Notice of Project Change

Submitted to update the Draft Project Impact Report for Olmsted Green submitted 3 November 2005
Pursuant to Article 80 of the Boston Zoning Code

Lena Park CDC and the Edward W. Brooke Charter School

150-160 American Legion Highway
Boston, Massachusetts

<u>Submitted to:</u>
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

<u>Proponent:</u>
Lena New Boston LLC
c/o New Boston Fund
75 State Street, 12th Floor
Boston, MA 02109

<u>Co-Applicants:</u>
Lena Park Community Development Corporation
1542 Columbus Avenue, Suite 2
Roxbury, MA 02119

Edward W. Brooke Charter School
190 Cummins Highway
Roslindale, MA 02131

<u>Prepared by:</u>
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MDM Transportation Inc.
Ransom Environmental

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6 September 2012

6 September 2012

Mr. Peter Meade, Director
Boston Redevelopment Authority
One City Hall Square, 9th Floor
Boston, MA 02201

Attn: Ms. Heather Campisano, Deputy Director of Development Review

Subject: Notice of Project Change
Article 80 – Large Project Review
150-160 American Legion Highway

Dear Mr. Meade:

On behalf of the Lena New Boston LLC (the original project proponent), Lena Park CDC and the Edward W. Brooke Charter School, we are pleased to submit fifty copies of the Notice of Project Change for the renovation of 150-160 American Legion Highway. This site was included in the Draft Project Impact Report for Olmsted Green which was submitted to the BRA on November 3, 2005. We are requesting the BRA's review and comment on the following changes to the previously submitted DPIR:

- The building use will be a community center and charter school: the use proposed in the DPIR was as a community center.
- The building size will be increased by approximately 2, 500 square feet: the DPIR proposal increased the size by 25,000 square feet.

Since the submittal of the original DPIR in 2005, the Lena New Boston team, a partnership of New Boston Fund and Lena Park Community Development Corporation, has successfully completed the construction of over 229 units of affordable housing and a skilled nursing facility. The partnership of the Lena Park CDC and the Brooke Charter School furthers the goals of the original DPIR to develop facilities adjacent to Olmsted Green to serve this now thriving urban community.

We would like to thank your staff for their assistance. We look forward to meeting with you and the BRA Board on this important and beneficial project.

Very truly yours,
Lena Park CDC

David Wright, President

Edward W. Brooke Charter School

Jon Clark, Co-Director

Cc: Eliza Datta, Vice President, New Boston Fund

TABLE OF CONTENTS

Notice of Project Change

150-160 American Legion Highway

7.7 Communications
7.8 Utility Phasing
7.9 Utility Protection During Construction

ATTACHMENTS:

1 MEPA Threshold Review
2 Form B - MHC Inventory
3 Existing Site Survey
4 Existing Conditions Photographs
5 Proposed Site Plan
6 Proposed Building Plans and Elevations
7 Traffic Study
8 LEED for Schools Scorecard

1.0 Executive Summary

1.1 Introduction/Overview

In accordance with Article 80B-2 of the Boston Zoning Code, this Notice of Project Change is being submitted for the proposed renovation of 150-160 American Legion Highway (the "Site"). The Site is a component of the Olmsted Green Project, for which an Article 80 Large Project Review Draft Project Impact Report ("DPIR") was approved by the Boston Redevelopment Authority ("BRA") in 2006.

Lena Park Community Development Corporation ("Lena Park" or "Lena Park CDC") and the Edward W. Brooke Charter School ("Brooke Charter School" or the "School") ("the Owners") are proposing to renovate the existing buildings at this address to create a combined charter school and community center (the "Project").

This Notice of Project Change ("NPC") reflects changes in the proposed uses and floor area of the site. The Project at the time of the DPIR was described as the renovation and expansion of the existing 57,000 square foot building into an 80,000 square foot community center and job training center. With this NPC, the Owners propose to renovate and expand the existing building into a 61,000 square foot community center and school. This NPC does not modify any other component of the Olmsted Green Project, except for minor traffic modifications incidental to the school use. The proposed Project is consistent with the goals of the original master plan to provide the community with new social, educational and economic benefits and services.

1.2 Project Background

Lena New Boston LLC was the Proponent for Olmsted Green. The Proponent filed the DPIR for Olmsted Green on November 5, 2005 and the BRA Board approved the project on January 26, 2006. Since that time, site development has proceeded, with 229 units of housing completed or nearing completion.

150-160 American Legion Highway (referred to in the DPIR as the "Lena Park Parcel") was included in the DPIR and but has stood vacant since October 2008.

Lena Park CDC is the present owner of 150-160 American Legion Highway. Lena Park CDC, one of the parties to the Lena New Boston joint venture, has signed an agreement to create a shared ownership structure for the site with the Edward W. Brooke Charter School. Consistent with the original DPIR, Lena Park CDC and the Edward W. Brooke Charter School will be the owners/developers of the project. Lena New Boston, LLC, the Proponent of the DPIR has authorized the filing of this NPC by the Owners.

Representatives of the Owners have met with staff of the BRA, the Boston Transportation Department, and Boston Water & Sewer to coordinate requirements for the Project. Representatives of the Owners have also met several times with the Boston State Hospital Community Advisory Committee (CAC) to

discuss the project. The CAC served as the Imapct Advisory Group for the DPIR. A neighborhood meeting is planned to present the revised project to interested citizens.

MEPA Review

The Project does not meet any of the MEPA triggers for review. MEPA thresholds are summarized in the attached MEPA Threshold Review.

1.3 Project Site and Surroundings

The Project Site consists of the land and buildings at 150-160 American Legion Highway. In total the are of Site is approximately 3.9 acres and the existing building is approximately 57,000 square feet in floor area.

The Site is bounded by the following :

- To the north is Cruz Development Corporation's Harvard Commons – a residential development
- To the east is the Brown Kaplan multifamily development owned by Lena Park CDC
- To the south is the East Campus portion of the Olmsted Green development, now home to 159 units of housing (100 family rental and 59 senior rental) and a vacant lot bounded by Austin and East Main Streets. This lot is designated within the Olmsted Green master plan as the location of a future Heritage House serving Department of Mental Health clients. East of this lot is the Massachusetts Department of Youth Services Correctional Facility.
- To the west across American Legion Highway is Franklin Park

The site, which is currently owned by the Lena Park CDC, contains an existing 53,500 square foot building formerly occupied by Hecht House, a Jewish community and recreation center. The building is currently vacant. The owners propose to create a condominium ownership for the building in which the Lena Park will own and occupy the lowest floor level of the 1959 addition, the school will own and occupy the former Hecht House and the proponents will share the gym. The school will have the use of the shared gymnasium space during school hours and the Lena Park will have the use of the shared space on evenings and on the weekends. The same shared use arrangement will apply to outdoor recreational areas and most parking.

1.4 Project Description

The site has been, since the construction of Hecht House in 1911, a community resource providing child care, education and community services. The proposed use of the building for a community center and charter public school will continue and re-occupy the Site for these uses. The originally proposed project on this site was for expansion of the existing building to 80,000 square feet; the size of the proposed project which is the subject of this document is approximately 57,000 square feet.

The Lena Park CDC plans to renovate the existing space below the gymnasium to provide a new and separate entrance to the community center. The community center will operate programs for children, youth, adults and seniors that are expected to include day programming, education, recreation and job training. The program mix will vary overtime as needs and funding change.

The Edward W. Brooke Charter School will re-locate its existing Edward W. Brooke 2 Charter School ("Brooke 2"), temporarily located at 7 Elkins Street in South Boston to the Site. Brooke 2 was established in 2011 and currently has 266 students. Brooke 2, like Brooke 1 in Roslindale, is planned to grow to a total of 475 students. As a result of the proposed Project, the school will have 27 classrooms, cafeteria, library and other associated learning and administrative support space.

The Project will consist of renovations of the existing buildings currently located at 150-160 American Legion Highway which has been vacant for approximately four years. The renovations will include reconfiguration of the existing building interiors and replacement of the building systems. As part of the work, the front entrance between the historic Hecht House and the 1959 gymnasium will be improved to provide a handicapped accessible front entrance. A small addition will be constructed on the rear (south) of the Hecht House to provide an accessible elevator and egress stair. Miscellaneous exterior repairs and improvements are proposed, as further detailed below.

The site will be improved to facilitate the new uses. The existing access drive and parking lot will be reconstructed to provide 70 parking spaces for joint use by the Lena Park and the School. The remainder of the Site will be improved to provide outdoor play space and associated green space for Lena Park and the School.

1.4.1 Project Data/Approximate Dimensions

After the changes described in this NPC, the table in the DPIR set forth the approximate dimensions of the Olmsted Green Project (Table 1-1: Development Program) will be as set forth below:

Table 1-1: Development Program

Parcel	Approximate Use	Approximate Gross Floor Area	Acres
Olmsted West			
W1	Residential – Home Ownership Units (Approximately 287 units)	390,000±	20.7
W2	Residential – Rental Units (Approximately 51 units)	60,000±	2.6

W3	Gateway Center	3,000±	0.6
Olmsted East			
E1	~~Lena Park Training, Education & Job Advancement Center and Recreation Facility~~ **Lena Park Community Center and Edward W. Brooke Charter School**	~~80,000±~~ **61,000±**	3.9
E2	Heritage House	11,000±	0.8
E3	Vinfen Nursing & Mental Health Rehab Facility	58,000±	2.4
E4	HEARTH – Residential – Senior Housing (83 units)	59,000±	1.6
E5	Residential – Rental (Approximately 102 units)	120,000±	5.7
E6	Urban Farm and Wetlands	48,000±	3.7
E7	Retail Incubator / Farm Stand	5,000±	0.5
	Total:	**815,000± GFA**	**42.5**

1.5 Summary of Project Impacts and Mitigation

The Project is expected to produce less project impacts than the previously approved scheme. The originally approved project included an addition of approximately 23,000 SF and parking for 105 cars. The current project includes an addition of approximately 2,542 SF with parking for 70 cars. In addition, the originally permitted project included an access road on the rear of the building which would have further increased the amount of impervious surface for the project.

As outlined further below, the proposed Project will have similar or less impacts than the originally approved project.

1.5.1 Urban Design

The change from the DPIR is in the use and size of the proposed expansion. The use will be a school and community center and the proposed expansion is reduced to 61,000 sf.

Sections 3.0 and 4.0 of this NPC, respectively, provide a description of the Project components and urban design for 150-160 American Legion Highway. Schematic Design of the proposed

renovation is complete. Floor plans (school and gym only) and elevations of the proposed building are included.

The Project is consistent with the urban design goals established in the original Olmsted Green project approvals. The existing buildings will be renovated and the Site improved to provide education and community support uses. The proposed addition to the rear of the building is smaller than the original proposed addition in the DPIR and will reduce the impact of the new use on the historic structure.

The Project will require the approval of the Public Improvements Commission, subsequent to the BRA's review and approval because of minor modifications to the curbs along East Main Street and the addition of a public sidewalk along Austin Street.

1.5.2 Transportation Impacts

Section 6.0 of this Notice of Project Change presents a transportation study completed for the proposed Project based on input from the Boston Transportation Department ("BTD") and Boston Redevelopment Authority ("BRA"). The study was performed in general conformance with the BTD Transportation Access Plan guidelines (2001). The transportation evaluation documents anticipated traffic generation characteristics and pick-up/drop-off operations for the proposed school and identifies recommended site access and circulation features to accommodate school traffic operations. The evaluation also provides a comparison of traffic impacts for the site relative to permitted uses that were previously evaluated in the DPIR for the Olmsted Green development, concluding that there will be no material change in operations on area roadways and that ample roadway capacity exists to accommodate the proposed site programming for the Brooke Charter School.

Brooke Charter School is expected to rely heavily on the public school bus system (accounting for more than 80 percent of the student travel mode). While a moderate increase in peak hour traffic generation is anticipated at the site relative to the approved Olmstead Green development programming, the analysis provided in this evaluation concludes that proposed change in use will not materially impact operations at the proposed site driveways or at the nearby intersections along American Legion Highway. Likewise, weekday daily traffic generation for the current development scenario is lower than the original Olmstead Green programming for the site. Implementation of a recommended traffic management plan (TMP) will facilitate peak school drop-off/pick-up operations with no impact to or reliance upon public streets for vehicle queuing. Further coordination with Olmsted Green and the City of Boston will be necessary to formalize the recommended bus queue areas along Austin Street and East Main Street including conversion to one-way traffic flow on portions of these Streets. Under the

recommended TMP, ample bus queue and processing area is available to accommodate peak school periods with no reliance upon American Legion Highway for bus stopping or queuing.

Changes are proposed to the current function of Austin Street and East Main Street immediately adjacent to the site. Specifically, Austin Street will be designated a one-way out street, along with a small portion of East Main Street where it intersects Austin Street. This is consistent with the initial mitigation proposed ("Austin Street traffic will be required to turn right onto American Legion Highway eastbound") and allows the loading of buses on the south side of the site without impacting American Legion Highway. A new sidewalk will be added along Austin Street to accommodate drop-off and pick-up of students arriving on buses on Austin Street.

1.5.3 Shadow

As part of the original DPIR, a shadow analysis was performed and no impact were identified to the primary public open spaces of Franklin Park, the Boston Nature Center, internal open space areas and sidewalks abutting existing streets.

The proposed Project has a smaller addition than originally proposed in the DPIR. As a result, shadows are expected to be less than the originally approved project and no new impacts are anticipated.

1.5.4 Wind

The wind study performed as part of the original project did not identify any wind impact from the project on the abutting properties. Since the proposed addition is smaller than the original project, no adverse impacts resulting from changes in wind patterns are anticipated.

1.5.5 Daylight

The daylight impacts on the site are reduced from the original DPIR because the proposed project is 24,000 square feet smaller than in the previously approved project. No adverse impacts resulting from daylight obstruction on streets or pedestrian ways are anticipated.

1.5.6 Solar Glare

The proposed renovation will maintain the largely masonry exterior. If window replacement is included in the scope, the glazing will not include reflective exterior glass material. Consequently, there should be no significant solar glare impacts from the Project.

1.5.7 Air Quality

The Air Quality analysis performed as part of the original approved project did not identify an adverse impact from the project on the air quality at the most congested intersections in the project area. This proposed Project anticipates similar uses, but smaller size and square footage

than that proposed in the original DPIR and thus is consistent with and less than within the projected impacts documented in the original DPIR.

1.5.8 Solid and Hazardous Materials

No changes to the DPIR are proposed as part of this Notice of Project Change.

Consistent with the intentions stated in the DPIR, the Owners will implement measures to handle the anticipated generation, storage and disposal of solid waste generated by the Project. Operational measures will be employed to promote waste reduction and recycling. The Project will accommodate recycling measures meeting or exceeding the City's recycling guidelines. In addition, the disposal and construction contracts will include specific language to ensure the contractor's compliance with City and State regulations. Demolition and construction debris will be recycled to the maximum extent possible.

1.5.9 Noise Analysis

A noise impact study was performed as part of the original DPIR. Based on an analysis of typical building equipment and distances to sensitive receptors (i.e. residential properties), the study concluded that the project as originally proposed will not have an adverse sound impact and will comply with DEP noise regulations.

The proposed project anticipates a project of similar uses, but smaller size and square footage than that proposed in the original DPIR and thus is consistent with and within the projected impacts documented in the original DPIR.

Additional measures that were included in the DPIR and will be part of this Project include:

- Specification of low-noise mechanical equipment
- Acoustical shielding and exhaust silencers (mufflers) for emergency generator(s)
- Operational restrictions on emergency generator testing during daytime periods

1.5.10 Flood Hazard Zone/Wetlands

There have been no intervening changes in the flood maps. As noted in the original DPIR, the Flood Insurance Rate Map ("FIRM") for this potion of Boston (Community Panel Number 250286 0028C, effective April 1, 1982) prepared by the Federal Emergency Management Agency ("FEMA") indicates the Project Site lies within an area designated as Zone C, an area that is subject only to minor flooding (generally to a depth of one foot or less) during a 500-year frequency storm event. 150-160 American Legion Highway sits at the high point of the area described in the DPIR.

1.5.11 Stormwater Management/Water Quality and Water Resources

The DPIR anticipated an addition to the building totaling 26,500 sf. The footprint of the proposed addition in this proposal is aproximately 4,000 square feet, a significant reduction in impervious area from the approved proposal.

Since the DPIR, the stormwater regulations have been revised. The project will comply with all applicable regulations.

As further described in Section 5.9 of this NPC, the Project Site is being designed to comply with the Massachusetts Stormwater Management Policy and the City of Boston requirements. This will result in the control of peak discharges to Canterbury Brook. The 150-160 American Legion site does not include any wetland areas.

Consistent with the DPIR, the proposed Stormwater Management system for the Site is focused on promoting stormwater infiltration on site. The methodologies to be used for managing stormwater will be reviewed with and approved by the Boston Water and Sewer Commission. The project will be reviewed in detail by the Boston Water and Sewer Commission during the Site Plan Approval process. The project will be designed to match or reduce peak runoff discharges offsite.

1.5.12 Geotechinical/Groundwater Impacts

Existing documentation of groundwater supports the statements made in the DPIR. As noted in the DPIR, groundwater elevation contours indicate that groundwater within the overall Olmsted Green development flows to the north towards Olmsted West and southwesterly acorrs Olmsted East towards Stony Brook.

Support of the proposed 4,000 square foot addition is anticipated to be on traditional spread footings. Building loads will bear on natural ground. The depth of the excavation is estimated to be in the range of 8 feet.

Consistent with the original DPIR, the contractor will be required to perform excavations in accordance with OSHA requirements and design excavation support systems, if required, by a Massachusetts Registered Professional Engineer. Construction mitigation measures will avoid the potential for ground movement and settlement during excavation and potential impacts on adjacent buildings, utility lines and roadways.

1.5.13 Construction Impacts

Section 5.11 discusses construction period impacts. The Brooke Charter School will employ a construction manager for the first phase of the project which will include the renovation of the school, entry lobby and gymnasium. The construction manager will be responsible for developing a construction phasing and staging plan and for coordinating construction activities with the required regulatory agencies.

The construction period for the first phase of the proposed Project is expected to be begin in March 2013 and to be complete by July 2014. Consistent with the DPIR, construction activities will comply with the City of Boston Noise and Work Ordinances. Proper pre-construction planning and construction methodologies will be used to ensure safety. Construction procedures will be designed to meet all OSHA safety standards for specific site construction activities. Specific construction and staging details will be finalized with BTD following BRA and other City approvals. Construction for Phase II is not scheduled at this time but is expected to begin prior to the completion of Phase 1 and to follow the same guidelines.

1.5.14 Sustainable Design

The renovation of 150-160 American Legion Highway will be consistent with the standards established in the DPIR, which created a framework for implementing an integrated design approch to ensure an environmentally responsible development. Particular focus will include:

Land Use Practices: The Owners intend to implement construction practices, stormwater management, landscaping and site remediation that use low-impact development goals. The stormwater system will be designed to improve water quality and promote stormwater recharge to groundwater.

Building Structures and Materials: The Project will preserve and re-use the existing structures on the site while incorporating quality and durable materials in the renovation and addition.

Energy Systems and Energy-Saving Measures: The Project will utilize Energy Star Standards, high-efficienty HVAC systems and other energy considerations.

Resource Impacts and Sustainable Design: The Owners will incoporate recycling and waste reduction as part of the Project.

Occupant Health/Indoor Air Quality Measures: Sustainable design measures will be adopted to address indoor air quality.

LEED: The LEED checklist included in the DPIR for development of the Lena Park Parcel is not longer applicable due to the fact that LEED standards have been amended since the date of the DPIR and the standards for a school are different from the standards for a job training facility. The Owners intend to implement as many of the standards on the current appplicable LEED checklist as can practically be achieved within financial resources available for the Project.

1.5.15 Historic Resources

It is the intention of the Owners to seek a listing in both the State and National Registers of Historic Places for 150-160 American Legion Highway because of the buidlings' historical value and interest.

1.5.16 Infrastructure Systems

There are no changes to the infrastructure description in the DPIR as part of this project.

Section 7.0, Infrastructure Systems Component of this Notice of Project Change, contains information on existing water, sewage, gas, electric and other utilities. The Owners's civil engineer has contacted those utility companies in the Project area, including the Boston Water and Sewer Commission ("BWSC") to coordinate the work of the proposed Project.

The proposed Project will include less impervious area than the perviously approved project, creating only a minor increase impervious area over the existing conditions on the site. Storm runoff will be managed on site without any increase in runoff to any adjacent properties with the use of surface and subsurface stormwater infiltration systems.

2.0 General Information

2.1 Applicant Information

2.1.1 Project Developers

Development of the Site will be carried out by Edward W. Brooke Charter School and Lena Park Community Development Corporation, together with such special purpose affiliate entities as they may establish in connection with the Project.

Project Owners

The Lena Park CDC is a not-for-profit corporation founded in 1968 by a group of community residents who were concerned about affordable housing needs and youth development. Lena Park's mission is to serve the community by providing integrated programs and services that will strengthen families and build healthy communnties for the underserved residents of Boston. The organization provides affordable housing for almost 500 families in the Dorchester and Mattapan neighborhoods: until 2008 Lena provided programs and services for over 1,200 local children, youth and adults and expects to resume its community service function upon completion of the renovation. Lena Park CDC is the current owner of the vacant property at 150-160 American Legion Highway.

The Edward W. Brooke Charter School opened its doors in 2002. Its mission is to provide an academically rigorous public education to students for urban children to ensure that they are prepared to enter into and succeed in college. The Edward W. Brooke Charter School opened its first school (Brooke 1) in the Roslindale neighborhood of Boston in 2002. This school currently enrolls approximately 475 students in grades K-8 and has regularly achieved some of the highest

test scores in the state. This success was recognized by the State Department of Secondary and Elementary Education when it awarded Brooke new charters to open two new K-8 schools in the City of Boston, each with the same total number of students upon full enrollment. Brooke 2 opened in 2011 with 266 students in temporary leased space in South Boston and will be relocating into the 150-160 American Legion Highway property in the summer of 2014 upon project completion.

2.1.2 Development Team

Project Name: 150-160 American Legion Highway	
Co-Applicants:	Lena Park Community Development Corporation 1542 Columbus Avenue, Suite 2 Roxbury, MA 02119 Noah Maslan: nmaslan@urbanedge.org Phone: 617-989-9300 Edward W. Brooke Charter School 190 Cummins Highway Roslindale, MA 02131 Jon Clark, Co-Director: jclark@brooke.org Phone: 617-325-7977
Proponent:	Lena New Boston LLC, a joint venture of: Lena Park Community Development Corporation And New Boston Development Partners LLC 75 State Street, 12th Floor Boston, MA 02109 Eliza Datta, Vice President: edatta@newbostonfund.com Phone: 617-878-7929
Legal Counsel:	Klein Hornig LLP 145 Tremont Street, Suite 400 Boston, MA 02111 Jonathan Klein: jklein@kleinhornig.com Phone: 617-224-0606
Owner's Project Manager	Pinck & Co., Inc. 98 Magazine Street Boston, MA 02119 Margaret Wood: mwood@pinck-co.com Phone: 617-445-3555

Historic Consultant:	Epsilon Associates 3 Clock Tower Place, Suite 250 Maynard, MA 01754 Taya Dixon: tdixon@epsilonassociates.com Phone: 978-461-6245
Environmental/Hazardous Materials Consultant:	Ransom Consulting Engineers 12 Kent Way, Suite 100 Byfield, MA 01922 Tim Snay: tsnay@ransomenv.com Phone: 978-465-1822
Architect:	Arrowstreet Inc. 212 Elm Street Somerville, MA 02144 Larry Spang: spang@arrowstreet.com Phone: 617-666-7078
Landscape Architect:	Copley Wolff Design Group 160 Boylston Street Boston, MA 02116 Nick Campanelli: ncampanelli@copley-wolff.com Phone: 617-654-9000
Transportation Engineer:	MDM Transportation Inc. 28 Lord Road, #280 Marlborough, MA 01752 Bob Michaud: rmichaud@mdmtrans.com Phone: 508-303-0370
Civil Engineer:	Nitsch Engineering 186 Lincoln Street, #200 Boston, MA 02111 Chelsea Christenson: cchristenson@nitscheng.com Phone: 617-338-0063
Mechanical Engineer:	77 Summer Street Boston, MA 02110 Nick Ferzacca: nferzacca@archengrs.com Phone: 617-542-0810
Sustainability Consultant:	The Green Engineer 54 Junction Square Drive Concord, MA 01742 Chris Schaffner: chris@greenengineer.com Phone: 978-844-1464
Surveyor:	Harry R. Feldman Inc. 112 Shawmut Avenue Boston, MA 02118 Michael Feldman: mfeldman@harryfeldman.com Phone: 617-357-9740

Geotechnical Engineer:	McPhail Associates, Inc. 2269 Massachusetts Avenue Cambridge, MA 02140 Chris Erikson: cerickson@mcphailgeo.com Phone: 617-868-1420
Construction Commencement:	March 2013
Construction Completion:	July 2014
Approximate Cost:	$11 million
Status of Project Design:	Schematic

2.1.3 Legal Information

Legal Judgments or Actions Pending Concerning the Project

The Owners are not aware of any legal judgements or other actions pending which involve the Owners or the Project.

History of Tax Arrears on Property Owned in Boston by Applicant

Neither Lena Park CDC nor Brooke S\Charter School own any real estate in Boston on which real estate tax payments are in arrears.

Evidence of Control over the Project Site

Lena Park CDC is the owner of the site. Before the end of 2012, Lena Park CDC intends to adopt a condominimum master deed for the Site and to convey one of more of the condominium units thereby created to Brooke Charter School.

2.2 Public Benefits

The following aspects of the public benefits stated in the DPIR are furthered by the renovation and occupancy of 150-160 American Legion Highway for the use of the site as a community center and charter school:

2.2.1 Community Opportunity and Investment

On the lower floor of the 1959 addition, Lena Park will create a community center that operates programs for children, youth, adults and seniors. The program mix will vary over time as needs

and funding change and is expected to include day programming, education, recreation and job training. This initiative will be managed by the Lena Park CDC in collaboration with other community-based organizations.

2.2.2 Education Opportunity and Investment

The introduction of Brooke 2, as the replication of the Edward W. Brooke Charter School's location on this Mattapan site is known, will bring convenient access to a high performing charter school to central location for the urban neighborhoods of Mattapan, Roxbury and Dorchester. When fully occupied, the school will serve 475 students on a site that has excellent access to neighborhoods, green space and transportation.

The Edward W. Brooke Charter School opened its first school (Brooke 1) in the Roslindale neighborhood of Boston in 2002. Brooke 1 has regularly achieved some of the highest test scores in the state. This success was recognized by the State Department of Secondary and Elementary Education when it awarded Brooke new charters to open two new K-8 schools in the City of Boston, each with the same total number of students upon full enrollment. Brooke 2 opened in 2011 with 160 students in temporary leased space in South Boston and will be relocating into the 150-160 American Legion Highway property in the summer of 2014 upon project completion.

This project will provide access to a high performing charter school to the Olmsted Green families and their surrounding neighbors.

2.2.3 Historic Building Renovation and Landscape Improvements

The Project will renovate the existing historic Hecht House and 1959 gymnasium and lobby addition which are now vacant and derelict, eliminating what is currently an attractive nuisance for vandals and vagrants.

2.3 Regulatory Controls and Permits

2.3.1 Existing Zoning Requirements

Underlying Zoning District

150-160 American Legion Highway is located entirely within the Enterprise Protection Subdistrict (the "EPS") of the Greater Mattapan Neighborhood District, Article 60 of the Boston Zoning Code. Except as provided in the PDA, described below, the Project will comply with all rewquirements of the underlying zoning district.

Planned Development Area (PDA)

At the time of the DPIR, the entire Olmsted Green Project area was designated Planned Development Area No. 67 pursuant to Map Amendment No. 455 adopted by the Zoning Commission. The Development Plan for PDA No. 67 reflected the Project as propposed at the time of the DPIR. The Owners have filed an application to amend the Development Plan for PDA No. 67 to make changes consistent with this NPC.

Smart Growth Overly District (OGSGOD)

The Project Site is loacted within the Olmsted Green Smart Growth Overlay District, making it eligible to file a Smart Growth Plan pursuant to Article 87A of te Boston Zoning Code. No Smart Growth Plan has been filed with respect to the Project Site and the Owners do not intend to seek approval for a SmarthGrowth Plan.

Morton Street Greenbelt Protection Overlay Dsitrict (Morton Street GPOD)

The Project Site is loacted within the Morton Street Greenbelt Protection Overlay District. The posposed Second Amendment to the Development Plan for PDA No. 67 makes provision for compliance with the standardsof the Morton Street GPOD.

2.3.2 Compliance with Boston Zoning Code

As part of the permitting for 150-160 American Legion Highway, the Owners request an amendment to the PDA. The request for a Second Amendment to the Development Plan for PDA No. 67 is being filed concurrently with this Notice of Project Change.

2.3.3 Required Zoning Relief

Except for the proposed Second Amendment to PDA Npo. 67, no zoning relief will be sought in connection with the Project.

2.3.4 List of Permits or Other Approvals Which May be Sought

Anticipated Permits and Approvals		
Agency Name	**Permit or Action**	**Anticipated Schedule**
State		
Massachusetts Historical Commission	Determination of no adverse affect on Historic Resources	15 October 2012
Local		
Boston Parks & Recreation	Review of construction within 100 feet of parks or parkways	6 September 2012

Commission		
Boston Redevelopment Authority	Approval of Notice of Project Change	15 November 2012
Boston Zoning Commission	Approval of PDA Amendment	4 December 2012
Boston Public Improvements Commission	Review of curb/sidewalk improvements	January 2013
Boston Water and Sewer Commission	Approval of proposed water, sewer and stomrwater design NPDES SWPPP review	December 2012
Boston Public Works Department	Curb Cut Permit	February 2013
Boston Transportation Department	TAPA CMP construction	September 2012 March 2013
Boston Fire Department	Assembly Permit Fire Alarm Permit Fire Suppression Permit	June 2014
Boston Department of Inspectional Services	Building Permit Certificate of Occupancy	March 2012

The table above sets forth a preliminary list of permits and approvals from federal, state and local governmental agencies, which presently are expected to be required for the project, based on project information currently available. It is possible that not all of these permits or actions will be required, or that additional permits or actions may be needed, all of which may become evident during project design and development.

2.4 Public Review Process

The Project Team has met with the BRA, other public agencies and interested parties in the Project vicinity.

3.0 Project Description

3.1 Existing Site Context and Conditions

3.1.1 Site Context

Since the approval of the DPIR, the construction of Olmsted Green has been underway and has changed the site context through the successful and on-going development. 229 units of

housing have been built or are nearing completion in accordance with the approved development plan for Olmsted Green, creating a new and high quality community on the previously abandoned property in this Mattapan neighborhood.

In addition to Olmsted Green, the 150-160 American Legion Highway site is adjacent to several densely populated residential neighborhoods and across American Legion Highway from Franklin Park. A Massachusetts Department of Youth Services ("DYS") correctional facility presently occupies eight acres to the south and east of the site. Located adjacent to the DYS property is the Cruz Development Corporation's Harvard Commons. This housing development contains approximately 100 units on 18 acres. Beyond Olmsted Green, residential properties, primarily two- to three-family homes along Harvard Street to the south in the Wellington Hill neighborhood and to the east of the DYS facility.

There have been no changes to the site's natural features and wildlife habitat described in the DPIR.

3.1.2 Natural Features

The original building on the site was opened in 1911 and the site was presumably cleared at that time. The site has the highest elevation within the Olmsted Green PDA. It is predominantly open with a sloping wooded area abutting Wayne Apartments to the northeast.

Trees and Natural Vegetation

There are a number of large trees within the site and bordering adjacent Austin Street and American Legion Highway and a hedge along American Legion Highway. The trees on the site are predominantly sugar maples, white oaks, swamp white oaks, Norway maples and red oaks. A row of aged hemlock trees in poor condition are directly in front of the original 1911 building on the site.

In front of the 1911 building is a gently sloping green lawn which rises to the original entrance to the building. Along American Legion Highway in front of this building is a tall hedge. There are a handful of small ornamental trees within the boundary of the front lawn.

At the back of the building is a large open field which will be maintained as a lawn and a hard surface outdoor play space.

3.1.3 Wildlife Habitat

The site was originally developed in 1911 and has been a largely open urban site since that time. As noted in the DPIR, there are no endangered species identified on the Olmsted Green site.

3.2 Project Description

The buildings at 150-160 American Legion Highway are currently vacant. At the time the DPIR was filed, the building was in use as a child care center. This use was terminated in 2006 and the buildings have

been vacant since that time. The proposed use of the buildings has evolved from what was proposed in the DPIR:

> "The existing facilities of the Lena Park CDC, directly adjoining the former Boston State Hospital property, will be significantly renovated and expanded to include improved space for Lena Park itself and other community service providers; a home for Lena Park's Training Education and Job Advancement Center ("TEDJAC"); and expanded child-care and youth, adolescent and family facilities, as well as a senior program. Building and site improvements will provide a new neighborhood recreation center for residents of both Olmsted Green and the surrounding community, restoring the current recreational programs to their historic role in the neighborhood and adding new facilities……
>
> The existing building will be renovated and expanded from its 57,000 square feet…..to approximately 80,000 square feet."

The uses of the building, as proposed in this Notice of Project Change will modify the originally proposed use as follows:

Lena Park will occupy the first level of the 1959 addition, with a new entrance facing American Legion Highway and new windows opened in the lower level walls to provide natural light. The space will contain a community center that operates programs for children, youth, adults and seniors and will include day programming, education, recreation and job training. The program mix will vary over time as needs and funding change. The total estimated square footage of this area is approximately 8,500 square feet.

The 1911 building will be occupied by Edward W. Brooke Charter School, providing K-8 academic education for 475 students. The addition will add a code compliant stair and elevator, a total of approximately 4,000 square feet of floor area. The total square footage of the school will be approximately 46,400 square feet, including the gymnasium that will be shared with Lena Park.

The entry lobby and gymnasium will be shared by the Lena Park CDC and the Brooke Charter School, with the school having use of these spaces during school hours and Lena Park using the space in the evenings and on weekends. The total square footage of the gymnasium and entry lobby is approximately 6,100 square feet.

The total square footage of the buildings after renovation will be 61,000 square feet.

Consistent with the DPIR, the site will be regraded and a new accessible ramp constructed to provide entrance to the existing lobby. The envelope of the existing building will be upgraded and preserved, including the replacement of windows in the 1911 structure.

<u>American Legion Highway</u>

As proposed in the DPIR, an entrance to an access point to Olmsted East has been constructed, and East Main Street and Austin Street constructed. The DPIR also proposed a second access point for southbound cars at the newly constructed Austin Street, between the proposed Heritage House and the

Lena Park building. This project proposes to eliminate this median strip cut and to make Austin Street a one-way street in the direction of American Legion Highway.

Bus traffic to the site will arrive at the new signalized intersection at Olmsted East, turn left onto East Main Street and left onto Austin Street, allowing drop-off at a proposed new sidewalk on the south side of the site, providing accessible paths leading to the school entrances. This arrangement will allow buses to be able to queue along East and Austin Streets for drop-off and pick-up without impacting traffic along American Legion Highway. Buses leaving Austin Street will then turn right onto American Legion Highway.

The Site has two existing curbcuts further along American Legion Highway. These curb cuts will be retained and the existing entry and parking area reconfigured to provide parking for 70 cars, 10 of which are designated for the Lena Park CDC programs and 60 for the Brooke Charter School. The configuration of the entry, exit and parking areas will allow for the queing of cars for drop-off and pick-up.

3.2.1 Project Phasing

The DPIR anticipated the renovation and expansion of the proposed uses at this site in the Fall of 2006/Spring of 2007. The schedule for the combined uses addressed in the DPIR is as follows:

Phase I - Brooke Charter School: Construction start March 2013. Construction completion in July 2014.

Phase II - Lena Park CDC. Construction start May 2013. Construction completion in January 2014.

4.0 URBAN DESIGN COMPONENT

4.1 Introduction

The following discussion on urban design documents the proposed changes from the DPIR and comments received from the BRA during design review.

4.2 Design Concept

The intention of the proposed project at 150-160 American Legion Highway is to renovate and bring back into active use the vacant structure. Because the structures will have some shared and some complementary uses, the design of the building reflects the requirement to share certain functions (accessible entrance, entry lobby and gymnasium) and have some fully separated functions (Lena Park CDC functions and Brooke Charter School) which operate independently and are secure from each other.

4.3 Site Organization

The existing organization of the 150-160 American Legion Highway will be maintained with respect to pedestrian and vehicular entrances to the site, and augmented with a new sidewalk on Austin Street and accessible pathways leading to the building entrances. The organization of the green and paved recreational spaces on the site will be maintained and the conditions of those spaces improved.

