part time), ELL guidance counselor
2.		Curriculum • ELL Program organization clarification. ELL program has 2 components – ESL and SEI. o Direct ESL Program (ESL) – Direct ESL English as a Second Language, instruction provided by a qualified ESL instructor. Learning the language for occurs in a self-contained room. o Sheltered English Immersion (SEI) – General Ed. – grade level content with modification. Any classroom with any ELL student – not "self-contained". Teacher provides content

		with modification for English learners. Teacher would understand the individual ELL students' backgrounds and abilities and modify, adjust and assess the activity/instruction to deliver the content. SEI component of General ELL occurs any time an English language learner is in an inclusive classroom. When the English language learner is pulled out for specialized instruction it is considered the ESL component and is provided by a qualified ESL instructor who speaks the native language of the student. During the SEI component, students are learning grade level content. Special training and certification required to teach SEI component. • Teachers use blended learning techniques in order to deliver curriculum. • Cultural fair at SHS gets all students involved – students learn about many different countries and their communities. • ESL instruction used to be required as the number of minutes a student needed to receive of direct instruction however they have moved to a system following the block schedule. Number of blocks required is different for each ELL student.
3.		Areas for Improvement • Welcome center that serves students and families that feels welcoming. Need space for brochures and literature in a display area. Welcome center should have computers for testing (up to 5 tests can occur at the same time). Welcome center should include a conference area serving 10 people because a typical meeting can include student, parents, translator, and liaison. Space should also include a kitchenette for refreshments and a restroom. Parent center at the welcome center could be used for all parents. • Would like to continue to reach out to the community. Opportunities include job experience in a real world setting, and co-ops at restaurants and supermarkets, and donut shops to utilize their language skills and create cultural acquisition. • Access to a maker space for students who do many hands-on projects. • FFE for classrooms to reflect use of chrome books and group work. Round tables with charging stations for 5 or more students. • Influx of refugees are expected and the future of the program will grow
4.		Existing Plan Review SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by the ELL Director.

5.		Action Items None at the present time.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

Symmes Maini & McKee
Associates
SMMA

Project: Somerville High School
Prepared by: Kate Jessup
Re: Programming Meetings – Music Director
Distribution: PMA, Building Committee (MF)

Project No.: 15070
Meeting Date: 9/25/2015
Meeting No: 1

Project Minutes

Attendees: Rick Saunders – Director of Music, Matt Rice / SMMA, Kate Jessup / SMMA

On September 25, 2015 in the Gallery 81 conference room, SMMA met with the Director of Music at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		School/ Class Organization • Music is not currently centralized. Orchestra and Choral rooms are located adjacent to the auditorium in the “B” wing, Band and affiliated offices are located in “D” wing across from the media center. Music director’s office is located in the south side of the media center. Mezzanine above the director’s office is used for keyboard practice after school hours. • Adjacency to auditorium is a good location. Should include • Orchestra and Choral classrooms were designed as traditional classrooms and retrofitted at music classrooms after the 1956 renovation. Because of this, the space is poor acoustically, inadequately ventilated, and is significantly undersized from modern music classrooms. • Summer programs are housed at Kennedy • Lack of humidity control and air conditioning is a big concern with string instruments • Current auditorium lacks air conditioning and acoustic absorbing materials • Auditorium does not have dressing areas, storage, backstage connection to corridor which make musical theater productions difficult. • Current auditorium has a 1138 seat count
2.		Curriculum • SHS stores all instruments during the summer months which includes: 900 string and 1300 band. • Ideal program based on currently enrollment would include the following: orchestra room, band room, choral room, electronic keyboard room, ensemble room, 8-10 practice rooms (for 3-5

		students), dressing areas, storage, and offices (refer to attached diagram) • Computer technology is these spaces is the future of music • Each year, one musical, and one dramatic performance is done. • Drama sets are made in the offices in the south side of the auditorium • Drama is offered as a course as well as productions being done after school • Introduction to piano is a very popular course – would like a lab with electric keyboards for student use. • Test-centric educational systems make project based learning and interdisciplinary collaboration difficult. Would like to do more collaboration particularly with ELL and foreign language classes. • East Somerville has El Sistema Somerville program which is a daily, intensive, after school program that promotes the academic achievement and character development of Somerville youth by providing equitable opportunities to pursue musical excellence. The program began launched in September 2012 as an initiative of the City of Somerville and the Somerville Public Schools. The program is the first in the nation to be funded by a municipal government. Since its launch, the program has provided instruction to 51 third and fourth grade students on strings instrument at the East Somerville Community School. Students have performed in over 15 public concerts and events, and participated in workshops and collaborations with Matt Glaser, The Boston Public String Quartet, The Agbekor Society, Amherst Early Music, Tufts Symphony Orchestra, New England Conservatory, and Longy School of Music. El Sistema Somerville anticipates expansion to a full symphony orchestra program in its second year, serving 75 students in third-fifth grade.
3.		<u>Areas for Improvement</u> • Would like to see the auditorium being used by more disciplines more often. • Would like to work with CTE program to make sets for the productions. • Auditorium acoustics must be improved in order to properly showcase talent of students. • Large group instruction space for smaller performances would be utilized • Acoustics, cubic volume, and wall shape are of critical importance in music education and must be considered for any project • Would like a space for instrument repairs in the HS

4.		Existing Plan Review SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by the Music Department.
5.		Action Items None at the present time.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

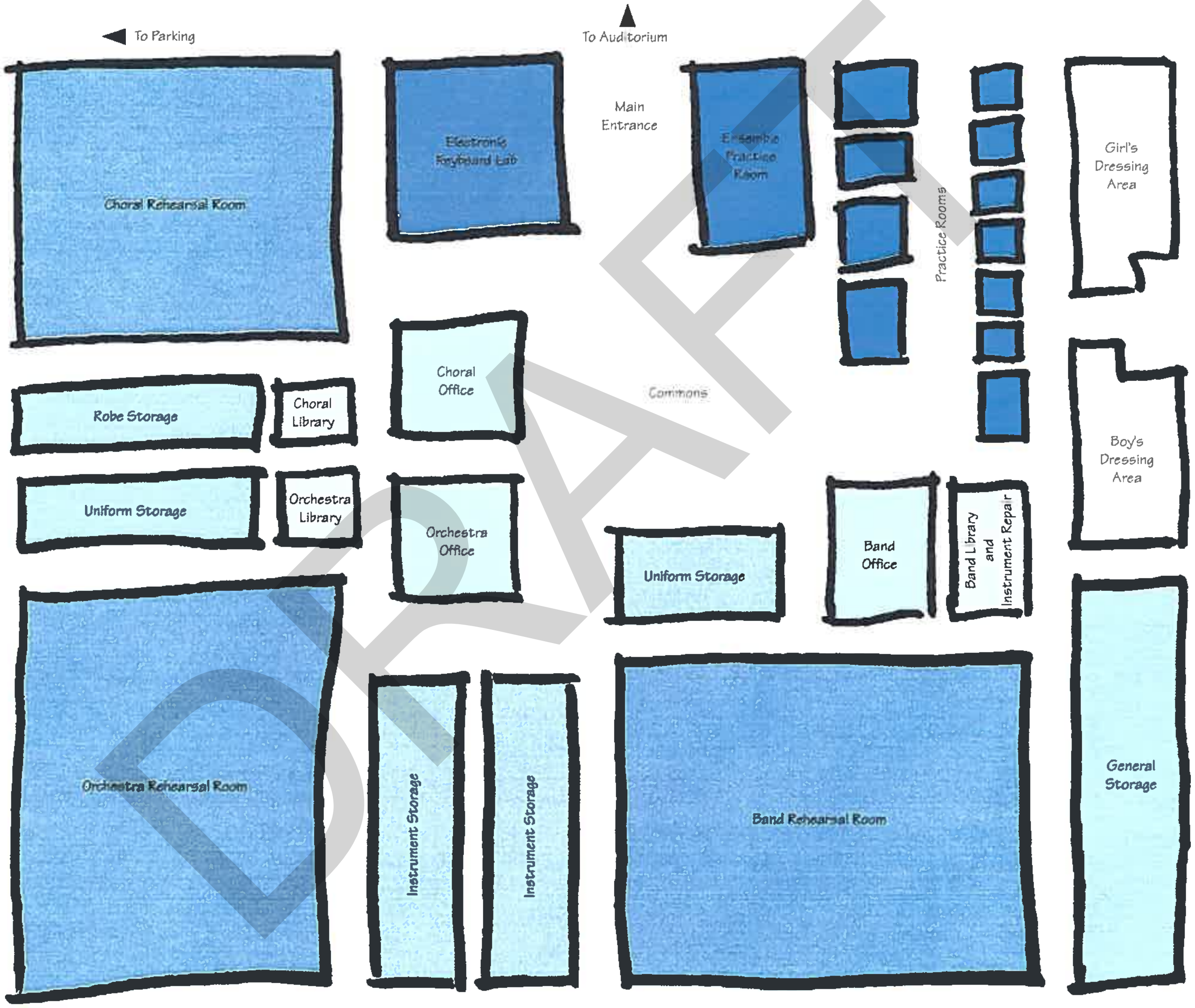
MUSIC SUITE LAYOUT

The Music Suite is a complex environment with many different areas and unique dynamics. This Planning Guide was created to help you understand these dynamics and needs so that your Music Suite design ensures effective education — and no surprises down the road.

■ **Electronic music lab**
for electronic music instruction

Performance areas
auditoriums and multi-purpose rooms for concert

■ **Practice rooms**
for small group and individual practice



■ **Rehearsal rooms**
for band, orchestra and choral ensembles

□ **Storage rooms**
for instruments, uniforms, robes, garments, marching band equipment, choral risers, microphones, amplifiers, speakers, pianos — and more

Offices and studios
for Music Directors

□ **Music libraries**
for sheet music storage

SOMERVILLE PUBLIC SCHOOLS

Department of Music

81 Highland Avenue, Somerville MA, 02143

Richard G. Saunders, Director of Music

SPS MUSIC DEPT MISSION STATEMENT: *As Music Educators, it is our mission to inspire and guide every student in active music making through the use of a sequential and creative curriculum that nurtures the human spirit and promotes cultural understanding.*

Initial Meeting regarding New SHS Construction: Music Suite

- **First Priority:** Learning within the Music Suite is accomplished by critical listening; the success of the design is measured by how well teachers and students can hear within this special environment. Every aspect of the rehearsal and practice areas must be designed to promote clear hearing. As a result, the acoustical considerations of music areas are the first priority.

- **Space Requirements:** Because of the sheer number of music students and the physical natureof music education, music activities require more room, greater flexibility,and more fresh air than other classrooms.

- **Sound isolation**: quieter mechanical systems, additional room volume, and other specialized needs make music suite construction costs per square-foot typically double that of other school areas.

ACOUSICAL CONCERNS:

- Cubic volume and room shape.
- Sound isolation between rooms.
- Acoustical treatments to walls, ceilings and furnishings.
- Properly designed mechanical systems.

Cubic Volume

.

- Cubic volume is equal to floor area multiplied by ceiling height. Reducing this space can make your room unresponsive, excessively loud, and may also be impossible to completely correct.
- Low ceilings are a common cause of poor music room acoustics.

- Use portable risers instead of poured concrete tiers. Concrete dramatically reduces room volume and increases loudness, while the space beneath portable risers, if left open, will not reduce cubic volume.

Wall Shape

- Untreated parallel walls cause flutter echo. This annoying ringing or buzzing sound can becorrected with acoustical treatments that diffuse and absorb sound.
- Non-parallel and splayed walls can reduce flutter echo, but these solutions cost significantly more per square foot than acoustical treatments. Take the money you save on splayed walls and put it into more cubic volume, improved sound isolation, or better HVAC systems.
- Avoid visual acoustics. These are designs — such as curved walls and domes — that look attractive and appear to have good acoustical properties but in reality are often disastrous to the acoustic environment.
- Square or cube-shaped rooms with parallel walls create additive wave lengths, called“standing waves,” that over-emphasize certain frequencies, making them abnormally loud.

What is true in other areas of the school is not necessarily so in the Music Suite. The Music Suite requires more square footage, per student, than any other area of your school, and your floor plan must reflect that.

Space is only one concern. An effective Music Suite design must successfully integrate the following elements:

- Floor space.
- Traffic flow.
- Access to related areas.
- Teacher monitoring.
- Flexibility for multiple activities and future needs.