4.4 Building Design

The existing buildings, dating from 1911 and 1959, will be maintained and upgraded through overdue maintenance such as masonry repointing and new windows. The height and massing of the existing buildings will be maintained: a new stair and elevator tower at the rear of the 1911 building will extend approximately 10 to 12 feet above the existing roof to allow for an elevator override and code required stair access to the roof.

4.5 Landscaping/Amenities

4.5.1 Site Design Concept

The site design concept is to maintain the existing site and landscape features, removing several trees in poor condition and planting other to replace them. The existing site provides opportunities for both active and passive open spaces, including play areas for students of the school and participants in Lena Park's programs.

4.5.2 Plantings and Landscape Features

The existing plantings and landscape features will be largely maintained, with the exception of the trees immediately in front of the 1911 building which are hemlocks in very poor condition.

A new sidewalk will be constructed on the east side of Austin Street for pedestrian access and bus drop-off/pick-up. To construct the sidewalk, the existing trees along Austin Streetwill need to be removed. The trees are a combination of pin oaks and red maples, which have multiple leaders: although currently healthy, they will have a limited lifespan because of their form. Replacement trees will be planted along Austin Street adjacent to the new sidewalk to create a new and more long-lived green edge to the site.

The existing hedge along American Legion Highway will be opened up to allow views to the newly renovated and occupied building from American Legion Highway and Franklin Park. Native trees, shrubs and ground covers that are non-invasive and easily maintainable are proposed. Other healthy mature trees on the site will be preserved and protected during construction.

4.5.3 GPOD Protection Zones

The Project will conform to the standards of the Morton Street Greenbelt Protection Overlay District as set forth in the Second Amendment to the Development Plan for PDA No. 67.

4.5.4 Site Lighting

The Project will include a variety of site lighting intended to light the sidewalks, pathways and parking areas for the building users and members of the public. Although still in the design process, the site lighting will include pole mounted lighting in the parking areas and major walkways with building mounted lighting at the entrances. Light fixtures will include low cut-off shields to prevent light pollution and disturbance to the neighbors.

4.6 Sustainable Design

4.6.1 Introduction

Olmsted Green was one of the first large-scale developments in Boston that provided low-rise housing to working families, seniors and individuals with special needs in an environmentally responsible way. This proposal to reuse the existing vacant structures at 150-160 American Legion Highway is consistent with this approach. This project will:

- Maintain the unique character and history of the buildings on the site
- Further the existing synergy between the Olmsted Green project , the Massachusetts Audubon's Boston Nature Center and other nearby open space, such as Franklin Park
- Provide a community resource that is vibrant, walkable and bicycle friendly, with easy access to public transportation
- Reduce impacts on the environment through the use of high efficiency building systems
- Improve the health of the occupants by providing clean mechanically ventilated indoor air, utilizing heathly building materials in the renovation, reducing water infiltration and mold, designing for minimal use of pesticides, herbicides and chemical fertilizers and remediating hazardous materials.
- Reduce off-site development impacts by using recycled and sustainable produced building materials, minimizing stormwater runoff and pollution, saving energy and water, and promoting recycling during construction and occupancy
- Reduce on-site development impacts by employing low-impact development techniques to manage stormwater, preserve mature trees, improve and reuse soil and prevent erosion during construction.
- Enhance safety by occupying a currently vacant building, thereby minimizing the site's current attraction for vandals
- Providing outdoor playspace for Lena Park's and the school's community

4.6.2 Approach to Sustainability

The Owners intend to implement an integrated design approach to ensure that the vision of environmentally responsible development is carried out. This process will involve the following measures:

- Utilize an integrated desing approach, bringing all design participants (owner, architect, landscape architect, traffic, civil and mechanical engineers, commissioning agent, property management staff, sustainability consultants)

- Develop and review construction documents and Project Specifications that insure that the sustainability goals are carried out
- Utilize a construction manager who will participate in the development of the sustainability goals and the design to ensure an integrated approach to construction
- Develop methods for keeping the Project green through tenant and owner education, and selection of maintenance, cleaning and landscaping contractors

The preliminary LEED checklist attached is based on LEED for Schools and relates only to the part of the building which is solely owned by the Brooke Charter School. The sustainabilitygoals focus on creating a healthy building with minimum energy use. Because of the re-use of the existing structures, we anticipate some LEED pre-requisites will be difficult to attain, but the project otherwise aspires to being LEED certifiable. The space to be controlled by Lena Park CDC will be redevelooped with similar considerations and approach.

5.0 ENVIRONMENTAL PROTECTION COMPONENT

5.1 Shadow Analysis

No adverse impacts resulting from an increase in shadow are anticipated because only a minor addition is being made to the existing building.

5.2 Wind Analysis

No adverse impacts resulting from changes in wind patterns are anticipated because only a minor addition is being made to the existing building.

5.3 Daylight

No adverse impacts resulting from daylight obstruction on streets or pedestrian ways are anticipated because only a minor addition is being made to the existing building.

5.4 Solar Glare

The proposed renovation will maintain the largely masonry exterior. If window replacement is included in the scope, the glazing will no include reflective exterior glass material. Consequently, there should be no significant solar glare impacts from the Project.

5.5 Air Quality Analysis

The proposed project anticipates a project of similar uses, but smaller size and square footage than that proposed in the original DPIR and thus is consistent with and within the projected impacts documented in the original DPIR.

5.6 Solid and Hazardous Waste

Consistent with the intentions stated in the DPIR, the Owners will implement measures to handle the anticipated generation, storage and disposal of solid waste generated by the Project. Operational measures will be employed to promote waste reduction and recycling. The Project will accommodate recycling measures meeting or exceeding the City's recycling guidelines. In addition, the disposal and construction contracts will include specific language to ensure the contractor's compliance with City and State regulations. Demolition and construction debris will be recycled to the maximum extent possible.

5.6.1 Construction Period Waste

As noted in the DPIR, solid waste generated by construction will consist largely of excavated material, concrete and asphalt debris. Because the project involves only minimal excavation for utilities small addition, it is anticipated that all excavated material will be maintained on site. Any excavated soil and debris to be taken off-site will be tested and characterized prior to removal, and if required delivered to an appropriate disposal facility in accordance with regulatory requirements.

As noted in the DPIR, the disposal and construction contracts will include specific language to ensure the contractor's compliance with City and State regulations. Solid waste generated during construction will be separated into recyclable waste and non-recyclable waste. Construction waste will be recycled to the extent possible. Normal construction debris will be disposed of in dumpsters that will be located within the Project Site and legally emptied at an approved receiving facility. Containment of construction materials and miscellaneous trash will be controlled by property on-site supervision and storage of construction debris on-site will be kept to a minimum.

The Owners will take an active role in overseeing proper waste removal and disposal during construction and operation will be in conformance with the City and DEP's Regulations for Solid Waste.

5.6.2 Operational Solid Waste

Upon occupancy of 150-160 American Legion Highway, the Project is expected to generate 5.5 tons tons of solid waste per year, based on the proposed use for community-oriented programs and non-residential spaces. Space will be provided within the buidling to permit recycling of such items as waste paper, newspaper, metal, glass and plastics. The service entrance for the complex will be designated for trash collection and removal, and trash will be removed from the site by a private hauler. The service entrance is located in the courthard behind the entrance lobby, reducing the potential impact on the surrounding neighborhood.

5.6.3 Hazardous Materials

A Phase I Site Assessment was prepared by Ransom Engineering. It indicates that the site had no industrial or other uses prior to the 1911 construction of the historic structure, formally known as Hecht House.

As part of due diligence for the creation of the condominium, the following are being undertaken by Lena Park:

- An extensive remediation of the buildings interiors to remove asbestos containing materials has been undertaken. This work is currently underway and is being conducted in compliance with DEP and OSHA requirements.
- The removal of an existing 8,000 gallon fuel oil tank at the loading entrance to the site

5.7 Noise Analysis

As stated in the DPIR, sound levels at all nearby sensitive locations and at all property lines will fully comply with the most stringent City of Boston and DEP daytime and nighttime sound level limits. The project will not create a noise nuisance condition and will comply with all applicable noise regulations.

5.8 Flood Hazard Zones/Wetlands

There has been no change to the flood hazard zones and rate maps noted in the DPIR. 150-160 American Legion Highway occupy the high point of the area described in the DPIR. The following restate the comments provided in the DPIR as they related to the Site:

5.8.1 Flood Insurance Rate Maps

As noted in the DPIR, the Flood Insurance Rate Map ("FIRM") for this portion of Boston (Community Panel Number 250286 0028C, effective April 1, 1982) prepared by the Federal Emergency Management Agency ("FEMA") indicates that the PDA lies within an area designated by Zone C. As defined by FEMA, a Zone C is an area that is subject only to minor flooding (generally to a depth of one foot or less) during a 500-year frequency storm event (a rainstorm that has a statistical likelihood of occuring once every 500 years). Areas designed as Zone C are not inundated during a 100-year frequency storm.

Article 25 of the City of Boston Zoning Regulations defines flood hazard zones or districts as "lands in a flood plan that are subject to a one percent probability of flooding in any given year. Such flooding is known as the base or 100-year flood. Said districts are shown on a serise map panels prepared by the Federal Emergency Management Agency…." The regulations further state that flood hazard districts include "A and V zones." As indicatee above, the Project Site is located in a Zone C according to the FIRM prepared by FEMA. For this reason, it does not contain any flood hazard districts that are regulated under Article 25.

5.8.2 Existing Wetlands

As noted in the DPIR, there are no wetlands on or adjacent to 150-160 American Legion Highway.

5.9 Stormwater Management/Water Quality and Water Resources

5.9.1 Existing Conditions Summary

The 3.891 acre site of 150-160 American Legion Highway is comprised of a single lot bounded by American Legion Highway on the west and Austin Street on the south. The site lies within the surface watershed of Canterbury Brook which is a sub-watershed of the Stony Brook/Muddy River watershed within the Charles River Basin.

As presented in Section 5.8, the site is not located within any 100-year flood plain.

The existing buildings are sited at the high point of the lot. Stormwater runoff from the site currently flows toward Canterbury Brook and its associated vegetated wetlands.

5.9.2 Existing Conditions Hydrologic Information

The existing stormwater infrastructure that services the project site and surrounding areas is owned and operated by the BWSC. Stormwater from the northwest portion of the site flows overland to catch basins in American Legion Highway. Stormwater from the existing building and the remainder of the site is directed into a closed drainage system along the east and south of the site, discharging to an existing 10-inch stormwater main in Lorne Street. Stormwater from the site ultimately discharges to Canterbury Brook just East of Morton Street.

5.9.3 Proposed Conditions

The project, as described in Sections 3.0 and 4.0, includes the renovation of the existing building and the construction of associated parking, walkways, and landscape areas. The project will comply with the Massachusetts Stormwater Management Standards and City of Boston requirements.

The proposed stormwater system will be designed to mimic existing stormwater flow patterns. Stormwater from the building will be collected by a series of roof drains and directed to stormwater infiltration systems designed to control the peak rate of stormwater runoff. Stormwater from the parking area will be collected by deep sump, hooded, catch basins and directed through water quality structures before discharging into the stormwater infiltration system. Overflow from the infiltration systems will be directed to the existing 10-inch stormwater main in Lorne Street. The peak rate of runoff will be mitigated to pre-development conditions for the 2-, 10-, and 100-year design storms. Groundwater recharge will be provided as required by the BWSC.

5.9.4 Water Quantity and Quality Control Methodologies

Site Layout – The existing slopes on the site will remain generally the same. Stormwater will be directed to infiltration systems to treat and control stormwater runoff. Stormwater quality from the site will be improved through the implementation of structural and non-structural best management practices (BMP's). The BMP's proposed on this project include stormwater infiltration systems, deep sump hooded catch basins, and proprietary stormwater quality structures.

Source Control - The comprehensive stormwater pollution source control program to be implemented at the Project Site includes regular pavement sweeping, catch basin cleaning, and enclosure and maintenance of all dumpsters, compactors, and loading areas. Further discussion of the Stormwater Management System maintenance practices is included in the Infrastructure Component, Section 7.4, Storm Drain System.

Snow Management – The design will incorporate Snow Storage areas. For maximum water quality treatment, it is proposed that snow be stored on paved areas as much as possible so melt waters may flow through the water quality and quantity control systems in place, and left over debris and sediment contained in the stored snow may be picked up during street sweeping procedures. Snow will not be stored within any surface stormwater infiltration basins. Spill Prevention - The site manager will be required to adhere to a Draft Spill Prevention Plan outlining the minimum measures for preventing the release of contaminants, and, responding to releases. An outline of the Spill Prevention documentation is included in Appendix F. This Plan will be modified and expanded on when the property managers are under contract for the project.

Deep Sump/Hooded Catch Basins - Catch basins at the Project Site are to be constructed with sumps (minimum 4-feet) and hooded outlets to trap debris, sediments and floating contaminants (See Section 7.4) for details on catch basin cleaning schedules.

Infiltration Basins - The site will be designed to incorporation both surface and subsurface stormwater infiltration systems to promote groundwater recharge.

Pervious/Permeable Pavers/Pavement - Permeable pavers or pavement are not proposed as part of this project.

Detention/Retention Basins – Stormwater detention/retention will occur within the proposed stormwater infiltration systems.

Rooftop Runoff Re-use – The project is not proposing reuse of stormwater runoff.

Soil Amendment – The project is not proposing to amend soils

5.9.5 Erosion and Sedimentation Control Measures

The proposed project will exceed one acre of disturbance and will therefore be regulated under the United States Environmental Protection Agency's (EPA) National Pollution Discharge Elimination System (NPDES) Program. In Massachusetts, the USEPA issues NPDES permits to operators of regulated construction sites. Regulated projects are required to develop and implement storm water pollution prevention plans in order to obtain permit coverage.

During construction, sedimentation and erosion control measures will include, but are not limited to, minimizing land disturbance, providing temporary stabilization and covers, and providing storm water inlet protection (silt sack, straw wattles/bales). The contractor will be

required to do inspections of all controls regularly to ensure that the controls are working properly. The contractor shall clean and reinstall any control that needs to be cleaned or replaced. Additionally, the contractor will clean/flush the entire stormwater management system prior to final acceptance by the owner.

5.9.6 Proposed Conditions – Localized Stormwate Managemetn Example

The proposed stormwater management system will be contained entirely on site. Any additional capacity provided in the overall Olmstead Green stormwater master plan will not be considered part of this project.

5.9.7 Stormwater Regulations and Permitting

The proposed project will be designed to comply with the Massachusetts Stormwater Management Standards. The project will also comply with the BWSC requirements, and will obtain approval from the BWSC during the Site Plan Review process. The site is not adjacent to any wetland juridiction areas.

The proposed project will exceed one acre of disturbance and will therefore be regulated under the United States Environmental Protection Agency's (EPA) National Pollution Discharge Elimination System (NPDES) Program. In Massachusetts, the USEPA issues NPDES permits to operators of regulated construction sites. Regulated projects are required to develop and implement stormwater pollution prevention plans in order to obtain permit coverage.

5.10 Geotechnical/Groundwater Impacts

The proposed stormwater system will be designed to increase stormwater recharge to groundwater. The amount of groundwater recharge provided will be coordinated with the BWSC during the Site Plan Review process.

5.10.1 Introduction

This section addresses the below grade construction activities for this project, which are minimal.

5.10.2 Project Site amd Subsurface Conditions

The Site is at the high point of the area defined in the DPIR, and the buildings occupy the high point of the lot. The threshold of the stairs to the existing building entrance is at elevation 116.0. There are no wetlands within the bounds of or adjacent to the Site. Historical boring data indicates a mix of very hard fine sand and gravel, to a depth of 8'-0". Additional borings will be undertaken as part of the development of the project to optimize the location stormwater detention on the site.

5.10.3 Groundwater Conditions

Historic boring information taken to a depth of 8-0" did not encounter any ground water on the site. Additional borings will be undertaken as part of the development of the project to augment this information.

5.10.4 Proposed Excavation and Foundation Construction Methodology

Support of the proposed addition on spread footing type foundations is anticipated. Building loads will bear on natural ground. The maximum depth of the excavation for the elevator pit is anticipated to be eight feet. The contractor will be required to perform excavations in accordance with OSHA requirements, and design excavation support systems by a Massachusettts Registered Professional Engineer.

Disposition of excavated materials will be addressed through testing and characterizing soil on site to determine quality and options for re-use.

5.10.5 Mitigation Measures and Monitoring

As noted in the DPIR, the Project's geotechnical consultant will analyze existing sub-surface conditions at the Site to design foundations and to incorporate construction mitigation measures to avoid the potential for ground movement and settlement during excavation and to ensure groundwater levels are not lowered during construction.

5.11 Construction Impacts Analysis

The following section describes potential impacts that could result from the Project's construction and steps that will be taken to avoid or minimize these impacts. The Owners will employ a construction manager who will be responsible for developing a construction staging plan and for coordinating construction activities with regulatory agencies. The Project's geotechnical consultant will provide consulting services associated with foundation design and technical specifications for the small addition and review the construction manager's proposed procedures.

5.11.1 Construction Management Plan

The Owners will comply with applicable state and local regulations governing construction of the Project and will develop a Construction Management Plan ("CMP") in consultation with the Boston Transporation Department prior to the commencement of construction. The construction manager will be bound by the CMP, which will establishthe guidelines for the duration of the Project and will include specific mitigation measures to minmize impacts on abutters.

5.11.2 Construction Activity Schedule

The construction period for the Edward W. Brooke 2 Charter School is expected to start in March 2013 and be complete in July 2014.

Construction activities will comply with City of Boston Noise and Work Ordinances which will dictate normal work hours from 7:00am to 6:00pm, Monday through Friday. If weekend or non-specified hours are requested, the construction manager will obtain necessary city permits.

5.11.3 Construction Practices

The construction period will be planned with the construction manager to ensure public safety and to meet all OSHA safety standards for specific site construction practices. Specific construction traffic impacts will be developed and finalized with BTD following BRA and other City approvals. The contractor will provide:

Perimeter Protection and Public Safety

Permeter fencing will be placed along the permieter of the construction area to prevent unauthorized access and isolate the construction area. The CMP will describe necessary sidewalk closures, barrier placements and/or fencing deemed necessary to ensure safety around the site perimeter. The exterior of the Project Site will have signage, visible to the neighborhood and abutters, to identify the Project and construction manager contact information

Construction Staging

The construction manager will work to ensure that the staging areas minimize the impact to pedestrian and vehicular flow. The staging plan is designed to isolate construction while providing safe access for pedestrians and vehicles during normal day-to-day activities and emergencies, in compliance with the CMP. All staging will occur within the Project site fencing. A proposed construction staging plan will be provided as part of the CMP. If nearby street or sidewalk areas are necessary for staging, appropriate City approvals will be obtained. There will be no stockpiling of fill, equipment, or materials, including pipe, overnight or on weekends, on public property or public ways, except as permitted by the City.

Recycling of Construction and Demolition Debris

The Owners will encourage the reprocessing and recycling or construction waste. The disposal contract will include specific requirements that will ensure that construction procedures allow for the segregation, reprocessing, reuse and recycling of construction waste, where feasible. For those materials that cannot be recycled, solid waste will be transported in covered trucks to an approved solid waste facility, per DEP's Regulations for Solid Waste Facilities, 310 CMR 19.00. This requirement will be specified in the disposal contract.

Best Management Practices

Best Management Practices for the control of erosion and the discharge of sediment to waterbodies and wetlands during construction will be followed. This will include the use of filter fabrics around slopes and catch basins, stabilization of slopes, sediment removal during dewatering, the use of wheel washes on construction vehicles and mechanical street sweeping at the project site. All reasonable efforts will be made to protect existing large mature trees during construction.

Coordination with Abutters

The Proponent and construction manager will coordinated with representatives of the surrounding neighborhoods to ensure they are informed of any changes in construction activities.

5.11.4 Construction Traffic Impacts

See the attached Traffic Report developed by MDM Transportation Consultants Inc.

5.11.15 Construction Air Quality Impacts and Mitigation

As noted in the DPIR, Construction activities may generate fugitive dust, which will result in a localized increase in airborne particle levels. Fugitive dust emission from construction activities will depend on such factors as the properties of the emitting surface (e.g. moisture content), meteorological variables and construction practices employed.

To reduce emission of fugitive dust and minimize impacts on the local environment, the construction manager will adhere to a number of mitigation measures. These measures include:

- Using wetting agents to control and suppress dust from construction debris
- Ensuring that all trucks traveling to and from the Project Site will be fully covered
- Removing construction debris regularly
- Monitoring construction practices closely to ensure any emissions of dust are negligible
- Periodically cleaning streets and sidewalks to minimize dust and dirt accumulation, and
- Wheel-washing trucks before they leave the Project Site during the excavation phase

5.11.6 Construction Noise

To minimize the noise impacts of construction on the surrounding neighborhood, a number of noise mitigation measures may be included in the CMP. Some of the measures may be taken to minimize noise emissions are:

- Using mufflers on equipment and ongoing maintenance of intake and exhaust mufflers
- Providing muffling enclosures on running equipment
- Locating noisy equipment away from abutters
- Scheduling construction activities so as to avoid the simultaneous operation of the noisiest construction activities, and
- Turning off idling equipment

As noted in the DPIR, the Proponent is aware that state law prohibits vehicle idling in excess of five minutes (MGL 90 Section 16A and 310 CMR 7.11), and compliance with this law is required.

5.11.7 Other Potential Impacts and Mitigation

<u>Rodent Control</u>
The City of Boston enforces the requirements established under Massachusetts State Sanitary Code, Chapter 11, 105 CMR 410.550. This policy establishes that the elimination of rodents is

required for issuance of any building permits. During construction, rodent control service visits will be made by a certified rodent control firm to monitor the situation.

Utility Protection During Construction

During construction, the City's infrastructure will be protected using sheeting and shoring, temporary relocations, and construction staging as required. The construction manager will be required to coordinate all protection measures, temporary supports and tempoary shutdowns of all utilities with the appropriate utility owners and/or agencies. The construction manager will also be required to provide adequate notification to the utility owner/operator prior to any work commencing on their utiltiy. In the event a utility cannot be maintained in service during a switch-over to a tempoary or permanent system, the construction manager will be required to coordinate the shutdown with the utility owners/operators and Project abutters to minimize impacts and inconveniences accordingly.

Coordination with Other Projects

If there is ongoing construction in the Project vicinity, the Proponent will coordinate with the Proponent of other projects.

5.12 Historic Resources

It is the intention of the Owners to seek a listing in both the State and National Registers of Historic Places for 150-160 American Legion Highway because of the buidlings' historical value and interest. Research indicates that the older part of the building was built in 1911 as an orphanage known as the Home for Destitute Jewish Children. In 1934 the orphanage was sold and remodeled into a Jewish community center, the Hecht Neighborhood House. In 1959 the gymnasium wing was added and was dedicated to Lt. Joseph P. Kennedy Jr, brother to Senator John F. Kennedy and a casualty of the WW II.

Additional detail on the history and condition of the existing buildings is included in the attached Form B.

Archeaological Resources

According to the USGS archaelogical map on file in the Massachusetts Historical Commission and as noted in the DPIR, there are no known or designed archaeological properties on the Project Site.

6.0 TRANSPORTATION/PUBLIC WORKS COMPONENT

6.1 Introduction

150-160 American Legion Highway is located in the Mattapan neighborhood of Boston. The Project Site is bounded by existing residences on the north, by the Olmsted Green development on the east, by Austin Street on the south and by American Legion Highway on the west. MDM Transportation Consultants, Inc. has prepared a traffic and circulation evaluation of the project that serves to update

the DPIR relative to existing roadways serving the site, site trip generation, capacity analysis of primary impacted locations and mitigation actions to support site operations. A complete copy of the traffic and circulation evaluation is included as an Attachment to this NPC; a summary of key findings is presented in this section.

6.1.1 Purpose of the report

The proposed project modifies the size and use of the site, and proposed minor modifications to adjacent streets to accommodate bus and vehicular traffic. The study team conducted a transportation analysis in order to update the DPIR with respect to these changes. The transportation analysis includes a presentation of baseline traffic characteristics including roadway and pedestrain/bicycle facility descriptions, existing traffic volumes adjacent to the site, public transit serving the site, site trip generation, roadway capacity analysis for key impacted locations, and site access and circulation. As site traffic characteristics are not expected to be materially different than the approved development program during the weekday peak hours (an in fact will be lower than the approved program on a daily basis), the focus of the transportation evaluation is limited to identifying incremental traffic impacts in the immediate project vicinity and to ensuri ng that site access and circulation is programmed to properly accommodate site trip activity.

6.1.2 Project Description

The transportation study evaluates the transportation impacts resulting from the renovation of 150-160 American Legion Highway for use by the Lena Park CDC and the Edward W. Brooke Charter School.

Under the proposed development plan, Brooke Mattapan proposes to relocate its operations to 150-160 American Legion Highway and expand its enrollment to approximately 475 students in grades K through 8. Brooke Mattapan proposes to utilize approximately 48,900 sf of the Lena Park Building. Lena Park CDC will also remain active at the site and will occupy approximately 8,100 sf of space. Lena Park CDC and the School will share the gymnasium, parking areas and outdoor recreation areas. Proposed access to the facility is proposed to remain via the two existing curb cuts along American Legion Highway with the southern Site driveway restricted to entering movements only. Proposed operations are as follows:

- The general hours of operation for Brooke Mattapan will be 7:45 AM to 4:30 PM. The resulting morning drop-off periods will be 6:45 AM to 7:45 AM and the evening pick-up period will generally be 4:00 PM to 5:00 PM.

- Staff will include approximately 59 on-site staff members which include 50 full-time teachers, 4 part-time teachers and 5 administration staff. Approximately 9 additional staff members may also be located off-site at a central office.

- Consistent with operations at other Brooke Schools in Boston, it is anticipated that the a large portion of the staff will typically arrive at least 30 minutes before school starting hours and leave after the student drop-off period.

- A traffic management plan (TMP) will be implemented at Brooke Mattapan to manage pick-up/drop-off activity at the site and vehicle queue management. These TMP practices are assumed for the proposed facility as described in more detail under Site Access and Circulation.

6.2 Existing Transportation Conditions

6.2.1 Roadway Conditions

Since the filing of the DPIR, the City has implemented corridor improvements along American Legion Highway that include a bike lane and construction of sidewalks that will directly serve the site and the Olmsted Green development generally. A more detailed description of roadway conditions at the site are provided in the attached traffic and circulation analysis.

6.2.2 Intersection Conditions

Traffic signal improvements at the American Legion Highway/Kingbird Road intersection have been recently completed in accordance with the TAPA for Olmsted Green. Operational characteristics of the signalized intersection are documented in the DPIR to be level-of-service (LOS) C or better during peak traffi periods under full development of the Olmsted Green project. In addition, a new signal has been implemented at American Legion Highway and Franklin Hill Avenue in accordance with the TAPA for the adjoining Franklin Hill residential development, which has been evaluated in the attached traffic and circulation evaluation and also operates well below capacity at LOS B or better operation.

6.2.3 Traffic Conditions

There are no substative changes in traffic conditions has occurred along American Legion Highway in the project vicinity since the filing of the DPIR beyond completion of a portion of area development projects that have been previously identified and evaluated in the DPIR and completion of the adjoining Franklin Hill residential development. Updated peak hour traffic count data collected in 2012 along American Legion Highway are generally consistent with patterns documented in the DPIR as reported in the attached traffic and circulation assessment; however, the reported volumes along American Legion Highway are lower as the peak hour for school operations occurs earlier in the morning (6:45 AM to 7:45 AM) and in the afternoon from 4:00 PM to 5:00 PM which is prior to the traditional commuter peaks reported in the DPIR.

6.2.4 Existing Traffic Operations

Traffic volume conditions that coincide with the school peak activity periods are lower than volumes in the DPIR, which correspond to traditional commuter peak hours. As such, existing (baseline) traffic operations at immediately adjacent study intersections along American Legion Highway are LOS C or better, consistent with charactersitics documented in the DPIR. A more detailed summary of operations at study intersections is presented in the attached traffic and circulation evaluation.

6.2.5 Existing Parking

Completion of the internal street system for Olmsted Green East Campus includes East Main Street and Austin Street, which were planned as part of the City's public street system. Parking for more than 30 vehicles is available along these streets, consistent with the Olmsted Green East Campus Phase I final design plans presented in the TAPA for the project. No changes to public parking are proposed as part of the revised development programming for 150-160 American Legion Highway.

6.2.6 Public Tranportation

The Massachusetts Bay Transportation Authority (MBTA) operates Route 14 (Roslindale Square – Heath Street Station) immediately adjacent to the Site. This bus route provides service along American Legion Highway with a stop on each side of the street between the Site and Franklin Hill Avenue. Specific route and schedule information is provided in the attached traffic and circulation evaluation. Other area transit stops and routes are also available beyond the immediate vicinity of the site as documented in the DPIR. Transit-oriented trips for the current proposal represent a small portion (approximately 1 percent) of trips for the site and as such is not expected to have any material impact to public transportation in the area.

6.2.7 Existing Bicyle and Pedestrian Conditions

Since the filing of the DPIR, the City of Boston has completed construction of a bike lane and sidwewalks along American Legion Highway that will facilitate pedestrain and bicycle access to/from the site. The site plan incorporates sidewalk connections from the sidewalk system on American Legion Highway to the school building and main parking field, as well as a new sidewalk connection to Austin Street where school bus loading/unloading will occur. These proposed sidewalks are depicted in the site plan that is included in the Attachments.

6.2.8 Loading and Service

Proposed site loading and service facilities will be located to the rear of the school building in an area that does not conflict with on-site parking operations. Loading and service activities will take place during non-peak hours at the site (i.e., outside of peak school pick-up/drop-off periods). Permanent "No Idling" signs will be posted in loading areas.

6.3 Evaluation of Long-term Impacts

This section presents a summary of the 2010 No-Build and Build Conditions evaluation for the project.

6.3.1 No-Build Scenario

The No-Build scenario assumes completion of the Olmsted Green development including the permitted 80,000 sf Lena Park CDC use at 150-160 American Legion Highway as identified in the Olmsted Green DPIR. As such, operational analyses as reported in the DPIR are anticipated for study intersections which indicate a LOS C or better operation at the key "gateway" intersetions of American Legion Highway at Kingbird Street ("Morton Stree Northesast Ramp"), Franklin Hill Avenue, Ausitin Street and the site driveways. These conditions asssume implementation of proposed mitigation including signalization of the American Legion Highway at Kingbird Road. Since the DPIR filing, the Franklin Hill Avenue has also been signalized as part of the Franklin Hill

residential development project and operates well below capacity at LOS B or better operation as described in the attached traffic and circulation evaluation.

6.3.2 Build Scenario

Build traffic volumes for the project are estimated based on empirical travel characteristics (mode share information, vehicle occupancy rates and enrollment levels) provided by the Brooke School and/or as documented at the existing Brooke School in Roslindale as well as applicable trip rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation*. These projected trips are then compared to trips for the 150-160 American Legion Highway site as documented in the DPIR for the approved 80,000 sf Lena Park CDC facility to ascertain incremental site trip impacts in the traffic evaluation.

Trip generation estimates are derived for the critical school activity periods including morning and evening pick-up/drop-off periods based on projected site programming characteristics for Brooke Mattapan. A detailed trip generation summary for the site, based on a projected maximum student enrollment of 475 students and approximately 59 staff members, including a breakdown of vehicular trips by staff member, pick-up/drop off (student) and bus is presented in **Table 1** and is described below.

TABLE 1
DETAILED TRIP-GENERATION SUMMARY
BROOKE MATTAPAN

	Vehicle-trips[1]			
Period	**Staff Auto**	**Student Auto**	**Bus**	**Total**
Morning Peak-Hour (6:45-7:45 AM):				
Enter	32	38	12	**82**
Exit	--	38	12	**50**
Total	32	76	24	**132**
Evening Peak-Hour (4:00-5:00 PM):				
Enter	--	71	12	**83**
Exit	--	71	12	**83**
Total	0	142	24	**166**
Weekday Daily	118	488	48	**654**

[1] Peak hour trip estimates based on empirical trip generation rates for Brooke School; daily trip rates based on ITE LUC 520 trip rates applied to 350 students and ITE LUC 522 trip rates applied to 125 students.

As presented in **Table 1,**

- Trip generation during the morning peak hour is approximately 132 vehicle-trips (82 entering and 50 exiting), including 38 parent/guardian drop-off vehicles, 12 school buses and 32 staff vehicles.

- Trip generation is highest during the weekday evening peak hour generates with approximately 166 vehicle-trips (83 entering and 83 exiting), including 71 parent/guardian pick-up vehicles and 12 school buses.

- On a daily basis, the Brooke Mattapan School is estimated to generate approximately 654 trips (332 entering and 332 existing) over a 24-hour period.

In summary, the projected peak design volume for school pick-up/drop-off activity (i.e., trips that must be actively managed by staff within the site) is 71 autos and 12 school buses during the weekday evening pick-up period. As shown the school is projected to utilize the public school bus system for 80% of its students during the morning drop-off period and 90% of its students during the evening pick-up period.

For comparison purposes, the trip generation for the permitted use at the site for an 80,000± sf community and job training center are estimated based on the trip generation estimates for the site as presented in the Olmsted Green DPIR[1]. **Table 2** presents a summary and comparison of the trip generation characteristics for the proposed uses of the Site (Brooke Mattapan School and Lena Park CDC) and trips documented in the DPIR for the permitted 80,000 sf Lena Park CDC use.

TABLE 2
TRIP-GENERATION COMPARISON
Permitted versus Proposed Site Use

	Site Trips				
	Proposed Uses				
Peak Hour/ Direction of Travel	Brooke Mattapan[1]	Lena Park CDC Use[2]	**Total Proposed**	Permitted[3]	Difference
Morning Peak-Hour (6:45-7:45 AM):					
Entering	82	--	**82**	51	+31
Exiting	50	--	**50**	33	+17
Total	132	--	**132**	84	+48
Evening Peak-Hour (4:00-5:00 PM):					
Entering	83	3	**86**	25	+61
Exiting	83	5	**88**	61	+27
Total	166	8	**174**	86	+88
Weekday Daily	654	126	**780**	1,244	-464

[1]*Draft Project Impact Report, Olmsted Green, American Legion Highway, Morton Street & Harvard Street, Boston, Massachusetts*; prepared by Daylor Consulting Group; November 3, 2005.

[1] Peak hour trip estimates based on empirical trip generation rates for Brooke School; daily trip rates based on ITE LUC 520 trip rates applied to 350 students and ITE LUC 522 trip rates applied to 125 students.

[2] ITE Trip generation rates for LUC 495 (recreational community center) indicates approximately 9 vehicle-trips after 8 AM; trips for Lena Park CDC will be negligible during the school drop-off period.

[3] Based on trip generation estimates for the permitted use at the Site in the DPIR for Olmsted Green prepared by Daylor Consulting and dated November 3, 2005 (80,000 sf Lena Park CDC).

Compared to the permitted 80,000 sf Lena Park CDC programming as identified in the Olmsted Green DPIR filing, the proposed uses at the site is estimated to generate approximately 48 additional vehicular trips during the weekday morning peak hour and an additional 88 vehicular trips during the weekday evening peak hour. This level of activity results in an additional 1 to 2 vehicle-trips per minute during peak hours relative to permitted use at the site. On daily basis, the proposed project change at Lena Park is estimated to generate approximately 464 *fewer* vehicle trips on a weekday.

Capacity Analysis Results

Level-of-Service (LOS) analyses were conducted for the Baseline and Design Year conditions for the primary study intersection which include the American Legion Highway intersections with the proposed site driveways and with the adjacent signalized intersection at Franklin Hill Avenue. The results of the intersection capacity analyses are summarized below in **Table 3** and **Table 4**. Detailed analysis results are presented in the attached traffic and circulation evaluation.

As summarized in **Table 3** and **Table 4,** the American Legion Highway intersections with Franklin Hill Avenue and the site driveways operate well below capacity at LOS B or better operations under existing (baseline) and projected Design Year conditions (with the project in place). Project-related impacts at the study locations are nominal with delay increases of 1 second or less anticipated – an increase that will be imperceptible to the average motorist. Therefore, ample capacity is provided along area roadways and intersections serving the site.