Symmes Maini & McKee
Associates
SMMA

Project: Somerville High School
Prepared by: Kate Jessup
Re: Programming Meetings – Custodial
Distribution: PMA, Building Committee (MF)

Project No.: 15070
Meeting Date: 9/30/2015
Meeting No: 1

Project Minutes

Attendees: John Oteri - Headmaster, Matt Rice / SMMA, Kate Jessup / SMMA

On September 30, 2015 in the Gallery 81 conference room, SMMA met with the Headmaster to discuss custodial needs at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		<u>School/ Class Organization</u> • Building does not have adequate storage space. Creating storage for each floor and wing of the school to house general supplies would make it easier for custodial staff • AMPM is a privatized custodial service that provides most services. Cleaning products belong to AMPM not the school. • DPW provides general repair and maintenance to the building. • Building is kept open 5:30AM -11PM daily. • School has appointed a safety officer who routinely checks on fire extinguishers, alarms, etc within the building.
2.		<u>Operations</u> • During MCAS, students sit at estimated 120 tables in the field house. The district would like to purchase these tables rather than rent them which would save money however there is nowhere to store them • Machines for cleaning and lifts cannot fit into gymnasium/field house. A removable astragal for the doors or a roll up door would be preferred. • Trash is picked up in 2 locations: outside of the cafeteria at the west loading dock and outside of the CTE programs at the "E" wing at the east loading dock. An 18-wheeler must access both sides. Currently, maneuvering of trucks is extremely difficult. • Security cameras are obscured and quality is poor. • Currently, trash bags are amassed at the loading dock but there is no dumpster.
3.		<u>Areas for Improvement</u> • Improved access for trucks to loading dock areas.

1000 Massachusetts Avenue
Cambridge, MA 02138
617.547.5400

www.smma.com

		- Dumpsters or compactors.
4.		Existing Plan Review SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by custodial and DPW.
5.		Action Items None at the present time.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

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Symmes Maini & McKee
Associates

SMMA

Project: Somerville High School
Prepared by: Kate Jessup
Re: Programming Meetings – Food Service
Distribution: PMA, Building Committee (MF)

Project No.: 15070
Meeting Date: 9/30/2015
Meeting No: 1

Project Minutes

Attendees: Nancy Parisi – Café, Lauren Mancini - Cafe, Matt Rice / SMMA, Kate Jessup / SMMA

On September 30, 2015 in the Gallery 81 conference room, SMMA met with the Food Service at Somerville High School to discuss initial visions, opportunities and aspirations for the high school project. SMMA noted that the project is currently in the feasibility stage of development, and no decision has yet been made regarding the scope, configuration or even location of the new school. The feasibility process will bring clarity to all aspects of the project, and the feedback provided below will be used to help guide the development of the eventual design.

Item #	Action	Discussion
1.		School/ Class Organization • Serve estimated 700 lunches during 3 lunch periods • 4000 meals per day district-wide • Summer program is done through Winter Hill and serves 3000 meals per day • Current cafeteria and kitchen are located underneath the gymnasium. Cafeteria gets little to no natural light. Windows are covered with metal grates and vegetation blocks some of the natural light that could get into the spaces. • Teachers wait in a separate line for lunches. They would prefer not to wait with students. • Trash cans sit in the middle of the cafeteria space with no real home. • 60-70% of students are free and reduced lunch
2.		Operations • All students get in one line to wait their turn for lunch. • Some students choose a small snack rather than lunch because of the wait in line. • Circular tables would create a more comfortable environment – could they serve the same amount of students? • Water coolers are provided in the center of the cafeteria space and although very used, they would like them to be a part of the design rather than having to fill them daily. • Side zones can be quieter which is great for serving students who do not want a loud lunch environment. • Food service trucks that serve other schools park at the high school in a high metal fenced-in area – with limited parking at the

		high school, this space would be better served as teacher or guest parking
3.		Areas for Improvement • Create the collegiate dining experience with scramble serveries • Allow students options for purchasing areas so they do not have to wait in long lines. • Create a recycling and trash area out of the middle of the space including composting and liquid recycling • Incorporation of a garden in an exterior space so that food service can grow some of their own items including herbs. • Provide a space that students can be proud of and utilize throughout the day which has natural light • Would like new kitchen to be main production kitchen for the entire district. Currently, that takes place in an older kitchen at Winter Hill which is in much need of renovation. • Dumpster • Outdoor eating area for warmer months would be utilized
4.		Existing Plan Review SMMA reviewed the existing high school plans with staff and confirmed which spaces are currently in use by Food Service.
5.		Action Items None at the present time.

Subsequent programming discussions with staff will be held in the later stages of the design process to review schematic floor plans and program specifics once those elements have been developed.

The information herein reflects the understanding reached. Please contact the author if you have any questions or are not in agreement with these Project Minutes.

SOMERVILLE HIGH SCHOOL

Workshop Overview and Notes

In October and November of 2015, the Somerville High School Educational Working Group (EWG) – a group of approximately 30 Somerville Public School teachers, parents, district administrators, community partners and higher education partners – assembled for the purpose of educational visioning for the new Somerville High School. New Vista Design and Symmes Maini & McKee Associates (SMMA) facilitated two workshops, each a collaborative session designed to inform the Somerville High School design process. Participants were led through a step-by-step visioning process aimed at capturing their best thinking about Somerville High School's current and future educational goals and priorities, and connecting them to best practices and possibilities in innovative school facility design.

On October 20, 2015, the Somerville High School EWG participated in the first Educational Visioning Workshop. The workshop was four-hours long and explored the following topics:

- **Priority Goals** for the renovated/new facility
- **21st Century Teaching and Learning Practices** that are being influenced by digital technology and our changing economy
- **Strengths, Challenges, Opportunities, and Goals (SCOG Analysis)** associated with Somerville High School's current academic program as well as the vision for its new facility
- **21st Century Learning Goals** that distill the group's best thinking with regard to Somerville High School's current and future educational programming and priorities

On November 9, 2015, the Somerville High School EWG participated in the second Educational Visioning Workshop. The workshop was seven-hours long and explored the following topics:

- **21st Century Design Patterns** that innovative schools throughout the country have put into practice in order to make their forward-thinking learning goals come alive on the level of facility design
- **DRAFT Guiding Principles 1.0** for design of the renovated/new facility
- **Blue Sky Ideas** for the renovated/new facility
- **Key Spaces and Adjacencies** for the renovated/new facility
- **Bubble Diagramming** for the renovated/new facility

The following pages offer a consolidation of notes based on participant's feedback and ideas.

Educational Visioning Workshop One Notes

October 20, 2015

Priority Goals

The following list of priority goals for the design of the new and/or renovated Somerville High School was recorded during the participant introduction section of Workshop One, with each participant offering one or more priority goal.

The Somerville High School program and/or new facility:

- Is a truly engaging educational environment
- Promotes real-world experience
- Prepares student well for college in terms of critical thinking and writing
- Prepares its teachers with internships
- Is a multi-purpose and highly interactive facility
- Is fully accessible with no barriers: physical or emotional
- Will be created in such a way that it holds up over time
- Maintains its beautiful and old library and creates a satellite campus with wrap around services
- Is "IFFY"… interdisciplinary, integrated, innovative, flexible, futuristic and fun!
- Is an engaging, warm, welcoming space that meets ALL students needs, including safe and quiet "time out" spaces
- Is part of the larger community and still maintains its identity
- Supports teacher collaboration
- Supports adaptive and responsive teaching and learning: adapts and evolves to the changing needs of students and adults
- Is flexible and adaptable, allowing students to create and explore

- A space where kids want to be: access to projects and the ability to "make it their own"
- Maximizes opportunities for interactive learning and collaboration
- Facilitates and inspires creative expression and focused practice
- Has flexible and adaptable spaces in which a wide range of visual arts can be offered
- Has functional and integrated lab and workshop spaces, including outdoor classrooms, and weather stations, that support real science, STEM and STEAM
- Promotes and strengthens the school's partnership with TUFTS
- Puts vocational work on display
- Maintains safety and mimics present day work environments
- Facilitates the creation of community and the practice of inquiry-based and personalized learning
- Respects the historic building
- Is safe and secure, while also promoting community use
- Has more developmentally appropriate athletic and unified sports facilities
- Encourages students to own their educational experience and processes, and to develop as learners
- Promotes authentic and real-world application of learning
- Facilitates emergency response: preparedness, response and mitigation

The Following Priorities Were Added On November 9, 2015 During Workshop Two

- Robust technology
- Agile classrooms
- Performance Space
- Green Building
- Being at the "center of the community"
  - A touchstone place to go
- Support services and space for health organizations (some require more privacy)
- Spaces for teacher professional development
- Space for adult learners (staff, community, parents)
- Cafeteria that is nourishing and age appropriate education around food
- Promotion of health and wellness as a community resources
- Sustainability

SOMERVILLE HIGH SCHOOL

Educational Visioning Workshop One Notes

October 20, 2015

Somerville Public Schools SCOG Analysis

Two groups, one comprised of SPS leadership and community partners within the Educational Working Group (EWG), and the other comprised of Somerville High school teachers and administrators and community partners each conducted a "SCOG Analysis" of what they see as the current strengths, challenges, opportunities and goals with regard to the Somerville Public School's academic programs and facilities. The following is a compilation of participants' combined responses and ideas, with the SHS group's highlighted in blue.

STRENGTHS

- Strong mindset for student and staff growth and academic achievement
- Community partners (colleges and universities, science and tech)
- Social and mental health support
- CVTE – Comprehensive school
- Diversity
- Proactive central office that is involved with the community
- Strong mayoral and city support
- Close knit and collaborative culture
- Resources for families and youth
- Equitable opportunities: specialists and access to programs
- Solid technology infrastructure
- Staff quality, dedication and commitment

- Variety of Visual Arts electives
- Small class sizes (good)
- High quality and talented teachers
- ELL Welcome Center
- CVTE – ongoing development
- Vibrant arts community
- Community partnerships
- Extra-SHS opportunities (internships, co-curricular, etc.)
- Pride in community
- Support from city government agencies
- House system
- Developing system of intervention

CHALLENGES

- Multiple data systems
- Facilities are in various states of decay district-wide
- K-8 (generalists vs. specialists)
  - Transition to high school model
  - Transition to first grade
- Poverty and mobility in an urban environment
- Dually identified students (complexity of needs)
- Diverse family and socio-economic families
- Diversity of educational backgrounds (some unknown)
- Cultural diversity
- Staff diversity relative to student body (cultural competency responsiveness)
- CVTE: costly and difficult to stay competitive and effective
- Technology is not ubiquitous yet
- Current space configurations
- Security
- Existing sports facilities are restrictive
- Limitations of current schedule
- Better use of technology (1:1, 3:1, assessments)
- Need more flexible learning environments
- Limited informal student/teacher spaces
- Over-programming of student schedules
- Standardized testing (celebration of scores)
- State level curriculum requirements

OPPORTUNITIES

- Leveraging diversity and cultural backgrounds
- Leveraging resources: geography; business; culture and parents
- Use data
- New facility
- Improved athletic facilities
- Improved indoor/outdoor connections
- Create small community fee
- Career Technical and Vocational Education
- Strengthen specialized environments
- Integration of school within a school
- More flexible integration options
- Add more sports options
- Increase extra-curricular participation
- Increase student schedule flexibility
- Celebrate student accomplishments
- Increase CVTE exposure
- Increase staff collaboration
- Outside enrichment opportunities
- Increase coding (computer science) instruction
- More CVTE programs: plumbing and HVAC

GOALS

- Cultural proficiency
- Parental involvement
- Inclusion (differentiation of needs)
- Commitment to reduce “barriers”/problems
- Use data meaningfully
- Student wellness/whole child
- Partner with our “neighbors” (colleges and universities +)
- Cohesive technology plan – teaching and learning applied
- No “wasted space” – ubiquitous learning throughout
- Preparing students with 21st century skills (whatever the next step: college and careers)
- Equitable facilities within the whole system
- Equitable facilities support ALL students through their educational experience
- Access to, and appreciation for the arts
- Widespread support for socio-emotional
- Create multi-purpose and flexible spaces, including performance venues and opportunities
- Increase support options for students
- Full utilization of resources
- Increase student privileges (flexible lunch options)
- Schedule improvements
  - Structural
  - Flexibility
  - Opportunities for increased/frequent class times
- Physical infrastructure that works
  - Efficient and safe use of space
  - Productive collaborative workspace
  - Maker spaces
  - Fine/performing arts wing
  - Outdoor learning environments (fields)

Educational Visioning Workshop One Notes

October 20, 2015

21st Century Learning Goals 1.0

The following set of priority “21st Century Learning Goals” for Somerville High School students were developed by the Educational Working Group (EWG). Five teams of 5-6 participants each worked to create their own set of Learning Goals, after which each team presented to the larger group. Each list was then displayed in a gallery format and participants were given the opportunity to vote for their top six priority Learning Goals.