TABLE 3
INTERSECTION CAPACITY ANALYSIS RESULTS
WEEKDAY MORNING PEAK HOUR

	Baseline Condition			Design Year Condition		
Approach	v/c[1]	Delay[2]	LOS[3]	v/c[1]	Delay[2]	LOS[3]
American Legion Highway at Franklin Hill Avenue						
Eastbound	0.47	7	A	0.51	7	A
Westbound	0.28	6	A	0.29	6	A
Northbound	0.42	12	B	0.43	13	B
Overall	**0.47**	**7**	**A**	**0.51**	**7**	**A**
American Legion Highway at Eastern Site Driveway						
Eastbound TH/RT	0.17	<5	A	0.17	<5	A
NB RT Exit	0.00	11	B	0.07	12	B
American Legion Highway at Western Site Driveway						
Eastbound TH/RT	0.17	<5	A	0.21	<5	A
NB RT Exit	0.00	<5	A	n/a[4]	n/a	n/a

[1]Volume-to-capacity ratio
[2]Average control delay per vehicle (in seconds)
[3]Level of service
[4]n/a = not applicable

TABLE 4
INTERSECTION CAPACITY ANALYSIS RESULTS
WEEKDAY EVENING PEAK HOUR

	Baseline Condition			Design Year Condition		
Approach	v/c[1]	Delay[2]	LOS[3]	v/c[1]	Delay[2]	LOS[3]
American Legion Highway at Franklin Hill Avenue						
Eastbound	0.47	7	A	0.55	8	A
Westbound	0.47	7	A	0.48	7	A
Northbound	0.44	12	B	0.46	14	B
Overall	**0.47**	**8**	**A**	**0.55**	**8**	**A**
American Legion Highway at Eastern Site Driveway						
Eastbound TH/RT	0.17	<5	A	0.18	<5	A
NB RT Exit	0.01	11	B	0.14	13	B
American Legion Highway at Western Site Driveway						
Eastbound TH/RT	0.17	<5	A	0.22	<5	A
NB RT Exit	0.00	<5	A	n/a[4]	n/a	n/a

[1]Volume-to-capacity ratio
[2]Average control delay per vehicle (in seconds)
[3]Level of service
[4]n/a = not applicable

Qualitative Analysis – Secondary Study Intersections

The qualitative assessment of impact provides an overview of anticipated trip impacts to the secondary study intersections of American Legion Highway at Kingbird Road and American Legion Highway at Austin Street. Impacts of the current proposal are compared on a relative basis to operations as reported in the Olmsted Green DPIR. Key comparisons and findings are as follows:

- *American Legion Highway at Kingbird Road*: Recent installation of a traffic signal at this location is consistent with proposed mitigation cited in the Transportation Access Plan Agreement (TAPA) for Olmstead Green – an action that was to accommodate impacts for full development of the Olmstead Green development at LOS C or better operation. Peak hour traffic increases associated with the proposed site programming range from 41 vph to 77 vph relative to the DPIR analysis. This results in an additional 1 to 2 vehicles per minute during peak hours at the Kingbird Road intersection – an increase that is within normal traffic fluctuation levels and is not expected to materially impact overall intersection operations relative to DPIR projections.

- *American Legion Highway at Austin Street*: Peak hour traffic volumes at Austin Street as reported in the Olmsted Green DPIR project are less than 20 vehicles per hour at full project build out. Operating levels at this intersection as reported in the DPIR are LOS B or better. The Brooke Mattapan School is projected to increase the right-turn only trips from Austin Street onto American Legion Highway by 12 vehicles (school bus trips) and as such will not be materially greater than reported in the DPIR. As such, no material chance in operations are anticipated and ample capacity is projected to accommodate this moderate increase in traffic activity.

- In summary, peak hourly site traffic increases on area roadway as shown above is not expected to materially impact operations at the secondary study intersections. Additionally, on-site metering of exiting vehicles by Staff for parent pick-up/drop-off and the nearby traffic signal at Kingbird Road is expected to have adequate capacity to accommodate the proposed site programming.

6.3.3 On-Site Queue Operations

A detailed queue analysis for the Brooke Mattapan facility is presented based on projected peak demand, processing times and standard queue algorithms as follows:

- MDM assumes 100% of student auto trips are drop-off/pick-up related, totaling 38 morning peak hour student drop-offs and 71 evening peak hour student pick-ups. Accordingly, 100% of the drop-off/ pick-up related activity has been assumed to occur on-site.
- Student processing times ranging from 30 to 60 seconds on average based on active staff management.

- Active staff management of unloading and loading of students, including concurrent unloading/ loading of several vehicles at once, to promote shorter processing times.

Queue analysis results are summarized in **Table 5** for a 30 to 60 second processing time and the ability for staff to concurrently unload/load 3 vehicles at the designated "head of line" area during the peak design condition.

TABLE 5

PROJECTED AUTO DROP-OFF/PICK-UP QUEUING

		DWELL Time (Head of Line)	
Period	**Entering Volume[1]**	**Average Queue[2]**	**Max Queue[3]**
Morning Drop-Off Period (6:45-7:45 AM):	38	2	4
Evening Pick-Up Period (4:00-5:00 PM):	71	3	13

[1]Based on 100% of entering volume based on ITE Trip Generation previously shown in Table 1.

[2]Calculated 95th percentile queues in vehicles assuming a 30-second average processing time and 3 concurrent vehicle boardings/alightings.

[3]Calculated 95th percentile queues in vehicles assuming a 60-second average processing time and 3 concurrent vehicle boardings/alightings.

As summarized in **Table 5**, under peak operating conditions, vehicle queues during the critical evening drop-off period are estimated to range from 3 to 13 vehicles based on a peak arrival rate of 71 parent/guardian vehicles and concurrent unloading/loading of vehicles under the recommended traffic management plan. Available on-site storage capacity of 26 vehicles will allow substantial flexibility to accommodate higher parent/guardian vehicle arrival rates without impacting public roadways. Weekday morning operations are subject to lower vehicle demands and hence shorter queues.

6.4 Site Access and Circulation Mitigation Measures

Site access and circulation recommendations are incorporated into the preliminary site plan to facilitate safe and efficient pedestrian and vehicle operations at the site. MDM recommends that the Brooke Mattapan School develop a traffic management plan (TMP) aimed at enhancing school pick-up/drop off operations, parking activity and site circulation including some of the elements noted in this evaluation.

The preliminary site access and circulation plan allows for approximately 70 parking spaces with a dedicated parent vehicle pick-up/drop-off area and bus pick-up/drop-off restricted to East Main Street and Austin Street. Vehicle queue capacity for this plan may accommodate up to twenty (26) passenger cars during peak pick-up/drop-off periods without impeding American Legion Highway. School bus queue capacity for this plan includes the availability for up to ten (10) standard size school buses to be stored along Austin Street and East Main Street during peak pick-up/drop-off periods. To accommodate the bus storage capacity, Austin Street and East Main Street north of the full access/egress driveway at Parcel 2B-3 adjacent to the site will be required to be restricted to one-way egress travel.

Key elements of the recommended Site Access and Circulation improvements are annotated in Figure 7 of the attached traffic and circulation evaluation, which are subject to further engineering evaluation/design and include the following features:

A: Provide painted pavement markings on the western access driveway to better define one-way travel entering the site.

B: Install pavement markings including a painted Stop bar and double yellow centerline at the northern driveway to better define access and egress at this location.

C: Install painted arrow pavement markings throughout the travel aisles to clearly convey the desired travel circulation throughout the site.

D: Install MUTCD compliant “Do Not Enter” signage where applicable to indicate one-way travel.

E: Install MUTCD compliant “Stop” signs at the eastern driveway egress and on-site prior to the crosswalk at the “head of line” drop-off area.

F: Install a sidewalk connection between the “head of line” drop-off area and American Legion Highway. Accordingly sidewalk connections and crosswalks should be provided between the “head of line” drop-off area and the school’s main entrance.

G: Provide a designated parent pick-up/drop-off area along the northernmost travel aisle. Install painted roadway striping along the northern curb at the drop-off/pick-up area to indicate a single-lane approach and provide an area for staff members to assist students in entering and exiting vehicles as well as providing for handicapped loading/unloading.

H: Convert East Main Street (east of the full access/egress driveway to Parcel 2B-3) and Austin Street to one-way egress to American Legion Highway. Re-stripe said roadway segments to include a single travel aisle eastbound along East Main Street and northbound along Austin Street as well as a school bus storage lane to utilize during pick-up/drop-off periods. On-street parking along the western side of Austin Street should remain if desired by the City.

6.5 Tranportation Demand Management

A traffic management program (TMP) is recommended to ensure efficient operations of school pick-up/drop-off, parking activity, and student circulation. Key aspects of the TMP include the following:

Parking and Pick-Up/Drop-Off Operations

- Modify the internal parking and circulation aisles to provide a parent pick-up/drop-off area with a counterclockwise pick-up/drop-off flow pattern that will not block the driveways.

- The crosswalk to the north of the "head of line" drop-off area should be utilized for access/egress between the school's main entrance and the designated drop-off/ pick up area.

- Staff members should be available to assist students to/from the school building entrances and the drop-off/pick-up areas along the sidewalk system provided on-site. Likewise, Staff members should actively manage all internal pedestrian crossings.

- The site driveways should be staffed during peak drop-off/pick-up periods to ensure that oncoming vehicles are managed to avoid potential conflicts with pedestrians and or entering/exiting vehicles. These staff members should also discourage loading/ unloading away from the designate drop-off/ pick-up area.

- The signalized pedestrian crossing on American Legion Highway adjacent to the site should be monitored by a crossing guard during the drop-off/ pick-up periods.

- Passenger vehicle processing time should be enhanced by concurrent loading/boarding of students by multiple staff as needed. It is recommended that parents not be allowed to exit their vehicles while in the drop-off/ pick-up line.

- School bus pick-up/drop-off should occur exclusively along East Main Street and Austin Street.

- Off-site parent pick-up/drop-off activity should be prohibited and enforced by the school.

Designated Parking Areas

- Mark and designate short-term/ visitor parking spaces as required away from the parent pick-up/ drop-off area, ideally along the front of the building.

- Mark and designate the parking spaces around the parent pick-up/drop-off aisle as staff parking to minimize conflicts with pick-up/drop-off activity.

- All parking spaces should be actively managed to avoid conflicts during peak drop-off/pick-up periods.

Lena Park CDC Use

- The school should coordinate with the Lean Park as needed for any shared space at the site, including parking areas, gymnasium, and athletic facilities during school hours to ensure adequate parking is available during weekday daytime hours.

- Traffic management policies should be adopted as needed for special events at the school or by Lena Park CDC.

- A shared use agreement will be implemented between the school and CDC that designates no overlapping use of the gym or outdoor recreation spaces.

6.6 Conclusions

In summary, Brooke Mattapan is expected to rely heavily on the public school bus system (accounting for more than 80 percent of the student travel mode). While a moderate increase in peak hour traffic generation is anticipated at the site relative to the approved Olmsted Green development programming, the analysis provided in this evaluation concludes that proposed change in use will not materially impact operations at the proposed site driveways or at the nearby intersections along American Legion Highway. Likewise, weekday daily traffic generation for the current development scenario is lower than the original Olmsted Green programming for the site. Implementation of recommended traffic management plan (TMP) will facilitate peak school drop-off/pick-up operations with no impact to or reliance upon public streets for vehicle queuing. Further coordination with Olmsted Green and the City of Boston will be necessary to formalize the recommended bus queue areas along Austin Street and East Main Street including conversion to one-way traffic flow on portions of these Streets. Conversion of Austin Street and a short section of East Main Street will not materially impact access to the Olmsted Green development (specifically the Vinfen and Heritage House sites along East Main Street, which will continue to have full two-way access along East Main Street via the signalized intersection at Kingbird Road and American Legion Highway. Under the recommended TMP, ample bus queue and processing area is available to accommodate peak school periods with no reliance upon American Legion Highway for bus stopping or queuing.

7.0 Infrastructure Systems Component

7.1 Introduction/Agency Coordination

The following analysis describes the existing utility infrastructure within and surrounding the Project Site. The Proponent's civil and electrical engineers have contacted those utility companies in the Project area, including the Boston Water and Sewer Commmission ("BWSC") to understand and evaluate each system and its ability to support the proposed Project. All proposed water, sewer and drain connections will be designed and constructed in accordance with the BWSC regulations. The Proponent has met with the BWSC to review the progress utility layout. As design progresses, updated information on the proposed connections will be provided to the BWSC and BRA. The project will obtain approval through the BWSC during the Site Plan Review process.

7.2 Water Service

7.2.1 Existing Water Service

The BWSC owns and maintains the existing waterservices in the vicinty of the Project Site. Water is delivered through interconnected network water distribution systems designated as Southern Low Service (SL) and Southern High Service (SH): SL systems are generally used to meet domestic water needs and street hydrant demand; SH systems are generally used as the main supply to the low-pressure service system and supply water for building fire protection systems. The SL and SH systems are integrally connected to form loops that allow major water demands to be fed from more than one direction. Looping allows each distribution system to function at optimum efficiency and provides a measure of safety and redundancy in the event of a water main break.

The existing building is serviced by a 4-inch domestic water service and a 6-inch fire service from the 8-inch SH main (built in 1975) in Austin Street. An existing 12-inch SH main (built in 1932 relined in 2004) exists in American Legion Highway. A 36-inch SH main (built in 1971) also exists in American Legion Highway. A 10-inch SH main exists in Lorne Street (built in 1909, relined in 1989). An 8-inch SH main exists in Wilbert Road (built in 1990). There do not appear to be any SL mains in the vicinity of the project site.

7.2.2 Anticipated Water Consumption

The Project's average potable water demand is estimated as 110% of the seweage generation, of 8,663 gallons per day.

7.2.3 Proposed Water Service

The project team is studying the condition of the existing fire and domestic services to the building. These services will either be reused or cut and capped at the main in Austin Street. Water connections will be reviewed and coordinated with the BWSC to determine the most appropriate connections.

7.2.4 Water Supply Conservation and Mitigation Measures

The Proponent will investigate methods to conserve water such as low-flow fixtures; grey water systems for landscape watering; and low maintenance landscape treatment (i.e. limited use of grass). See also measures described in Section 4.6, Sustainable Design, of this DPIR.

7.3 Wastewater

7.3.1 Sanitary Sewage Connection

The BWSC owns and maintains the sanitary sewer lines in the vicinity of the Project Site. The existing sewer service for the building is connected to a 10-inch sewer main in Lorne Street. Additional sewer service is available from a 10-inch sewer main in Wilbert Road and a 10-inch sewer main in East Main Street.

The existing building is unoccupied and has been used historically for a variety of uses, including an orphanage, daycare, and community space. As a conservative assumption, the existing sewer flows have been calculated assuming the existing building is office space.

Based on the assumed building use, the existing sewer flow is estimated to be approximately 4,013 gallons per day of sewer flow as calculated according to 310 CMR 15.203 Flow Design Criteria.

Existing Building Program

Room Use	Total Size	314 CMR Value (gpd/unit)	Total Flow (gpd)
Office	53,500 sq.ft.	75 /1,000 sq.ft.	4,013
		Existing Sewer Flows (gpd):	4,013

7.3.2 Project Generated Sewage Flow

Based on the proposed building program, the Project is estimated to generate approximately 7,875 gallons per day of sewer flow as calculated according to 310 CMR 15.203 Flow Design Criteria. The calculation is based upon the anticipated uses.

Proposed Building Program

Room Use	Total Size	314 CMR Value (gpd/unit)	Total Flow (gpd)
Middle School w/ Cafeteria, no gymnasium with showers	510 people	15 gpd/person	7,650
Office	3,000 sq.ft.	75 /1,000 sq.ft.	225
		Proposed Sewer Flows (gpd):	7,875

7.3.3 Sanitary Sewage Connection

Based on the initial discussions, BWSC indicated the project should replace the existing sewer and reconnect at the existing manhold connection in Lorne Street.

7.4 Storm Drain System

As presented in Section 5.9, Stormwater Management/Water Quality and Water Resources, there will be no increase in surface runoff to any adjacent properties, water bodies or resource areas.

7.4.1 Existing Storm Drainage System

The existing stormwater infrastructure that services the project site and surrounding areas is owned and operated by the BWSC. Stormwater from the northwest portion of the site flows overland to catch basins in American Legion Highway. Stormwater from the existing building and the remainder of the site is directed into a closed drainage system along the east and south of the site, discharging to an existing 10-inch stormwater main in Lorne Street. Stormwater from the site ultimately discharges to Canterbury Brook just East of Morton Street.

7.4.2 Proposed Storm Drainage System

The proposed stormwater system will be designed to mimic existing stormwater flow patterns. Stormwater from the building will be collected by a series of roof drains and directed to stormwater infiltration systems designed to control the peak rate of stormwater runoff. Stormwater from the parking area will be collected by deep sump, hooded, catch basins and directed through water quality structures before discharging into the stormwater infiltration system. Overflow from the infiltration systems will be directed to the existing 10-inch stormwater main in Lorne Street. The peak rate of runoff will be mitigated to pre-development conditions for the 2-, 10-, and 100-year design storms. Groundwater recharge will be provided as required by the BWSC.

7.4.3 Stormwater Management Operation and Maintenance Program

<u>Boston Water and Sewer Commission Maintenance Responsibilities</u>
Maintenance of the storm drainage pipes and catch basins located within the proposed public roadways will be completed by the Boston Water and Sewer Commission ("BWSC"). BWSC's maintenance typically includes periodic inspection and cleaning of drainage structures. BWSC will not assume responsibility for the drainage systems on the site.

All stormwater best management practices (BMPs) will be operated and maintained in accordance with the design plans and an Operation and Maintenance Plan.

7.4.3.1 Stormwater Operation and Maintenance Requirements

Inspect and maintain the stormwater management system as directed below. Repairs to any component of the system shall be made as soon as possible to prevent any potential pollutants (including silt) from entering the resource areas.

<u>Deep Sump and Hooded Catch Basins & Area Drains</u>
Inspect catch basins four times per year, including after the foliage season. Other inspection and maintenance requirements include:

- Remove organic material, sediment and hydrocarbons four times per year or whenever the depth of deposits is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin.
- Always clean out catch basins after street sweeping. If any evidence of hydrocarbons is found during inspection, the material immediately remove using absorbent pads or other suitable measures and dispose of legally. Remove other accumulated debris as necessary.
- Transport and disposal of accumulated sediment off-site shall be in accordance with applicable local, state and federal guidelines and regulations.

Water Quality Units (Proprietary Separators)
Maintain water quality units according the recommendations set forth by the manufacturer. General inspection and maintenance procedures for proprietary devices are provided below:

- Inspect units following completion of construction, prior to being put into service.
- Inspect units at least twice per year following installation and no less than once per year thereafter.
- Inspect units immediately after any oil, fuel or chemical spill.
- All inspections shall include checking the oil level and sediment depth in the unit. Removal of sediments/oils shall occur per manufacturer recommendations.
- A licensed waste management company shall remove captured petroleum waste products from any oil, chemical or fuel spills and dispose.
- OSHA confined space entry protocols shall be followed if entry into the unit is required.

Stormwater Infiltration Systems
Inspect the stormwater infiltration systems twice per year. Inspect the inlets and observation ports to determine if there is accumulated sediment within the system. Remove all debris and accumulated sediment that may clog the system.

7.4.3.2 Repair of the Stormwater Management System

The stormwater management system shall be maintained. The repair of any component of the system shall be made as soon as possible to prevent any potential pollutants including silt from entering the resource areas or the existing closed drainage system.

7.4.3.3 Operation and Maintenance Log

The Owner shall maintain an operation and maintenance log for the last three years, including inspections, repairs, replacement and disposal (for disposal the log shall indicate the type of material and the disposal location). This is a rolling log in which the responsible party records all operation and maintenance activities for the past three years.

7.5 Electric Systems

Electrical service to the building is currently obtained by overhead wires from existing utility poles in Austin Street. Proposed services will be intalled below ground.

7.6 Gas Systems

An existing gas meter is located along the east side of the building. The routing of the gas service has yet to be determined. The proponenet will work with the gas company to determine the existing location and capacity of the service, and to replace the service if needed.

7.7 Communications

Communications service to the building is currently obtained by overhead wires from existing utility poles in Austin Street. Proposed services will be intalled below ground.

7.8 Utility Phasing

The existing building is not occupied. New utilities will be installed with little impact to the neighboring services.

7.9 Utility Protection During Construction

The project is expected to have minimal impact on the operation of utility systems serving the surrounding area. The majority of utility work will occur within the site. However, the Project will need to tie to water, sewer, electric, telephone and gas service in the surrounding streets. A complete survey of the Project Site and surrounding roadways has been prepared to locate utility infrastructure. In addition, the contractor(s) will contact Dig-Safe at least 72 hours prior to the start of construction. Dig-Safe will provide supplemental utility location information to the contractor(s) through on the ground, painted utility data based on Dig-Safe files. During the Project design, the Owner(s) will continue to meet with the utility authorities to ensure that the proposed connection configurations are appropriate. During trenching for utility connections, the contractor(s) will appropriately support and protect utilities that are to remain in service during construction. Additional protection measures that may be enlisted include concrete encasement, steel plating and strategic replacement of pipe sections.

Attachments:

1. MEPA Threshold Review
2. Form B – MHC Inventory
3. Existing Site Survey
4. Existing Conditions Photographs
5. Proposed Site Plan
6. Proposed Building Plans
7. Proposed Building Elevations
8. Traffic Study
9. LEED for Schools Scorecard

Edward W. Brooke 2 Charter School
Project No. 12021

MEPA Threshold Review
23 August 2012

The following is a comparison of the MEPA Thresholds listed on the Mass DEP web site and currently anticipated project requirements. Based on this review, no MEPA review is anticipated.

(1) Land.	
• (a) ENF and Mandatory EIR.	
o 1. Direct alteration of 50 or more acres of land…	150-160 American Legion Highway is 3.891 acres; Does not exceed threshold.
o 2. Creation of ten or more acres of impervious area.	Entire site is less than threshold.
• (b) ENF and Other MEPA Review if the Secretary So Requires.	
o 1. Direct alteration of 25 or more acres of land…	Does not exceed threshold
o 2. Creation of five or more acres of impervious area.	Total impervious area, including building, sidewalks, and paving, is approximately 80,383 SF or 1.85 acres.
o 3. Conversion of land held for natural resources purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to any purpose not in accordance with Article 97.	Not Applicable
o 4. Conversion of land in active agricultural use to nonagricultural use….	Not Applicable
o 5. Release of an interest in land held for conservation, preservation or agricultural or watershed preservation purposes.	Not Applicable
o 6. Approval in accordance with M.G.L. c. 121A of a New urban redevelopment project or a fundamental change in an approved urban redevelopment project, provided that the Project consists of 100 or more dwelling units or 50,000 or more sf of non-residential space.	Not Applicable
o 7. Approval in accordance with M.G.L. c. 121B of a New urban renewal plan or a major modification of an existing urban renewal plan.	Not Applicable
(2) State-listed Species under M.G.L. c. 131A.	
• (a) ENF and Mandatory EIR.	None.
• (b) ENF and Other MEPA Review if the Secretary So Requires.	
o 1. Alteration of designated significant habitat.	Site is not listed on the Massachusetts Division of Fish &

	Wildlife Natural Heritage & Endangered Species Program Atlas.
o 2. Greater than two acres of disturbance of designated priority habitat, as defined in 321 CMR 10.02, that results in a take of a state-listed endangered or threatened species or species of special concern.	Not Applicable.
(3) Wetlands, Waterways and Tidelands.	
• (a) ENF and Mandatory EIR.	None.
o 1. Provided that a Permit is required:	
▪ a. alteration of one or more acres of salt marsh or bordering vegetating wetlands; or	Not Applicable
▪ b. alteration of ten or more acres of any other wetlands.	Not Applicable
o 2. Alteration requiring a variance in accordance with the Wetlands Protection Act.	Not Applicable
o 3. Construction of a New dam.	Not Applicable
o 4. Structural alteration of an existing dam that causes an Expansion of 20% or any decrease in impoundment Capacity.	Not Applicable
o 5. Provided that a Chapter 91 License is required, New non-water dependent use or Expansion of an existing non-water dependent structure, provided the use or structure occupies one or more acres of waterways or tidelands.	Not Applicable
• (b) ENF and Other MEPA Review if the Secretary So Requires.	
o 1. Provided that a Permit is required:	
▪ a. alteration of coastal dune, barrier beach or coastal bank;	Not Applicable
▪ b. alteration of 500 or more linear feet of bank along a fish run or inland bank;	Not Applicable
▪ c. alteration of 1,000 or more sf of salt marsh or outstanding resource waters;	Not Applicable
▪ d. alteration of 5,000 or more sf of bordering or isolated vegetated wetlands;	Not Applicable
▪ e. New fill or structure or Expansion of existing fill or structure, except a pile-supported structure, in a velocity zone or regulatory floodway; or	Not Applicable
▪ f. alteration of one half or more acres of any other wetlands.	Not Applicable
o 2. Construction of a New roadway or bridge providing access to a barrier beach or a New utility line providing service to a structure on a barrier beach.	Not Applicable
o 3. Dredging of 10,000 or more cy of material.	Not Applicable
o 4. Disposal of 10,000 or more cy of dredged material, unless at a designated in-water disposal site.	Not Applicable

o 5. Provided that a Chapter 91 License is required, New or existing unlicensed non-water dependent use of waterways or tidelands, unless the Project is an overhead utility line, a structure of 1,000 or less sf base area accessory to a single family dwelling, a temporary use in a designated port area, or an existing unlicensed structure in use prior to January 1, 1984.	Not Applicable
o 6. Construction, reconstruction or Expansion of an existing solid fill structure of 1,000 or more sf base area or of a pile-supported or bottom-anchored structure of 2,000 or more sf base area, except a seasonal, pile-held or bottom-anchored float, provided the structure occupies flowed tidelands or other waterways.	Not Applicable
(4) Water.	
• (a) ENF and Mandatory EIR.	
o 1. New withdrawal or Expansion in withdrawal of:	
▪ a. 2,500,000 or more gpd from a surface water source; or	Not Applicable
▪ b. 1,500,000 or more gpd from a groundwater source.	Not Applicable
o 2. New interbasin transfer of water of 1,000,000 or more gpd or any amount determined significant by the Water Resources Commission.	Not Applicable
o 3. Construction of one or more New water mains ten or more miles in length.	Not Applicable
o 4. Provided that the Project is undertaken by an Agency, New water service to a municipality or water district across a municipal boundary through New or existing pipelines, unless a disruption of service emergency is declared in accordance with applicable statutes and regulations.	Not Applicable
• (b) ENF and Other MEPA Review if the Secretary So Requires.	
o 1. New withdrawal or Expansion in withdrawal of 100,000 or more gpd from a water source that requires New construction for the withdrawal.	Not Applicable
o 2. New withdrawal or Expansion in withdrawal of 500,000 or more gpd from a water supply system above the lesser of current system-wide authorized withdrawal volume or three-years' average system-wide actual withdrawal volume.	Anticipated water use is approximately 15 to 20 gallons per day (GPD) per person or approximately 9,000 to 12,000 total GPD, which is well below 500,000 GPD threshold.
o 3. Construction of one or more New water mains five or more miles in length.	Not Applicable
o 4. Construction of a New drinking water treatment plant with a Capacity of 1,000,000 or more gpd.	Not Applicable
o 5. Expansion of an existing drinking water treatment plant by the greater of 1,000,000 gpd or 10% of existing Capacity.	Not Applicable
o 6. Alteration requiring a variance in accordance with the	Boston (Mattapan) is not part of DCR

Watershed Protection Act, unless the Project consists solely of one single family dwelling.	Watershed Protection Act.
o 7. Non-bridged stream crossing 1,000 or less feet upstream of a public surface drinking water supply for purpose of forest harvesting activities.	Not Applicable
(5) Wastewater.	
• (a) ENF and Mandatory EIR.	
o 1. Construction of a New wastewater treatment and/or disposal facility with a Capacity of 2,500,000 or more gpd.	Not Applicable
o 2. New interbasin transfer of wastewater of 1,000,000 or more gpd or any amount determined significant by the Water Resource Commission.	Not Applicable
o 3. Construction of one or more New sewer mains ten or more miles in length.	Not Applicable
o 4. Provided that the Project is undertaken by an Agency, New sewer service to a municipality or sewer district across a municipal boundary through New or existing pipelines, unless an emergency is declared in accordance with applicable statutes and regulations.	Not Applicable
o 5. New discharge or Expansion in discharge of any amount of sewage, industrial waste water or untreated stormwater directly to an outstanding resource water.	Not Applicable
o 6. New Capacity or Expansion in Capacity for storage, treatment, processing, combustion or disposal of 150 or more wet tpd of sewage sludge, sludge ash, grit, screenings, or other sewage sludge residual materials, unless the Project is an Expansion of an existing facility within an area that has already been sited for the proposed use in accordance with M.G.L. c. 21 or M.G.L. c. 83, section 6.	Not Applicable
• (b) ENF and Other MEPA Review if the Secretary So Requires.	
o 1. Construction of a New wastewater treatment and/or disposal facility with a Capacity of 100,000 or more gpd.	Not Applicable
o 2. Expansion of an existing wastewater treatment and/or disposal facility by the greater of 100,000 gpd or 10% of existing Capacity.	Not Applicable
o 3 Construction of one or more New sewer mains:	
▪ a. that will result in an Expansion in the flow to a wastewater treatment and/or disposal facility by 10% of existing Capacity;	According to the Massachusetts Water Resources Authority's Demand Report, average daily sewage treatment at Deer Island is "318M gallons of sewage treated per day" on average over the course of the past ten years. Anticipated sewage outflow from the Project is approximately 15 to 20 GPD per person or approximately 9,000 to 12,000 total GPD. This is well below the threshold of 10% of

	318M gallons.
▪ b. five or more miles in length; or	Not Applicable
▪ c. 1/2 or more miles in length, provided the sewer mains are not located in the right of way of existing roadways.	Not Applicable
o 4. New discharge or Expansion in discharge:	
▪ a. to a sewer system of 100,000 or more gpd of sewage, industrial waste water or untreated stormwater;	Anticipated sewage outflow is approximately 15 to 20 GPD per person or approximately 9,000 to 12,000 total GPD. Not anticipated to exceed threshold.
▪ b. to a surface water of:	
▪ i. 100,000 or more gpd of sewage;	Not Applicable
▪ ii. 20,000 or more gpd of industrial waste water; or	Not Applicable
▪ iii. any amount of sewage, industrial waste water or untreated stormwater requiring a variance from applicable water quality regulations; or	Not Applicable
▪ c. to groundwater of:	
▪ i. 10,000 or more gpd of sewage within an area, zone or district established, delineated or identified as necessary or appropriate to protect a public drinking water supply, an area established to protect a nitrogen sensitive embayment, an area within 200 feet of a tributary to a public surface drinking water supply, or an area within 400 feet of a public surface drinking water supply;	Not Applicable
▪ ii. 50,000 or more gpd of sewage within any other area;	Not Applicable
▪ iii. 20,000 or more gpd of industrial waste water; or	Not Applicable
▪ iv. any amount of sewage, industrial waste water or untreated stormwater requiring approval by the Department of Environmental Protection of a variance from Title 5 of the State Environmental Code for New construction.	Not Applicable
o 5. New Capacity or Expansion in Capacity for:	
▪ a. combustion or disposal of any amount of sewage sludge, sludge ash, grit, screenings, or other sewage sludge residual materials; or	Not Applicable
▪ b. storage, treatment, or processing of 50 or more wet tpd of sewage sludge or sewage sludge residual materials.	Not Applicable

(6) Transportation.	
• (a) ENF and Mandatory EIR.	
o 1. Unless the Project consists solely of an internal or on-site roadway or is located entirely on the site of a non-roadway Project:	
▪ a. construction of a New roadway two or more miles in length; or	Not Applicable
▪ b. widening of an existing roadway by one or more travel lanes for two or more miles.	Not Applicable
o 2. New interchange on a completed limited access highway.	Not Applicable
o 3. Construction of a New airport.	Not Applicable
o 4. Construction of a New runway or terminal at an existing airport.	Not Applicable
o 5. Construction of a New rail or rapid transit line along a New, unused or abandoned right-of-way for transportation of passengers or freight (not including sidings, spurs or other lines not leading to an ultimate destination).	Not Applicable
o 6. Generation of 3,000 or more New adt on roadways providing access to a single location.	Based on draft Traffic Study produced by MDM Transportation Consultants received on August 24, 2012, anticipated Trip Generation is 135 Weekday AM peak hour and 178 Weekday PM peak hour. Both are well below threshold.
o 7. Construction of 1,000 or more New parking spaces at a single location.	70 parking spaces being provided
• (b) ENF and Other MEPA Review if the Secretary So Requires.	
o 1. Unless the Project consists solely of an internal or on-site roadway or is located entirely on the site of a non-roadway Project:	
▪ a. construction of a New roadway one-quarter or more miles in length; or	Not Applicable
▪ b. widening of an existing roadway by four or more feet for one-half or more miles.	Not Applicable
o 2. Construction, widening or maintenance of a roadway or its right-of-way that will:	
▪ a. alter the bank or terrain located ten more feet from the existing roadway for one-half or more miles, unless necessary to install a structure or equipment;	Not Applicable
▪ b. cut five or more living public shade trees of 14 or more inches in diameter at breast height; or	Only 4 trees of the diameter in question that have the potential of shading a public way will be removed.

▪ c. eliminate 300 or more feet of stone wall.	Not Applicable
o 3. Expansion of an existing runway at an airport.	Not Applicable
o 4. Construction of a New taxiway at an airport.	Not Applicable
o 5. Expansion of an existing taxiway at Logan Airport.	Not Applicable
o 6. Expansion of an existing terminal at Logan Airport by 100,000 or more sf.	Not Applicable
o 7. Expansion of an existing terminal at any other airport by 25,000 or more sf.	Not Applicable
o 8. Construction of New or Expansion of existing air cargo buildings at an airport by 100,000 or more sf.	Not Applicable
o 9. Conversion of a military airport to a non-military airport.	Not Applicable
o 10. Construction of a New rail or rapid transit line for transportation of passengers or freight.	Not Applicable
o 11. Discontinuation of passenger or freight service along a rail or rapid transit line.	Not Applicable
o 12. Abandonment of a substantially intact rail or rapid transit right-of-way.	Not Applicable
o 13. Generation of 2,000 or more New adt on roadways providing access to a single location.	Based on draft Traffic Study produced by MDM Transportation Consultants received on August 24, 2012, anticipated Trip Generation is 135 Weekday AM peak hour and 178 Weekday PM peak hour. Both are well below threshold.
o 14. Generation of 1,000 or more New adt on roadways providing access to a single location and construction of 150 or more New parking spaces at a single location.	Based on draft Traffic Study produced by MDM Transportation Consultants received on August 24, anticipated Trip Generation does not exceed 1,000 ADT.
o 15. Construction of 300 or more New parking spaces at a single location.	70 parking spaces being provided.
(7) Energy.	
• (a) ENF and Mandatory EIR.	
o 1. Construction of a New electric generating facility with a Capacity of 100 or more MW.	Not Applicable
o 2. Expansion of an existing electric generating facility by 100 or more MW.	Not Applicable
o 3. Construction of a New fuel pipeline ten or more miles in length	Not Applicable
o 4. Construction of electric transmission lines with a Capacity of 230 or more kv, provided the transmission lines are five or more miles in length along New, unused or abandoned right of way.	Not Applicable

• (b) ENF and Other MEPA Review if the Secretary So Requires.	
o 1. Construction of a New electric generating facility with a Capacity of 25 or more MW.	Not Applicable
o 2. Expansion of an existing electric generating facility by 25 or more MW.	Not Applicable
o 3. Construction of a New fuel pipeline five or more miles in length.	Not Applicable
o 4. Construction of electric transmission lines with a Capacity of 69 or more kv, provided the transmission lines are one or more miles in length along New, unused or abandoned right of way.	Not Applicable
(8) Air.	
• (a) ENF and Mandatory EIR. Construction of a New major stationary source with federal potential emissions, after construction and the imposition of required controls, of: 250 tpy of any criteria air pollutant; 40 tpy of any HAP; or 100 tpy of any combination of HAPs.	Not Applicable
• (b) ENF and Other MEPA Review if the Secretary So Requires.	
o 1. Construction of a New major stationary source with federal potential emissions, after construction and the imposition of required controls, of: 100 tpy of PM as PM10, CO, lead or SO2; 50 tpy of VOC or NOx; 10 tpy of any HAP; or 25 tpy of any combination of HAPs.	Not Anticipated to exceed threshold
o 2. Modification of an existing major stationary source resulting in a "significant net increase" in actual emissions, provided that the stationary source or facility is major for the pollutant, emission of which is increased by: 15 tpy of PM as PM10; 100 tpy of CO; 40 tpy of SO2; 25 tpy of VOC or NOx; 0.6 tpy of lead.	Not Anticipated to exceed threshold
(9) Solid and Hazardous Waste.	
• (a) ENF and Mandatory EIR. New Capacity or Expansion in Capacity of 150 or more tpd for storage, treatment, processing, combustion or disposal of solid waste, unless the Project is a transfer station, is an Expansion of an existing facility within a validly site assigned area for the proposed use, or is exempt from site assignment requirements.	Not Applicable
• (b) ENF and Other MEPA Review if the Secretary So Requires.	
o 1. New Capacity or Expansion in Capacity for combustion or disposal of any quantity of solid waste, or storage, treatment or processing of 50 or more tpd of solid waste, unless the P roject is exempt from site assignment requirements.	Not Applicable
o 2. Provided that a Permit is required in accordance with M.G.L. c. 21D, New Capacity or Expansion in Capacity for the storage, recycling, treatment or disposal of hazardous waste.	Not Applicable
(10) Historical and Archaeological Resources.	