New Vista Design then combined learning goals and “indicators” and listed them below in order of the number of priority votes they received, with each learning goal receiving 5 votes for appearing on a small group list, and one point for each subsequent priority vote received from an individual participant. This resulting list of “21st Century Learning Goals 1.0” will be revised by the Educational Working Group.

1. Learning to Be 61 votes

- Sense of self
- Growth Mindset
- Self-direction and reflection
- Curiosity and initiative
- Creativity and risk-taking
- Passion for learning
- Joy

2. Authentic Learning 52 votes

- Learning to do
- Project-based and service learning
- Career prep and entrepreneurship
- Practical skills sets
- Effective use of real world tools
- Inventive thinking
- Relevant applications and outcomes
- Ability to produce high quality products

3. Critical Thinking 45 votes

- Problem solving and reasoning
- Risk taking
- Assessing and analyzing information
- Adaptability

4. Communication and Collaboration 45 votes

- Oral and written
- Interpersonal skills
- Teamwork

5. Social and Civic Responsibility 40 votes

- Local and global
- Cultural awareness and expression
- Ethics and responsibility
- Diversity and inclusion
- Social justice and responsibility

6. Mastery of Core Academic Content 18 votes

- Including STEAM and digital literacy
- Effective use of real world tools

The following observations were made about Learning Goals 1.0 during Workshop Two on November 9, 2015

- Mastery of Core Content is integral and should be moved to the top. Is Mastery of Learning something that we assume at this point, or is that shifting?
- Mastery has a lot to do with educational delivery models – what do we want ALL student to know and how do we measure? Authentic Learning might be missing this…
- Authentic Learning is pedagogy that is connected to content creation
- It all seems connected to globalization and the rapidly changing nature of careers – which means we all have to be more flexible and proactive learners
- People were surprised to see Learning to Be at the top, but think it is because students are coming from so many different places and backgrounds that creating a place where student want to be, and where they feel safe is essential to the overall culture of the school
- Learning can only happen when students physical needs are met
- Keeping families engaged should be added under Communication and Collaboration

SOMERVILLE HIGH SCHOOL

Educational Visioning Workshop Two Notes

November 9, 2015

21st Century Design Patterns 1.0

The following set of priority "21st Century Design Patterns" for the design of the new and/or renovated Somerville High School was brainstormed by the Educational Working Group (EWG). Seven groups of approximately 5 people worked together to create a set of priority Design Patterns, after which each group presented to the larger group. With all seven lists placed in a gallery format, participants then each had the opportunity to vote for their top six design patterns. These are listed below in order of the number of priority votes they received, with each Design Pattern given five points for appearing on the original team list and one additional point for every priority vote that it received.

- **Greeting and Gatekeeping** (49 votes)
    - Safe Entry
    - Wayfinding
    - Welcome Centers
    - Clear and welcoming entrance
    - Community Access
    - All kids, staff, visitors come through here

- **Community Access** (34 votes)
    - Functional Access
    - To Gym and Cafeteria

- **Flexible Classrooms** (32 votes)
    - Flexible Furniture
    - Adaptive Classrooms

- **Clusters of Learning** (28 votes)
    - Classroom Neighborhoods
    - Would Allow for Collaboration and Communication

- **Collaborative Spaces for Learning** (26 votes)
    - Students and Staff
    - Presentation Spaces

- **Varied and Flexible Spaces** (21 votes)
    - Multi-Purpose Spaces

- **Sustainability** (19 votes)
  - Tied to Curriculum
  - Durability
  - Building as Teacher
- **Athletic Facilities** (17 votes)
  - Classroom Neighborhoods
- **Outdoor Spaces** (16 votes)
  - Outdoor Learning
  - Less restrictive and more engaging
- **Seamless Technology** (14 votes)
  - Ubiquitous Technology
  - Teaching Digital Citizenship
  - Charging Stations
- **Effective Classrooms** (13 votes)
  - Consideration for Acoustics
  - Visibility (but minimize distractions)
  - Break Out Spaces
- **Campus Feel** (13 votes)
- **Display and Exhibition** (9 votes)
  - Flexible Storage
- **Nooks and Crannies** (9 votes)
  - Between Spaces
- **Visible Learning & Transparency** (8 votes)
- **Teacher Teaming** (8 votes)
  - Counselor Teaming
  - Collaborative Spaces
- **Cyber Dining** (8 votes)
- **Small Group Spaces** (8 votes)
- **Professional Work Areas** (6 votes)
- **High Performance Learning Spaces** (5 votes)
  - Visibility and Safety
- **Informal and Varied Spaces** (5 votes)
  - Gathering and Commons Areas
  - Non-Classroom Spaces

SOMERVILLE HIGH SCHOOL

Educational Visioning Workshop Two Notes

November 9, 2015

21st Century Design Patterns 1.0 - Consolidated

The following set of consolidated priority “21st Century Design Patterns” for the design of the new and/or renovated Somerville High School was created by combining like Design Patterns to create a more streamlined list, which can be reviewed by the EWG for further development.

- **Varied and Flexible Spaces** (79 votes)
  - Flexible and Adaptive Classrooms
  - Flexible Furniture
  - Multi-Purpose Spaces
  - Gathering and Commons Areas
  - Non-Classroom Spaces
  - Small Group Spaces
  - Nooks and Crannies
  - Between Spaces

- **Greeting and Gatekeeping** (49 votes)
  - Safe Entry
  - Wayfinding
  - Welcome Centers
  - Clear and welcoming entrance
  - Community Access
  - All kids, staff, visitors come through here

- **Clusters of Learning** (36 votes)
  - Classroom Neighborhoods
  - Would Allow for Collaboration and Communication
  - Teacher Teaming
  - Counselor Teaming

- **Community Access** (34 votes)
  - Functional Access
  - To Gym and Cafeteria

- **Collaborative Spaces for Learning** (33 votes)
  - Students and Staff
  - Presentation Spaces
  - Professional Work Areas

- **Seamless Technology** (22 votes)
  - Ubiquitous Technology
  - Cyber Dining
  - Teaching Digital Citizenship
  - Charging Stations

- **Visible Learning & Transparency** (21 votes)
  - Display and Exhibition
  - High Performance Work Spaces
  - Visibility and Safety
  - Flexible Storage

- **Athletic Facilities** (17 votes)
  - Classroom Neighborhoods

- **Outdoor Spaces** (16 votes)
  - Outdoor Learning
  - Less restrictive and more engaging

- **Sustainability** (19 votes)
  - Tied to Curriculum
  - Durability
  - Building as Teacher

- **Effective Classrooms** (13 votes)
  - Consideration for Acoustics
  - Visibility (but minimize distractions)
  - Break Out Spaces

- **Campus Feel** (13 votes)

Educational Visioning Workshop Two Notes

November 9, 2015

Guiding Principles 1.0

Guiding Principles 1.0 offer a framework of educational and facility related design priorities that prove invaluable in helping stakeholders and design team members to set design goals and focus their work. The following set of Guiding Principles for design of the new and/or renovated Somerville High School was developed by the Educational Working Group (EWG). Seven groups of approximately 5 people worked together to create a set of priority Guiding Principles, after which each group presented to the larger group. With all seven lists placed in a gallery format, participants then each had the opportunity to vote for their top six Guiding Principles. These are listed below in order of the number of priority votes they received, with each Guiding Principle given five points for appearing on the original team list and one additional point for every priority vote that it received.

- Personalization, Connections and Building Relationships (49 Votes)
  - Collaborative, Not Competitive
  - Connections
  - Building Relationships
  - Personalized Learning
  - Learning to Be
- Design for the Whole Child (37 Votes)
  - Safe Spaces
  - Self-Discovery
  - Equal Access
  - Personalization
  - Inclusivity
- Innovative, Creative and Interdisciplinary (32 Votes)
  - Curiosity and Creativity
  - Joy
- Authentic Learning (31 Votes)
  - Real World Connections
  - 21st Century Skills
  - Opportunity for Exposure

Guiding Principles
Community Hub + Interactions
Real-world, Authentic Learning
- Adaptive, Flexible Learning Environment
Design for the Whole-Child
-safe spaces
-self-discovery
-equal access
-personalization
- Physical Environment
Beautiful | Professional | Inspiring
HighQuality High Expectations

Guiding Principles 1.0 (Continued)

- A Place You Want to Be (30 Votes)
  - Welcoming and Inclusive
  - Professional
- High Expectations for All (21 Votes)
  - Accountability
  - Staff and Students
- Multiple Pathways (19 Votes)
- Physical Environment (17 Votes)
  - Beautiful
  - Professional
  - Inspiring
  - High Quality
  - High Expectations
- Community Hub and Interactions (12 Votes)
- Learning By Thinking and Doing (11 Votes)
- Flexibility to Meet Huge Range of Needs (10 Votes)
- Critical Thinking and Creative Problem Solving (9 Votes)
- Diversity as Strength (8 Votes)
- School As Community Resource (7 Votes)
  - Community as School Resource
- Adaptive, Flexible Learning Environments (5 Votes)
- Sense of Community Pride (9 Votes)
- Authentic Arts Integration (8 Votes)

SOMERVILLE HIGH SCHOOL

Educational Visioning Workshop Two Notes

November 9, 2015

Guiding Principles 1.0 - Consolidated

The following set of consolidated priority "Guiding Principles" for the design of the new and/or renovated Somerville High School was created by combining like Guiding Principles to create a more streamlined list, which can be reviewed by the EWG for further development.

1. Design for the Whole Child (64 Votes)
    - Multiple Pathways
    - Safe Spaces
    - Diversity as Strength
    - Self-Discovery
    - Equal Access
    - Personalization
    - Inclusivity
2. Personalization, Connections and Building Relationships (59 Votes)
    - Collaborative, Not Competitive
    - Connections
    - Building Relationships
    - Personalized Learning
    - Flexibility to Meet Huge Range of Needs
    - Learning to Be
3. Authentic Learning (51 Votes)
    - Learning By Thinking and Doing
    - Real World Connections
    - 21st Century Skills
    - Critical Thinking and Problem Solving
    - Opportunity for Exposure
4. A Place You Want to Be (47 Votes)
    - Welcoming and Inclusive
    - Professional
    - Beautiful
    - Inspiring
    - High Quality
    - High Expectations
5. Innovative, Creative and Interdisciplinary (45 Votes)
    - Curiosity and Creativity
    - Authentic Arts Integration
    - Adaptive, Flexible Learning Environments
    - Joy
6. School As Community Resource (28 Votes)
    - Community as School Resource
    - Community Hub and Interactions
    - Sense of Community Pride
7. High Expectations for All (21 Votes)
    - Accountability
    - Staff and Students

Educational Visioning Workshop Two Notes

November 9, 2015

Blue Sky Ideas

The Somerville High School Educational Working Group brainstormed “Blue Sky Ideas” for the new facility. Blue Sky Ideas serve the purpose of eliciting creative and unconstrained thinking about what is desirable for the new school facility and, although not necessarily achievable, often contain the seeds of ideas can be modified to fit the budgetary and programmatic constraints of the architectural program. Additional Blue Sky Ideas and diagrams appear as scanned pages at the end of this document.