• (a) ENF and Mandatory EIR. None.	
• (b) ENF and Other MEPA Review if the Secretary So Requires. Unless the Project is subject to a Determination of No Adverse Effect by the Massachusetts Historical Commission or is consistent with a Memorandum of Agreement with the Massachusetts Historical Commission that has been the subject of public notice and comment:	Project anticipates MHC determination that the project is unlikely to affect historical or archaeological resources.
o 1. demolition of all or any exterior part of any Historic Structure listed in or located in any Historic District listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth; or	No existing structure is being demolished as part of the project.
o 2. destruction of all or any part of any Archaeological Site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth.	Site not on the State Register of Historic Places or Inventory of Historic Archaeological Assets of the Commonwealth.
(11) Areas of Critical Environmental Concern.	
• (a) ENF and Mandatory EIR. None.	
• (b) ENF and Other MEPA Review if the Secretary So Requires. Any Project within a designated ACEC, unless the Project consists solely of one single family dwelling.	Site is not listed on the Massachusetts Areas of Critical Environmental Concern
(12) Regulations.	
• (a) ENF and Mandatory EIR. None.	Not Applicable
• (b) ENF and Other MEPA Review if the Secretary So Requires. Promulgation of New or revised regulations, of which a primary purpose is protecting against Damage to the Environment, that significantly reduce:	Not Applicable
o 1. standards for environmental protection;	Not Applicable
o 2. opportunities for public participation in permitting or other review processes; or	Not Applicable
o 3. public access to information generated or provided in accordance with the regulations.	Not Applicable

FORM B – BUILDING

MASSACHUSETTS HISTORICAL COMMISSION
MASSACHUSETTS ARCHIVES BUILDING
220 MORRISSEY BOULEVARD
BOSTON, MASSACHUSETTS 02125

Assessor's Number	USGS Quad	Area(s)	Form Number
1404300000	Boston South		

Photograph

Locus Map

Town/City: Boston

Place: *(neighborhood or village)*: Hyde Park

Address: 150 – 160 American Legion Highway

Historic Name: Home for Destitute Jewish Children

Uses: Present: vacant, former community center

Original: orphanage

Date of Construction: 1911

Source: Building Permit; Newspaper

Style/Form: Classical Revival

Architect/Builder: John A. Hasty

Exterior Material:

Foundation: stone

Wall/Trim: brick, cast concrete

Roof: asphalt

Outbuildings/Secondary Structures:

Major Alterations *(with dates):* Interior renovation (1945, 1960), Gymnasium (1960); fire (1973)

Condition: Good

Moved: **no** ☒ **yes** ☐ **Date:**

Acreage: approx. 2 acres

Setting: Situated on a partially paved lot along a major roadway adjacent to a ca.1940 apartment complex to the north, a vacant parcel to the south, and a ca.1990 housing development to the east.

Recorded by: Taya Dixon

Organization: Epsilon Associates, Inc.

Date (*month / year)*: May 2012

☒ Recommended for listing in the National Register of Historic Places.
If checked, you must attach a completed National Register Criteria Statement form.

Use as much space as necessary to complete the following entries, allowing text to flow onto additional continuation sheets.

ARCHITECTURAL DESCRIPTION:

Describe architectural features. Evaluate the characteristics of this building in terms of other buildings within the community.

The former Home for Destitute Jewish Children is located on a parcel of land along American Legion Highway in the Hyde Park neighborhood of Boston. Situated on a large lot with several mature trees along the property line and two large evergreen trees immediately in front of the building, the Home is surrounded by modern residential development to the south and east, a mid-twentieth century housing development to the north and Franklin Park to the west across the roadway.

The structure is comprised of two sections, the original Home for Destitute Jewish Children constructed in 1911 located to the south and the 1960 gymnasium located to the north. The two sections are joined by a small entrance pavilion also constructed in 1960. The original section is three stories tall with a raised basement. A cast concrete porch extends off the west (main) elevation to provide access to the first floor. The concrete porch features cast concrete piers and a wood railing constructed of modern lumber. A wide concrete stair is located at the center. The Classical Revival style U-shaped, red brick building features a slightly projecting center section on the west (main) elevation flanked by two wings. The center section and the flanking wings are detailed with cast concrete quoins. The red brick center section contains a rounded arch central entrance, constructed of cast concrete blocks, that has been infilled with brick. The former entrance is flanked by two tall window openings accentuated with cast concrete and brick sills and lintels. The two upper floors contain three bays with a pair of windows, detailed with brick and cast concrete, at the center and single window openings to each side. The second and third floor windows were previously doors to a three-story wood porch that burned in 1973 and contain infilled brick below the window sills. A red brick and cast concrete pediment extends above the center section. A cast concrete entablature is set at the base of the pediment and still retains a ghost of the building. It states “Home for Jewish Children.” A cast concrete Star of David is set within the pediment, and a cast concrete shell is situated at the peak of the pediment. The two wings contain four vertical bays at the first through third floors. All openings contain windows with cast concrete and brick details with the exception of one doorway on the south side at the first floor. The windows in the northernmost bay of the north wing were converted from doorways by installing a cast concrete sill and brick infill. A cast concrete string course is set below a belt course situated at the roofline which features a brick and cast stone parapet.

The 11-bay south elevation features a raised basement separated from the three upper floors by a cast concrete belt course. Cast concrete quoins are located at the ends of the elevation. The elevation features evenly spaced rectangular window openings with cast concrete sills and lintels on each floor. One window opening on the first floor has been converted to a doorway and a wrought iron fire escape added. A decorative brick band with a cast concrete cap is located above the first floor windows. A cast concrete string course is also located above the third floor windows. A slightly projecting cast concrete belt course, consistent with the west elevation, is located below the brick and cast concrete parapet. The parapet is stepped and contains a slightly projecting brick panel at the center.

The east side of the property contains a U-shaped courtyard between the two projecting wings. The corners of the wings, including the courtyard, are detailed with cast concrete quoins. The east elevation of the south wing contains a basement cast concrete belt course which projects above a window opening that has been converted from a doorway. Three bays of evenly spaced rectangular window openings are located on each level. The cast concrete string course, slightly projecting cast concrete belt course and brick and cast concrete parapet are situated atop the elevation. The south elevation within the courtyard is two bays deep with a vertical bay of windows and a vertical bay of egress doors opening onto a steel reinforced cast concrete

walkway within the courtyard. The windows contain cast concrete sills and lintels, and the doors contain cast concrete lintels at each level. The cast concrete string course and belt course and the cast concrete and brick parapet continue along all elevations of the interior courtyard. The three-bay east elevation within the courtyard contains doorways or small window openings at the center flanked by rectangular window openings. All openings contain cast concrete sills and lintels. The concrete walkway extends along this elevation featuring two steel reinforced concrete columns at each level and a concrete stair provides access to the ground from the first floor. A wrought iron fire escape extends off the north end of the walkway. The south elevation within the courtyard is five bays wide. The westernmost bay contains doorways accessing the concrete walkway. The remaining bays predominately feature rectangular window openings with cast concrete sills and lintels. A doorway accessing a concrete egress stair is also located at the first floor level. A one-story ell with a raised basement extends off the east elevation of the north wing. The ell's south elevation contains two infilled windows at the basement level and three rectangular window openings with cast concrete sills and lintels at the first floor level, one of which has been infilled with brick. The east elevation of the north wing contains four infilled basement windows below the cast concrete belt course. Three window openings with cast concrete sills and lintels are located at the first floor of the ell. The ell is detailed with cast concrete quoins at each end of the elevation. The east elevation of the north wing above the ell features an integral red brick chimney stack that extends above the roofline. Two vertical bays of windows, one large and one small, are located to the north of the chimney. The cast concrete string course, belt course and brick and cast concrete parapet continue along this elevation.

The 14-bay north elevation is partially obscured by the 1960 gymnasium. The three-story elevation is set on a raised basement separated by a cast concrete belt course. A decorative corbelled brick belt course with a cast concrete cap is located above the first floor. The wing consists predominately of evenly spaced rectangular window openings with cast concrete sills and cast concrete and brick lintels. A doorway, converted from a window, is located near the rear ell and accesses a wrought iron fire escape. An exterior elevator tower, clad in brick, extends above the roofline near the center of the elevation. In addition, one vertical bay of the building is solid brick where a chimney extends above the roof. A cast concrete string course is set beneath a projecting cast concrete belt course near the roofline which is topped by a decorative stepped brick parapet. The parapet is detailed with a brick panel at the center. The north elevation of the rear ell contains a raised basement with two infilled window openings below the cast concrete belt course. Two rectangular window openings are located at the first floor level. All corners of the north elevation feature cast concrete quoins.

The 1960 gymnasium consists of two parts, a small entrance pavilion and the main gymnasium. The west elevation features a slightly projecting entrance pavilion. The one-story plus raised basement pavilion features a concrete basement level with a monumental set of concrete stairs. The first floor is a red brick elevation with four vertical ribbon windows set beneath a wide concrete parapet. Recessed metal doors are located at the center of the elevation. The five-bay gymnasium features a concrete raised basement with punched window openings on the west elevation. Each bay is defined by slightly projecting red brick pilasters. An egress door is located at the north end of the first floor and accesses a wrought iron fire escape. Each bay contains a wide expanse of glass windows just below the slightly projecting roofline.

The north elevation of the gymnasium features a raised basement level constructed of concrete and a solid red brick wall. The rear section of the gymnasium, which is approximately one-half the height of the main gymnasium, also contains a solid concrete basement level and a solid red brick first floor.

The lower level section of the gymnasium on the east elevation features a concrete basement level and a solid red brick first floor. A single rectangular window opening, below a louvered opening, is situated within the first floor elevation. The east elevation of the full-height gymnasium is a red brick elevation separated into five sections by slightly projecting red brick pilasters. Large expanses glass windows are situated within each bay and are set immediately below the slightly projecting roof. The east elevation of the entrance pavilion also features a raised concrete basement level and a red brick first floor. A recessed doorway is located at the basement level, and a first floor egress door is located at the first floor. A wrought iron fire escape is located at the first floor. A wide overhanging roofline extends out over the east elevation.

The south elevation of the gymnasium contains several louvered openings immediately adjacent to the entrance pavilion at the basement level. The first floor of the south elevation is a solid red brick. A square red brick chimney extends up above the gymnasium roofline at the northeast corner of the entrance pavilion.

The interior of the buildings retain elements of their original construction as well as later additions and modifications. Within the original building, the original monumental entrance stairs remain together with the two secondary egress stairs. Overall, the circulation system, which allowed access across the stair halls from one wing to the other, remains. Several large rooms in each of the wings remain. Each floor contains a series of large and small offices, classrooms and meeting rooms. Many of the windows and doors throughout the building retain original wood window and door moldings. Windows are primarily one-over-one aluminum replacement sash, but several of the original brick molds remain. The gymnasium entrance pavilion provides access to the entire building with the original building to the south and the gymnasium to the north. A metal stairway is located within the pavilion to provide access to the basement level. The main gymnasium is a large full-height space with an exposed steel roof framing system. The gymnasium contains a wood floor, concrete walls, and collapsible bleachers. The basement of the gymnasium contains a series of rooms separated by concrete walls.

HISTORICAL NARRATIVE

Discuss the history of the building. Explain its associations with local (or state) history. Include uses of the building, and the role(s) the owners/occupants played within the community.

The Establishment of Jewish Orphanages

Orphanages for dependent children were founded in great numbers across the country in the late 19th and early 20th centuries to provide separate accommodations for children that were once housed in public almshouses with adult paupers. The great number of Civil War orphans coupled with the growing number of orphans from immigrant families in the later half of the 19th century required alternatives to the almshouses and placing out of individual children with families. The Commonwealth of Massachusetts, following the lead of the State of New York that passed the New York State Children's Law of 1875, passed legislation in 1879 requiring children between the ages of 3 and 16 to be placed in separate institutions for children. The law also allowed the placement of children in institutions that shared the same religion as the parents. This provision in the law precipitated the expansion of religion-based orphanages in Massachusetts.

Jewish orphanages constructed in the United States followed a long tradition of charity to the poor by the Jewish people. Several passages in the Bible and Talmud reference obligations to aid widows and orphans. Consistent with these principles, the growing Jewish community in Boston rallied around the newly arrived immigrants who had fallen on difficult times and left their children as orphans or partial orphans (having a living parent unable to care for the child). Like many communities across the country, the Home for Destitute Jewish Children was established as a result of the collaboration of many Jewish organizations. The Home provided a home-like atmosphere and encouraged the acculturation of the children into American society, two characteristics of great importance to Jewish Americans in the early 20th century. In addition to providing faith-based teachings, the Home, like its Jewish counterparts, provided training to their children in trades and homemaking to ensure their long-term contribution to society.

Home for Destitute Jewish Children

The Home for Destitute Jewish Children was completed in 1911 to house Jewish orphans from the Boston area. In 1908, the Hebrew Ladies Helping Hand Association and the Ladies Auxiliary formed an organization called the Ladies Helping Hand Auxiliary of the Home for Jewish Children for the purpose of building a new orphanage specifically for Jewish children. Meeting at the Temple Mishkan Tefila in Roxbury on May 18, 1908, the newly established organization had raised $4,000 toward the new building project to replace the existing home operating on Beechglen Street in Roxbury.

The Home was designed by architect John A. Hasty. Hasty was an established architect with offices at 46 Cornhill Street in Boston. Hasty has numerous private residences, commercial buildings, and industrial complexes attributed to him, many of which are listed in the State and National Registers including the Eagle Bowling Alley in Roxbury located within the Dudley Station Historic District, Temple Ohabei Shalom Cemetery Chapel in East Boston, 20 Elmwood Avenue located within the Old Cambridge Historic Districts, three buildings within the Central Square Historic District in Cambridge, and 153 Naples Road in Brookline located within the Graffam-McKay Local Historic District.

The new building opened in 1911 with great fanfare. Boston Mayor John F. Fitzgerald addressed the large audience at the opening ceremony along with Rabbi Harry Levi of the Temple Israel who stated his desire for Jewish children to be sent to the Home over public institutions to allow Jewish beliefs and traditions to be carried on by the children. At its opening, the Home provided shelter to scores of children under the age of 16.

It was noted by the Jewish Advocate in 1919, that many of the children came from different classes resulting in a wide variety of habits, propensities, and lifestyles. The Home was run much like a boarding school of the day including rules and regulations but with constant involvement of the children in the methods and practices of these rules. During its early years, the Home struggled to provide for the young children in its care due to the lean war years that followed. When funds were scarce, the children often assisted the small staff in preparing meals and maintaining the property. This changed after the war ended and funds were more readily available to hire additional staff.

Many of the children arriving at the Home came from immigrant parents who may have passed due to poor health and disease. As a result, health care was a major concern of the institution. Physicians and nurses made routine checks of the children living at the Home. In addition to the Home being well maintained to prevent epidemics, the children were schooled on cleanliness, were property clothed, ate wholesome meals, and had plenty of indoor and outdoor exercise.

Children attended public schools for their education. The Headmaster of the Dorchester High School noted that the majority of the pupils in his school received grades of A and B. Hebrew school occurred within the Home. Generally, each child received five hours of schooling on Jewish history and religion per week over the course of three or four sessions during the week and the remaining on Saturdays and Sundays. When it began, Hebrew school was limited to children ages 7 and up, but by 1919 a kindergarten class was added to ensure all children within the Home received a Hebrew education. The Home also held daily and holiday services, congregational singing, bar mitzvahs, and other religious entertainment.

In an effort to assist the children in finding meaningful employment upon leaving the Home, a trade school was also created. The trade school was slow to start due to a lack of funds, space, and teachers. Eventually, portions of playrooms were partitioned off for trade school activities, tools were donated, and teachers volunteered. Classes included stenography, typewriting, millinery, dressmaking, printing, carpentry, machinery, and woodworking. Small wood frame buildings (no longer extant) were also constructed on the property to provide workshop space.

Recreational, club, and sports activities were also a large part of the Home. The Home had an active Boy Scout troop as early as 1913 that explored Boston's outdoors from the Blue Hills to Bumpkin Island in Boston Harbor. The Home supported a Girl Scout troop, literary and social clubs, and athletic outings. Socials, parties, plays, dances, musical instruction, which gave rise to the Home's own brass band, and field trips were a common occurrence at the Home. Garden plots were laid out on the Home's property which allowed children to plant and maintain their own gardens.

The girls were housed on the second floor and the boys on the third. Each dormitory floor was divided into two sections, one for those under 12 years of age and one for ages 12 to 16. The dormitories were large with colorful rugs, curtains, white bed spreads on twin beds, dressers for the girls and chifferobes for the boys. In 1929, 100 children were living at the Home. Each dormitory had its own piano and small gathering space. Each child was responsible for making his or her bed in the morning and neatening their areas.

Hecht House

In 1934, a new Home for Jewish Children was established in the Brighton neighborhood of Boston. Within two years, the original Home in Hyde Park was sold to the Hecht Neighborhood House. The idea of the Hecht House was first established in the Commonwealth Avenue home of Lena Hecht who served as a guide into the American community to Russian Jews arriving in the United States at the turn of the century. Realizing that there was a greater need to assist new immigrants in becoming Americans, she facilitated the creation of the Hebrew Industrial Training School. Later known as the Hecht House, the organization served the Jewish community in Boston for decades, first out of rooms in a Hanover Street building. After a series of moves, the School settled in at 22 Bowdoin Street and officially became the Hecht Neighborhood House. The mission of the Hecht House was to "foster democracy and citizenship," "to advance Jewish ideals," "conduct relevant programming to promote physical, cultural, moral and educational well-being," and "promote understanding among all community groups."

The organization followed the Jewish community's relocation to the streetcar suburbs and moved to the vacant Home on American Legion Highway from the West End of Boston in 1936 to serve the greatest number of Jewish residents as possible. When the Hecht House took ownership of the Home, interior remodeling of the property was needed to meet the needs of the community center. With over 2000 members, the Hecht House served a number of purposes, and in 1945 minor alterations to the building were undertaken. Modifications included alterations to the gymnasium, and the creation of an assembly hall, game room, arts and crafts room, nursery school, Jewish library, and a theater, rehearsal and dressing rooms for the theater department within existing spaces throughout the building. The building housed a gymnasium, exercise rooms, health club, science laboratory, and photography dark room on the basement level. A dance hall, kitchen, nursery rooms, classrooms, adult lounge, and canteen were on the first floor. At the second floor, the building contained a game room, children's library, sewing room, and additional nursery rooms. A young adult lounge, art and ceramic studios, a theater, and additional club rooms were located on the third floor. Two outbuildings (no longer extant) provided space for a wood shop and social club meeting space.

In 1959, the Hecht House merged with the Young Men's Hebrew Association (YMHA) to become the YMHA-Hecht House. The YMHA was founded in 1881 and operated out of Minot Hall in the South End and later on East Concord Street. Like the Hecht House, the YMHA soon followed the migration of the Jewish community from the center of the city to the streetcar suburbs and relocated to the old Hetty Green Mansion on Warren and Howland Streets in Roxbury in 1911. By 1918, the YMHA moved to a building at Seaver Street and Humboldt Avenue where it remained until the two organizations, which had similar missions, merged under the umbrella of the Associated Jewish Community Centers (AJCC).

To better meet the needs of the community, the new YMHA-Hecht House began fundraising for the construction of a gymnasium addition. In 1959, the cornerstone to the Lt. Joseph P. Kennedy Jr. Memorial Gymnasium was laid to honor the fallen brother to then Senator John F. Kennedy. The new gymnasium would have a regulation size basketball court, handball courts, exercise rooms, lockers, a modern health club, and administrative offices. The new gymnasium was designed by Boston architects Isidor Richmond and Carney Goldberg.

At the cornerstone laying ceremony, the president and 1500 members of the YMHA-Hecht House were joined by the president of the Jewish Centers Association (who helped with the merger of the two organizations), the president of the Associated Jewish Philanthropies, the president of the Boston City Council, and notably, Edward Moore Kennedy on behalf of the Kennedy Foundation which helped to support the project, who was later elected to the United States Senate. The new gymnasium and remodeling of the old building was completed in the Spring of 1960. Remodeling included a refurbished social hall, library-lounge, theater, nursery school wing, and 14 club meeting rooms. Upon completion, the YMHA-Hecht House was one of the largest, if not the largest, Jewish community centers in New England.

Lena Park Neighborhood Service Center

In 1970, the YMHA-Hecht House was sold to the Lena Park Community Development Corporation (CDC), a non-profit community development corporation in Dorchester. Lena Park CDC was formed in 1968 by members of the Mattapan and Dorchester communities and representatives of two local churches, the Church of God and Christ and St. Leo's Church. Lena Park CDC established a new community center, known as the Lena Park Neighborhood Service Center, in the building. The Center continued to serve the residents of Dorchester, but with a multi-cultural focus.

The AJCC continued to provide ongoing services to Jewish residents including a senior center and kosher kitchen within the new Center. Funds from the sale of the Center were utilized by the AJCC for other community centers under its umbrella.

The new Center provided health and welfare services, job training, referral services for the handicapped, and recreational programs. The acquisition of the Center by the CDC was made possible in part through a grant from the United States Department of Housing and Urban Development that was announced by Mayor Kevin White in 1970. Then Mayoral Aide Barney Frank, later a Congressman from Massachusetts, was also instrumental in the purchase of the Center.

Evolution of the Building

The three major tenants of the building have utilized the existing building in a variety of ways. Although each has made physical changes to the property, it retains elements of each phase of its use. The most significant change to the property occurred in 1960 with the construction of the gymnasium which nearly doubled the size of the building.

Exterior

The original building included the three-story red brick section with the raised basement. A large Classical Revival style wooden porch extended from the first to the third floor of the main elevation of the building. Little alteration to the west elevation occurred until 1945 when a vertical bay of windows at the second and third floors were converted to doorways to access the front porch. In 1960, the original central entrance on the west elevation was infilled with brick. In 1973, the Center suffered a fire that destroyed the monumental front porch. After the fire, Lena Park did not rebuild the wooden porch, however, the ground level masonry base remains. The original central doorways on the second and third floors were converted to windows, and the vertical bay of doors was restored to window openings when the porch was destroyed.

With the exception of a window opening on the first floor level that was converted to a doorway for emergency egress in 1945, the south elevation is largely unchanged from its 1911 condition. The east elevation of the building and within the courtyard is largely unchanged as well. The metal fire escape located off the concrete porches within the courtyard was added in 1945. The original railings on the fire escape within the courtyard were replaced in 1960. In addition, a projecting brick parapet on the east end of the north wing was also removed in 1960.

The north elevation was unaltered until the 1960 addition was constructed. At that time, several window openings at the basement and first floor were infilled with brick and the connecting section to the gymnasium constructed. The 1960 addition appears much as it did when it was constructed. The covered entryway in the connector building, which originally had a steel picket fence at the edge of the first floor, has been infilled with brick and tall ribbon windows along the west elevation. The north elevation of the gymnasium is unchanged although the basement level windows are now obscured. The north and east elevations of the gymnasium are unaltered. A small addition, infilling the basement and first floors atop a concrete retaining wall, has been added on the east elevation of the connector. The brick and concrete addition appears to be consistent with architectural character of the west elevation infilled entrance area. An elevator tower was added within the footprint of the 1960 entrance pavilion addition to provide access to the upper floors of the original building.

Interior

The original building contained three stairways which remain today. The main ceremonial stairway was located near the center of the building and provided access from the original entry vestibule at the center of the west elevation. The rear stair, situated immediately behind the ceremonial stair, provided egress to the first floor rear porch. A third, back of house, stair was located at the east end of the north wing which provided egress through a doorway in the south elevation within the courtyard. The corridors extending between the north and south wings at the landings at the main and rear stairs remain today. When it was first constructed, the building contained a large gymnasium on the south side of the building that extended from the basement through to the first floor. A viewing balcony for the gymnasium was located at the southwest corner of the first floor level. When the first floor level was decked over in the original gymnasium in 1960, a new doorway was added off the rear stairhall into the new space which served as a lounge and library for the Hecht House. Men's and women's toilet facilities were also added around the rear stairs at that time. The basement also contained the coal pocket and adjacent boiler room along with locker rooms and club rooms.

The original 1911 central entrance on the west elevation provided access to an interior vestibule flanked by offices that supported the Home. To meet building code and egress requirements, the original entrance door with sidelights was removed and a new double leaf code-compliant door was installed in 1945. In 1960, the original central entrance was infilled with brick and the interior vestibule converted to an office. The first floor dining room, situated in the north wing, still remains largely intact today. The office space at the northwest corner of the first floor was retained in 1960 when a corridor was added through the west end of the dining room to connect to the new gymnasium wing. The back of house functions within at the east end of the wing were also reorganized in 1945 and removed in their entirety in 1960.

The original dormitories for girls and boys on each side of the ceremonial and rear stairs were converted into a game room and nursery spaces for the Hecht House. The bathrooms on each side of the rear stairs were retained for both the Hecht House and Lena Park. Access to the front porch was maintained through the library in 1945, however, a second egress door was created in the north wing to provide direct access to the exterior porch. The rooms at the east end of the north wing, present in 1945, were modified and some were removed in 1960 to create a small stage within the old dormitory space that was repurposed as an auditorium in 1960 after serving as a nursery since the 1930s.

On the third floor, the old dormitories from the Home were reused as an art room in the south wing and a hall with a stage in the north wing for the Hecht House. Access to the porch was still provided at the center of the west elevation and a secondary egress door in the north wing. Small rooms were located along the west elevation and at the east end of the north wing. In 1960, the art room and hall were subdivided into club rooms and corridors installed along the north and south walls to provide access to each area.

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[Delete this page if no Criteria Statement is prepared]

National Register of Historic Places Criteria Statement Form

Check all that apply:

☒ Individually eligible ☐ Eligible **only** in a historic district

☐ Contributing to a potential historic district ☐ Potential historic district

Criteria: ☒ **A** ☐ **B** ☒ **C** ☐ **D**

Criteria Considerations: ☐ **A** ☐ **B** ☐ **C** ☐ **D** ☐ **E** ☐ **F** ☐ **G**

Statement of Significance by Taya Dixon, Epsilon Associates, Inc.
The criteria that are checked in the above sections must be justified here.

The Home for Destitute for Destitute Jewish Children is eligible for listing on the National Register of Historic Places under criterion A for its association with the development of religious-based orphanages in the Boston area at the turn of the century. The Home is also meets criterion C as a well-preserved example of an early 20th century orphanage that retain elements of its original design as well as later alterations and additions that are significant in their own right for their association with the YWHA-Hecht House which utilized the property as a community center. The Home is significant at the local level as the first, purpose-built, orphanage created for the care of Jewish children. It was significant to the local Jewish community, so much so that the Jewish community maintained the property and repurposed it for continued use by Jewish residents once the orphanage relocated. The importance of this building to the community is evidenced by the involvement of the Kennedy Foundation in 1960 when the new gymnasium wing was added to the YMHA-Hecht House. It continued to serve the needs of the community into the late 20th century when the building was repurposed once again for the changing multi-cultural community that settled in the area. Its re-creation of a non-denomination community center was championed by the city leaders in the later half of the 20th century. A National Register nomination would include a more in depth discussion of the rise of orphanages in the United States and the Boston area at the turn of the century, as well as a greater depth of information on the daily operations of the orphanage and later community center.

BOUNDARY DESCRIPTION (SURVEY)

A CERTAIN PARCEL OF LAND SITUATED IN THE CITY OF BOSTON, WEST ROXBURY DISTRICT, SUFFOLK COUNTY, COMMONWEALTH OF MASSACHUSETTS, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT OF TANGENCY ON THE EASTERLY SIDELINE OF AMERICAN LEGION HIGHWAY AT THE NORTHEASTERLY CORNER OF AUSTIN STREET AND SAID AMERICAN LEGION HIGHWAY;

THENCE RUNNING N 28°12'39" E ALONG THE SOUTHEASTERLY SIDELINE OF AMERICAN LEGION HIGHWAY, A DISTANCE OF 188.88 FEET;

THENCE TURNING AND RUNNING N 29°21'07" E ALONG THE SOUTHEASTERLY SIDELINE OF AMERICAN LEGION HIGHWAY, A DISTANCE OF 220.53 FEET;

THENCE TURNING AND RUNNING S 57°07'07" E, A DISTANCE OF 406.03 FEET;

THENCE TURNING AND RUNNING S 32°52'53" W, A DISTANCE OF 130.00 FEET;

THENCE TURNING AND RUNNING S 57°07'07" E, A DISTANCE OF 13.56 FEET;

THENCE TURNING AND RUNNING S 32°52'53" W, A DISTANCE OF 90.00 FEET;

THENCE TURNING AND RUNNING S 57°07'07" E, A DISTANCE OF 3.00 FEET;

THENCE TURNING AND RUNNING S 32°52'53" W, A DISTANCE OF 200.72 FEET TO THE NORTHEASTERLY SIDELINE OF AUSTIN STREET;

THENCE TURNING AND RUNNING N 57°07'07" W ALONG THE NORTHEASTERLY SIDELINE OF AUSTIN STREET, A DISTANCE OF 380.22 FEET TO THE POINT OF CURVATURE;

THENCE TURNING AND RUNNING ALONG A CURVE TO THE RIGHT HAVING AN ARC LENGTH OF 20.04 FEET AND A RADIUS OF 13.45 FEET WITH A CHORD BEARING OF N 14°27'14" W AND A CHORD LENGTH OF 18.24 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS AN AREA OF 169,474 SQUARE FEET MORE OR LESS, OR 3.891 ACRES

EXCEPTIONS FROM COVERAGE (SURVEY RELATED ONLY) LISTED IN TITLE COMMITMENT NO. 11-45149 ISSUED BY CHICAGO TITLE INSURANCE COMPANY HAVING AN EFFECTIVE DATE OF JUNE 28, 2011.

6. TITLE TO AND RIGHTS OF THE PUBLIC AND OTHERS ENTITLED THERETO IN AND TO THOSE PORTIONS OF THE INSURED PREMISES LYING WITH THE BOUNDS OF THE ADJACENT STRE STREETS AND WAYS---AS SHOWN HEREON
7. RIGHTS OF OTHERS IN WILBERT ROAD.---AS SHOWN HEREON
8. TAKING OF EASEMENTS IN WILBERT ROAD FOR SEWER PURPOSES BY THE BOARD OF STREET COMMISSIONERS OF THE CITY OF BOSTON DATED FEBRUARY 15, 1917 AND RECORDED IN BOOK 4015, PAGE 499. ---AS SHOWN HEREON
9. TAKING BY THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS FOR THE CONSTRUCTION OF A HIGHWAY DATED NOVEMBER 20, 1931 AND RECORDED IN BOOK 5296, PAGE 372.---AS SHOWN HEREON
10. VOTE BY THE CITY OF BOSTON PUBLIC IMPROVEMENT COMMISSION APPROVING CONSTRUCTION OF AUSTIN STREET DATED NOVEMBER 16, 2006 AND RECORDED IN BOOK 42753, PAGE 321.---AS SHOWN HEREON
11. VOTE BY THE CITY OF BOSTON PUBLIC IMPROVEMENT COMMISSION APPROVING REPAIR OF AMERICAN LEGION HIGHWAY DATED NOVEMBER 16, 2006 AND RECORDED IN BOOK 42753, PAGE 320.---AS SHOWN HEREON

TITLE COMMITMENT NO. 11-45149 ISSUED BY CHICAGO TITLE INSURANCE COMPANY HAVING AN EFFECTIVE DATE OF JUNE 28, 2011.

BOUNDARY DESCRIPTIONS

TWO PARCELS OF LAND WITH THE BUILDINGS THEREON SITUATED IN BOSTON (FORMERLY WEST ROXBURY) BOUNDED AND DESCRIBED AS FOLLOWS:

FIRST PARCEL (REGISTERED LAND):

NORTHWESTERLY BY AMERICAN LEGION HIGHWAY, ONE HUNDRED EIGHTY-NINE AND 1/100 (189.01) FEET;

NORTHEASTERLY BY LAND NOW OR FORMERLY OF GEORGE W. BURT ET AL., FOUR HUNDRED EIGHT AND 97/100 (408.97) FEET;

SOUTHEASTERLY BY LOT C AS SHOWN ON THE PLAN HEREINAFTER MENTIONED, TWO HUNDRED AND 72/100 (200.72) FEET;

WESTERLY BY THE JUNCTION OF SAID AUSTIN STREET AND AMERICAN LEGION HIGHWAY, MEASURING ON THE EASTERLY LINE OF THE SAME, TWENTY AND 3/100 (20.03) FEET.

ESTIMATED TO CONTAIN 80,393 SQUARE FEET OF LAND.

SAID LAND IS SHOWN AS LOTS A AND B ON A SUBDIVISION PLAN DRAWN BY D.W. HYDE, SURVEYOR, DATED JANUARY 4, 1907, AS APPROVED BY THE COURT, FILED IN THE LAND REGISTRATION OFFICE AS PLAN NO. 1672-B, A COPY OF WHICH IS FILED WITH CERTIFICATE OF TITLE NO. 1592.

SECOND PARCEL (RECORDED LAND):

BEGINNING AT A STONE WALL BOUND SET AT THE NORTHWESTERLY CORNER OF THE REGISTERED LAND PARCEL ABOVE DESCRIBED AS THE FIRST PARCEL, WHICH BOUND IS 201.28 FEET NORTHERLY OF A BOUND SET IN THE NORTHEASTERLY CORNER OF THE INTERSECTION OF AUSTIN STREET AND AMERICAN LEGION HIGHWAY;

THENCE, N 29° 40' 14" E, A DISTANCE OF 101.65 FEET TO A POINT;

THENCE, S 56° 55' 19" E, A DISTANCE OF 378.23 FEET TO A POINT;

THENCE, S 33° 04' 41" W, A DISTANCE OF 102.18 FEET TO A POINT; AND

THENCE, N 56° 48' 44" W, A DISTANCE OF 372.19 FEET TO THE POINT OF BEGINNING.

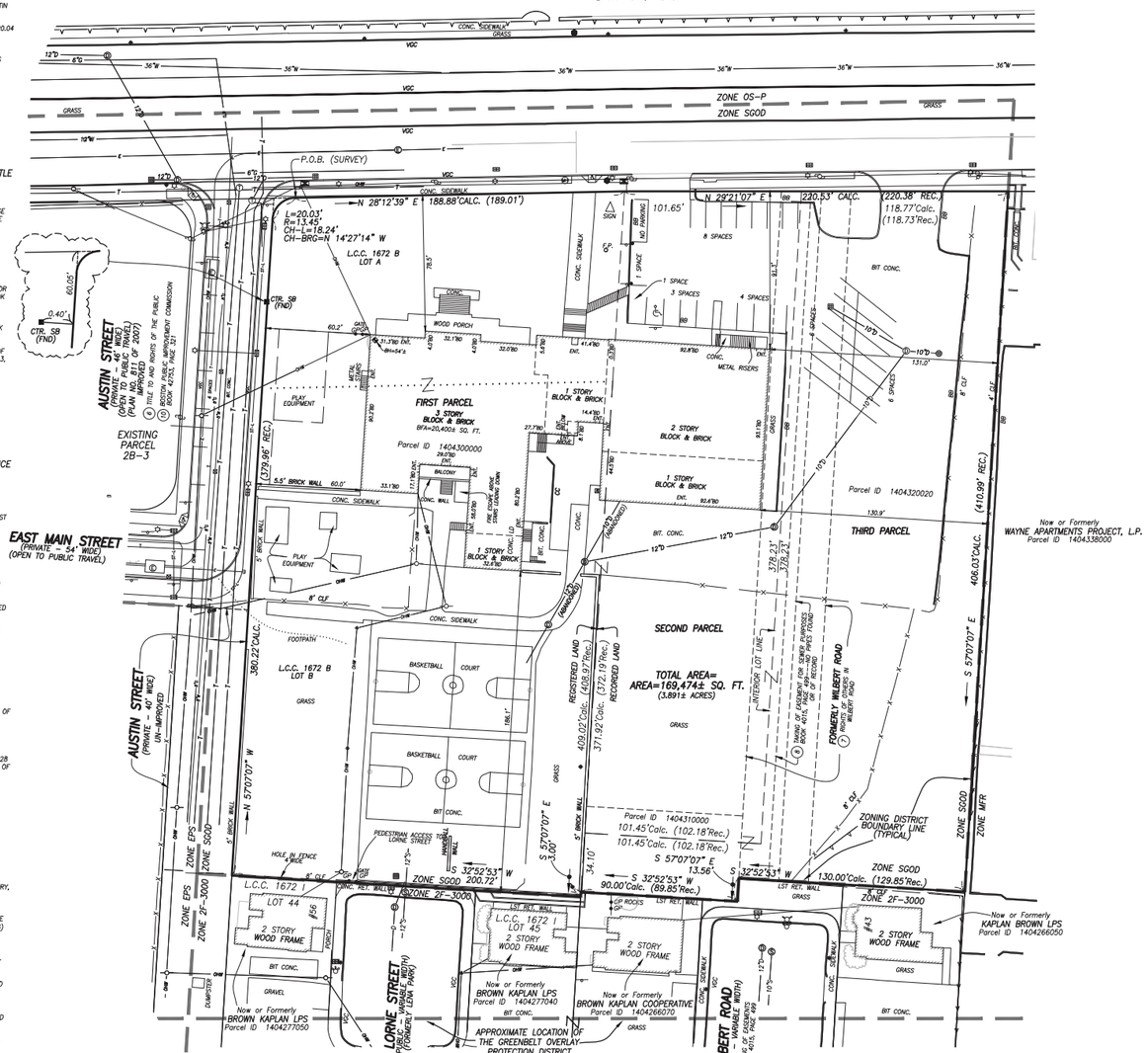
THE SECOND PARCEL CONTAINS APPROXIMATELY 38,203 SQUARE FEET.