- **Business Incubator**
  - Changes each year
  - Store front
  - Adult world connections
  - Like Greentown Labs
  - Space for start-ups
  - Kids get experience of being part of it
- **Teen Center/Internet Cafe**
  - Open into evening
  - Top of the hub meeting room
  - Glass walls/meeting space
  - Like WPI – kids walk out to practice
- **Athletic Parking Structure**
  - 2 athletic fields on second floor
  - Parking no longer a problem
  - Bridge over railroad tracks
- **Functional Rooftop Learning Spaces**
  - Weather station
  - Green space
  - Urban farming
  - Astronomy
  - Outdoor café
  - Rooftop sports field
- **2D and 3D Galleries**
  - Guest artists
  - Local colleges
  - Center for 3D art and wall space for 2D
  - 2 wings
- **Flexible Spaces**
  - Small lecture hall for 200-250
  - Multi-Purpose room
- **Technology Connected Community**
  - Continuous learning
  - Anytime, anywhere learning
- **Multiple Engineering Workshops**
  - Tools and table space
  - Storage is key – lots of stuff
  - Greater access to machines/shops
- **Exterior Message Boards**
  - Let community know about all the great stuff going on at the school
- **Central Hub**
  - Meeting space
  - Highly flexible cafeteria
- **Commons/Café**
  - Informal Meeting
  - Views to the city
  - Performance venue
  - Visible educational mission
  - Small business/store
  - Comfortable, appropriate eating space the can be used for other functions

- **Dance Studio**
  - Yoga too
  - Hardwood floors
- **Blackbox Theater**
- **Maker Space(s)**
  - Maker Campus
  - Beyond just Engineering Lab
- **Classroom Neighborhoods**
  - Flexible classrooms
  - Teacher learning
  - Commons areas
- **House Suites**
  - With student services, admin and conference rooms
- **Sports Complex/Community Center**
  - Accessible, large, varied, health and wellness
- **Collaborative Learning Spaces**
  - Used by classes during the school day
  - Student and club use after school
- **Professional Space for Teachers**
  - Educationally current
  - Collaboration spaces for teachers
- **Comprehensive Athletic Facility**
  - Fields adjacent to campus
  - Larger field house
  - More space for indoor sports and activities
- **Interdisciplinary Neighborhoods**
  - Authentic learning with hands on applications
  - Connections to CTE
  - Integrated STEAM
- **Retail Spaces for CTE**
  - Culinary, Cosmetology, Graphics, Dental, etc.
  - Asset for community
- **Public Access Auditorium**
- **Green, Green and Greener**
  - Greenhouse
  - Recycling
  - Urban Farming
- **Blue Sky Diner**
  - Cafeteria, café, workspace
  - Bright with big windows and views
  - Open to garden that students harvest
  - Accommodate a variety of after-hours meetings
  - High top tables, bar counter for breakfast
  - High end kitchen
- **Upper Story Function Room**
  - Massive glass walls
  - Greenhouse feel
  - Informal student space
  - Flagship meeting room
  - Top of the Hub
- **Café/Meeting Space**
  - Feeling of immediate welcome
  - Central location
  - Connected to other spaces
- **If Next Wave and Full Circle**

- **Green, Green and Greener**
  - Greenhouse
  - Recycling
  - Urban Farming
- **Blue Sky Diner**
  - Cafeteria, café, workspace
  - Bright with big windows and views
  - Open to garden that students harvest
  - Accommodate a variety of after-hours meetings
  - High top tables, bar counter for breakfast
  - High end kitchen
- **Upper Story Function Room**
  - Massive glass walls
  - Greenhouse feel
  - Informal student space
  - Flagship meeting room
  - Top of the Hub

- **Next Wave/Full Circle**
  - Part of new building
  - Warm and welcoming space
  - Classrooms with nooks
  - Sensory room
  - Technology supports varied learning needs
  - Recording studio
  - Student ownership/art
  - Flexible furniture

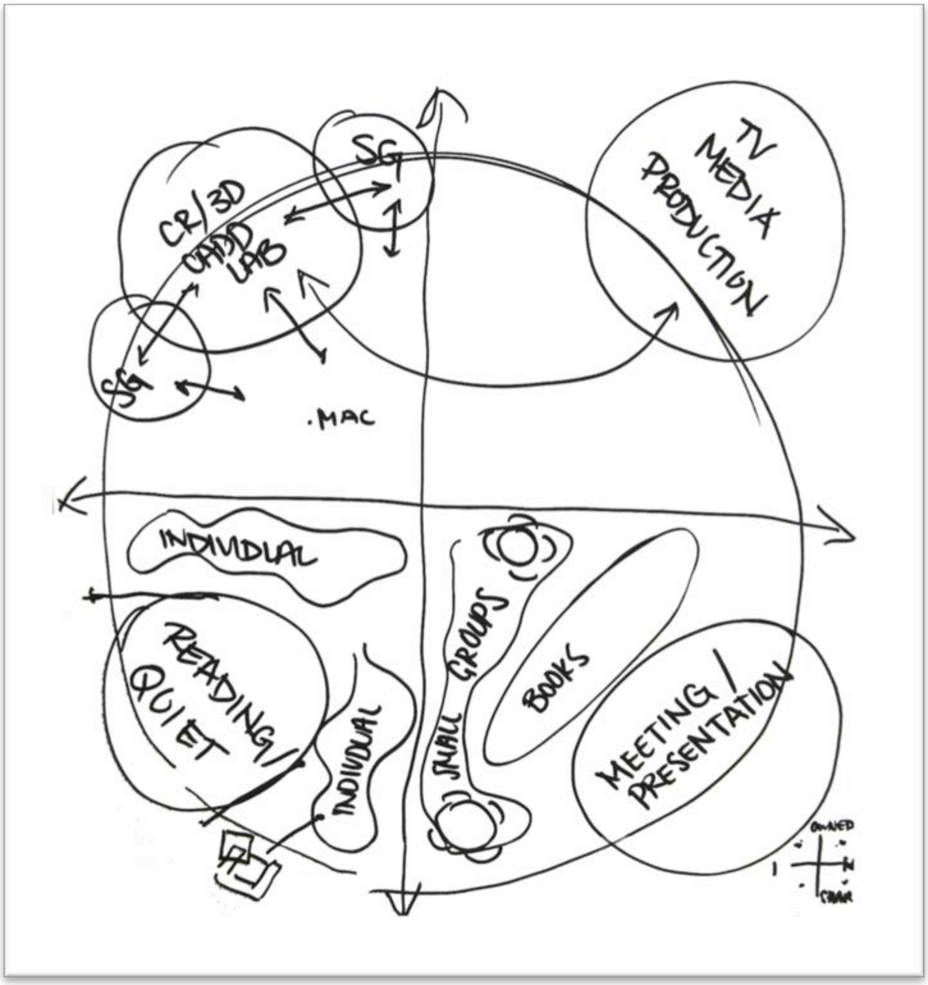
Educational Visioning Workshop Two Notes

November 9, 2015

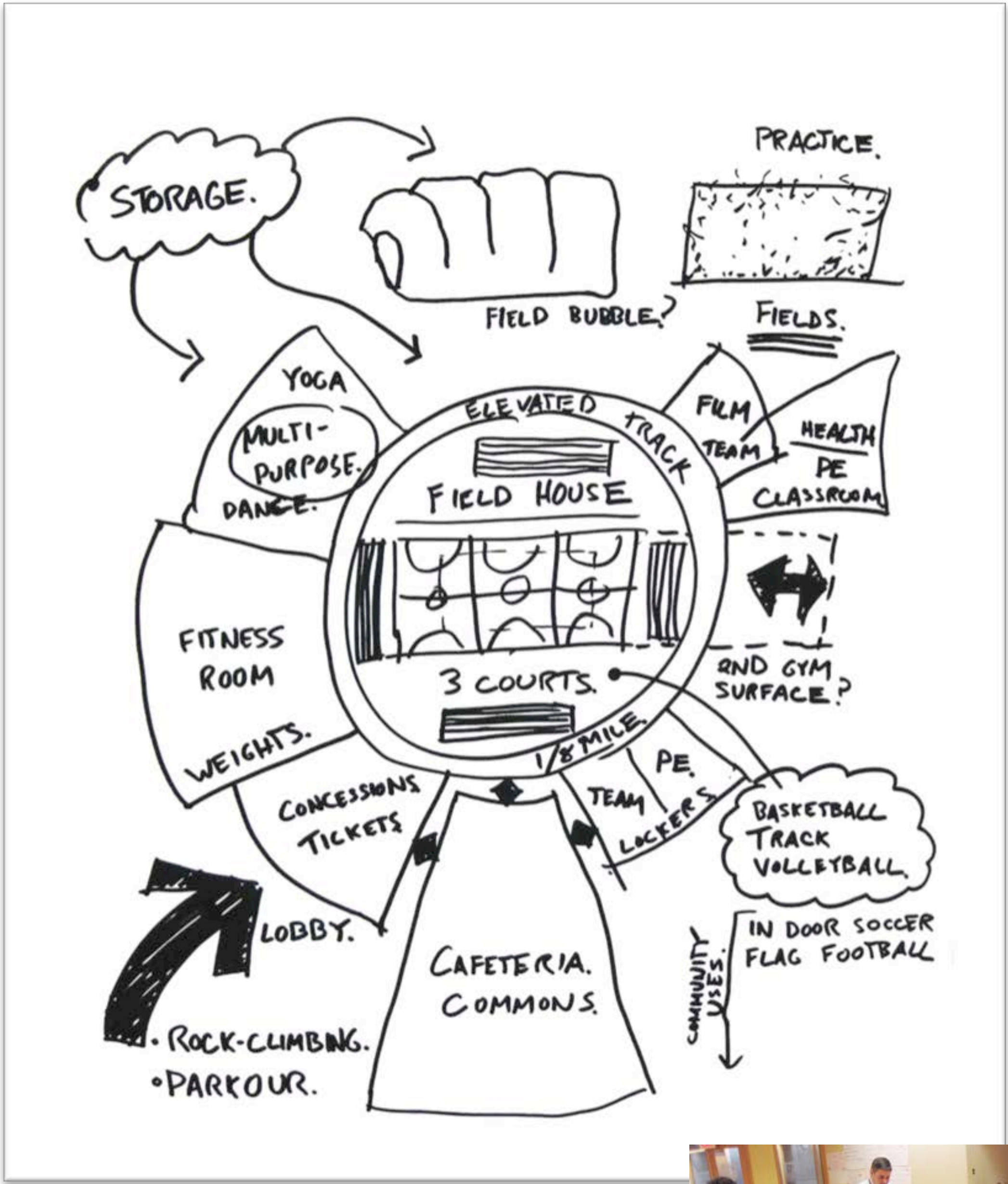
Diagrams

The Somerville High School Educational Working Group worked in small teams to develop ideas and diagrams that describe the kinds of spaces and adjacencies they envision for the new Somerville High School facility. They then presented their ideas to each other for feedback and further discussion. The following images represent the work of each group.

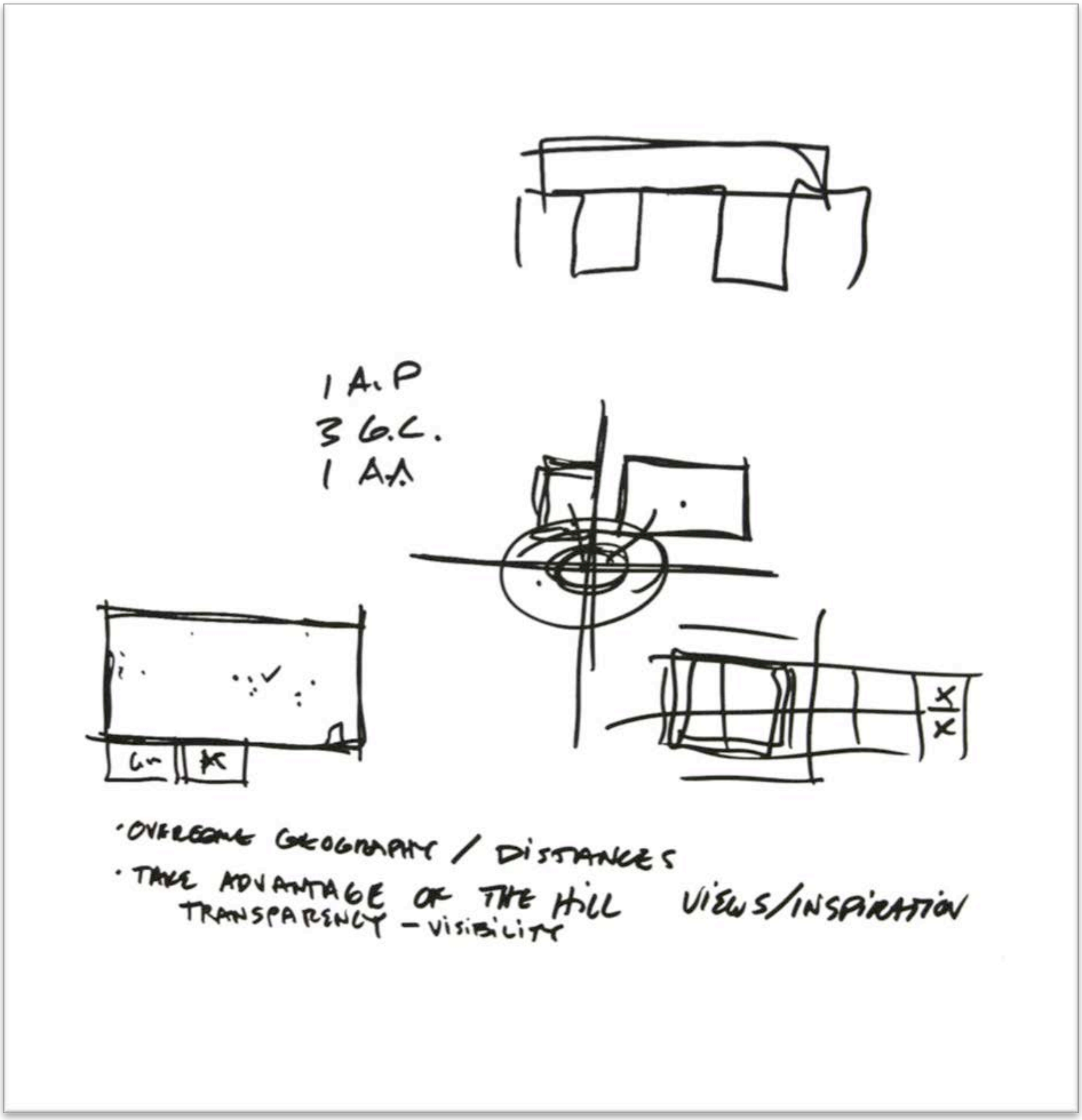
Media Lab Diagram



Field House Diagram



Hillside Sectional Diagram



- OVERCOME GEOGRAPHY / DISTANCES
- TAKE ADVANTAGE OF THE HILL VIEWS/INSPIRATION
  TRANSPARENCY – VISIBILITY

SOMERVILLE HIGH SCHOOL

Educational Working Group

Educational Visioning
Workshop One Agenda – October 20, 2015

Agenda

EXPECTED OUTCOMES: By the end of the session we will have begun to…

- Share **Priority Goals** for the design of Somerville High School's new facility
- Discuss 21st century teaching and learning and identify **21st Century Learning Goals** and initiatives for Somerville High School
- Assess Somerville High School's **Strengths, Challenges, Opportunities, and Goals** with regard to the development of its academic programs and the design of a new facility
- View a range of **Design Patterns** that support 21st century teaching and learning
- Generate **Blue Sky Ideas** for the new facility

Time	Activity	Purpose
1:00 – 1:45	***Workshop Goals and Introductions*** • Workshop overview • The Design Process • Creating a Design Guide • Introductions ○ Priority Goals for the new facility	Introduce participants, and clarify agenda and desired outcomes for this workshop and subsequent workshops. Share some of our Priority Goals for the new facility.
1:45– 2:30	***21st Century Schools*** • Changing Paradigms Video • Presentation: 21st Century Teaching and Learning	Identify and discuss changing paradigms in education, and essential elements of 21st century teaching and learning.
2:30– 2:45	**BREAK**	
2:45– 3:30	***21st Century Learning Goals*** • Small group review of assorted 21st century learning goals and outcomes and creation of priority listings • Large group prioritization • Media Saves the Beach Video	Ground our thinking about design guidelines and desired building features in a discussion and exploration of priority Learning Goals for the District.

3:30– 3:40	**BREAK**	
3:40– 4:30	***Somerville High School SCOG Analysis*** • Brainstorm of Somerville High School's Strengths, Challenges, Opportunities, and Goals	Identify what is presently working well within Somerville High School, what is challenging, and what opportunities exist with regard to the further development of programs and facilities.
4:30– 4:50	***21st Century School Facility Design Patterns*** • Presentation and overview	Begin our conversation about design guidelines and desired building features in a discussion Design Patterns and possibilities for Somerville High School.
4:50 –5:00	***Closing and Next Steps*** • Review of next steps moving forward • Exit Tickets: Blue Sky Ideas	Hear from participants about their questions and thoughts and think about Blue Sky (no-holds-barred) Ideas for the new facility.

SOMERVILLE HIGH SCHOOL

Educational Working Group

Educational Visioning

Workshop Two Draft Agenda – November 9, 2015

Agenda

EXPECTED OUTCOMES: By the end of the session we will have begun to…

- Review **Priority Goals**, **SCOG Analyses** and **Learning Goals** for the design of Somerville High School's new facility
- Explore and prioritize a range of architectural **Design Patterns** that support 21st century teaching and learning
- Understand the role that **Guiding Principles** play in setting facility design priorities and intent
- Create a set of **Guiding Principles and priorities for design** of Somerville High School's renovated and/or new school
- Generate a listing of **Key Spaces and Blue Sky Ideas** for the new facility
- Engage in a **Bubble Diagramming Activity** to identify important spaces and adjacencies within the new school

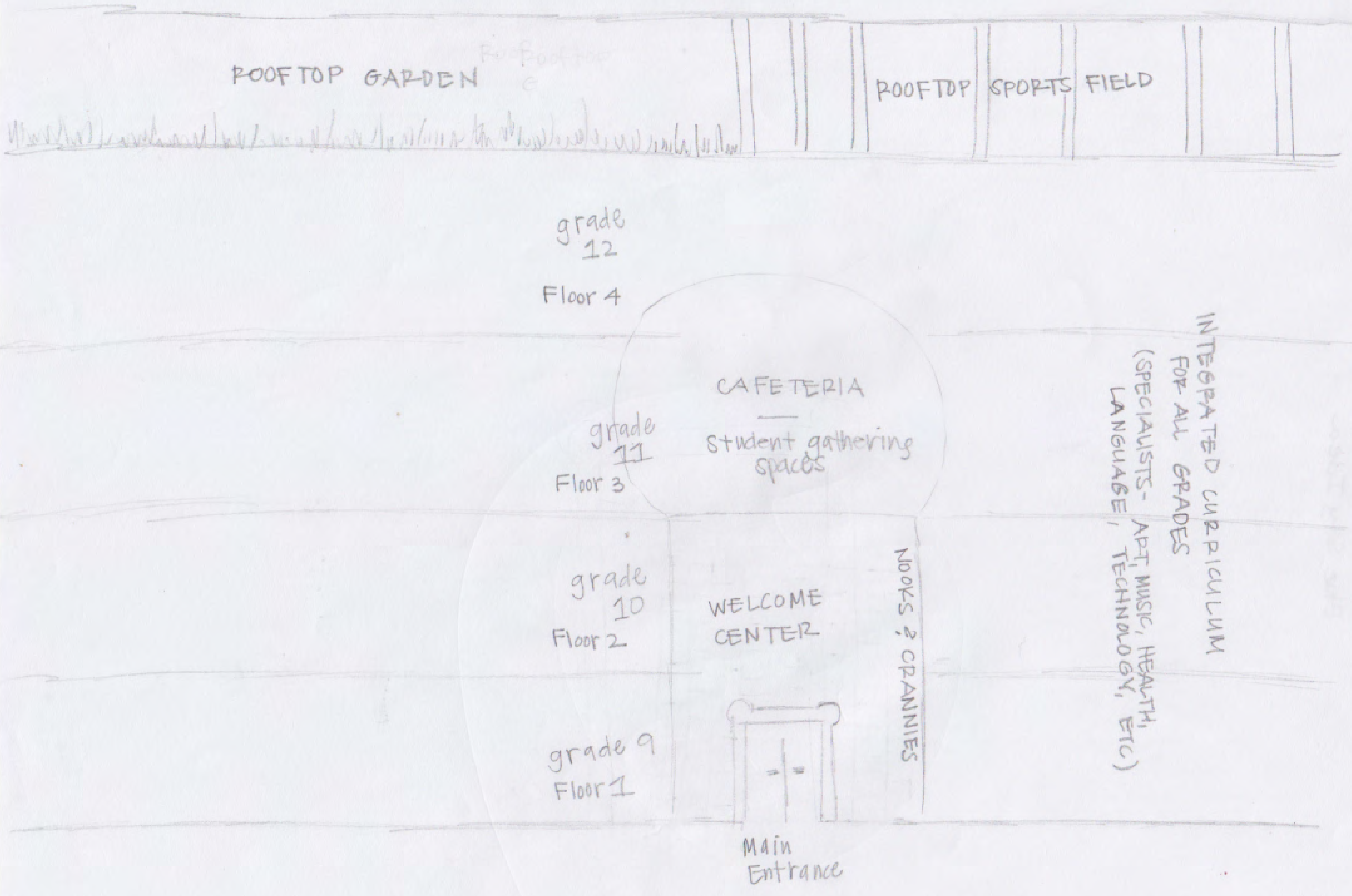
Time	Activity	Purpose
10:00 – 10:45	***Workshop Goals and WS One Debrief*** • Introduction of new members • Review of: ○ Design Priorities ○ SCOG Analysis ○ Learning Goals What strikes us? What's missing?	Review today's agenda and debrief the October 20th workshop activities and discuss key themes and takeaways.
10:45– 12:00	***21st Century School Facility Design Patterns*** • Presentation and Q&A ***Design Patterns for Somerville High School*** • Small group review of assorted facility Design Patterns • Creation of priority listings • Large group prioritization	Ground our thinking about design guidelines and desired building features in a discussion and exploration of new school Design Patterns. Identify priority Design Patterns for Somerville High School.
12:00– 12:30	**LUNCH**	

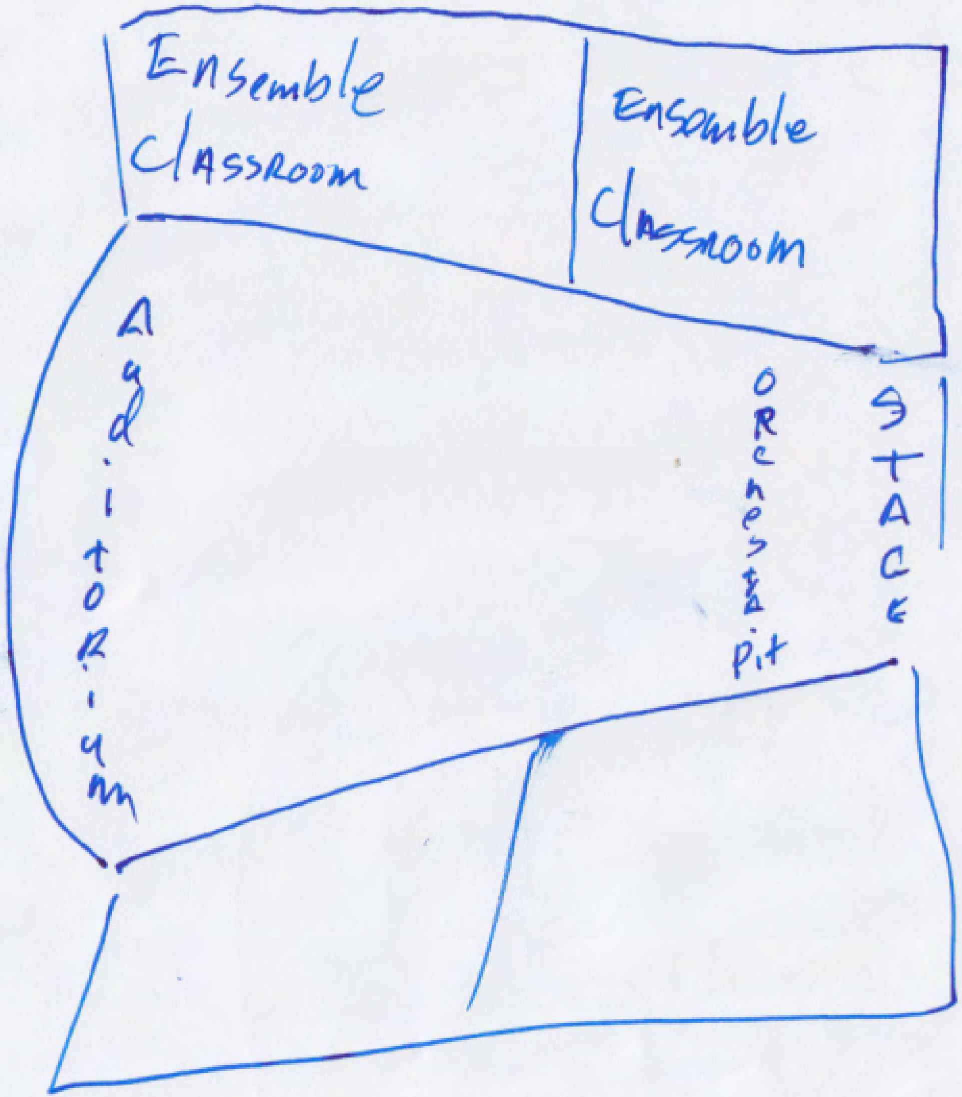
12:30– 1:45	***Guiding Principles for Design*** • Presentation and Q&A • Small group review of assorted Guiding Principles and creation of priority listings • Large group sharing and prioritization	Explore the connections between Guiding Principles and school design solutions. Translate our Somerville High School Design Patterns into a listing of priority Guiding Principles for design of the new and/or renovated building.
1:45– 2:00	**BREAK**	
2:00– 3:15	***Key Spaces and Adjacencies*** • Individual reflection • Small group discussion Large group discussion of key spaces and desired adjacencies	Share practical and creative design ideas that will help us reach our learning goals, implement desired Design Patterns, and put our newly brainstormed Guiding Principles into practice.
3:15– 3:30	**BREAK**	
3:30 – 4:45	***Bubble Diagramming*** • Individual and small group diagramming of key spaces and/or desired adjacencies within the new school • Large group sharing	Identify important adjacencies and design ideas that can be explored further in the conceptual design process.
4:45–5:00	***Closing and Next Steps*** • Next Steps review and Q&A	Hear from participants about their questions and thoughts. Review next steps for development of our process working together.