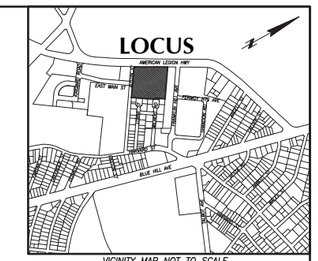
THIRD PARCEL:

A CERTAIN PARCEL OF LAND IN THAT PART OF BOSTON FORMERLY KNOWN AS WEST ROXBURY, IN THE COUNTY OF SUFFOLK AND COMMONWEALTH OF MASSACHUSETTS, BOUNDED AND DESCRIBED AS FOLLOWS:

NORTHWESTERLY	BY AMERICAN LEGION HIGHWAY (FORMERLY CANTERBURY STREET) ONE HUNDRED AND EIGHTEEN AND SEVENTY-THREE HUNDREDTHS (118.73) FEET;
SOUTHWESTERLY	BY LAND N/F OF LENA PARK HOUSING DEVELOPMENT, INC. BEING SECOND PARCEL DESCRIBED ABOVE, THREE HUNDRED AND SEVENTY-EIGHT AND TWENTY-THREE HUNDREDTHS (378.23) FEET;
NORTHWESTERLY	AGAIN BY LAND DESCRIBED IN NEXT ABOVE, ONE HUNDRED AND TWO AND EIGHTEEN HUNDREDTHS (102.18) FEET;
SOUTHWESTERLY	AGAIN BY LAND N/F OF LENA PARK HOUSING DEVELOPMENT, INC. BEING A PART OF FIRST PARCEL DESCRIBED ABOVE, [SEVENTEEN AND FOUR TENTHS] (34.1) FEET;
SOUTHEASTERLY	BY LAND N/F CITY OF BOSTON, BEING THE SOUTHEASTERN PORTION OF LOT 28, EIGHTY-NINE AND EIGHTY-FIVE HUNDREDTHS (89.85) FEET;
NORTHEASTERLY	BY WILBERT ROAD, THIRTEEN AND FIFTY-SIX HUNDREDTHS (13.56) FEET;
SOUTHEASTERLY	BY THE SOUTHEAST PORTION OF WILBERT ROAD AND BY LOT 10, BOTH AS SHOWN ON SAID PLAN, ONE HUNDRED AND TWENTY-NINE AND EIGHTY-FIVE (129.85) FEET;
NORTHEASTERLY	BY LAND N/F OF HAMILTON, AS SHOWN ON SAID PLAN, FOUR HUNDRED AND TEN AND NINETY-NINE HUNDREDTHS (410.99) FEET TO THE POINT OF BEGINNING.

SAID PREMISES, CONSISTING OF APPROXIMATELY FIFTY-ONE THOUSAND FIVE HUNDRED AND FORTY SEVEN (51,547) SQUARE FEET, ARE PARTS OF LOTS 27 AND 28, AND OF WILBERT ROAD, AND ALL OF LOTS 1 THROUGH 9 INCLUSIVE, AS SHOWN ON "PLAN OF LOTS IN WEST ROXBURY DISTRICT, BOSTON, MASS. BELONGING TO EUGENE B. HAMILTON" BY H.A. MILHOUSE, C.E.[S]. DATED JUNE 6, 1916, AND RECORDED WITH SUFFOLK DEEDS IN BOOK 3974, PAGE 347, EXCEPTING THAT PORTION OF WILBERT ROAD AND LOT 1 TAKEN FOR CONSTRUCTION OF CANTERBURY STREET AS DESCRIBED AT SAID DEEDS, BOOK 5296, PAGE 372.
NOTE [ ] TYPOGRAPHICAL ERROR





VICINITY MAP NOT TO SCALE

ZONING CLASSIFICATION – "MATTAPAN NEIGHBORHOOD DISTRICT"

GPOD (GREENBELT PROTECTION OVERLAY DISTRICT)
SGOD (SMART GROWTH OVERLAY DISTRICT)
EPS (ENTERPRISE PROTECTION SUBDISTRICT)

* FOR DIMENSIONAL REQUIREMENTS SEE ARTICLE 87.7 OF CITY OF BOSTON CODE

THE ABOVE ZONING INFORMATION HAS NOT BEEN SUPPLIED BY THE TITLE INSURER AS REQUIRED IN ITEM 6 OF THE ALTA REQUIREMENTS. THIS INFORMATION HAS BEEN RESEARCHED BY HARRY R. FELDMAN, INC.

LEGEND:

- SEWER MANHOLE
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- WATER MANHOLE
- TELEPHONE MANHOLE
- MANHOLE
- HYDRANT
- WATER SHUT OFF
- GAS SHUT OFF
- BOSTON WATER VALVE
- CATCH BASIN
- ROUND CATCH BASIN
- TRAFFIC CONTROL BOX
- TRAFFIC SIGNAL
- UTILITY POLE
- LIGHT POLE
- ELECTRIC HANDHOLE
- SIGN
- BOUND FOUND
- GAS METER
- POB – POINT OF BEGINNING
- FND – FOUND
- REC – RECORD
- CALC – CALCULATED
- SB – STONE BOUND
- BH – BUILDING HEIGHT
- BD – BUILDING DIMENSION
- ENT – ENTRANCE
- LD – LOADING DOCK
- VGC – VERTICAL GRANITE CURB
- BB – BIT. CONC. BERM
- LST – LANDSCAPE TIMBER
- RET – RETAINING
- BIT – BITUMINOUS
- CONC – CONCRETE
- SQ. FT. – SQUARE FEET
- BFA – BUILDING FOOTPRINT AREA
- LCC – LAND COURT CASE
- R= – RADIUS OR RIM ELEVATION
- L= – LENGTH
- GP – GATE POST
- CH-L – CHORD LENGTH
- CH-BRG – CHORD BEARING
- METAL FENCE
- SEWER
- DRAIN
- WATER
- GAS
- ELECTRIC
- ST-L – STREET LIGHTING
- TELEPHONE
- OHW – OVERHEAD WIRES
- (X) – EXCEPTION NUMBER LISTED IN TITLE COMMITMENT NO. 11-45149
- HANDICAP RAMP

PARKING SUMMARY:

29 REGULAR SPACES
1 HANDICAP SPACE
30 TOTAL SPACES

REFERENCES:

SUFFOLK COUNTY REGISTRY OF DEEDS
- BOOK 4015 PAGE 499
- BOOK 5296 PAGE 372
- BOOK 16162 PAGE 194
- BOOK 17957 PAGE 096
- BOOK 42753 PAGE 320
- BOOK 42753 PAGE 321

PLAN
- BOOK 3974 PAGE 347
- BOOK 4015 PAGE 499
- PLAN NO. 810 OF 2007
- PLAN NO. 811 OF 2007

MASSACHUSETTS LAND COURT
- LCC 1672
- CERTIFICATE NO. 106835

CITY OF BOSTON ENGINEERING DEPARTMENT
- PLAN NO. – A484

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
- STATE HIGHWAY LAYOUT NO. 2847 (SH. 2 OF 9)

NOTES:

1) THERE ARE NO GAPS OR GORES BETWEEN THE PARCELS SHOWN HEREON.
2) BY GRAPHIC PLOTTING ONLY, THE PARCEL SHOWN HEREON LIES WITHIN A ZONE "X" (UNSHADED), AN AREA OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOOD, AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A) FLOOD INSURANCE RATE MAP (F.I.R.M.) FOR SUFFOLK COUNTY, MASSACHUSETTS, MAP NUMBER 25025C0087C HAVING AN EFFECTIVE DATE OF SEPTEMBER 25, 2009.
3) UTILITY INFORMATION SHOWN IS BASED ON BOTH A FIELD SURVEY AND PLANS OF RECORD. THE LOCATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM THE AFOREMENTIONED RECORD PLANS AND ARE APPROXIMATE ONLY. WE CANNOT ASSUME RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES THAT ARE OMITTED OR INACCURATELY SHOWN ON THE RECORD PLANS, SINCE SUB-SURFACE UTILITIES CANNOT BE VISIBLY VERIFIED. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER UTILITY ENGINEERING DEPARTMENT SHOULD BE CONSULTED AND THE ACTUAL LOCATION OF SUB-SURFACE STRUCTURES SHOULD BE DETERMINED IN THE FIELD. CALL, TOLL FREE, THE DIG SAFE CALL CENTER AT 1-888-344-7233 SEVENTY-TWO HOURS PRIOR TO EXCAVATION.
4) THIS DOCUMENT IS AN INSTRUMENT OF SERVICE OF HARRY R. FELDMAN, INC. ISSUED TO OUR CLIENT FOR PURPOSES RELATED DIRECTLY AND SOLELY TO HARRY R. FELDMAN INC.'S SCOPE OF SERVICES UNDER CONTRACT TO OUR CLIENT FOR THIS PROJECT. ANY USE OR REUSE OF THIS DOCUMENT FOR ANY REASON BY ANY PARTY FOR PURPOSES UNRELATED DIRECTLY AND SOLELY TO SAID CONTRACT SHALL BE AT THE USER'S SOLE AND EXCLUSIVE RISK AND LIABILITY, INCLUDING LIABILITY FOR VIOLATION OF COPYRIGHT LAWS, UNLESS WRITTEN CONSENT IS PROVIDED BY HARRY R. FELDMAN, INC.
5) ZONING INFORMATION AS SHOWN HEREON WAS NOT PROVIDED BY THE TITLE INSURER AS REQUIRED BY ITEM 6 OF TABLE "A" IN THE 2011 ALTA SURVEY REQUIREMENTS.
6) THERE ARE NO VISIBLE ENCROACHMENTS.

TO: EDWARD W. BROOK CHARTER SCHOOL OR ITS NOMINEE LLC, MARSH, MORIARTY, ONTELL & GOLDER, P.C., AND CHICAGO TITLE INSURANCE COMPANY

THIS IS TO CERTIFY THAT THIS PLAN AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2011 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 7(a), 7(b)(1), 7(c), 8, 9, 11(b), 13, 14, 16, 17, 18, 20(a), AND 21 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON OCTOBER 20, 2011

HARRY R. FELDMAN, INC.

ROBERT G. APPLEGATE, PLS (MA# 28514) — DATE

ALTA/ACSM LAND TITLE SURVEY

NO. 150–NO. 156 AMERICAN LEGION HIGHWAY

BOSTON, (WEST ROXBURY DISTRICT) **MASS.**

SCALE: 1"=30' — OCTOBER 20, 2011

HARRY R. FELDMAN, INC. — LAND SURVEYORS
112 SHAWMUT AVENUE — PHONE: (617)357-9740
BOSTON, MASS. 02118 — www.harryrfeldman.com

FELDMAN
Professional Land Surveyors

30 0 15 30 60 120
GRAPHIC SCALE

RESEARCH	FIELD CHIEF KP	CHECKED BY	APPROVED	SHEET NO. 1 OF 1
CALC RDN	CADD RDN	FIELD CHECKED KP	CRD FILE 19977SP	JOB NO. 13281

FILENAME: S:\PROJECTS\13200s\13281\13281-WS.dwg

Brooke 2 Charter Public School

150-160 American Legion Highway
Boston, MA

Plot Plan

06 September 2012 • Project No. 12021

ARROWSTREET
Architecture Urban Design Planning Graphics and Interiors
212 Elm Street Somerville MA 02144 617.623.5555

Brooke 2 Charter Public School
150-160 American Legion Highway
Boston, MA

Aerial Plan

06 September 2012 • Project No. 12021

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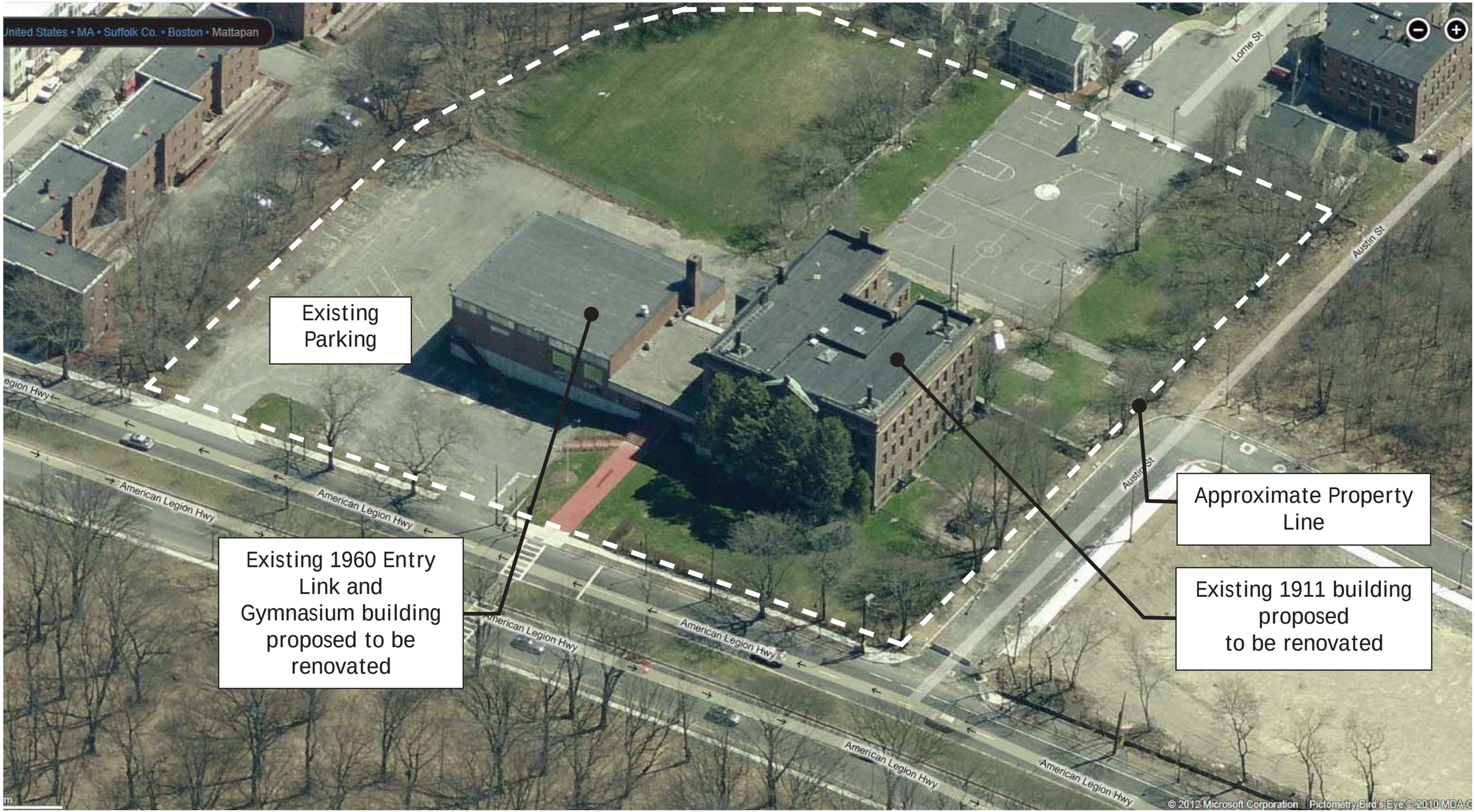
Architecture Urban Design Planning Graphics and Interiors
212 Elm Street Somerville MA 02144 617.623.5555



Brooke 2 Charter Public School
150-160 American Legion Highway
Boston, MA

Existing Aerial View

06 September 2012 • Project No. 12021

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Brooke 2 Charter Public School
150-160 American Legion Highway
Boston, MA

Locus Map with Photo Key

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Picture 1: View of northern facade of 1911 building, 1960 Entry link and Gymnasium, taken from American Legion Highway.

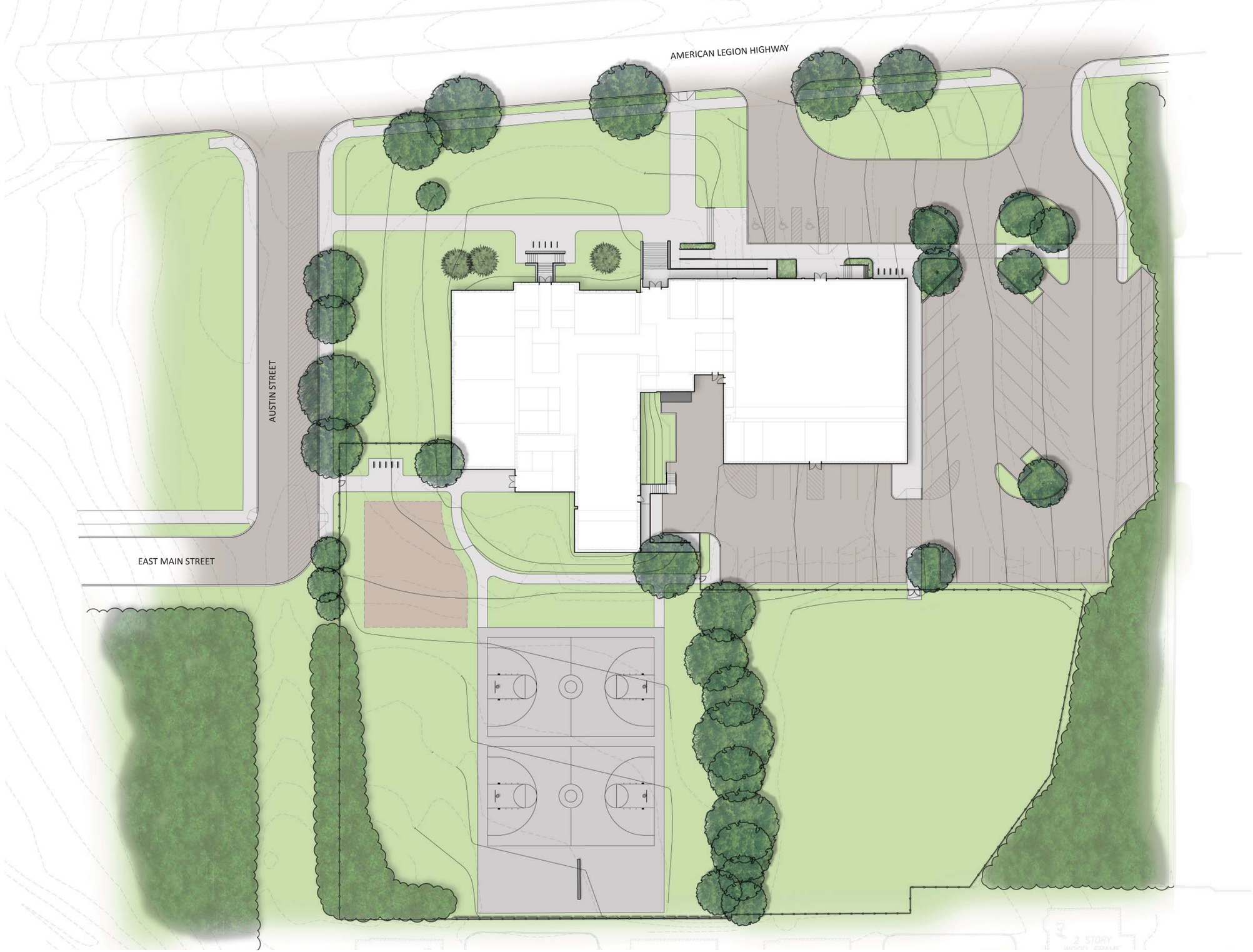
Picture 2: View of northern facade from American Legion Highway.

Picture 3: View of northern facade of 1911 building and porch.

Picture 4: View of 1960 Gymnasium southern facade and eastern facade of 1911 building.

Picture 5: View of east facade of 1911 building and southern facade of 1960 Entry Link.

Picture 6: View of southern facade of 1911 building.



Brooke 2 Charter Public School
150-160 American Legion Highway
Boston, MA

Proposed Site Plan

06 September 2012 • Project No. 12021

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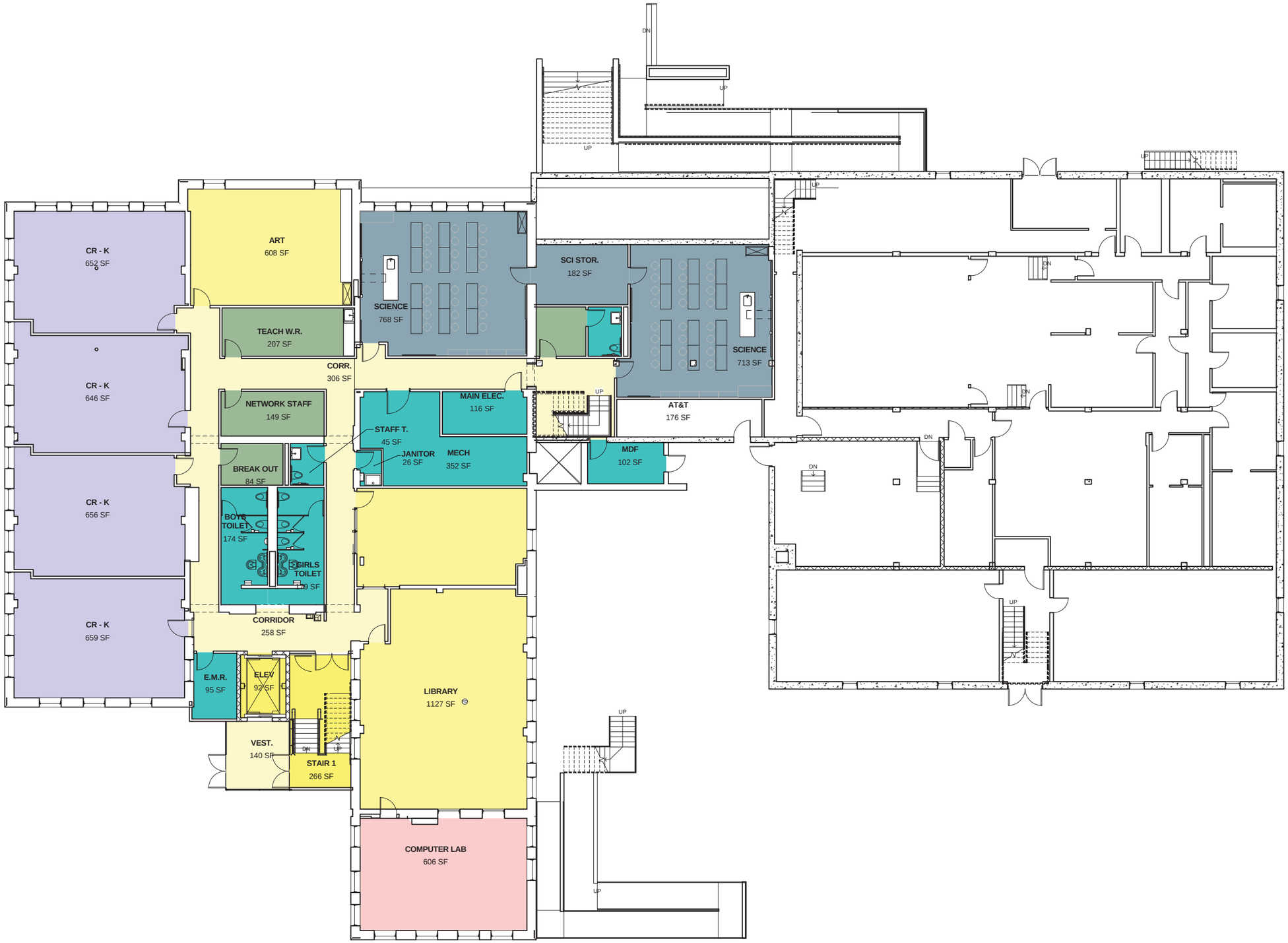
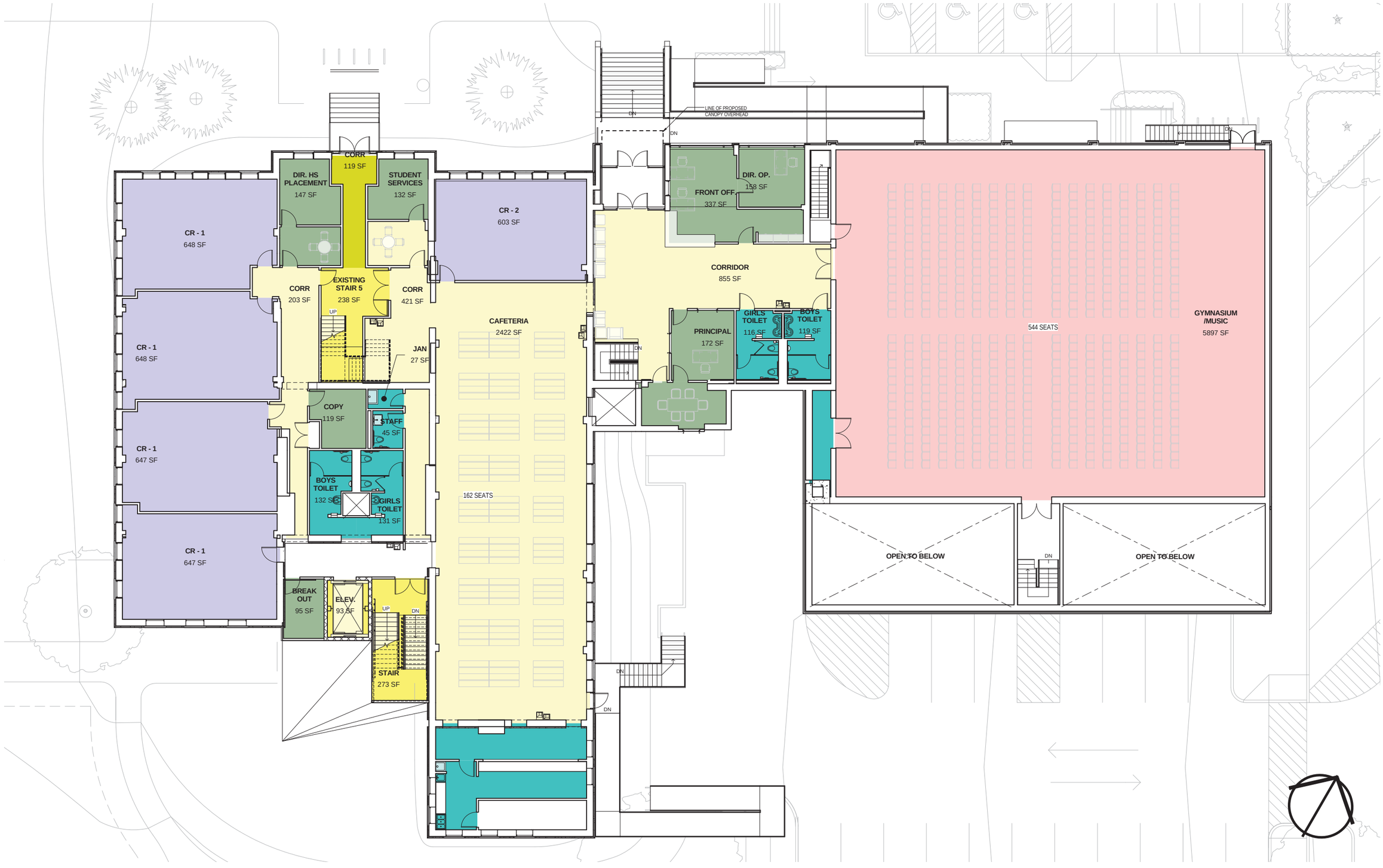


Brooke 2 Charter Public School
150-160 American Legion Highway
Boston, MA

Proposed (Ground Floor) Plan

06 September 2012 • Project No. 12021

ARROWSTREET
Architecture Urban Design Planning Graphics and Interiors
212 Elm Street Somerville MA 02144 617.623.5555

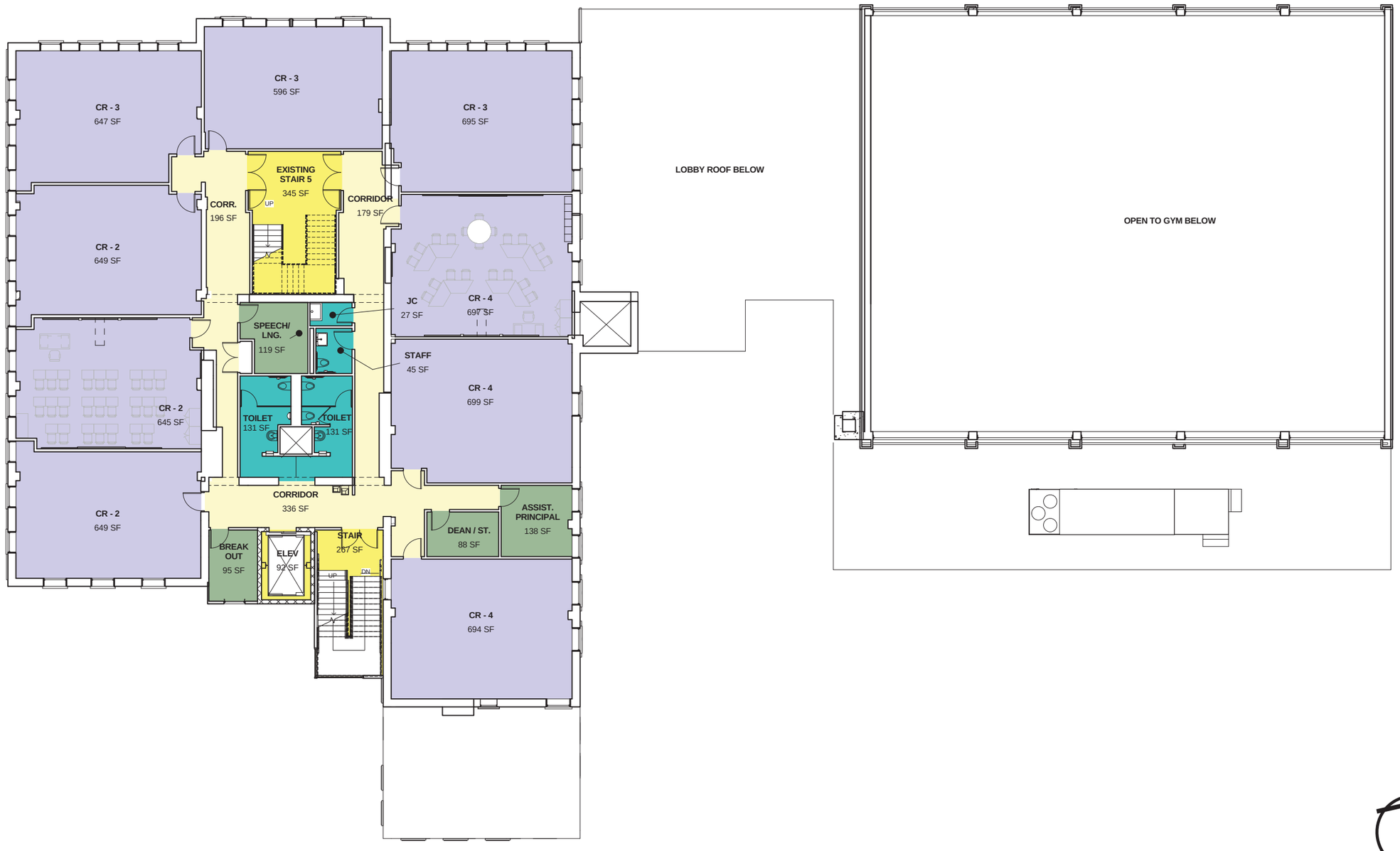


Brooke 2 Charter Public School
150-160 American Legion Highway
Boston, MA

Proposed Main (Second Floor) Plan

06 September 2012 ♦ Project No. 12021

ARROWSTREET
Architecture Urban Design Planning Graphics and Interiors
212 Elm Street Somerville MA 02144 617.623.5555



Brooke 2 Charter Public School
150-160 American Legion Highway
Boston, MA

Proposed (Third Floor) Plan

06 September 2012 • Project No. 12021

ARROWSTREET
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Brooke 2 Charter Public School
150-160 American Legion Highway
Boston, MA

Proposed (Fourth Floor) Plan

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Brooke 2 Charter Public School
150-160 American Legion Highway
Boston, MA

Proposed Improvements
Main Entrance from American Legion Highway

06 September 2012 • Project No. 12021

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212 Elm Street Somerville MA 02144 617.623.5555

Brooke 2 Charter Public School
150-160 American Legion Highway
Boston, MA

Proposed Improvements
View from Southwest

06 September 2012 ♦ Project No. 12021

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Brooke 2 Charter Public School
150-160 American Legion Highway
Boston, MA

Proposed Improvements
View from Austin Street

06 September 2012 • Project No. 12021

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Brooke 2 Charter Public School
150-160 American Legion Highway
Boston, MA

Proposed Improvements
View from Southwest at Ground Level

06 September 2012 • Project No. 12021

ARROWSTREET
Architecture Urban Design Planning Graphics and Interiors
212 Elm Street Somerville MA 02144 617.623.5555

Brooke 2 Charter Public School
150-160 American Legion Highway
Boston, MA

Proposed Improvements
View from American Legion Highway

06 September 2012 ♦ Project No. 12021

ARROWSTREET
Architecture Urban Design Planning Graphics and Interiors
212 Elm Street Somerville MA 02144 617.623.5555

Northwest Elevation

Southwest Elevation

Southeast Elevation

Northeast Elevation

Brooke 2 Charter Public School
150-160 American Legion Highway
Boston, MA

Proposed Improvements
Elevations

06 September 2012 • Project No. 12021

ARROWSTREET
Architecture Urban Design Planning Graphics and Interiors
212 Elm Street Somerville MA 02144 617.623.5555

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

PRINCIPALS
Robert J. Michaud, P.E.
Ronald D. Desrosiers, P.E., PTOE
Daniel J. Mills, P.E., PTOE

MEMORANDUM

DATE: August 31, 2012

TO: Mr. Matt Donnelly
Pinck & Company
98 Magazine Street
Boston, MA 02219

FROM: Robert J. Michaud, P.E. – Managing Principal
Daniel A. Dumais, E.I.T. – Senior Transportation Engineer

RE: **Proposed Brooke Charter School**
150-160 American Legion Highway – Boston, MA

MDM Transportation Consultants, Inc. (MDM) has prepared a traffic and circulation assessment for the proposed Brooke Charter School (Brooke Mattapan) to be located at 150-160 American Legion Highway in Mattapan, Massachusetts. This evaluation documents anticipated traffic generation characteristics and pick-up/drop-off operations for the proposed school and identifies recommended site access and circulation features to accommodate school traffic operations. The evaluation also provides a comparison of traffic impacts for the site relative to permitted uses that were previously evaluated in the Draft Project Impact Report (DPIR) for the Olmsted Green development, concluding that there is no material change in operations on area roadways and that ample roadway capacity exists to accommodate the proposed site programming for the Brooke Charter School. Key findings of the study are as follows:

- *Proposed Site Programming.* The Brooke School proposes to renovate and occupy the Site at 150-160 American Legion Highway with enrollment of up to 475 students in kindergarten through grade 8. A smaller (8,100 sf) component of the building will be programmed for use by the Lena Park CDC. Site programming information for the existing Brooke Mattapan School indicate a high reliance on school bus mode share with an average bus utilization percentage during the drop-off/ pick up periods of approximately 85%. The remaining students will arrive/ depart via parent vehicle (approximately 15%) and via MBTA/ Walk (1%). Proposed site access and circulation modifications are proposed that will accommodate peak student pick-up/drop-off operations entirely within the site and along Austin Street and East Main Street for school bus operations.