Blue Sky Ideas

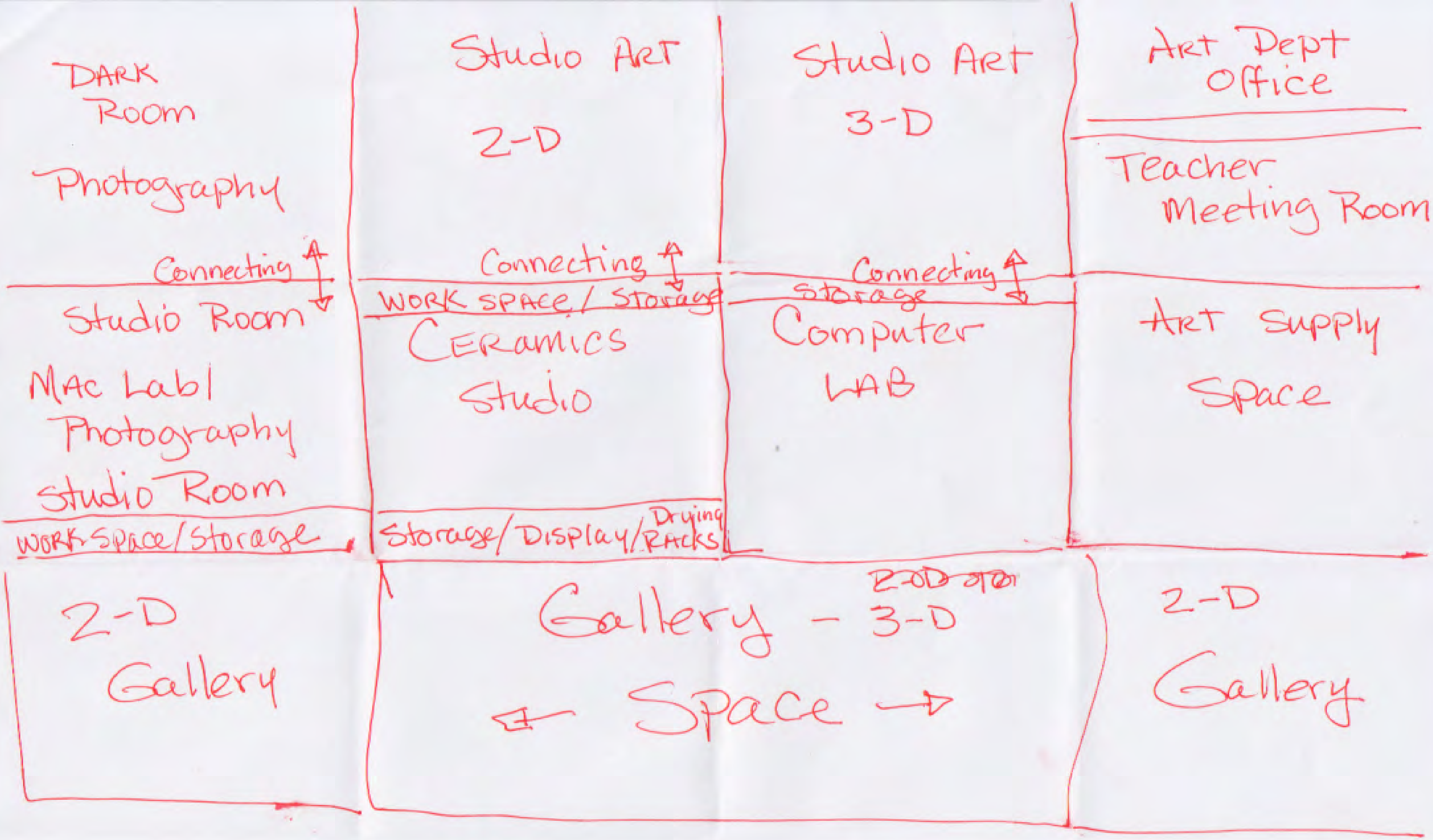
Scans of Blue Sky Ideas that were either solely diagrammatic, or contained a diagram.

Somerville High School





Music Department – Rick Saunders



Art Department
Space

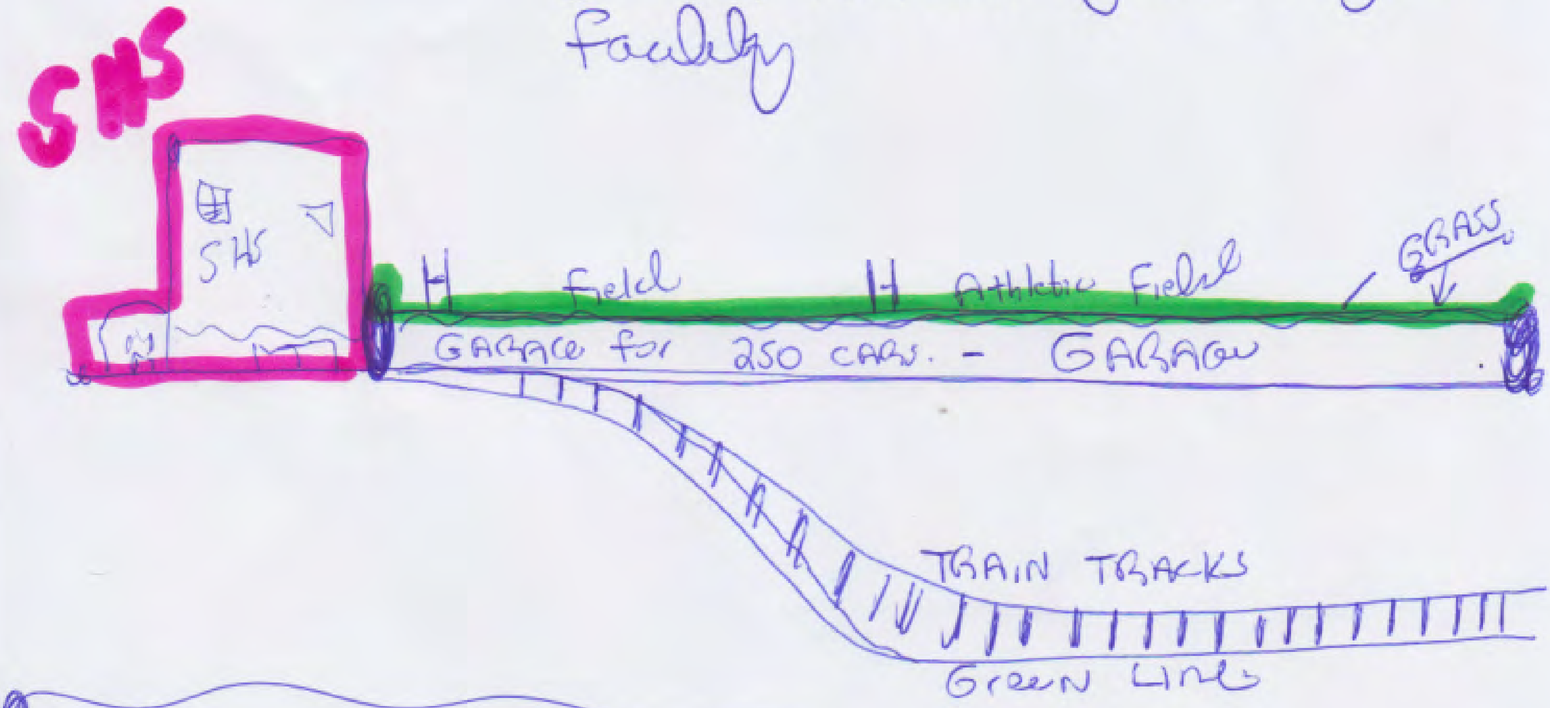
Luci
Prawdzik

Chuck Melillo
Director of Student Services

Problem > Fields + Athletic Venues are issue

#1. Build behind SHS > build a garage over the tracks (CREATE A #150-200 yard tunnel) > Build 1 Level parking garage with > 2 Fields on top

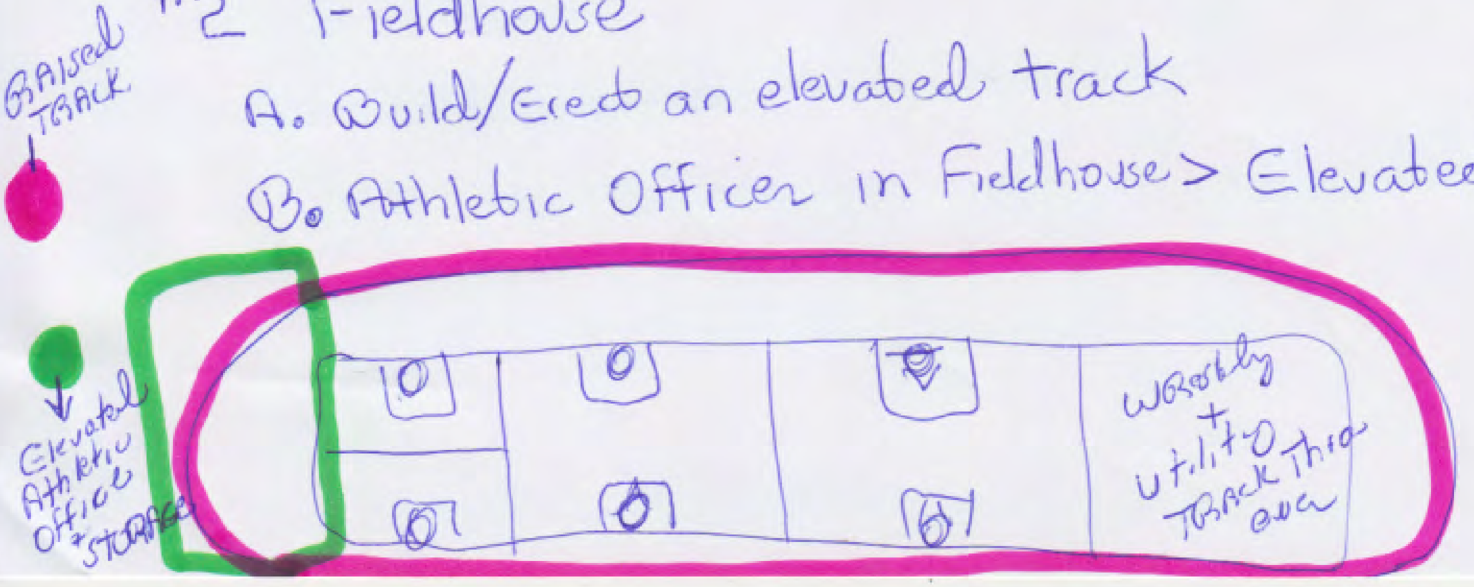
soccer/football > practice + game facility

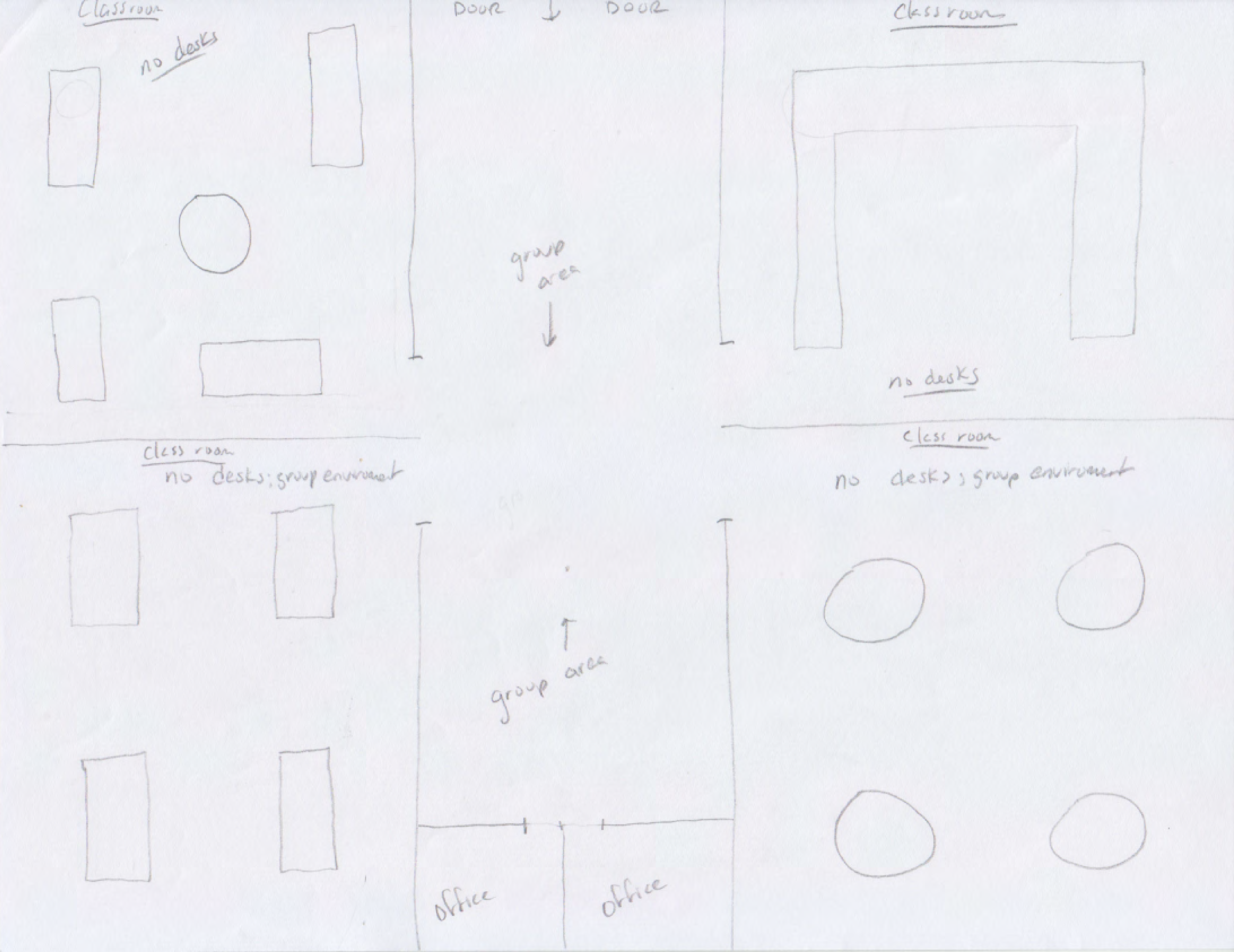


#2 Fieldhouse

A. Build/Erect an elevated track

B. Athletic Offices in Fieldhouse > Elevated




Classroom
no desks
DOOR
DOOR
group area
Classroom
no desks
classroom
no desks; group environment
classroom
no desks; group environment
group area
office
office

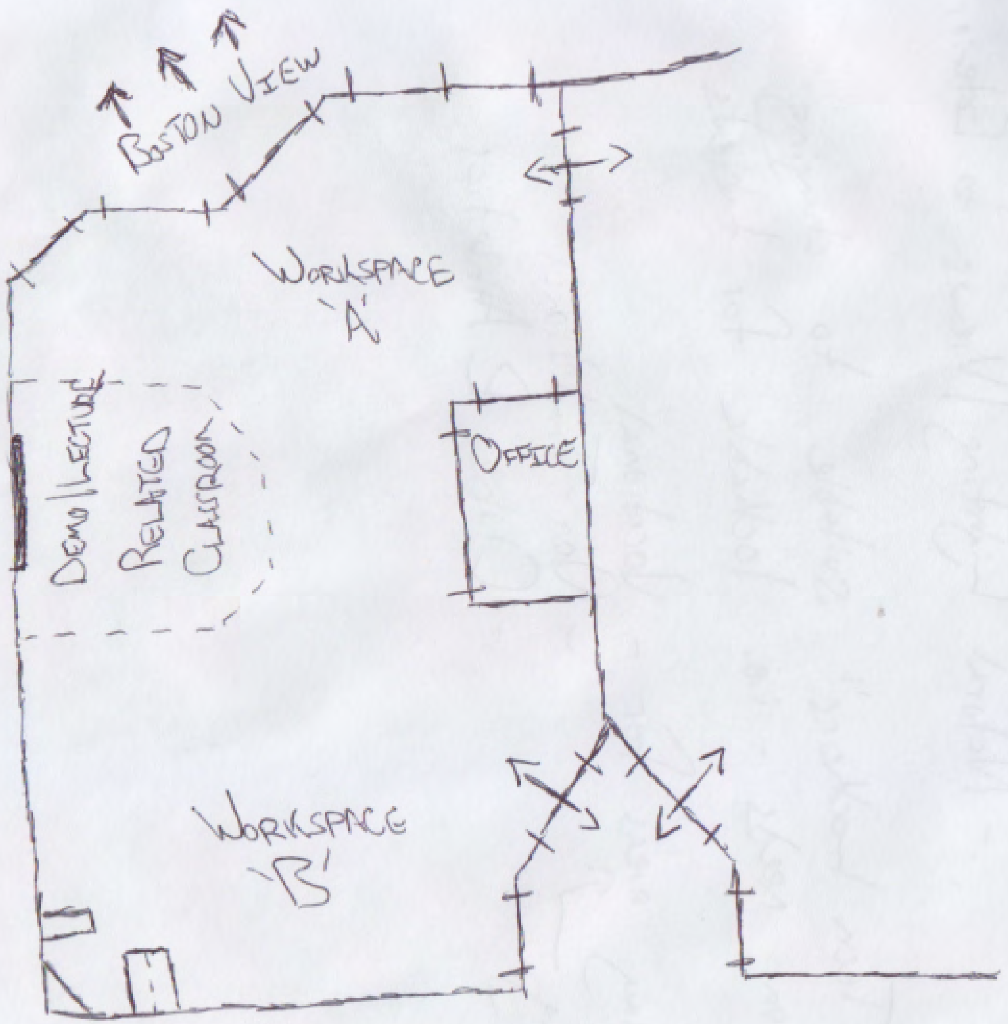
"Blue Sky Ideas"

- Vocational Work Stations
  - i.e. ① Engineering space for Computer Work, Design/Sketching model building per student
    ② Auto. } each student personal tool & work
    Carp. } space seperated from common areas
- ———→ ③ Related classrooms for all Voc trades

- No "Boxy" rooms - be inspiring
  - Natural Lighting/Views to Exterior

- Personalized "Tech Lockers" suitable to changing education needs - i.e. lockable for tablets

- Promanent display areas for - Vocational
  Near entryway ↗ - Non-Traditional
  - Clubs & Athletics

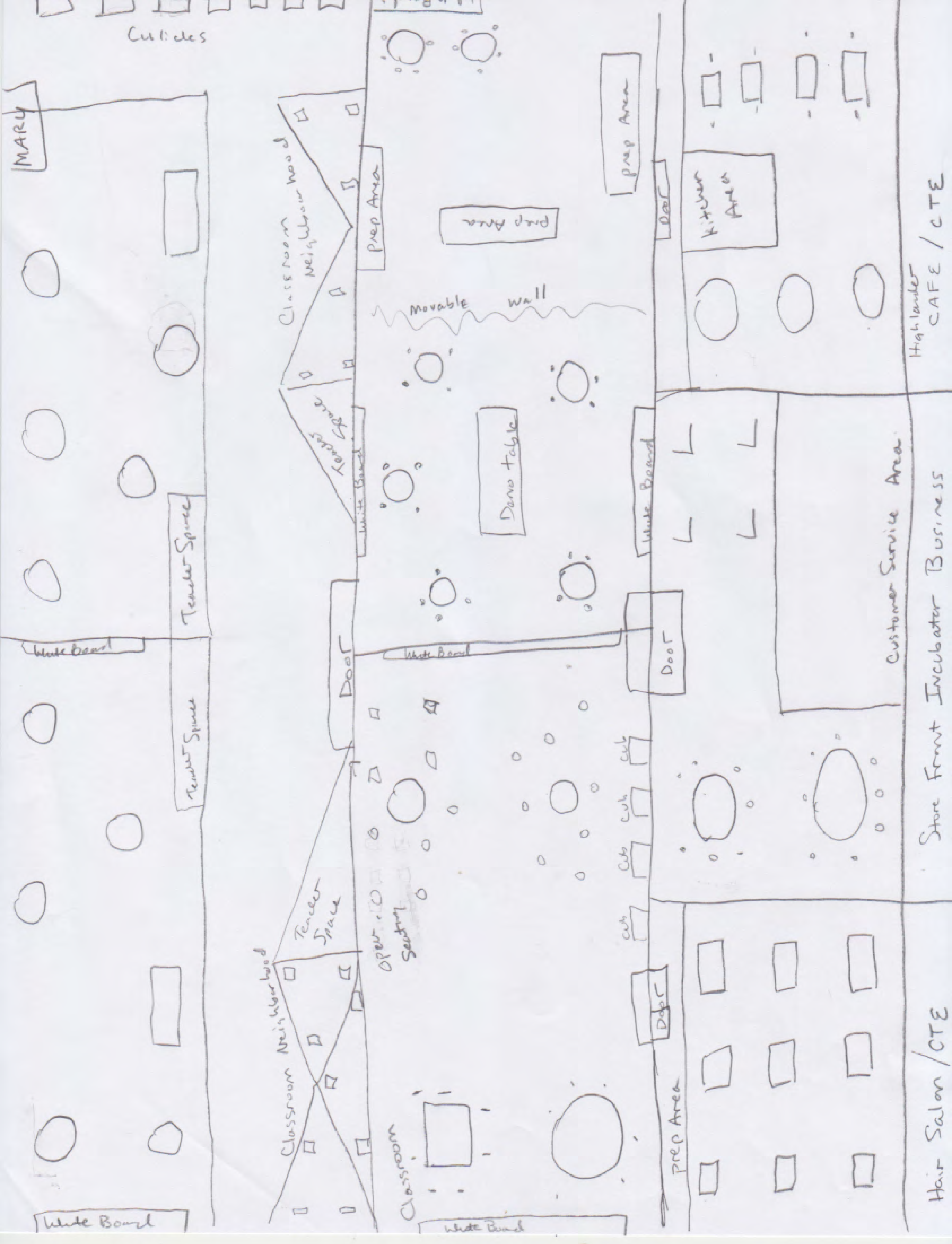


ENGINEERING | DRAFTING
LAB CTC

Key areas

If Next/Wave/Full Circle are part of the new building

- a common space that fits each whole school ie. NW all at once, FC all at once, possibly both together
- a main entry way of our own that is welcoming and safe
- Classroom spaces that can interact with each other and be closed off with space for students to work independently
  - nooks that are visible
- space that is welcoming for counseling sessions
- space for students who are in crisis out of class/ a time out space that has space for movement as well as quiet work
- meeting spaces for teachers, team mtgs, etc.
- lab space
- kitchen space for cooking


Cubicles
MARY
Classroom Neighborhood
Prep Area
Prep Area
Prep Area
Door
Kitchen Area
Highlander CAFE / CTE
Movable wall
Teacher Space
White Board
Demo table
White Board
Customer Service Area
Teacher Space
White Board
Door
White Board
Door
Store Front Incubator Business
Teacher Space
cub
cub
cub
cub
cub
cub
Open Seating
Teacher Space
Classroom Neighborhood
Door
Prep Area
Classroom
White Board
White Board
Hair Salon / CTE

Blue Sky Idea

① SHS would greatly benefit from additional and necessary athletic spaces. We need fields adjacent to the campus. This would increase safety and, will likely increase participation. Also increasing space within the existing fieldhouse for indoor sports and activities

- Roofs, UNDERGROUND, Wherever !!
- Over the Library for studio space?

② The second Blue Sky idea is an integrated interdisciplinary layout. This would capitalize on the CTE program and provide authentic learning with hands on application. Integrating STEAM, STREAM or whatever will be a great benefit

③ Creating retail space for the CTE programs open to the public: Culinary, Cosmetology, Graphics, possible banking, dental, etc would be a tremendous asset for the community

also - public access for Auditorium, Field House and retail space would be helpful.