- *Projected Trip Generation.* Trip generation for the school is based on empirical operations data provided by the Brooke School and observations at the existing operations at the existing Brooke School in Roslindale which currently provides an enrollment for approximately 476 elementary and middle school students (grades K-8). Trips associated with the Lena Park CDC are based on trip rates for a recreational community center as published by the Institute of Transportation Engineers (ITE), consistent with the prior DPIR evaluation for the site. The combined Brooke Mattapan School and Lena Park CDC uses are estimated to generate approximately 132 trips (82 entering and 50 exiting) during the weekday morning student drop-off period and approximately 174 trips (86 entering and 88 exiting) during the weekday evening student pick-up period. On a daily basis, the development is estimated to generate approximately 780 vehicle trips on a weekday. Relative to the permitted use of the Site (an 80,000 sf building programmed for use by Lena Park CDC), the proposed uses at the site are estimated to generate between 48 additional peak hour trips during weekday mornings and 88 additional peak hour vehicular trips during weekday evening periods. However, on a daily basis the current proposal would generate a net *reduction* of approximately 464 daily vehicle trips on a weekday compared to the prior approved development program.

- *Adequate Roadway Capacity.* The revised Site use to include the Brooke Mattapan School is expected to moderately increase traffic activity on area roads during the peak hours relative to permitted Site use. For example, the project-related impacts at the primary impacted study locations (American Legion Highway at site driveways and at Franklin Hill Avenue) are nominal with delay increases of 1 second or less anticipated – an increase that will be imperceptible to the average motorist. Likewise, peak hourly site traffic increases at the secondary study intersections of American Legion Highway at Kingbird Road and at Austin Street is not expected to materially impact operations at said locations. Ample capacity is provided along area roadways and intersections to accommodate the proposed site uses.

- *Site Access and Circulation.* The proposed site access and circulation plan provides more than 70 parking spaces with a dedicated parent vehicle pick-up/drop-off area at the current paved parking area on the east side of the site and bus pick-up/drop-off that is restricted to the low volume side streets of East Main Street and Austin Street that abuts the site on the west. On-site vehicle queue capacity of twenty (26) passenger cars is provided to accommodate peak pick-up/drop-off periods without impeding American Legion Highway. School bus queue capacity for this plan includes the availability for up to ten (10) standard size school buses to be stored along Austin Street and East Main Street during peak pick-up/drop-off periods. Queue analysis indicates that the site circulation plan can accommodate more than twice the projected parent vehicle demand without impacting public roads.

- *Adequate Queue Storage (Drop-Off/ Pick-Up Periods).* Under peak operating conditions, vehicle queues during the critical evening pick-up period are estimated at less than 10 vehicles based on a peak arrival rate of 71 parent/guardian vehicles and concurrent unloading/loading of vehicles under the recommended traffic management plan. Available on-site storage capacity of 26 vehicles will allow substantial flexibility to accommodate higher parent/guardian vehicle arrival rates without impacting public roadways.

In summary, Brooke Mattapan is expected to rely heavily on the public school bus system (accounting for more than 80 percent of the student travel mode). While a moderate increase in peak hour traffic generation is anticipated at the site relative to the approved Olmsted Green development programming, the analysis provided in this evaluation concludes that proposed change in use will not materially impact operations at the proposed site driveways or at the nearby intersections along American Legion Highway. Likewise, weekday daily traffic generation for the current development scenario is lower than the original Olmsted Green programming for the site. Implementation of recommended traffic management plan (TMP) will facilitate peak school drop-off/pick-up operations with no impact to or reliance upon public streets for vehicle queuing. Further coordination with Olmsted Green and the City of Boston will be necessary to formalize the recommended bus queue areas along Austin Street and East Main Street including conversion to one-way traffic flow on portions of these Streets. Conversion of Austin Street and a short section of East Main Street will not materially impact access to the Olmsted Green development (specifically the Vinfen and Heritage House sites along East Main Street, which will continue to have full two-way access along East Main Street via the signalized intersection at Kingbird Road and American Legion Highway. Under the recommended TMP, ample bus queue and processing area is available to accommodate peak school periods with no reliance upon American Legion Highway for bus stopping or queuing.

PROJECT DESCRIPTION

Existing Conditions

The Site (150-160 American Legion Highway) includes a 57,000± square-foot (sf) building which is currently owned and operated by Lena Park Community Development Corporation (Lena Park CDC). The location of the Site relative to the adjacent roadway network is shown in **Figure 1.** Lena Park CDC is a community development center that supports "children and families in Dorchester, Mattapan, Jamaica Plain, Hyde Park, Roslindale and Roxbury in every aspect of life, from jobs and education to housing and fitness." Site access includes two driveways separated by approximately 150 feet, which both provide right-in/right-out movements to/from the adjacent American Legion Highway.

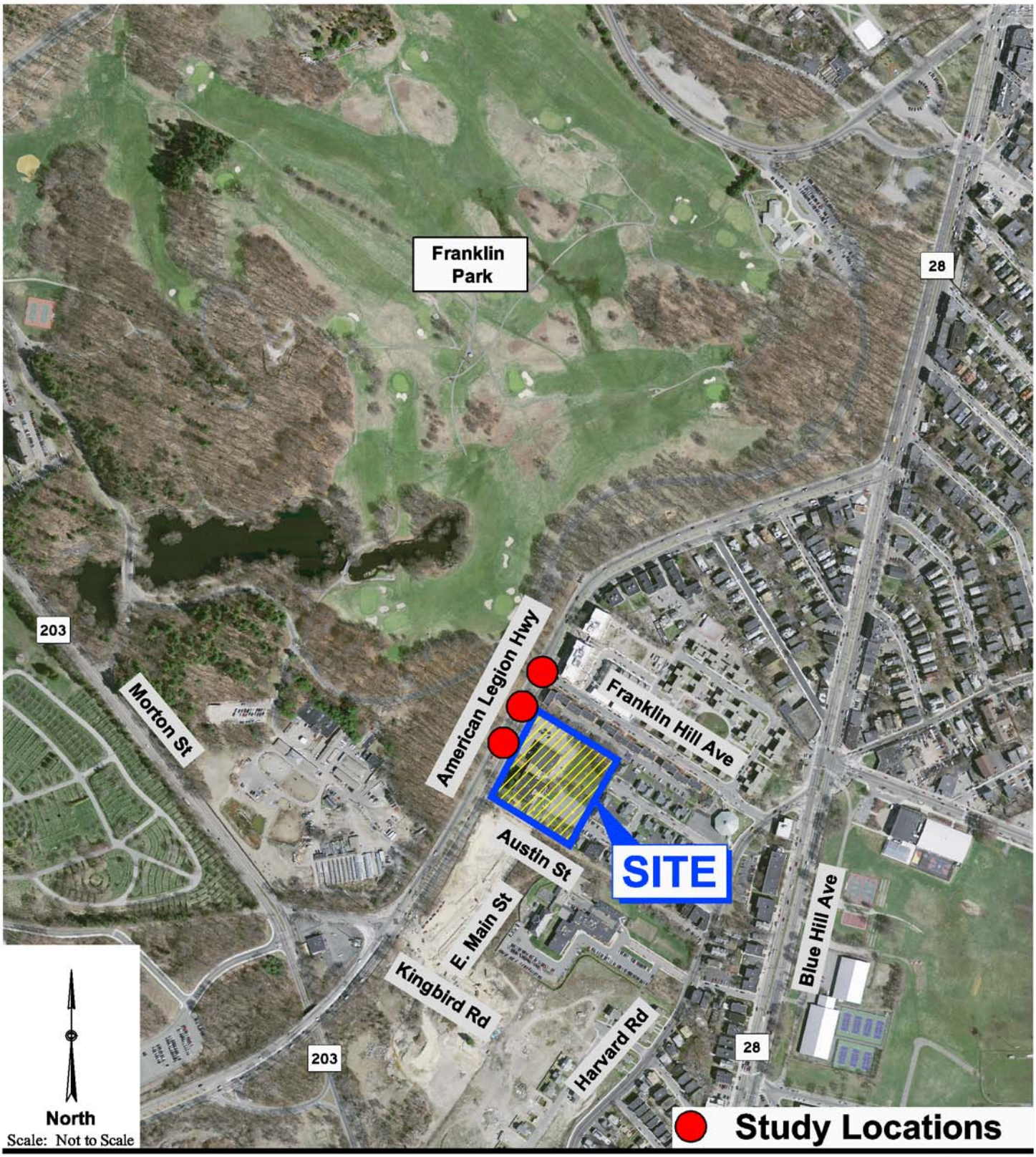


Figure 1

Site Location

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Date: August 2012
Dwg No. 675 TIAS.dwg

Proposed Brooke Mattapan/ Lena Park CDC

Under the proposed development plan, Brooke Mattapan proposes to relocate its operations to 150-160 American Legion Highway and expand its enrollment to approximately 475 students in grades K through 8. Brooke Mattapan proposes to utilize approximately 48,900 sf of the Lena Park Building. Lena Park CDC will also remain active at the site and will occupy approximately 8,100 sf of space. Lena Park CDC and the School will share the gymnasium, parking areas and outdoor recreation areas. Proposed access to the facility is proposed to remain via the two existing curb cuts along American Legion Highway with the southern Site driveway restricted to entering movements only. The proposed site layout prepared by Copley Wolff Design Group is presented in **Figure 2**.

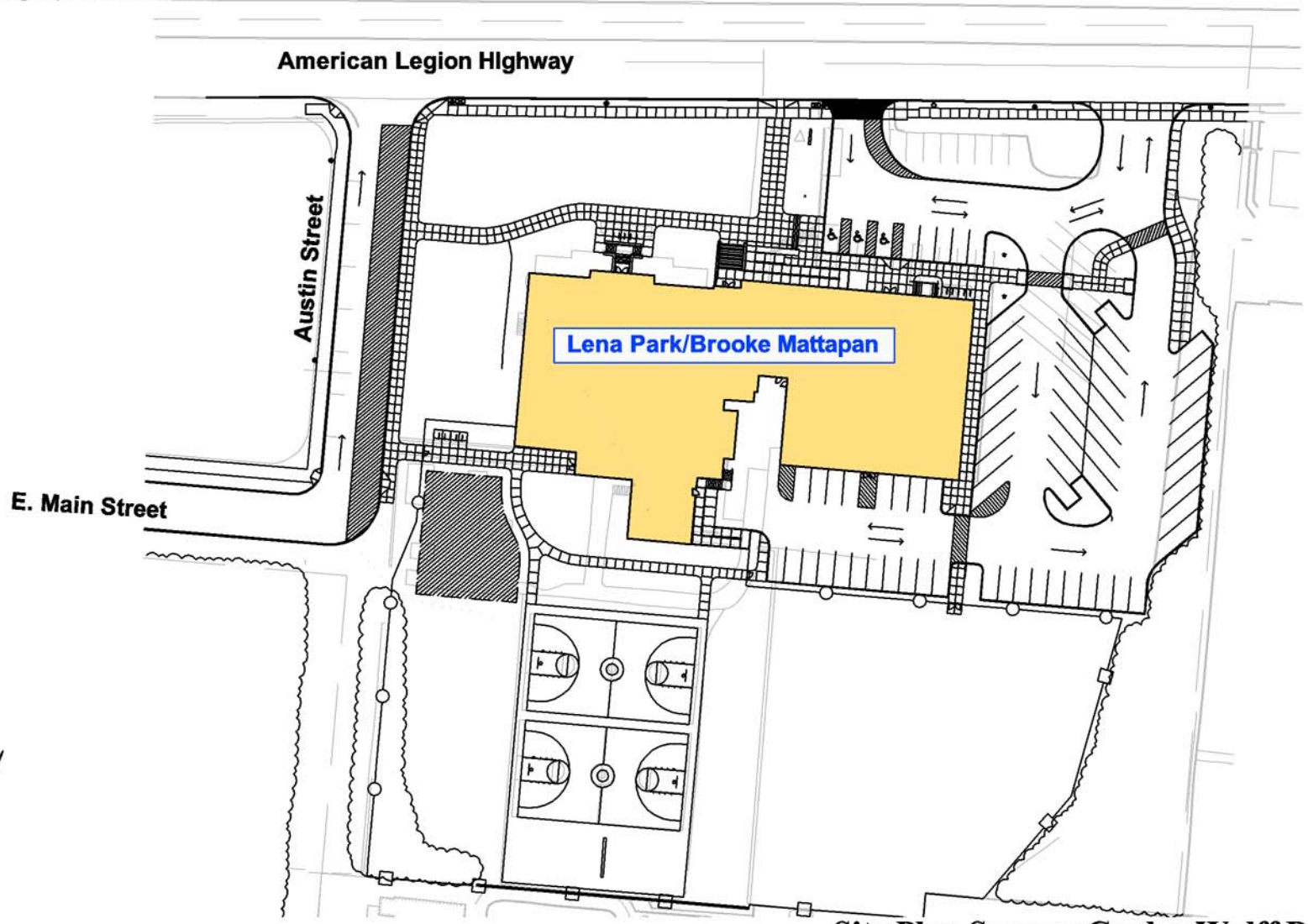
Proposed operations are as follows:

- The general hours of operation for Brooke Mattapan will be 7:45 AM to 4:30 PM. The resulting morning drop-off periods will be 6:45 AM to 7:45 AM and the evening pick-up period will generally be 4:00 PM to 5:00 PM.

- Staff will include approximately 59 on-site staff members which include 50 full-time teachers, 4 part-time teachers and 5 administration staff. Approximately 9 additional staff members may also be located off-site at a central office.

- Consistent with operations at other Brooke Schools in Boston, it is anticipated that the a large portion of the staff will typically arrive at least 30 minutes before school starting hours and leave after the student drop-off period.

- A traffic management plan (TMP) will be implemented at Brooke Mattapan to manage pick-up/drop-off activity at the site and vehicle queue management. These TMP practices are assumed for the proposed facility as described in more detail under *Site Access and Circulation*.



Scale: Not to Scale

Site Plan Source: Copley Wolff Design Group

Figure 2

Preliminary Site Layout

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Date: August 2012
Dwg No. 675 Figure 2.dwg

BASELINE TRAFFIC CHARACTERISTICS

An overview of existing (Baseline) roadway conditions, traffic volume characteristics, public transit and driveway sight line characteristics is provided below.

American Legion Highway

American Legion Highway is classified by the Massachusetts Department of Transportation (MassDOT) as an Urban Collector roadway under local (City) jurisdiction. American Legion Highway is generally an east-west roadway in the project area which connects Blue Hill Avenue (Route 28) to the east with Hyde Park Avenue to the west. In the study area American Legion Highway provides two-way traffic flow, has a width of approximately 56 feet, and provides sidewalks and a bike lane along both sides of the roadway. An approximate 18-foot landscaped median separates two eastbound and two westbound travel lanes with median curb breaks at its major intersections including at Franklin Hill Avenue and Kingbird Road. The regulatory (posted) speed limit along American Legion Highway is 35 mph in both travel directions within the study area. Land uses along American Legion Highway within the project area include recreational, commercial, educational, residential uses, and a community development center.

Baseline Traffic Data

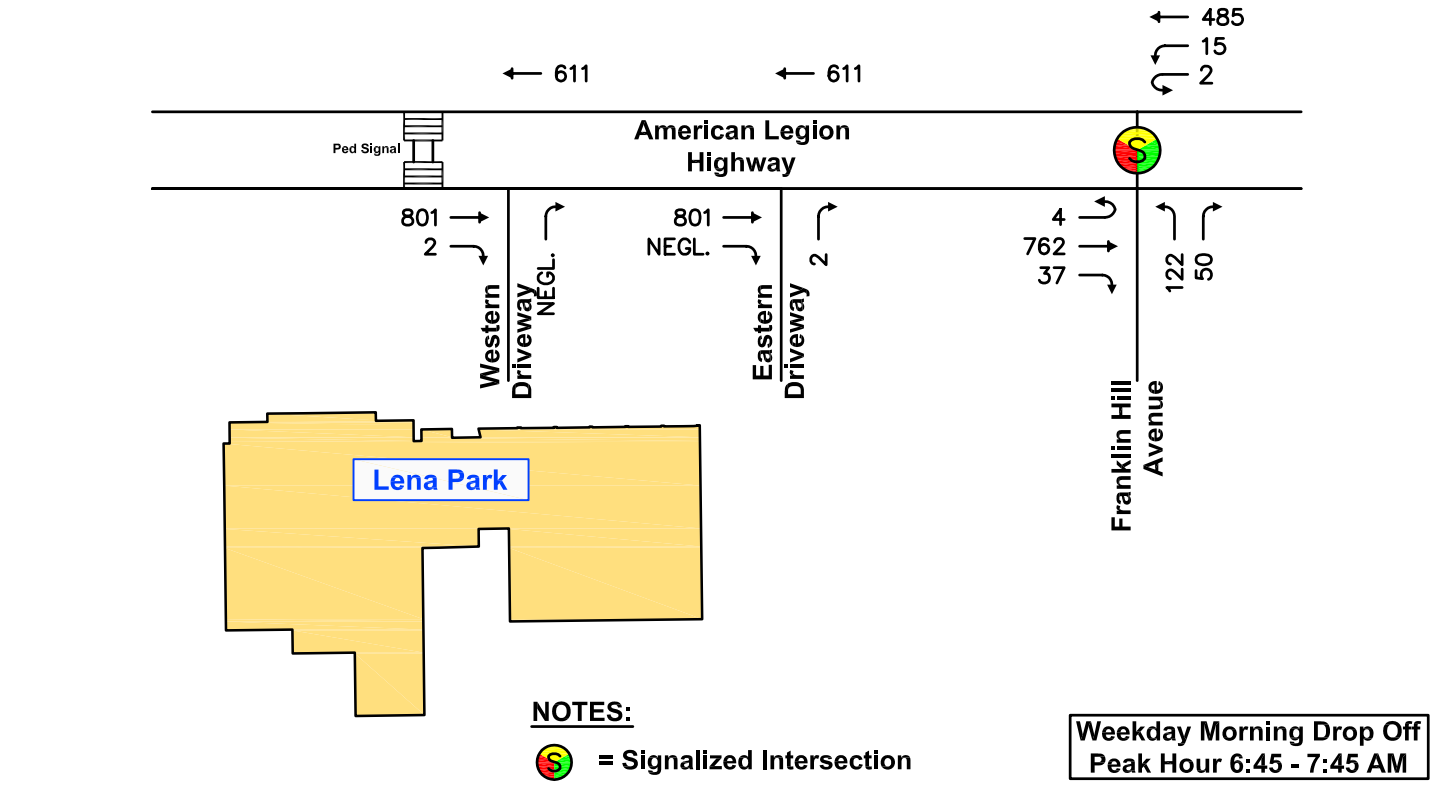
Traffic volume data was collected at the study area intersections during the weekday morning (7:00 AM - 9:00 AM) and weekday evening (3:00 PM – 6:00 PM) periods to coincide with peak traffic activity of the proposed Brooke Mattapan School and the adjacent streets. Traffic data used in this evaluation was collected in August 2012 and is included in the **Attachment**s. The weekday morning and weekday evening peak hour traffic volumes for the primary study intersections are shown in **Figure 3**.

Public Transportation Facilities

The Massachusetts Bay Transportation Authority (MBTA) operates the following bus line adjacent to the Site. This bus route provides service along American Legion Highway with a stop on each side of the street between the Site and Franklin Hill Avenue. Specific route and schedule information is provided in the **Appendix**.

- **Route 14 – Roslindale Square – Heath Street Station:** This line provides service between the Roslindale Square and Heath Street Station via Grove Hall, Dudley Station, & Jackson Square Station.

The MBTA provides bus service in the immediate area generally between 6am and 8pm during weekdays. This route also provides connections to/from several "T" stations and connecting bus routes.



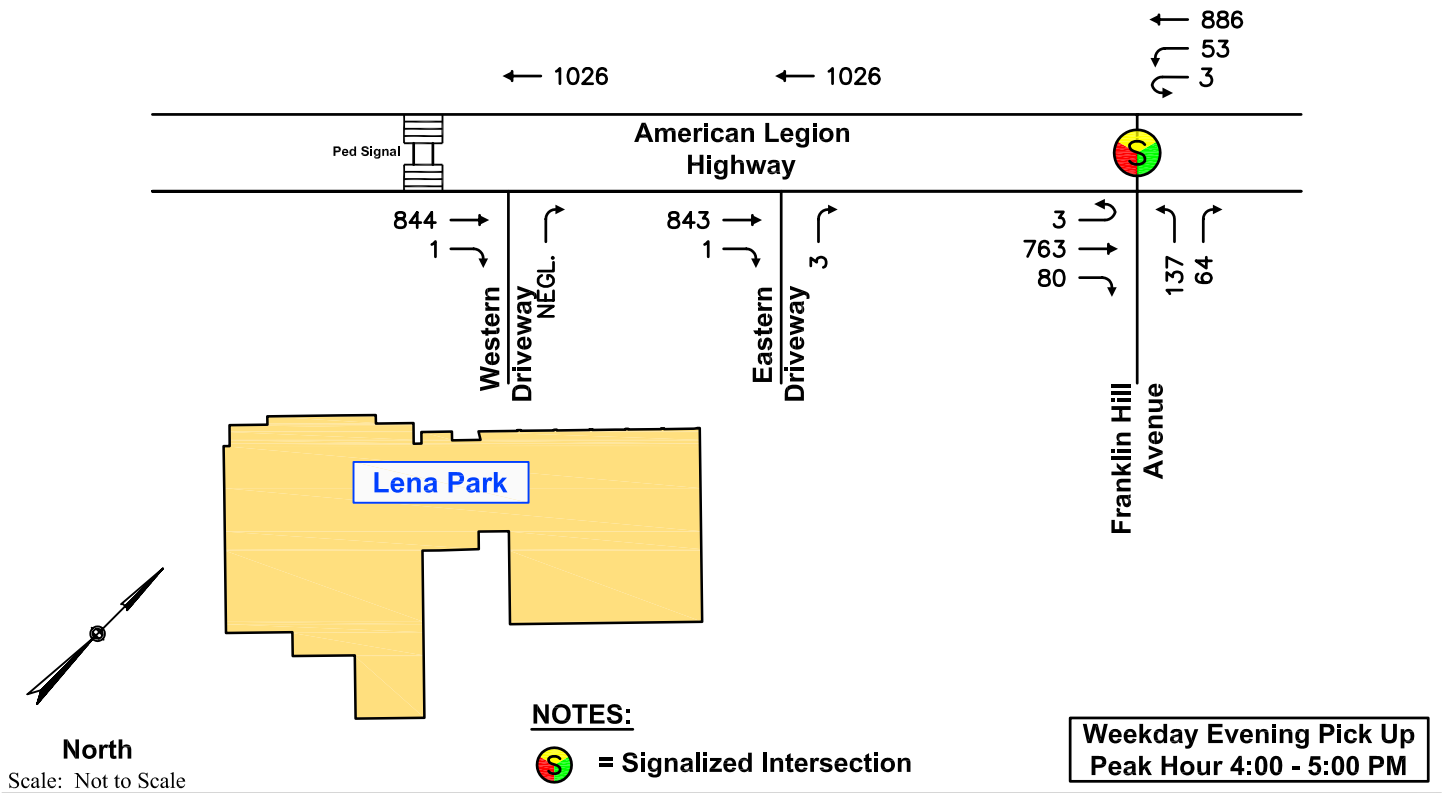


Figure 3

Baseline Conditions

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Date: August 2012
Dwg No. 675 TIAS.dwg

Sight Line Evaluation

The evaluation documents existing sight distances for vehicles exiting the proposed site driveway onto American Legion Highway with comparison to recommended guidelines for the regulatory (posted) speed limit in the project area.

The American Association of State Highway and Transportation Officials' (AASHTO) standards[1] reference two types of sight distance which are relevant at the proposed site driveway intersection with American Legion Highway: stopping sight distance (SSD) and intersection sight distance (ISD). Sight lines for critical vehicle movements at the American Legion Highway and site driveway intersections were compared to minimum SSD and ISD for the posted speed limit along American Legion Highway in the site vicinity.

Stopping Sight Distance

Sight distance is the length of roadway visible to the motorist to a fixed object. The minimum sight distance available on a roadway should be sufficiently long enough to enable a below-average operator, traveling at or near a regulatory speed limit, to stop safely before reaching a stationary object in its path, in this case, a vehicle exiting from the eastern site driveway onto American Legion Highway or a vehicle on American Legion Highway slowing to turn right into the driveways. The SSD criteria are defined by AASHTO based on design and operating speeds, anticipated driver behavior and vehicle performance, as well as physical roadway conditions. SSD includes the length of roadway traveled during the perception and reaction time of a driver to an object, and the distance traveled during brake application on wet, level pavements. Adjustment factors are applied to account for roadway grades.

SSD was estimated in the field using AASHTO standards for driver's eye (3.5 feet) and object height equivalent to the taillight height of a passenger car (2.0 feet) for the eastbound American Legion Highway approach to the site driveways. **Table 1** presents a summary of the available SSD for the American Legion Highway roadway segments approaching the proposed site driveways and AASHTO's recommended SSD for the regulatory (posted) speed limit.

[1] *A policy on Geometric Design of Highways and Streets*, American Association of State Highway and Transportation Officials (AASHTO), 2011.

TABLE 1
STOPPING SIGHT DISTANCE SUMMARY
AMERICAN LEGION HWY APPROACHES TO PROPOSED SITE DRIVEWAY

Approach/ Travel Direction	Available Stopping Sight Distance	AASHTO Recommended[1]
Eastern Driveway – Traveling East	>300 Feet	255 Feet
Western Driveway – Traveling East	260± Feet	250 Feet

[1]Recommended sight distance based on AASHTO, A Policy on Geometric Design of Highways and Streets. Based on driver height of eye of 3.5 feet to object height of 2.0 feet and adjustments for roadway grade and a posted speed limit of 35 mph.

As summarized in **Table 1** analysis results indicate that the existing available sight lines exceed AASHTO's recommended SSD criteria for the eastbound travel direction along American Legion Highway based on the regulatory (posted) speed limit.

Intersection Sight Distance

Clear sight lines provide sufficient sight distance for a stopped driver on a minor-road approach to depart from the intersection and enter or cross the major road. As stated under AASHTO's Intersection Sight Distance (ISD) considerations, "*...If the available sight distance for an entering ...vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to avoid collisions...To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road.*" AASHTO's ISD criteria are defined into several "cases". Each case depends on the type of traffic control at the intersection (e.g. no control, *Yield* sign, *Stop* sign, and signal control), and the specific vehicle maneuver in question (crossing, right- or left-turn). AASHTO Case B2 (right turns) from the eastern site driveway were utilized in determining the recommended intersection sight distance summarized in **Table 2** below.

Available ISD was estimated in the field using AASHTO standards for driver's eye (3.5 feet), object height (3.5 feet) and decision point (14.5 feet from edge of travel way) looking west from the proposed eastern driveway onto American Legion Highway. **Table 2** presents a summary of the available ISD for the departure from the proposed eastern site driveway and AASHTO's recommended ISD for the posted speed limit. ISD from the proposed western site driveway is not applicable as this driveway is proposed to be restricted to access movements only.

TABLE 2
INTERSECTION SIGHT DISTANCE SUMMARY
SITE DRIVEWAY DEPARTURE TO AMERICAN LEGION HWY

Approach/ Travel Direction	Available Stopping Sight Distance	AASHTO Minimum[2] (Posted Speed Limit)[3]
Eastern Driveway – Looking West	>300 Feet	255 Feet

[1]Recommended sight distance based on AASHTO, A Policy on Geometric Design of Highways and Streets. Based on driver height of eye of 3.5 feet to object height of 3.5 feet and adjustments for roadway grade. Minimum value as noted represents SSD per AASHTO guidance.
[2]Posted speed limit is 35 mph in both travel directions.

The results of the ISD analysis presented in **Table 2** indicate that the existing available sight lines looking west from the eastern site driveway onto American Legion Highway exceed the recommended sight line requirements from AASHTO for the regulatory (posted) speed limit. MDM recommends that any existing and/or new plantings (shrubs, bushes) or physical landscape features (including retaining walls) located within the driveway sight lines should be maintained at a height of 2 feet above the adjacent roadway grade or less to ensure unobstructed line of sight.

DESIGN YEAR TRAFFIC VOLUMES

Design Year traffic conditions are developed by estimating additional trips associated with the proposed modification to the existing building to accommodate Brooke Mattapan School and Lena Park CDC operations, estimating likely travel patterns for the site generated trips and adding the resulting trips to the Baseline traffic networks. Specific methodologies and assumptions used to estimate trips and trip distribution are discussed below.

Trip Generation – Lena Park CDC

Lena Park CDC will remain active at the site and will occupy approximately 8,100 sf of space. To be consistent with historical trip generation estimates for the Site as presented in the DPIR, Lena Park CDC trips were estimated using ITE (LUC) 495 – Recreational Community Center. **Table 3** presents a summary of the estimated vehicular trips for the Lena Park CDC component.

TABLE 3
TRIP-GENERATION SUMMARY
LENA PARK CDC

Peak Hour/ Direction of Travel	*Proposed Lena Park CDC*[1]
Morning Peak-Hour:[2]	
Entering	6
Exiting	3
Total	9
Evening Peak-Hour:	
Entering	3
Exiting	5
Total	8
Weekday Daily	126

[1]ITE Trip generation rates for LUC 495 (recreational community center) applied to 8,100 sf; and 65% auto mode share for peak hour trips and 68% for daily trips.
[2]Lena Park CDC is assumed to be closed during school morning drop-off period (6:45 – 7:45 am) and thus result in negligible trips during said period Lena Park CDC trips shown in Table 3 will occur after 8:00 am when school drop-off activity is ended.

As summarized in **Table 4,** the Lena Park CDC is estimated to generate approximately 9 vehicle-trips per hour during the weekday morning peak hour and approximately 8 vehicle trips during the weekday evening peak hour. On a daily basis the Lena Park CDC is estimated to generate approximately 126 vehicle trips (63 entering and 63 existing) over a 24-hour period; actual patron activity numbers will be higher to account for walking and public transportation modes, consistent with the DPIR analysis assumptions.

Trip Generation – Brooke Mattapan School

Trip generation estimates are derived for the critical school activity periods including morning and evening pick-up/drop-off periods based on projected site programming characteristics for Brooke Mattapan. A detailed trip generation summary for the site, based on a projected maximum student enrollment of 475 students and approximately 59 staff members, including a breakdown of vehicular trips by staff member, pick-up/drop off (student) and bus is presented in **Table 4** and is described below.

TABLE 4
DETAILED TRIP-GENERATION SUMMARY
BROOKE MATTAPAN

Period	Vehicle-trips[1] Staff Auto	Student Auto	Bus	Total
Morning Peak-Hour (6:45-7:45 AM):				
Enter	32	38	12	**82**
Exit	--	38	12	**50**
Total	32	76	24	**132**
Evening Peak-Hour (4:00-5:00 PM):				
Enter	--	71	12	**83**
Exit	--	71	12	**83**
Total	0	142	24	**166**
Weekday Daily	118	488	48	**654**

[1] Peak hour trip estimates based on empirical trip generation rates for Brooke School; daily trip rates based on ITE LUC 520 trip rates applied to 350 students and ITE LUC 522 trip rates applied to 125 students.

As presented in **Table 4,**

- Trip generation during the morning peak hour is approximately 132 vehicle-trips (82 entering and 50 exiting), including 38 parent/guardian drop-off vehicles, 12 school buses and 32 staff vehicles. Actual number of concurrently queued buses is expected to be 10 or less.

- Trip generation is highest during the weekday evening peak hour generates with approximately 166 vehicle-trips (83 entering and 83 exiting), including 71 parent/guardian pick-up vehicles and 12 school buses.

- On a daily basis, the Brooke Mattapan School is estimated to generate approximately 654 trips (332 entering and 332 existing) over a 24-hour period.

In summary, the projected peak design volume for school pick-up/drop-off activity (i.e., trips that must be actively managed by staff within the site) is 71 autos and 12 school buses during the weekday evening pick-up period. As shown the school is projected to utilize the public school bus system for 80% of its students during the morning drop-off period and 90% of its students during the evening pick-up period.

Trip Generation – Permitted vs. Proposed

For comparison purposes, the trip generation for the permitted use at the site for an 80,000± sf community and job training center is also estimated based on the trip generation estimates presented in the DPIR[2] prepared for Olmsted Green (which includes the site). **Table 5** presents a summary and comparison of the trip generation characteristics for the proposed uses of the Site (Brooke Mattapan School and Lena Park CDC) and the permitted re-development and expansion of the site exclusively by Lena Park CDC.

TABLE 5
TRIP-GENERATION COMPARISON
Permitted versus Proposed Site Use

	Site Trips				
	Proposed Uses				
Peak Hour/ Direction of Travel	Brooke Mattapan[1]	Lena Park CDC Use[2]	**Total Proposed**	Permitted[3]	Difference
Morning Peak-Hour (6:45-7:45 AM):					
Entering	82	--	**82**	51	+31
Exiting	50	--	**50**	33	+17
Total	132	--	**132**	84	+48
Evening Peak-Hour (4:00-5:00 PM):					
Entering	83	3	**86**	25	+61
Exiting	83	5	**88**	61	+27
Total	166	8	**174**	86	+88
Weekday Daily	654	126	**780**	1,244	-464

[1] Peak hour trip estimates based on empirical trip generation rates for Brooke School; daily trip rates based on ITE LUC 520 trip rates applied to 350 students and ITE LUC 522 trip rates applied to 125 students.
[2] ITE Trip generation rates for LUC 495 (recreational community center) indicates approximately 9 vehicle-trips after 8 AM; trips for Lena Park CDC will be negligible during the school drop-off period as presented in Table 5 .
[3] Based on trip generation estimates for the permitted use at the Site in the DPIR for Olmsted Green prepared by Daylor Consulting and dated November 3, 2005 (80,000 sf Lena Park CDC).

As summarized in **Table 5**, the proposed project is estimated to generate approximately 132 trips (82 entering and 50 exiting) during the weekday morning student drop-off period and approximately 174 trips (86 entering and 88 exiting) during the weekday evening student pick-up period. On a daily basis, the proposed site programming for Brooke School and Lena Park CDC is estimated to generate approximately 780 vehicle trips on a weekday with 50 percent entering and exiting. For reference, trip generation worksheets and vehicle occupancy/mode share calculations are provided in the **Attachments.**

[2] *Draft Project Impact Report, Olmsted Green, American Legion Highway, Morton Street & Harvard Street, Boston, Massachusetts*; prepared by Daylor Consulting Group; November 3, 2005.

Compared to the permitted 80,000 sf Lena Park CDC programming as identified in the Olmsted Green DPIR filing, the proposed uses at the site is estimated to generate approximately 48 additional vehicular trips during the weekday morning peak hour and an additional 88 vehicular trips during the weekday evening peak hour. This level of activity results in an additional 1 to 2 vehicle-trips per minute during peak hours relative to permitted use at the site. On daily basis, the proposed project change at Lena Park is estimated to generate approximately 464 *fewer* vehicle trips on a weekday.

Trip Distribution

The distribution for projected traffic for the proposed Brooke Mattapan facility is based on the student zip code information which has been estimated based on the current student enrollment at the Brooke Mattapan's temporary South Boston facility. For analysis purposes, the staff trip distribution patterns are assumed to be the equivalent to the student trip distribution patterns. To be consistent with previous permitting for the site, the trip distribution pattern for the proposed Lena Park CDC uses was obtained from the Olmsted Green DPIR. Trip distribution calculations are provided in the **Attachments.**

Design Year Traffic Volumes

Site-Generated trips for the development were assigned to the roadway network using the trip-generation estimates shown in **Table 4** and the distribution patterns described above. The resulting site-generated traffic generation on area roadways for the weekday morning (drop-off period) and weekday evening (pick-up period) peak hours are presented in **Figure 4** and **Figure 5**. Detailed site-generated trip tracings for the primary study intersections are also included in the **Attachments**.

To produce the Design Year traffic volume networks, trips associated with the renovations were added to the Baseline traffic volume networks. The resulting Design Year traffic volume networks are presented in **Figure 6**.