④ GREEN, GREEN and GREENER
→ Greenhouses, recycling, urban farming.

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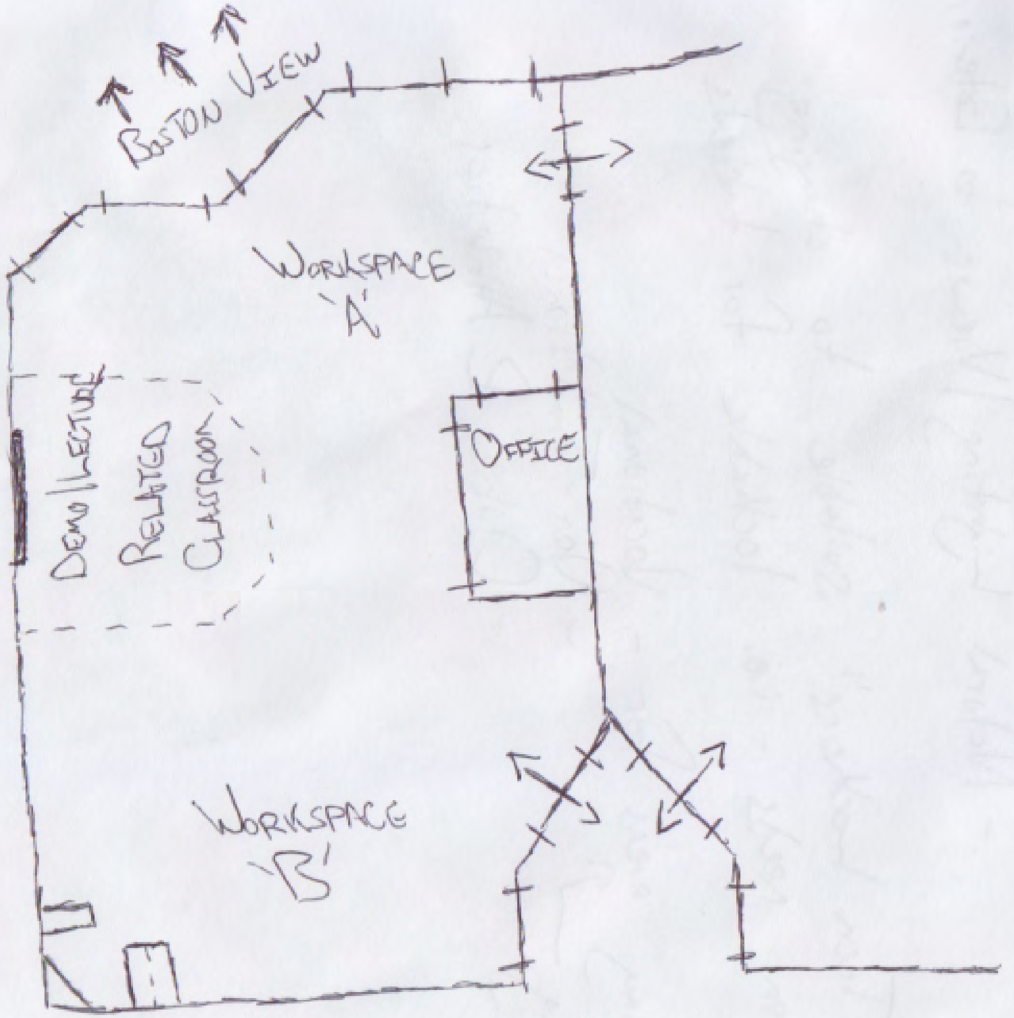


ENGINEERING | DRAFTING
LAB CTC

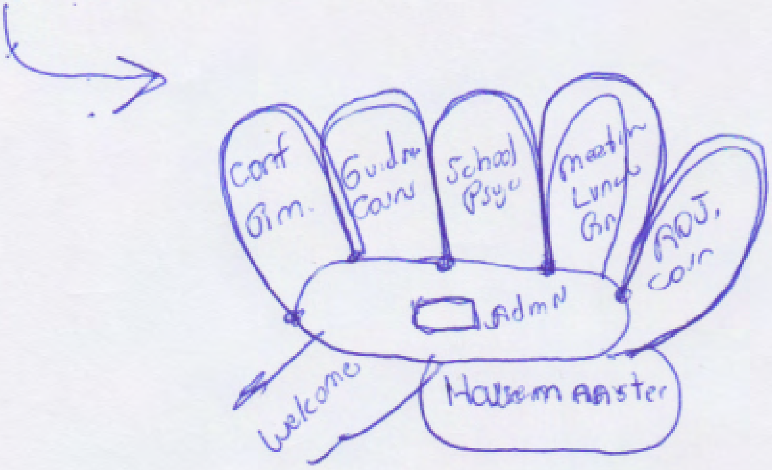
Blue Sky Ideas

If Next Wave/Full Circle is part of the new building I would love to have

- warm, welcoming space that feels homey
- soft seating
- classrooms with nooks outside/inside to accommodate students who need different space to work
- sensory room for kids who need movement and other sensory experiences
- technology to support special learning needs in a way that doesn't make someone stand out
    - so lots of different technology for all to use
- nooks and crannies for kids to use as a quiet space or a place to talk with a counselor
- space to show membership → we have a tree printed on the wall right now where every student puts a handprint with their name. It creates a great sense of belonging to a larger community of students who come back and visit often
- a recording studio will be cool - we have tons of kids who live for music and are constantly creating beats and rhythms in the classroom.
- Outdoor space that could be used for therapeutic way
- moveable furniture in classrooms - both to reconfigure seating/use but also desks/chairs that go up and down to accommodate student size and need for movement

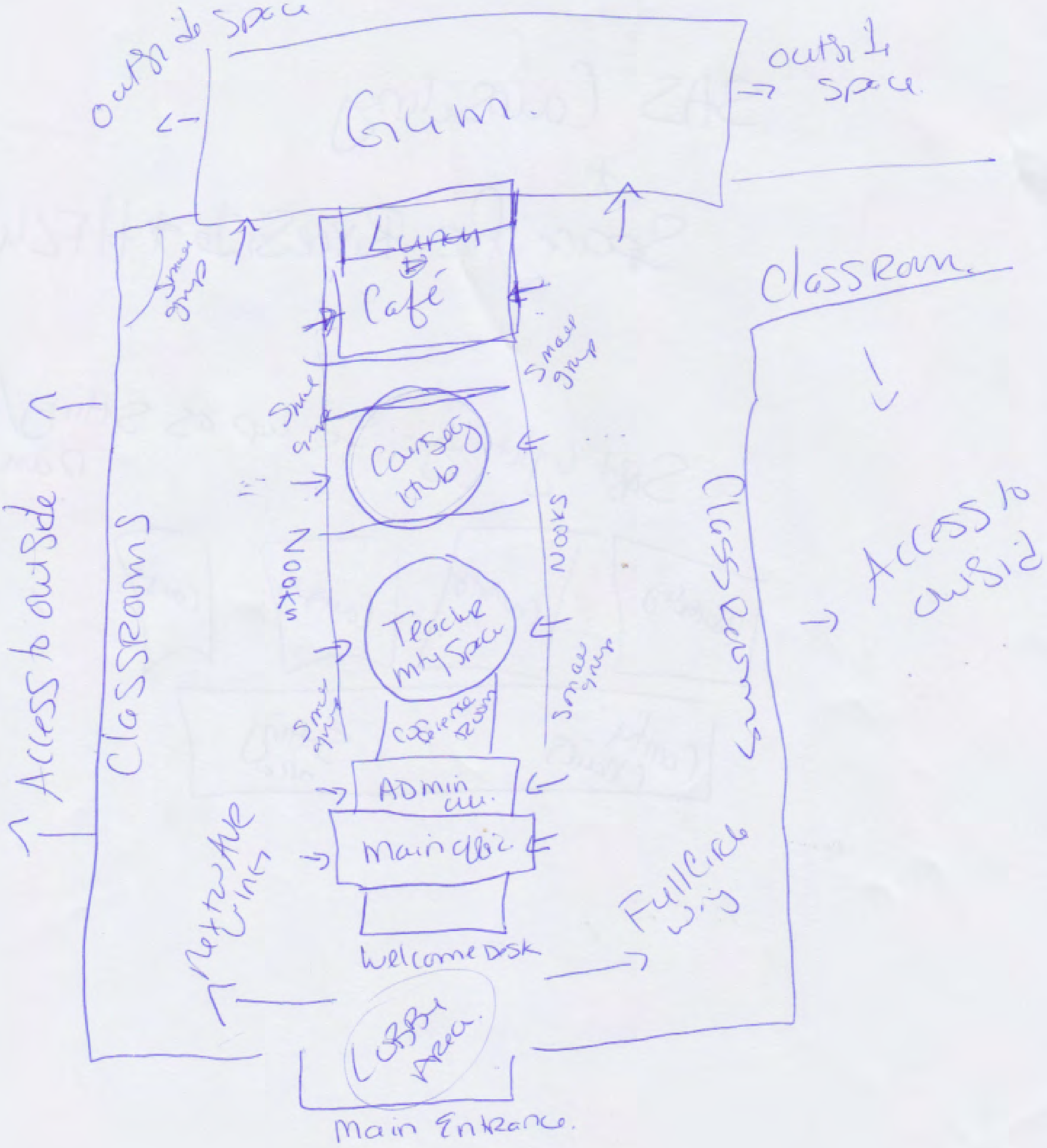
- soft lighting
- kitchen
- science labs

House Suites



Margaret DePasquale

NW FC SPAC



Key Spaces for SHS

- places for quiet, introverted, private people to focus
- a beautiful physical recreation area for Students, Staff, community to play, exercise ...
- spaces that can be kept clean + accessible

Blue Sky Idea

① SHS would greatly benefit from additional and necessary athletic spaces. We need fields adjacent to the campus. This would increase safety and, will likely increase participation. Also increasing space within the existing fieldhouse for indoor sports and activities

- ROOFS, UNDERGROUND, Wherever!!
- Over the Library for studio space?

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also - public access for Auditorium, Field House and retail space would be helpful.

④ GREEN, GREEN and GREENER

→ Greenhouses, recycling, urban farming.

Be opportunistic about Union Sq. development, multiple old city/school buildings in meeting all educ. needs

Blue Sky Ideas for SHS

I like the idea of having this process/project expand the concept of having the city be the campus with SHS as the hub. Not everything has to be in one building.

- light blue ceilings in classrooms/inside spaces → message = sky's the limit
- lots of natural light with blinds/options to add privacy + darker areas
- pool + gym that community can also use
- Combine SHS project w/ public library space next door + Cummings School 2 blocks away. City Hall? Green line stop?
- Space for New Wave/Full Circle? Admin. staff? SCALE adult ed?
- like the example of a vertical STEM/STEAM dept.
- outdoor space ~ for learning, moving
- dental clinic
- Showcase CTE for public - easy access to shops - automotive, cafe, salon...
- like the examples of some furniture w/ wheels
  locked storage
- bike racks
- I second a greenhouse
- make good use of roof

Margaret DePasquale.

Blue Sky Idea

Next Wave Jr. High + Full Circle High School

- welcoming entrance - main office Right when you enter the building
- large classrooms that allow for group work, individual stations + opportunities to move
- Cafe Styled Lunchroom - ~~w/ good~~ w/ soft lighting + quiet spaces
- Counseling offices + time out space close by each other. - soft lighting
- lots of natural light in all classrooms + offices
- easy to move furniture.
- wireless - One to one student devices (chromebooks, ipad, laptops)
- gym that can host basketball games for Alt. School bball league
- outdoor spaces - each classroom opens to an outdoor space
- ~~Computer~~ Science Lab for Middle School
  Science Lab for High School.
- Breakout spaces outside ClassRooms - with sightlines
- Common area for middle school students
- ~~Com~~ Separate Common area for H.S. Students

Blue Sky Idea:

☆ Support Services Wing/Center that includes all school counselor offices, spaces for meetings, spaces for groups (counseling groups), spaces for mental health or college/career partnerships, College/career center w/ computers + technology, nurses?, tutoring, etc. A place where support services staff can collaborate. A place where students can go for support/help.

★ Space for.
Collaboration btwn CTE + the community.
Providing space + equipment to companies to train their employees, providing post grad learning through CTE + in return companies provide internships.

☆ A way to have most of the students on computers at the same time. More technology in more spaces!