Figure 4

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Site-Generated Trips
Weekday Morning Peak Hour
(6:45 - 7:45 AM)

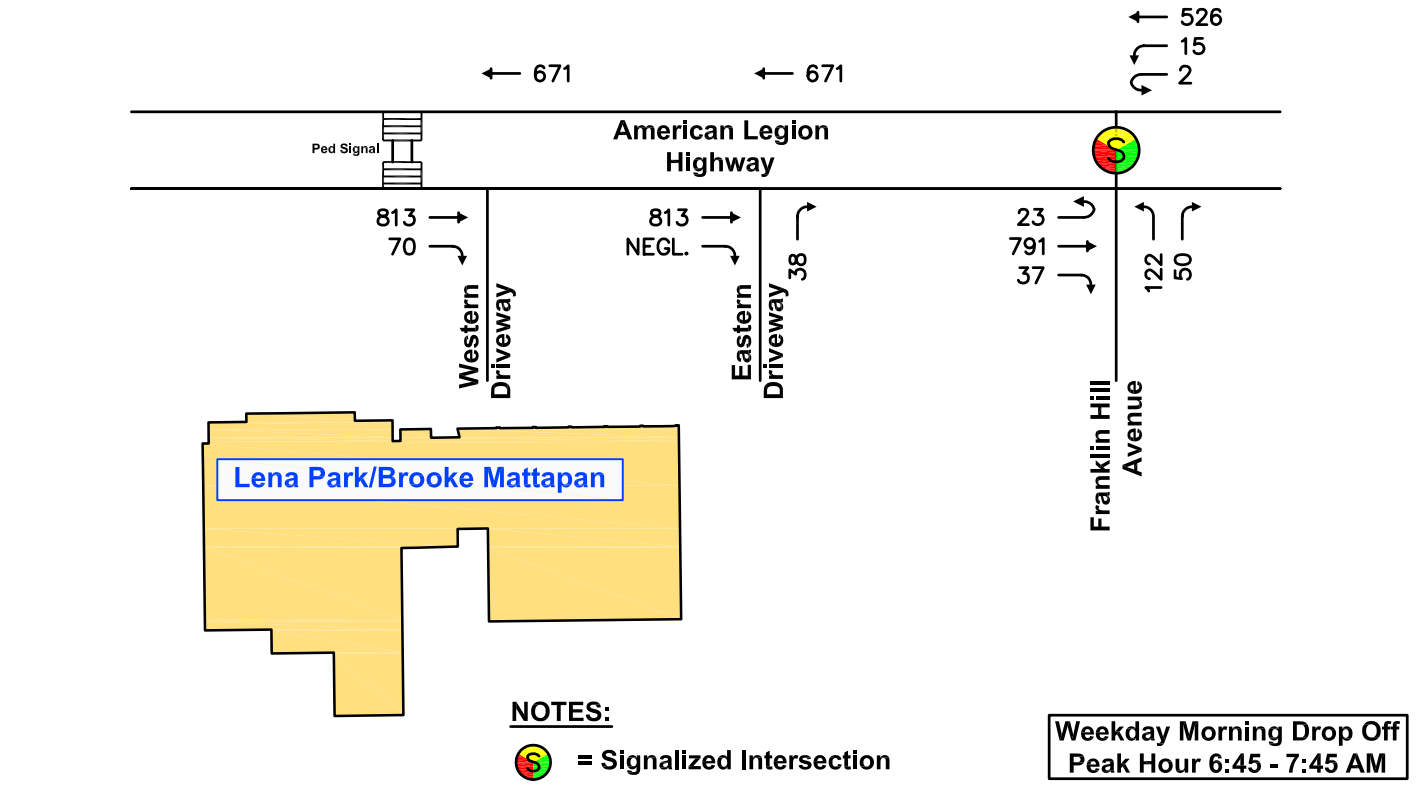
Date: August 2012
Dwg No. 675 TIAS.dwg

Figure 5

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Site-Generated Trips
Weekday Evening Peak Hour
(4:00 - 5:00 PM)

Date: August 2012
Dwg No. 675 TIAS.dwg



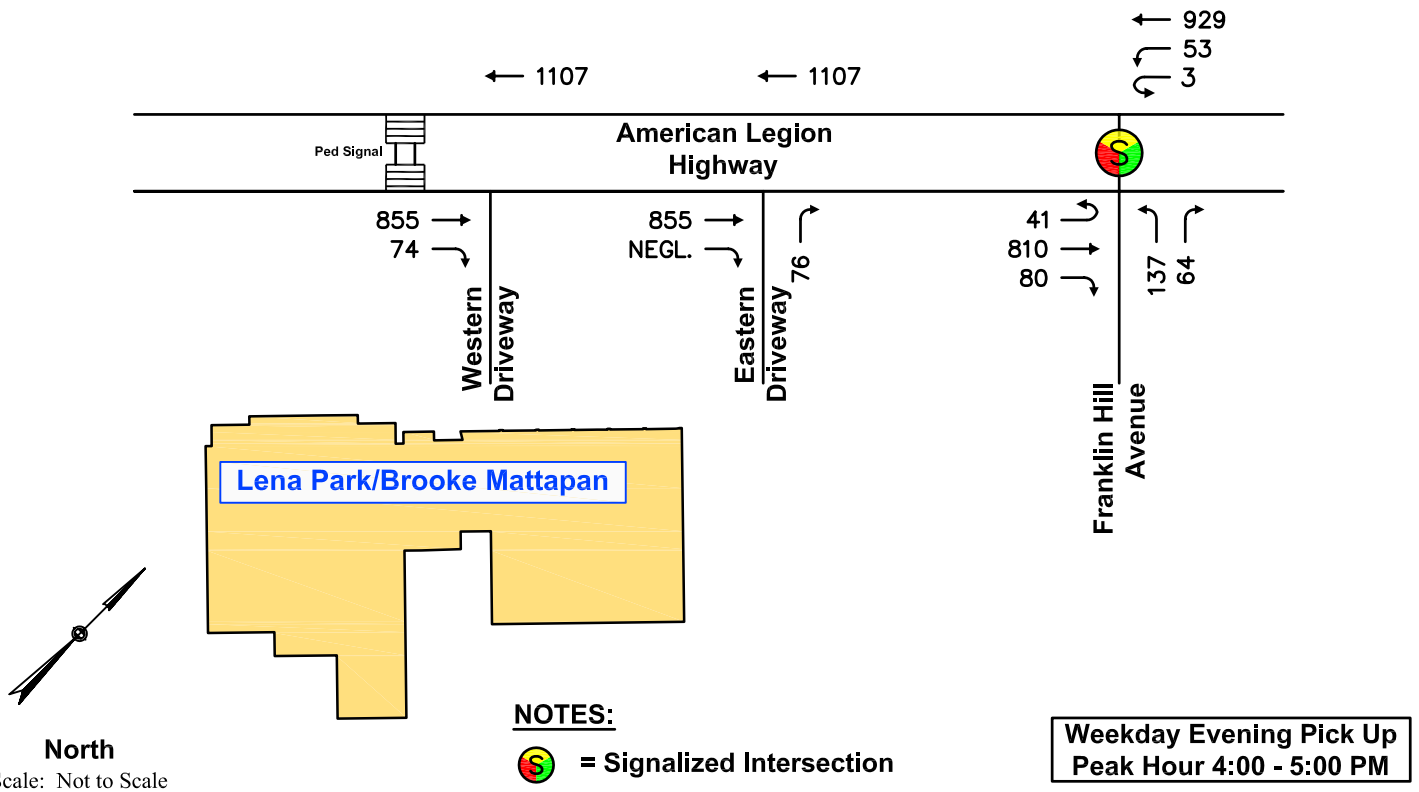


Figure 6

Design Year Conditions

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Date: August 2012
Dwg No. 675 TIAS.dwg

OPERATIONS ANALYSIS

This section provides an overview of operational analysis methodology, a capacity analysis assessment of driveway operations and nearby signalized intersection of American Legion Highway and Franklin Hill Avenue under existing (baseline) and projected Design Year Conditions, and a qualitative assessment of project impacts at the secondary study intersections.

Capacity Analysis - Primary Study Intersections

Intersection capacity analyses are presented in this section for the Baseline and Design Year traffic-volume conditions. Capacity analyses, conducted in accordance with City of Boston and MassDOT guidelines, provide an index of how well the roadway facilities serve the traffic demands placed upon them. The operational results provide the basis for recommended access and roadway improvements in the following section if required.

Capacity analysis of intersections is developed using the Synchro® computer software, which implements the methods of the 2000 Highway Capacity Manual (HCM). The resulting analysis presents a level-of-service (LOS) designation for individual intersection movements. The LOS is a letter designation that provides a qualitative measure of operating conditions based on several factors including roadway geometry, speeds, ambient traffic volumes, traffic controls, and driver characteristics. Since the LOS of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of LOS, depending on the time of day, day of week, or period of year. A range of six levels of service are defined on the basis of average delay, ranging from LOS A (the least delay) to LOS F (delays greater than 50 seconds for unsignalized movements). The specific control delays and associated LOS designations are presented in the **Attachments**.

Capacity Analysis Results

Level-of-Service (LOS) analyses were conducted for the Baseline and Design Year conditions for the primary study intersection which include the American Legion Highway intersections with the proposed site driveways and with the adjacent signalized intersection at Franklin Hill Avenue. The results of the intersection capacity analyses are summarized below in **Table 4** and **Table 5**. Detailed analysis results are presented in the **Attachments**.

As summarized in **Table 6** and **Table 7,** the American Legion Highway intersections with Franklin Hill Avenue and the site driveways operate well below capacity at LOS B or better operations under existing (baseline) and projected Design Year conditions (with the project in place). Project-related impacts at the study locations are nominal with delay increases of 1 second or less anticipated – an increase that will be imperceptible to the average motorist. Therefore, ample capacity is provided along area roadways and intersections serving the site.

TABLE 6
INTERSECTION CAPACITY ANALYSIS RESULTS
WEEKDAY MORNING PEAK HOUR

	Baseline Condition			Design Year Condition		
Approach	v/c[1]	Delay[2]	LOS[3]	v/c[1]	Delay[2]	LOS[3]
American Legion Highway at Franklin Hill Avenue						
Eastbound	0.47	7	A	0.51	7	A
Westbound	0.28	6	A	0.29	6	A
Northbound	0.42	12	B	0.43	13	B
Overall	**0.47**	7	**A**	**0.51**	**7**	**A**
American Legion Highway at Eastern Site Driveway						
Eastbound TH/RT	0.17	<5	A	0.17	<5	A
NB RT Exit	0.00	11	B	0.07	12	B
American Legion Highway at Western Site Driveway						
Eastbound TH/RT	0.17	<5	A	0.21	<5	A
NB RT Exit	0.00	<5	A	n/a[4]	n/a	n/a

[1]Volume-to-capacity ratio
[2]Average control delay per vehicle (in seconds)
[3]Level of service
[4]n/a = not applicable

TABLE 7
INTERSECTION CAPACITY ANALYSIS RESULTS
WEEKDAY EVENING PEAK HOUR

	Baseline Condition			Design Year Condition		
Approach	v/c[1]	Delay[2]	LOS[3]	v/c[1]	Delay[2]	LOS[3]
American Legion Highway at Franklin Hill Avenue						
Eastbound	0.47	7	A	0.55	8	A
Westbound	0.47	7	A	0.48	7	A
Northbound	0.44	12	B	0.46	14	B
Overall	**0.47**	**8**	**A**	**0.55**	**8**	**A**
American Legion Highway at Eastern Site Driveway						
Eastbound TH/RT	0.17	<5	A	0.18	<5	A
NB RT Exit	0.01	11	B	0.14	13	B
American Legion Highway at Western Site Driveway						
Eastbound TH/RT	0.17	<5	A	0.22	<5	A
NB RT Exit	0.00	<5	A	n/a[4]	n/a	n/a

[1]Volume-to-capacity ratio
[2]Average control delay per vehicle (in seconds)
[3]Level of service
[4]n/a = not applicable

Qualitative Analysis – Secondary Study Intersections

The qualitative assessment of impact provides an overview of anticipated trip impacts to the secondary study intersections of American Legion Highway at Kingbird Road and American Legion Highway at Austin Street. Impacts of the current proposal are compared on a relative basis to operations as reported in the Olmsted Green DPIR. Key comparisons and findings are as follows:

- *American Legion Highway at Kingbird Road*: Recent installation of a traffic signal at this location is consistent with proposed mitigation cited in the Transportation Access Plan Agreement (TAPA) for Olmsted Green – an action that was to accommodate impacts for full development of the Olmsted Green development at LOS C or better operation. Peak hour traffic increases associated with the proposed site programming range from 41 vph to 77 vph relative to the DPIR analysis. This results in an additional 1 to 2 vehicles per minute during peak hours at the Kingbird Road intersection – an increase that is within normal traffic fluctuation levels and is not expected to materially impact overall intersection operations relative to DPIR projections.

- *American Legion Highway at Austin Street*: Peak hour traffic volumes at Austin Street as reported in the Olmsted Green DPIR project are less than 20 vehicles per hour at full project build out. Operating levels at this intersection as reported in the DPIR are LOS B or better. The Brooke Mattapan School is projected to increase the right-turn only trips from Austin Street onto American Legion Highway by 12 vehicles (school bus trips) and as such will not be materially greater than reported in the DPIR. As such, no material change in operations is anticipated and ample capacity is projected to accommodate this moderate increase in traffic activity.

In summary, peak hourly site traffic increases on area roadway as shown above is not expected to materially impact operations at the secondary study intersections. Additionally, on-site metering of exiting vehicles by Staff for parent pick-up/drop-off and the nearby traffic signal at Kingbird Road is expected to have adequate capacity to accommodate the proposed site programming.

SITE ACCESS AND CIRCULATION

Site access and circulation recommendations are incorporated into the preliminary site plan to facilitate safe and efficient pedestrian and vehicle operations at the site. MDM recommends that the Brooke Mattapan School develop a traffic management plan (TMP) aimed at enhancing school pick-up/drop off operations, parking activity and site circulation including some of the elements noted in this evaluation.

The preliminary site access and circulation plan allows for 70 parking spaces with a dedicated parent vehicle pick-up/drop-off area and bus pick-up/drop-off restricted to East Main Street and Austin Street. Vehicle queue capacity for this plan may accommodate up to twenty (26) passenger cars during peak pick-up/drop-off periods without impeding American Legion Highway. School bus queue capacity for this plan includes the availability for up to ten (10) standard size school buses to be stored along Austin Street and East Main Street during peak pick-up/drop-off periods. To accommodate the bus storage capacity, Austin Street and East Main Street north of the driveway at Parcel 2B-3 adjacent to the site will be required to be restricted to one-way egress travel.

Key elements of the recommended TMP are as follows:

A. Site Access and Circulation Improvements

To ensure unimpeded access/egress for school buses and parent/guardian vehicles, MDM recommends the following access and circulation features as shown, as annotated in **Figure 7**, which are subject to further engineering evaluation/design:

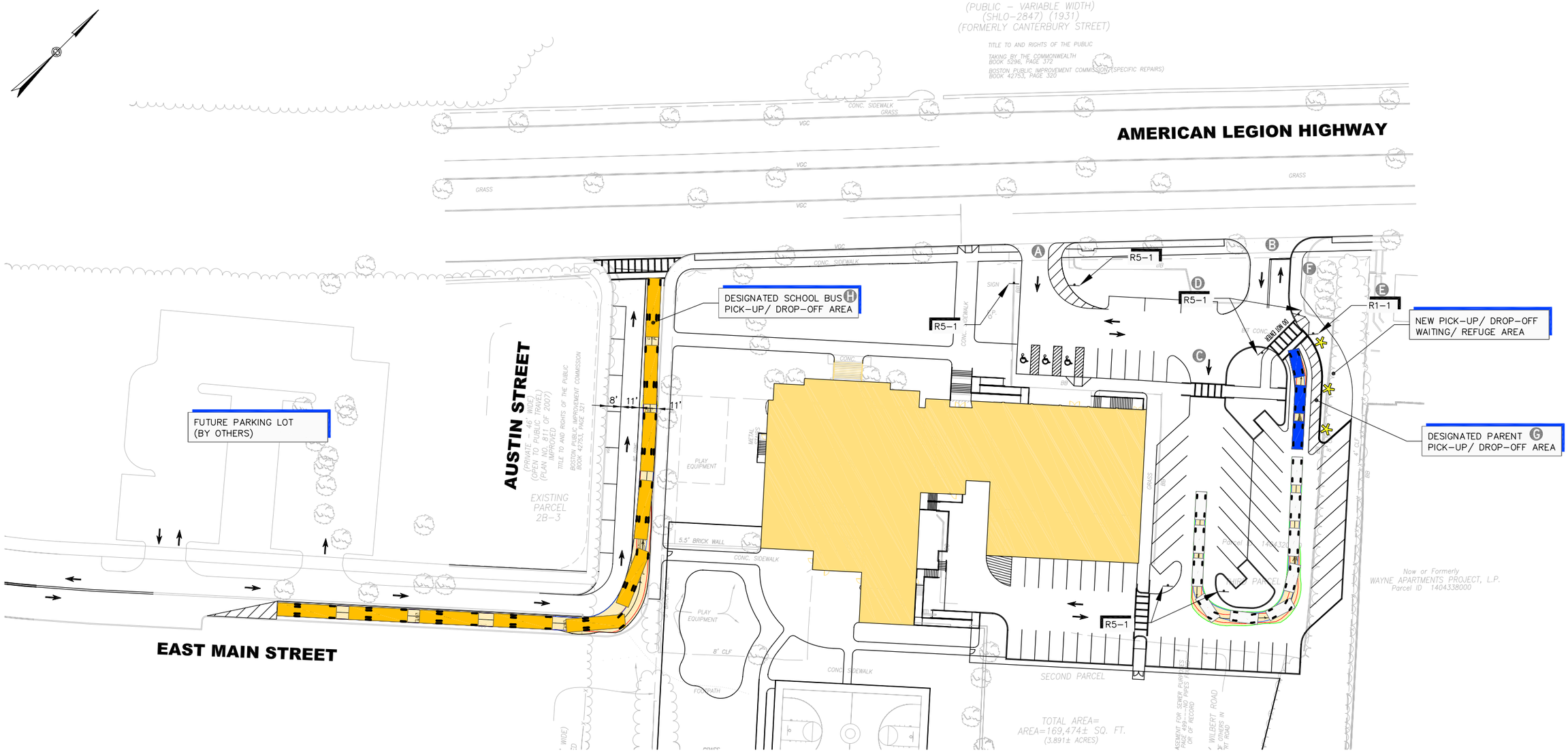
- A: Provide painted pavement markings on the western access driveway to better define one-way travel entering the site.

- B: Install pavement markings including a painted Stop bar and double yellow centerline at the northern driveway to better define access and egress at this location.

- C: Install painted arrow pavement markings throughout the travel aisles to clearly convey the desired travel circulation throughout the site.

- D: Install MUTCD compliant "Do Not Enter" signage where applicable to indicate one-way travel.

- E: Install MUTCD compliant "Stop" signs at the eastern driveway egress and on-site prior to the crosswalk at the "head of line" drop-off area.



35.80'

2.50' 21.30'

School Bus

Width	: 8 ft
Track	: 8 ft
Lock to Lock Time	: 6 seconds
Steering Angle	: 37.6 deg.

LEGEND

= Staff Member

= Designated Loading/ Unloading Area

= Estimated Maximum Queue (vehicles)

SIGN LEGEND

STOP — R1–1

DO NOT ENTER — R5–1

NOTES

1. THIS PLAN INTENDED FOR DISCUSSION PURPOSES ONLY; IT IS NOT FOR CONSTRUCTION AND IS SUBJECT TO LOCAL APPROVAL.
2. FINAL DESIGN IS SUBJECT TO FIELD SURVEY BY OTHERS.
3. PROPERTY LINES AND ACCESS LINE LOCATIONS ARE APPROXIMATE ONLY AND ARE SUBJECT TO DEED AND TITLE RECORDS.
4. PROPOSED BUILDING LAYOUT AND FEATURES BY COPLEY WOLFF DESIGN GROUP THROUGH JULY 16, 2012 & DIGITIZED OLMSTED GREEN – EAST CAMPUS, PHASE 1 SITE PLAN SHEET 4 OF 4 BY HSHA, INC. DATED NOVEMBER 2006.

0 15 30 60 90 FEET

Figure 7

Conceptual Drop-Off/ Pick-Up & Circulation Plan

PROPOSED BROOKE CHARTER SCHOOL
150 AMERICAN LEGION HIGHWAY
BOSTON (MATTAPAN), MASSACHUSETTS
PREPARED FOR:
PINCK & CO.
97 MAGAZINE STREET
BOSTON, MA 02119

MDM TRANSPORTATION CONSULTANTS, INC.
PLANNERS & ENGINEERS
28 Lord Road, Suite 280
Marlborough, MA 01752
Tel: (508) 303-0370
Fax: (508) 303-0371

DATE: July 17, 2012 | SCALE: As Noted

PROJECT No. 675 | File Name: 675 Conceptual Plan FinaL.dwg | Sheet 1 of 1

- F: Install a sidewalk connection between the "head of line" drop-off area and American Legion Highway. Accordingly sidewalk connections and crosswalks should be provided between the "head of line" drop-off area and the school's main entrance.

- G: Provide a designated parent pick-up/drop-off area along the northernmost travel aisle. Install painted roadway striping along the northern curb at the drop-off/pick-up area to indicate a single-lane approach and provide an area for staff members to assist students in entering and exiting vehicles as well as providing for handicapped loading/unloading.

- H: Convert East Main Street (east of the full access/egress driveway to Parcel 2B-3) and Austin Street to one-way egress to American Legion Highway. Re-stripe theses roadway segments to include a single travel aisle eastbound along East Main Street and northbound along Austin Street as well as a school bus storage lane to utilize during pick-up/drop-off periods. On-street parking along the western side of Austin Street may remain under this scenario.

B. Traffic Management Policies

A traffic management program (TMP) is recommended to ensure efficient operations of school pick-up/drop-off, parking activity, and student circulation. Key aspects of the TMP include the following:

- *Parking and Pick-Up/Drop-Off Operations*

    - Modify the internal parking and circulation aisles to provide a parent pick-up/drop-off area with a counterclockwise pick-up/drop-off flow pattern that will not block the driveways.

    - The crosswalk to the north of the "head of line" drop-off area should be utilized for access/egress between the school's main entrance and the designated drop-off/ pick up area.

    - Staff members should be available to assist students to/from the school building entrances and the drop-off/pick-up areas along the sidewalk system provided on-site. Likewise, Staff members should actively manage all internal pedestrian crossings.

    - The site driveways should be staffed during peak drop-off/pick-up periods to ensure that oncoming vehicles are managed to avoid potential conflicts with pedestrians and or entering/exiting vehicles. These staff members should also discourage loading/ unloading away from the designate drop-off/ pick-up area.

- The signalized pedestrian crossing on American Legion Highway adjacent to the site should be monitored by a crossing guard during the drop-off/ pick-up periods.

- Passenger vehicle processing time should be enhanced by concurrent loading/boarding of students by multiple staff as needed. It is recommended that parents not be allowed to exit their vehicles while in the drop-off/ pick-up line.

- School bus pick-up/drop-off should occur exclusively along East Main Street and Austin Street.

- Off-site parent pick-up/drop-off activity should be prohibited and enforced by the school.

□ *Designated Parking Areas*

- Mark and designate short-term/ visitor parking spaces as required away from the parent pick-up/ drop-off area, ideally along the front of the building.

- Mark and designate the parking spaces around the parent pick-up/drop-off aisle as staff parking to minimize conflicts with pick-up/drop-off activity.

- All parking spaces should be actively managed to avoid conflicts during peak drop-off/pick-up periods.

□ *Lena Park CDC Use*

- The school should coordinate with the Lean Park as needed for any shared space at the site, including parking areas, gymnasium, and athletic facilities during school hours to ensure adequate parking is available during weekday daytime hours.

- Traffic management policies should be adopted as needed for special events at the school or by Lena Park CDC.

- A shared use agreement will be implemented between the school and CDC that designates no overlapping use of the gym or outdoor recreation spaces.

DROP-OFF/ PICK-UP QUEUE ANALYSIS

A detailed queue analysis for the Brooke Mattapan facility is presented based on projected peak demand, processing times and standard queue algorithms as follows:

- MDM assumes 100% of student auto trips are drop-off/pick-up related, totaling 38 morning peak hour student drop-offs and 71 evening peak hour student pick-ups. Accordingly, 100% of the drop-off/ pick-up related activity has been assumed to occur on-site.
- Student processing times ranging from 30 to 60 seconds on average based on active staff management.
- Active staff management of unloading and loading of students, including concurrent unloading/ loading of several vehicles at once, to promote shorter processing times.

Queue analysis results are summarized in **Table 8** for a 30 to 60 second processing time and the ability for staff to concurrently unload/load 3 vehicles at the designated "head of line" area during the peak design condition. Tabulated results are presented in the **Attachments.**

TABLE 8
PROJECTED AUTO DROP-OFF/PICK-UP QUEUING

Period	Entering Volume[1]	DWELL Time (Head of Line)	
		Average Queue[2]	Max Queue[3]
Morning Drop-Off Period (6:45-7:45 AM):	38	2	4
Evening Pick-Up Period (4:00-5:00 PM):	71	3	13

[1]Based on 100% of entering volume based on ITE Trip Generation previously shown in Table 4.
[2]Calculated 95th percentile queues in vehicles assuming a 30-second average processing time and 3 concurrent vehicle boardings/alightings.
[3]Calculated 95th percentile queues in vehicles assuming a 60-second average processing time and 3 concurrent vehicle boardings/alightings.

As summarized in **Table 8**, under peak operating conditions, vehicle queues during the critical evening drop-off period are estimated to range from 3 to 13 vehicles based on a peak arrival rate of 71 parent/guardian vehicles and concurrent unloading/loading of vehicles under the recommended traffic management plan. Available on-site storage capacity of 26 vehicles will allow substantial flexibility to accommodate higher parent/guardian vehicle arrival rates without impacting public roadways. Weekday morning operations are subject to lower vehicle demands and hence shorter queues.

CONCLUSIONS

In summary, Brooke Mattapan is expected to rely heavily on the public school bus system (accounting for more than 80 percent of the student travel mode). While a moderate increase in peak hour traffic generation is anticipated at the site relative to the approved Olmsted Green development programming, the analysis provided in this evaluation concludes that proposed change in use will not materially impact operations at the proposed site driveways or at the nearby intersections along American Legion Highway. Likewise, weekday daily traffic generation for the current development scenario is lower than the original Olmsted Green programming for the site. Implementation of recommended traffic management plan (TMP) will facilitate peak school drop-off/pick-up operations with no impact to or reliance upon public streets for vehicle queuing. Further coordination with Olmsted Green and the City of Boston will be necessary to formalize the recommended bus queue areas along Austin Street and East Main Street including conversion to one-way traffic flow on portions of these Streets. Conversion of Austin Street and a short section of East Main Street will not materially impact access to the Olmsted Green development (specifically the Vinfen and Heritage House sites along East Main Street, which will continue to have full two-way access along East Main Street via the signalized intersection at Kingbird Road and American Legion Highway. Under the recommended TMP, ample bus queue and processing area is available to accommodate peak school periods with no reliance upon American Legion Highway for bus stopping or queuing.

Attachments

- Turning Movement Count Data
- Public Transportation Information
- Stopping Sight Distance Calculations
- Trip Generation Calculations – Lena Park CDC
- Trip Generation Data & Calculations – Brooke School
- Trip Distribution Calculations
- Capacity Analysis Worksheets
- Queue Analysis

- Turning Movement Count Data

MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA

N/S: American Legion Highway
E/W: Franklin Hill Avenue
Boston, MA

File Name : 675 American Legion Highway at Franklin Hill Ave AM
Site Code : 00675010
Start Date : 8/15/2012
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	American Legion Highway From North					Franklin Hill Avenue From East					American Legion Highway From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	117	2	0	119	11	0	24	1	36	11	158	0	0	169	0	0	0	0	0	324
07:15 AM	0	117	4	1	122	9	0	30	2	41	8	185	0	0	193	0	0	0	0	0	356
07:30 AM	0	110	3	0	113	18	0	33	1	52	9	220	0	2	231	0	0	0	0	0	396
07:45 AM	0	141	6	0	147	12	0	35	0	47	9	199	0	0	208	0	0	0	0	0	402
Total	0	485	15	1	501	50	0	122	4	176	37	762	0	2	801	0	0	0	0	0	1478
08:00 AM	0	123	2	0	125	19	0	37	1	57	9	201	0	1	211	0	0	0	0	0	393
08:15 AM	0	111	4	0	115	13	0	38	4	55	6	187	0	0	193	0	0	0	0	0	363
08:30 AM	0	127	4	0	131	11	0	37	0	48	6	171	0	0	177	0	0	0	0	0	356
08:45 AM	0	118	6	0	124	15	0	21	0	36	11	193	0	0	204	0	0	0	0	0	364
Total	0	479	16	0	495	58	0	133	5	196	32	752	0	1	785	0	0	0	0	0	1476
Grand Total	0	964	31	1	996	108	0	255	9	372	69	1514	0	3	1586	0	0	0	0	0	2954
Apprch %	0	96.8	3.1	0.1		29	0	68.5	2.4		4.4	95.5	0	0.2		0	0	0	0		
Total %	0	32.6	1	0	33.7	3.7	0	8.6	0.3	12.6	2.3	51.3	0	0.1	53.7	0	0	0	0	0	
Passenger Vehicles	0	911	30	1	942	105	0	249	9	363	68	1449	0	3	1520	0	0	0	0	0	2825
% Passenger Vehicles	0	94.5	96.8	100	94.6	97.2	0	97.6	100	97.6	98.6	95.7	0	100	95.8	0	0	0	0	0	95.6
Heavy Vehicles	0	53	1	0	54	3	0	6	0	9	1	65	0	0	66	0	0	0	0	0	129
% Heavy Vehicles	0	5.5	3.2	0	5.4	2.8	0	2.4	0	2.4	1.4	4.3	0	0	4.2	0	0	0	0	0	4.4

	American Legion Highway From North					Franklin Hill Avenue From East					American Legion Highway From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	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	110	3	0	113	18	0	33	1	52	**9**	**220**	0	**2**	**231**	0	0	0	0	0	396
07:45 AM	0	**141**	**6**	0	**147**	12	0	35	0	47	9	199	0	0	208	0	0	0	0	0	**402**
08:00 AM	0	123	2	0	125	**19**	0	37	1	**57**	9	201	0	1	211	0	0	0	0	0	393
08:15 AM	0	111	4	0	115	13	0	**38**	**4**	55	6	187	0	0	193	0	0	0	0	0	363
Total Volume	0	485	15	0	500	62	0	143	6	211	33	807	0	3	843	0	0	0	0	0	1554
% App. Total	0	97	3	0		29.4	0	67.8	2.8		3.9	95.7	0	0.4		0	0	0	0		
PHF	.000	.860	.625	.000	.850	.816	.000	.941	.375	.925	.917	.917	.000	.375	.912	.000	.000	.000	.000	.000	.966

MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N/S: American Legion Highway
E/W: Franklin Hill Avenue
Boston, MA

File Name : 675 American Legion Highway at Franklin Hill Ave AM
Site Code : 00675010
Start Date : 8/15/2012
Page No : 1

Groups Printed- UTurns

	American Legion Highway From North					Franklin Hill Avenue From East					American Legion Highway From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
** BREAK ***																					
07:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	3
07:45 AM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
Total	0	0	2	0	2	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	5
08:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
** BREAK ***																					
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
** BREAK ***																					
Total	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
Grand Total	0	0	3	0	3	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	7
Apprch %	0	0	100	0		0	0	0	0		0	0	100	0		0	0	0	0		
Total %	0	0	42.9	0	42.9	0	0	0	0	0	0	0	57.1	0	57.1	0	0	0	0	0	

	American Legion Highway From North					Franklin Hill Avenue From East					American Legion Highway From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	**1**	0	**1**	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	**3**
07:45 AM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
08:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	3	0	3	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	6
% App. Total	0	0	100	0		0	0	0	0		0	0	100	0		0	0	0	0		
PHF	.000	.000	.750	.000	.750	.000	.000	.000	.000	.000	.000	.000	.375	.000	.375	.000	.000	.000	.000	.000	.500

MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA

N/S: American Legion Hwy
E/W: North Drive-Lena Park
Boston, MA

File Name : 675 American Legion Highway at Lena Park North Driveway AM
Site Code : 00675020
Start Date : 8/15/2012
Page No : 1

Groups Printed- North Driveway

	American Legion Highway From North				North Driveway From East				American Legion Highway From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	2	2	0	161	0	161	163
07:15 AM	0	0	0	0	0	0	1	1	0	188	0	188	189
07:30 AM	0	0	0	0	1	0	1	2	0	146	0	146	148
07:45 AM	0	0	0	0	1	0	0	1	0	221	0	221	222
Total	0	0	0	0	2	0	4	6	0	716	0	716	722
08:00 AM	0	0	0	0	0	0	1	1	0	244	0	244	245
08:15 AM	0	0	0	0	1	0	2	3	0	208	0	208	211
08:30 AM	0	0	0	0	0	0	0	0	0	206	0	206	206
08:45 AM	0	0	0	0	0	0	0	0	0	235	0	235	235
Total	0	0	0	0	1	0	3	4	0	893	0	893	897
Grand Total	0	0	0	0	3	0	7	10	0	1609	0	1609	1619
Apprch %	0	0	0		30	0	70		0	100	0		
Total %	0	0	0	0	0.2	0	0.4	0.6	0	99.4	0	99.4	

	American Legion Highway From North				North Driveway From East				American Legion Highway From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	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	1	1	0	**244**	0	**244**	**245**
08:15 AM	0	0	0	0	**1**	0	**2**	**3**	0	208	0	208	211
08:30 AM	0	0	0	0	0	0	0	0	0	206	0	206	206
08:45 AM	0	0	0	0	0	0	0	0	0	235	0	235	235
Total Volume	0	0	0	0	1	0	3	**4**	0	893	0	893	897
% App. Total	0	0	0		25	0	75		0	100	0		
PHF	.000	.000	.000	.000	.250	.000	.375	.333	.000	.915	.000	.915	.915

MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA

N/S: American Legion Hwy
E/W: South Drive-Lena Park
Boston, MA

File Name : 675 American Legion Highway at Lena Park South Driveway AM
Site Code : 00675020
Start Date : 8/15/2012
Page No : 1

Groups Printed- South Driveway

	American Legion Highway From North				South Driveway From East				American Legion Highway From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	2	2	2	0	0	2	4
07:15 AM	0	0	0	0	0	0	1	1	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	1	1	0	0	0	0	1
** BREAK ***													
Total	0	0	0	0	0	0	4	4	2	0	0	2	6
08:00 AM	0	0	0	0	0	0	0	0	2	0	1	3	3
08:15 AM	0	0	0	0	0	0	2	2	0	0	1	1	3
** BREAK ***													
Total	0	0	0	0	0	0	2	2	2	0	2	4	6
Grand Total	0	0	0	0	0	0	6	6	4	0	2	6	12
Apprch %	0	0	0		0	0	100		66.7	0	33.3		
Total %	0	0	0	0	0	0	50	50	33.3	0	16.7	50	

	American Legion Highway From North				South Driveway From East				American Legion Highway From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	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	0	1	1	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	**2**	0	**1**	**3**	**3**
08:15 AM	0	0	0	0	0	0	**2**	**2**	0	0	1	1	3
Total Volume	0	0	0	0	0	0	3	3	2	0	2	4	7
% App. Total	0	0	0		0	0	100		50	0	50		
PHF	.000	.000	.000	.000	.000	.000	.375	.375	.250	.000	.500	.333	.583

MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA

N/S: American Legion Hwy
E/W: Franklin Hill Avenue
Boston, MA

File Name : 675 American Legion Highway at Franklin Hill Ave PM
Site Code : 00675011
Start Date : 8/15/2012
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	American Legion Highway From North					Franklin Hill Avenue From East					American Legion Highway From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	0	163	9	0	172	15	0	25	2	42	14	188	0	0	202	0	0	0	0	0	416
03:15 PM	0	198	12	0	210	20	0	25	0	45	10	153	0	2	165	0	0	0	0	0	420
03:30 PM	0	168	14	0	182	13	0	29	0	42	12	177	0	0	189	0	0	0	0	0	413
03:45 PM	0	203	16	0	219	21	0	33	2	56	19	151	0	4	174	0	0	0	0	0	449
Total	0	732	51	0	783	69	0	112	4	185	55	669	0	6	730	0	0	0	0	0	1698
04:00 PM	14	200	13	0	227	14	0	22	0	36	19	164	0	1	184	0	0	0	0	0	447
04:15 PM	0	230	10	0	240	20	0	44	0	64	14	193	0	2	209	0	0	0	0	0	513
04:30 PM	0	242	22	1	265	16	0	36	0	52	17	177	0	3	197	0	0	0	0	0	514
04:45 PM	0	214	8	0	222	14	0	35	0	49	27	199	0	0	226	0	0	0	0	0	497
Total	14	886	53	1	954	64	0	137	0	201	77	733	0	6	816	0	0	0	0	0	1971
05:00 PM	0	266	16	0	282	16	0	44	0	60	24	187	0	1	212	0	0	0	0	0	554
05:15 PM	0	265	24	0	289	23	0	47	0	70	18	170	0	0	188	0	0	0	0	0	547
05:30 PM	0	232	10	0	242	21	0	26	0	47	20	189	0	0	209	0	0	0	0	0	498
05:45 PM	0	253	6	0	259	17	0	26	0	43	20	190	0	0	210	0	0	0	0	0	512
Total	0	1016	56	0	1072	77	0	143	0	220	82	736	0	1	819	0	0	0	0	0	2111
Grand Total	14	2634	160	1	2809	210	0	392	4	606	214	2138	0	13	2365	0	0	0	0	0	5780
Apprch %	0.5	93.8	5.7	0		34.7	0	64.7	0.7		9	90.4	0	0.5		0	0	0	0		
Total %	0.2	45.6	2.8	0	48.6	3.6	0	6.8	0.1	10.5	3.7	37	0	0.2	40.9	0	0	0	0	0	
Passenger Vehicles	13	2590	156	1	2760	206	0	390	4	600	214	2097	0	13	2324	0	0	0	0	0	5684
% Passenger Vehicles	92.9	98.3	97.5	100	98.3	98.1	0	99.5	100	99	100	98.1	0	100	98.3	0	0	0	0	0	98.3
Heavy Vehicles	1	44	4	0	49	4	0	2	0	6	0	41	0	0	41	0	0	0	0	0	96
% Heavy Vehicles	7.1	1.7	2.5	0	1.7	1.9	0	0.5	0	1	0	1.9	0	0	1.7	0	0	0	0	0	1.7

	American Legion Highway From North					Franklin Hill Avenue From East					American Legion Highway From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	242	22	**1**	265	16	0	36	0	52	17	177	0	**3**	197	0	0	0	0	0	514
04:45 PM	0	214	8	0	222	14	0	35	0	49	**27**	**199**	0	0	**226**	0	0	0	0	0	497
05:00 PM	0	**266**	16	0	282	16	0	44	0	60	24	187	0	1	212	0	0	0	0	0	**554**
05:15 PM	0	265	**24**	0	**289**	**23**	0	**47**	0	**70**	18	170	0	0	188	0	0	0	0	0	547
Total Volume	0	987	70	1	1058	69	0	162	0	231	86	733	0	4	823	0	0	0	0	0	2112
% App. Total	0	93.3	6.6	0.1		29.9	0	70.1	0		10.4	89.1	0	0.5		0	0	0	0		
PHF	.000	.928	.729	.250	.915	.750	.000	.862	.000	.825	.796	.921	.000	.333	.910	.000	.000	.000	.000	.000	.953

MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N/S: American Legion Hwy
E/W: Franklin Hill Avenue
Boston, MA

File Name : 675 American Legion Highway at Franklin Hill Ave PM
Site Code : 00675011
Start Date : 8/15/2012
Page No : 1

Groups Printed- Uturns

	American Legion Highway From North					Franklin Hill Avenue From East					American Legion Highway From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
** BREAK ***																					
03:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
03:30 PM	0	0	2	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3
03:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	4	0	4	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	6
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	2
04:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	2	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3
** BREAK ***																					
Total	0	0	3	0	3	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	6
05:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
** BREAK ***																					
05:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Grand Total	0	0	10	0	10	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	15
Apprch %	0	0	100	0		0	0	0	0		0	0	100	0		0	0	0	0		
Total %	0	0	66.7	0	66.7	0	0	0	0	0	0	0	33.3	0	33.3	0	0	0	0	0	

	American Legion Highway From North					Franklin Hill Avenue From East					American Legion Highway From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:15 PM																					
03:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
03:30 PM	0	0	**2**	0	**2**	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	**3**
03:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	2
Total Volume	0	0	4	0	4	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	8
% App. Total	0	0	100	0		0	0	0	0		0	0	100	0		0	0	0	0		
PHF	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.667

MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA

N/S: American Legion Hwy
E/W: North Drive-Lena Park
Boston, MA

File Name : 675 American Legion Highway at Lena Park North Driveway PM
Site Code : 00675021
Start Date : 8/15/2012
Page No : 1

Groups Printed- Noth Driveway

	American Legion Highway From North				North Driveway From East				American Legion Highway From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
03:00 PM	0	0	0	0	0	0	3	3	0	220	0	220	223
03:15 PM	0	0	0	0	0	0	1	1	0	196	0	196	197
03:30 PM	0	0	0	0	0	0	0	0	0	195	0	195	195
03:45 PM	0	0	0	0	0	0	3	3	0	184	0	184	187
Total	0	0	0	0	0	0	7	7	0	795	0	795	802
04:00 PM	0	0	0	0	2	0	0	2	0	205	0	205	207
04:15 PM	0	0	0	0	0	0	2	2	0	196	0	196	198
04:30 PM	0	0	0	0	0	0	2	2	0	205	0	205	207
04:45 PM	0	0	0	0	1	0	0	1	0	237	0	237	238
Total	0	0	0	0	3	0	4	7	0	843	0	843	850
05:00 PM	0	0	0	0	0	0	1	1	0	218	0	218	219
05:15 PM	0	0	0	0	0	0	1	1	0	213	0	213	214
05:30 PM	0	0	0	0	0	0	6	6	0	229	0	229	235
05:45 PM	0	0	0	0	0	0	2	2	0	234	0	234	236
Total	0	0	0	0	0	0	10	10	0	894	0	894	904
Grand Total	0	0	0	0	3	0	21	24	0	2532	0	2532	2556
Apprch %	0	0	0		12.5	0	87.5		0	100	0		
Total %	0	0	0	0	0.1	0	0.8	0.9	0	99.1	0	99.1	

	American Legion Highway From North				North Driveway From East				American Legion Highway From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 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	**1**	0	0	1	0	**237**	0	**237**	**238**
05:00 PM	0	0	0	0	0	0	1	1	0	218	0	218	219
05:15 PM	0	0	0	0	0	0	1	1	0	213	0	213	214
05:30 PM	0	0	0	0	0	0	**6**	**6**	0	229	0	229	235
Total Volume	0	0	0	0	1	0	8	9	0	897	0	897	906
% App. Total	0	0	0		11.1	0	88.9		0	100	0		
PHF	.000	.000	.000	.000	.250	.000	.333	.375	.000	.946	.000	.946	.952

MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA

N/S: American Legion Hwy
E/W: North Drive-Lena Park
Boston, MA

File Name : 675 American Legion Highway at Lena Park South Driveway PM
Site Code : 00675021
Start Date : 8/15/2012
Page No : 1

Groups Printed- South Driveway

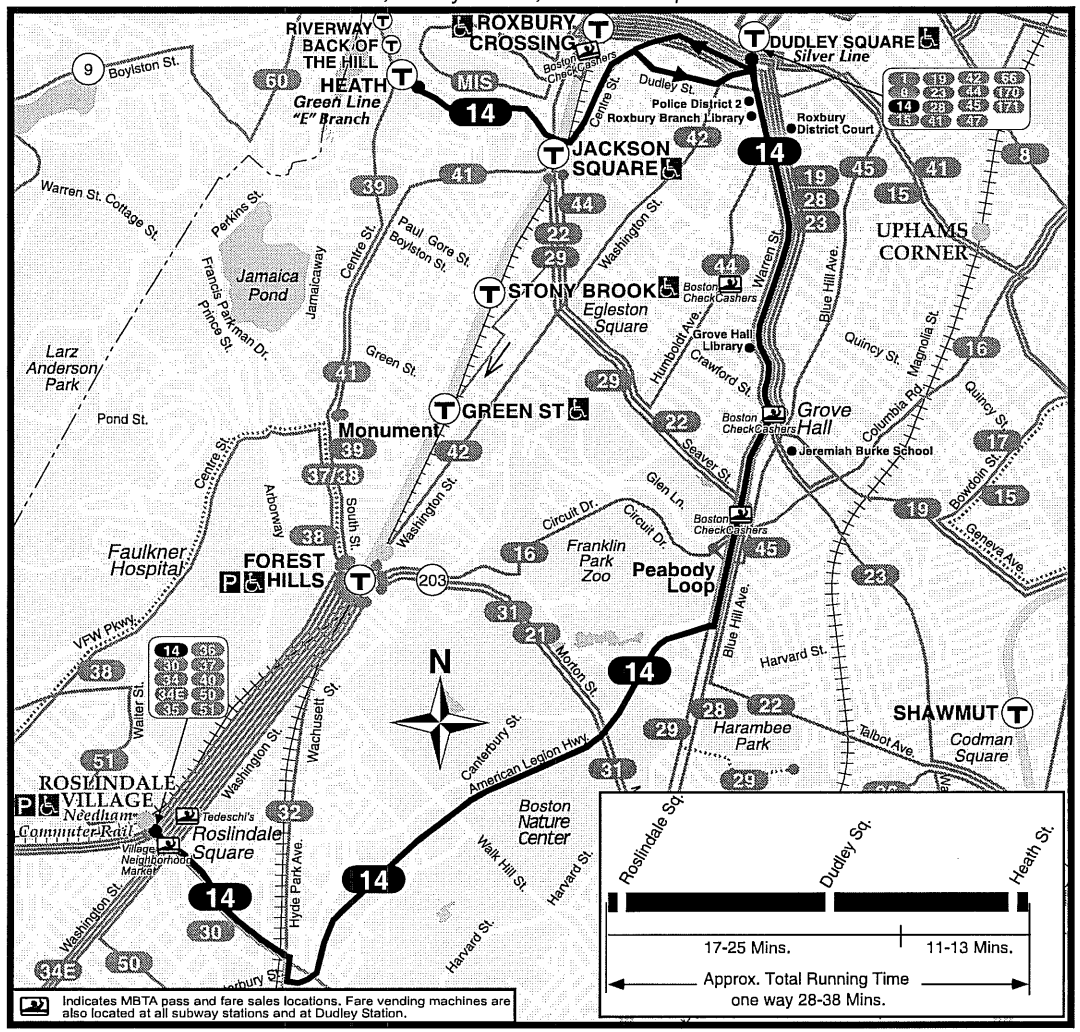
	American Legion Highway From North				South Driveway From East				American Legion Highway From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
03:00 PM	0	0	0	0	0	0	3	3	0	0	0	0	3
03:15 PM	0	0	0	0	0	0	1	1	0	0	0	0	1
03:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
03:45 PM	0	0	0	0	0	0	3	3	1	0	0	1	4
Total	0	0	0	0	0	0	7	7	2	0	0	2	9
*** BREAK ***													
04:15 PM	0	0	0	0	0	0	2	2	0	0	0	0	2
04:30 PM	0	0	3	3	0	0	2	2	0	0	0	0	5
04:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	3	3	0	0	4	4	1	0	0	1	8
05:00 PM	0	0	0	0	0	0	1	1	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	1	1	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	7	7	0	0	0	0	7
05:45 PM	0	0	1	1	1	0	2	3	1	0	0	1	5
Total	0	0	1	1	1	0	11	12	1	0	0	1	14
Grand Total	0	0	4	4	1	0	22	23	4	0	0	4	31
Apprch %	0	0	100		4.3	0	95.7		100	0	0		
Total %	0	0	12.9	12.9	3.2	0	71	74.2	12.9	0	0	12.9	

	American Legion Highway From North				South Driveway From East				American Legion Highway From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 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	0	0	0	1	1	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	1	1	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	**7**	**7**	0	0	0	0	**7**
05:45 PM	0	0	**1**	**1**	**1**	0	2	3	**1**	0	0	**1**	5
Total Volume	0	0	1	1	1	0	11	12	1	0	0	1	14
% App. Total	0	0	100		8.3	0	91.7		100	0	0		
PHF	.000	.000	.250	.250	.250	.000	.393	.429	.250	.000	.000	.250	.500

- Public Transportation Information

Ⓣ Route 14 *Roslindale Square - Heath Street Station*

via Grove Hall, Dudley Station, & Jackson Sq. Station



14

SUMMER July 1, 2012 - August 31, 2012

Roslindale Square - Heath Street Station

Serving: Grove Hall, American Legion Hwy., Roxbury District Court, Boston Police District 2, Dudley Station, Jackson Sq., and connections to the Orange and Green lines and the Needham Commuter Rail

Arrive times are approximate, subject to traffic.

Customer Service/Travel Info 617-222-3200
Toll Free.....1-800-392-6100
Hearing Impaired (TTY).....617-222-5146

For more schedule or travel information, visit:
www.mbta.com

Ⓣ Massachusetts Bay Transportation Authority

massDOT Massachusetts Department of Transportation

14 WEEKDAY

INBOUND				OUTBOUND			
Leave Roslindale Square	Arrive Dudley Station	Arrive Jackson Sq. Sta	Arrive Heath Street	Leave Heath Street	Arrive Jackson Sq. Sta.	Arrive Dudley Station	Arrive Roslindale Square
6:00A	6:26A	6:33A	6:39A	.....	.....	5:57A	6:16A
6:38	7:12	7:21	7:27	6:15A	6:23A	6:28	7:00
7:16	7:49	7:55	8:02	6:55	7:07	7:14	7:45
7:54	8:28	8:34	8:41	7:33	7:45	7:52	8:22
8:32	9:06	9:12	9:19	8:11	8:24	8:33	9:00
9:10	9:44	9:50	9:57	8:53	9:06	9:15	9:42
10:13	10:44	10:54	10:59	9:33	9:46	9:55	10:22
11:16	11:50	11:54	11:59	10:11	10:24	10:33	11:00
				11:14	11:19	11:27	**12:01P**
12:19P	**12:54P**	**12:58P**	**1:03P**	**12:17P**	**12:22P**	**12:30P**	**1:01P**
1:22	**1:58**	**2:04**	**2:11**	**1:20**	**1:32**	**1:46**	**2:17**
2:07	**2:43**	**2:49**	**2:56**	**2:23**	**2:37**	**2:51**	**3:22**
2:52	**3:28**	**3:34**	**3:42**	**3:08**	**3:22**	**3:34**	**4:13**
3:37	**4:15**	**4:21**	**4:29**	**3:53**	**4:06**	**4:15**	**4:54**
4:22	**5:00**	**5:06**	**5:14**	**4:38**	**4:51**	**5:00**	**5:37**
5:07	**5:43**	**5:49**	**5:56**	**5:23**	**5:34**	**5:43**	**6:15**
5:52	**6:26**	**6:32**	**6:38**	**6:08**	**6:19**	**6:31**	**7:01**
6:37	**7:07**	**7:13**	**7:19**	**6:53**	**7:04**	**7:16**	**7:46**
7:22	**7:49**	.....	.....	**7:38**	**7:55**	**7:58**	.....

14 SATURDAY

INBOUND				OUTBOUND			
Leave Roslindale Square	Arrive Dudley Station	Arrive Jackson Sq.Sta	Arrive Heath Street	Leave Heath Street	Arrive Jackson Sq. Sta.	Arrive Dudley Station	Arrive Roslindale Square
.....	6:45A	6:51A	6:55A	7:00A	7:03A	7:11A	.....
.....	7:15	7:21	7:25	7:30	7:33	7:41	.....
.....	7:45	7:51	7:55	8:00	8:03	8:11	.....
.....	8:15	8:21	8:25	8:30	8:33	8:41	.....
.....	8:45	8:51	8:55	9:05	9:10	9:17	9:51A
8:50A	9:13	9:19	9:27	9:40	9:45	9:52	10:26
9:25	9:51	9:58	10:06	10:15	10:20	10:27	11:01
10:00	10:27	10:34	10:42	10:50	10:55	11:02	11:36
10:35	11:02	11:09	11:17	11:25	11:30	11:37	**12:11P**
11:10	11:37	11:44	11:52				
11:45	**12:12P**	**12:19P**	**12:27P**	**12:00N**	**12:05P**	**12:12P**	**12:46P**
				12:35P	**12:40**	**12:47**	**1:21**
12:20P	**12:47P**	**12:54P**	**1:02P**	**1:10**	**1:15**	**1:22**	**1:56**
12:55	**1:22**	**1:29**	**1:37**	**1:45**	**1:50**	**1:57**	**2:31**
1:30	**1:57**	**2:04**	**2:12**	**2:20**	**2:25**	**2:32**	**3:06**
2:05	**2:32**	**2:39**	**2:47**	**2:55**	**3:00**	**3:07**	**3:41**
2:40	**3:07**	**3:14**	**3:22**	**3:30**	**3:35**	**3:42**	**4:14**
3:15	**3:42**	**3:49**	**3:57**	**4:05**	**4:10**	**4:17**	**4:49**
3:50	**4:17**	**4:24**	**4:32**	**4:40**	**4:45**	**4:52**	**5:24**
4:25	**4:51**	**4:58**	**5:06**	**5:15**	**5:20**	**5:27**	**5:59**
5:00	**5:26**	**5:33**	**5:41**	**5:50**	**5:55**	**6:02**	**6:33**
5:35	**6:01**	**6:08**	**6:15**	**6:25**	**6:29**	**6:36**	**7:07**
6:10	**6:36**	**6:43**	**6:50**	**7:00**	**7:04**	**7:11**	**7:42**
6:45	**7:11**	**7:18**	**7:25**				

NO SERVICE ON SUNDAY

ALL BUSES ARE ACCESSIBLE TO PERSONS WITH DISABILITIES.

Route 14
Roslindale Sq. - Heath Street
via Dudley Sta.,
Grove Hall & Jackson Sq. Sta.

FARES

Paying with...	1-bus trip	2-bus trip	Bus + subway trip
CharlieCard	$1.50	$1.50	$2.00
CharlieTicket	$2.00	$2.00	$4.50
Cash onboard	$2.00	$4.00	$4.50
Student CharlieCard*	$0.75	$0.75	$1.00
Senior/TAP CharlieCard**	$0.75	$0.75	$1.00

Children under 12 ride free when accompanied by an adult.
Blind Access CharlieCard holders ride free, if using a guide, the guide rides free.

VALID PASSES: Local Bus Pass ($48/mo.); LinkPass ($70/mo.); Senior/TAP Pass** ($28/mo.); Student Pass* ($25/mo. M-F only or $28/mo. 7 days); and express bus, zoned, interzoned, and boat passes.

* Available to students through participating middle schools and high schools.
** Available to Medicare cardholders, seniors 65+ and persons with disabilities.

Summer 2012 Holidays

July 4 : See Sunday **September 3 : See Sunday**

- Stopping Sight Distance Calculations

Stopping Sight Distance

Western Driveway

		SPEED (MPH)	BRAKE REACTION DISTANCE (FT)	BRAKING DISTANCE (FT)	CALCULATED STOPPING SIGHT DISTANCE (FT)
Direction 1	EB	35	128.625	117.4	246.0

INPUTS	Direction 1
Travel Direction	NB
Speed	35
Grade	0
t	2.5
a	11.2

Stopping Sight Distance (SSD) - Source: AASHTO

SSD = Reaction Distance + Brake Distance

Reaction Distance = 1.47 x t x V

Brake Distance = V^2 / (30 x ((a/32.2)+G))

Where:
t = reaction time (sec)
V = travel speed (mph)
G= roadway grade
a - deceleration rate (ft/sec^2)

Stopping Sight Distance

Eastern Driveway

		SPEED (MPH)	BRAKE REACTION DISTANCE (FT)	BRAKING DISTANCE (FT)	CALCULATED STOPPING SIGHT DISTANCE (FT)
Direction 1	EB	35	128.625	124.6	253.2

INPUTS	Direction 1
Travel Direction	NB
Speed	35
Grade	-0.02
t	2.5
a	11.2

Stopping Sight Distance (SSD) - Source: AASHTO

SSD = Reaction Distance + Brake Distance

Reaction Distance = 1.47 x t x V

Brake Distance = V^2 / (30 x ((a/32.2)+G))

Where:
t = reaction time (sec)
V = travel speed (mph)
G= roadway grade
a - deceleration rate (ft/sec^2)

- Trip Generation Calculations – Lena Park CDC

Institute of Transportation Engineers (ITE)
Land Use Code (LUC) 495 - Recreational Community Center

Average Vehicle Trips Ends vs: 1000 Sq. Feet Gross Floor Area
Independent Variable (X): 8.1

Average Weekday Daily

T = 22.88 * (X)
T = 22.88 * 8.1
T = 185.33
T = 186 vehicle trips
with 50% (93 vpd) entering and 50% (93 vpd) exiting.

Weekday Morning Peak Hour Of Adjacent Street Traffic

T = 1.62 * (X)
T = 1.62 * 8.1
T = 13.12
T = 13 vehicle trips
with 61% (8 vph) entering and 39% (5 vph) exiting.

Weekday Evening Peak Hour Of Adjacent Street Traffic

T = 1.45* (X)
T = 1.45* 8.1
T = 11.75
T = 12 vehicle trips
with 37% (4 vph) entering and 63% (8 vph) exiting.

Saturday Daily

not available

Saturday Midday Peak Hour Of Generator

not available

Institute of Transportation Engineers (ITE)
Land Use Code (LUC) 495 - Recreational Community Center

Average Vehicle Trips Ends vs: 1000 Sq. Feet Gross Floor Area
Independent Variable (X): 80

Average Weekday Daily

T = 22.88 * (X)
T = 22.88 * 80
T = 1830.40
T = 1,830 vehicle trips
with 50% (915 vpd) entering and 50% (915 vpd) exiting.

Weekday Morning Peak Hour Of Adjacent Street Traffic

T = 1.62 * (X)
T = 1.62 * 80
T = 129.60
T = 130 vehicle trips
with 61% (79 vph) entering and 39% (51 vph) exiting.

Weekday Evening Peak Hour Of Adjacent Street Traffic

T = 1.45* (X)
T = 1.45* 80
T = 116.00
T = 116 vehicle trips
with 37% (43 vph) entering and 63% (73 vph) exiting.

Saturday Daily

not available

Saturday Midday Peak Hour Of Generator

not available

- Trip Generation Data & Calculations – Brooke School

Observed Vehicle Occupancy Rates (VOR)

Location: Brooke Roslindale - 190 Cummins Highway, Roslindale, MA
Date: Thursday, August 16, 2012

Weekday Morning Arrival Observations

	# Students	Parent Vehicles
6:30 AM - 8:00 AM	106	95

Parent VOR (Vehicle Occupancy Rate) = # Students/# Parent Vehicles
Parent VOR = 106 students/95 parent vehicles
Parent VOR = 1.12 students/parent vehicle

Weekday Dismissal Observations

	# Students	Parent Vehicles
11:30 AM - 1:00 PM	97	77

Parent VOR (Vehicle Occupancy Rate) = # Students/# Parent Vehicles
Parent VOR = 97 students/77 parent vehicles
Parent VOR = 1.26 students/parent vehicle

Trip Generation Summary - Proposed Brooke Charter School

VOR for students and VOR for staff obtained from observations conducted at the Brooke Roslindale School in August 2012

	Brooke Mattapan Faculty & Staff			Brooke Mattapan Proposed Enrollment	
Administrative Staff	5	7%	K-5th	350	74%
Full Time Teaching Staff	50	74%	6-7th	89	19%
Part Time Teaching Staff	4	6%	8th	36	8%
Other Central Office (Potentially)	9	13%	Total	475	100%
Total	68	100%			

*Assume that the Central Office staff will be located off-site

Morning Peak Hour - Calculations (Students Only)

Grade	Cars	Students	VOR	Busses	Students	VOR	MBTA/Walk	Total Student Vehicle Trips	Total Enrollment
Student Trips	38	43	1.12	12	428	35.67	5	100	476

Evening Peak Hour - Calculations (Students Only)

Grade	Cars	Students	VOR	Busses	Students	VOR	MBTA/Walk	Total Student Vehicle Trips	Total Enrollment
Student Trips	71	90	1.26	12	380	31.67	5	166	475

Morning Travel Mode - Students			
# Students			Estimated #
MBTA/Walk	Car	School Bus	School Busses
5	43	428	12
1%	9%	90%	

Afternoon Travel Mode - Students			
# Students			Estimated #
MBTA/Walk	Car	School Bus	School Busses
5	90	380	12
1%	19%	80%	

# Proposed Students	475				
# Staff/Faculty On-Site	59				
		Students			Vehicle
Morning Peak Hour (6:45-7:45 AM)	Staff	Vehicle	Bus	Total	Trips/Student
In	32	38	12	**82**	**0.17**
Out	0	38	12	**50**	**0.11**
Total	32	76	24	**132**	**0.28**
		Students			Vehicle
Evening Peak Hour (4:00-5:00 PM)	Staff	Vehicle	Bus	Total	Trips/Student
In	0	71	12	**83**	**0.17**
Out	0	71	12	**83**	**0.17**
Total	0	142	24	**166**	**0.35**

*School start time is at 7:45 AM; student arrival begins at approximately 7:15 AM

*Based on observations at the Brooke Roslindale school, 54% of the staff arrives during the morning peak hour (6:45 AM - 7:45 AM)

*Student dismisal occurs at approximately 4:30 PM; staff dismisal occurs between 5:00 PM and 7:00 PM.

Institute of Transportation Engineers (ITE) 8th Edition
Land Use Code (LUC) 520 - Elementary School

Average Vehicle Trips Ends vs: Students
Independent Variable (X): 350

AVERAGE WEEKDAY DAILY

T = 1.29 * (X)
T = 1.29 * 350
T = 451.50
T = 452 vehicle trips
with 50% (226 vpd) entering and 50% (226 vpd) exiting.

WEEKDAY MORNING PEAK HOUR

T = 0.45 * (X)
T = 0.45 * 350
T = 157.50
T = 158 vehicle trips
with 55% (87 vph) entering and 45% (71 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

T = 0.15 * (X)
T = 0.15 * 350
T = 52.50
T = 53 vehicle trips
with 49% (26 vph) entering and 51% (27 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF GENERATOR

T = 0.28 * (X)
T = 0.28 * 350
T = 98.00
T = 98 vehicle trips
with 45% (44 vph) entering and 55% (54 vph) exiting.

Institute of Transportation Engineers (ITE) 8th Edition
Land Use Code (LUC) 522 - Middle/Junior High School

Average Vehicle Trips Ends vs: Students
Independent Variable (X): 125

AVERAGE WEEKDAY DAILY

T = 1.62 * (X)
T = 1.62 * 125
T = 202.50
T = 202 vehicle trips
with 50% (101 vpd) entering and 50% (101 vpd) exiting.

WEEKDAY MORNING PEAK HOUR

T = 0.54 * (X)
T = 0.54 * 125
T = 67.50
T = 68 vehicle trips
with 55% (37 vph) entering and 45% (31 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

T = 0.16 * (X)
T = 0.16 * 125
T = 20.00
T = 20 vehicle trips
with 49% (10 vph) entering and 51% (10 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF GENERATOR

T = 0.31 * (X)
T = 0.31 * 125
T = 38.75
T = 39 vehicle trips
with 45% (18 vph) entering and 55% (21 vph) exiting.

- Trip Distribution Calculations

LENA PARK CDC TRIP DISTRIBUTION

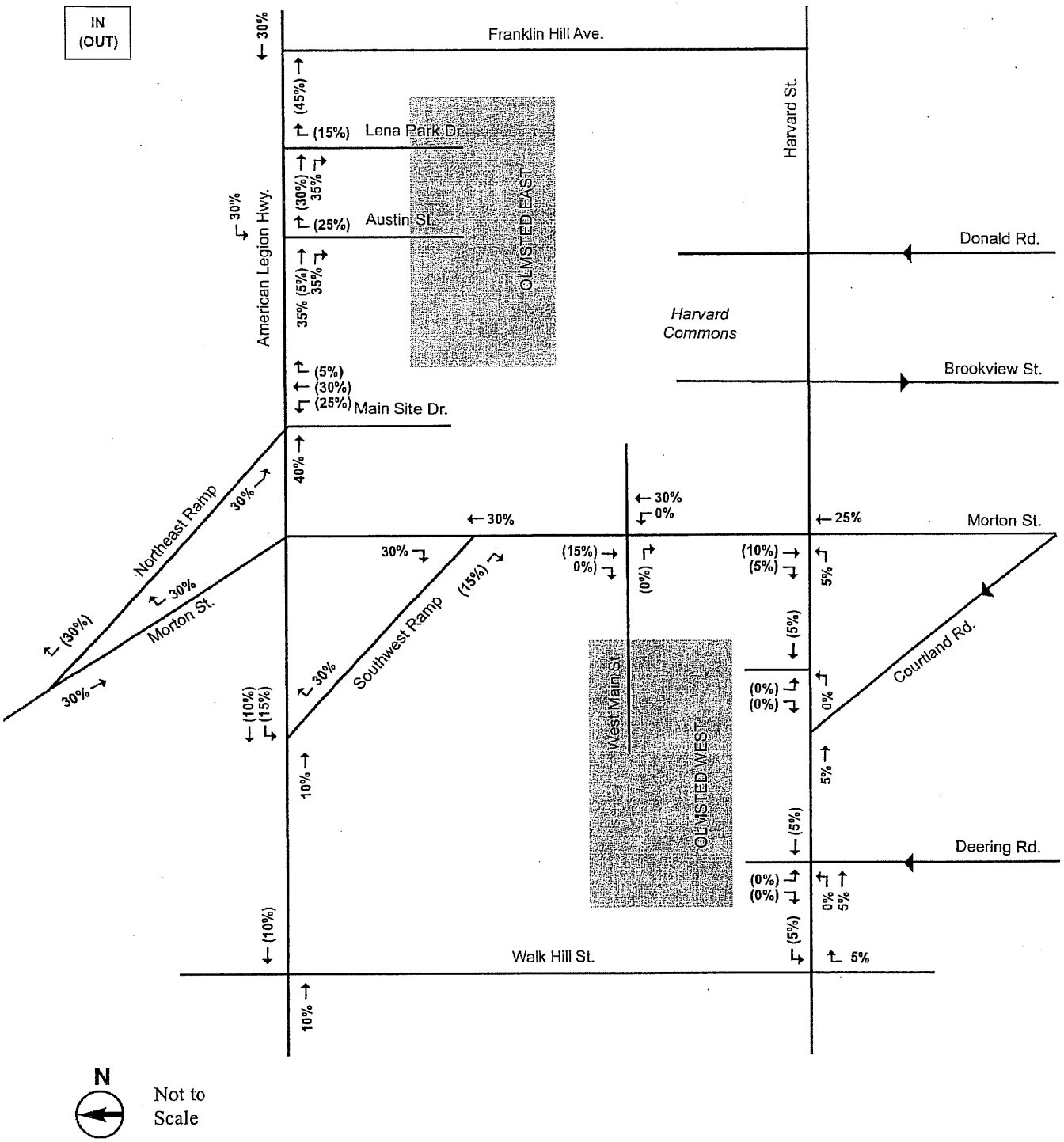
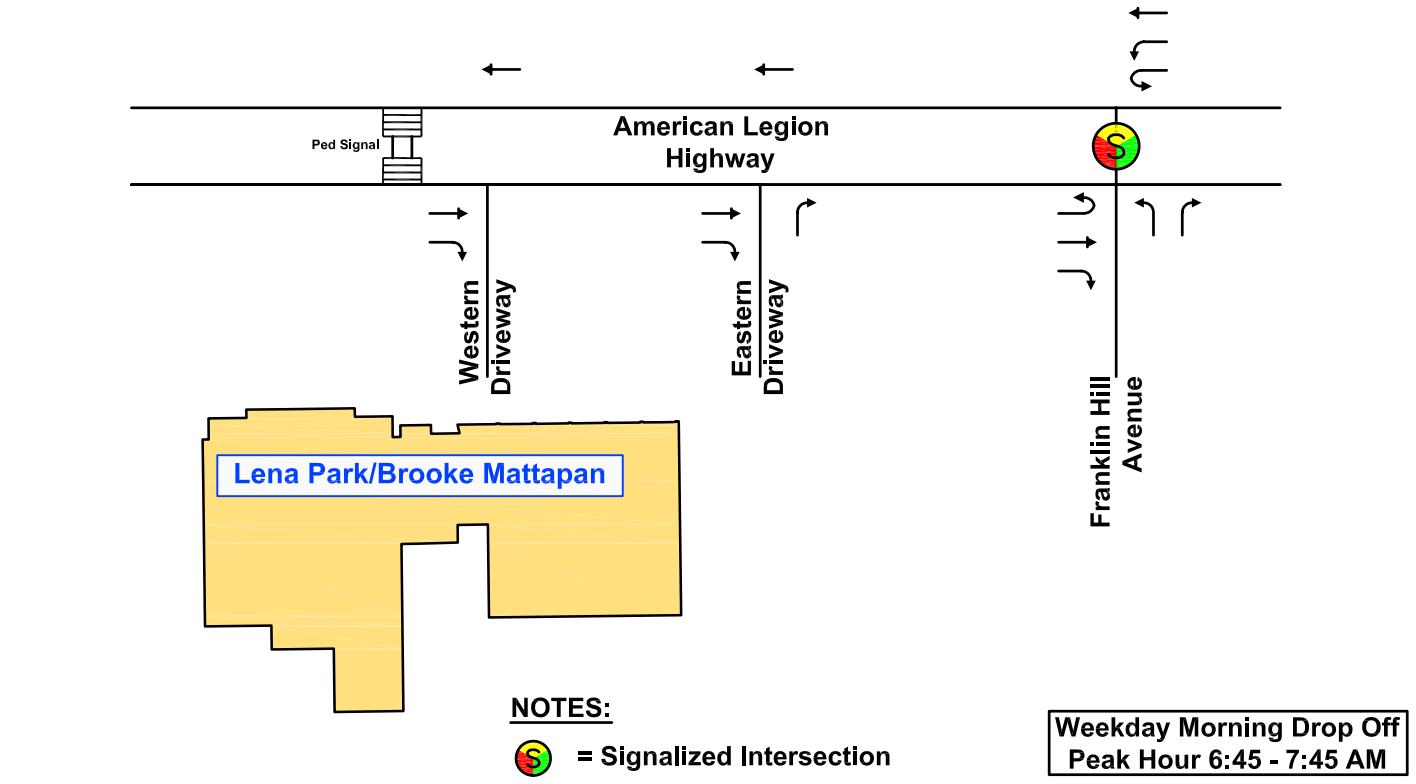
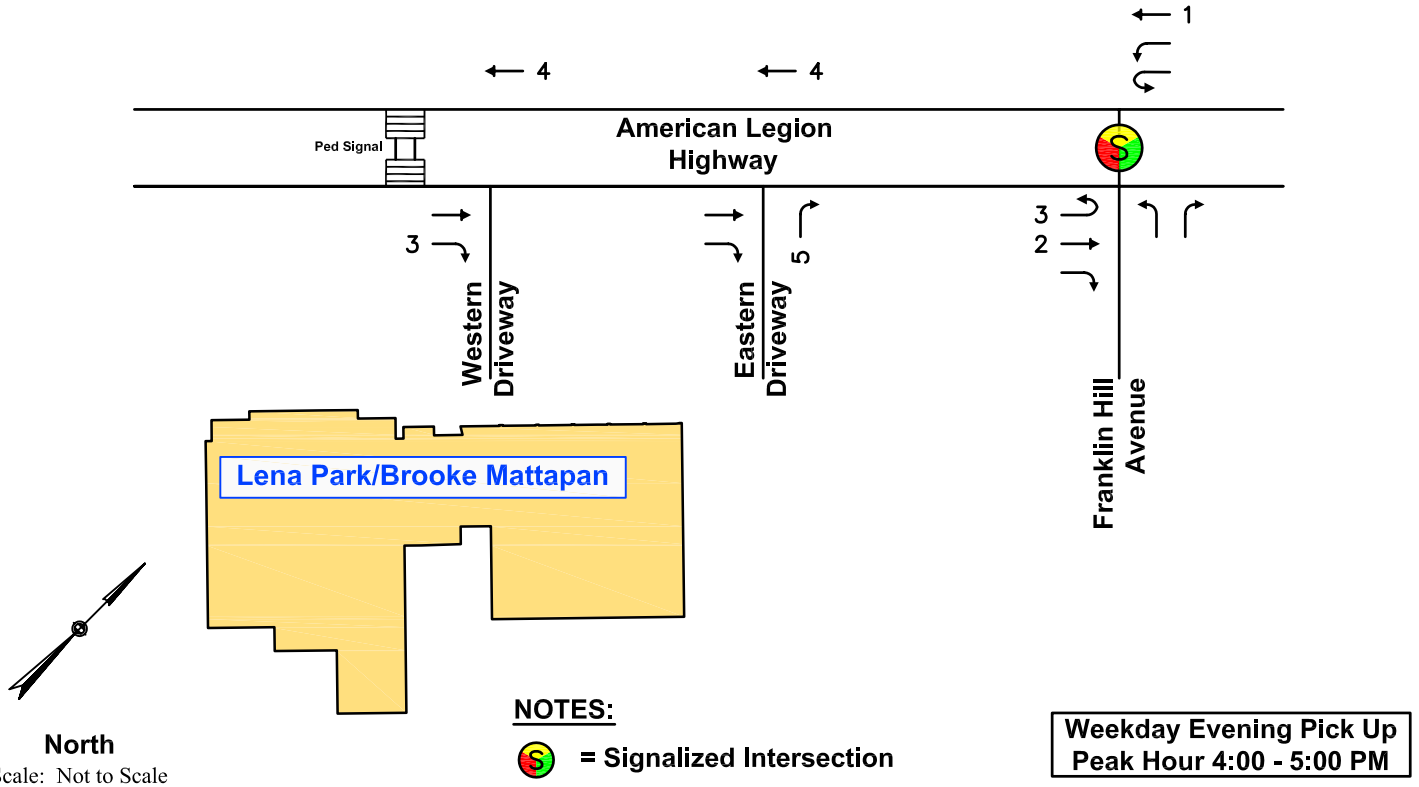


Figure 6-18
Non-residential Vehicle Trip Distribution





Attachments

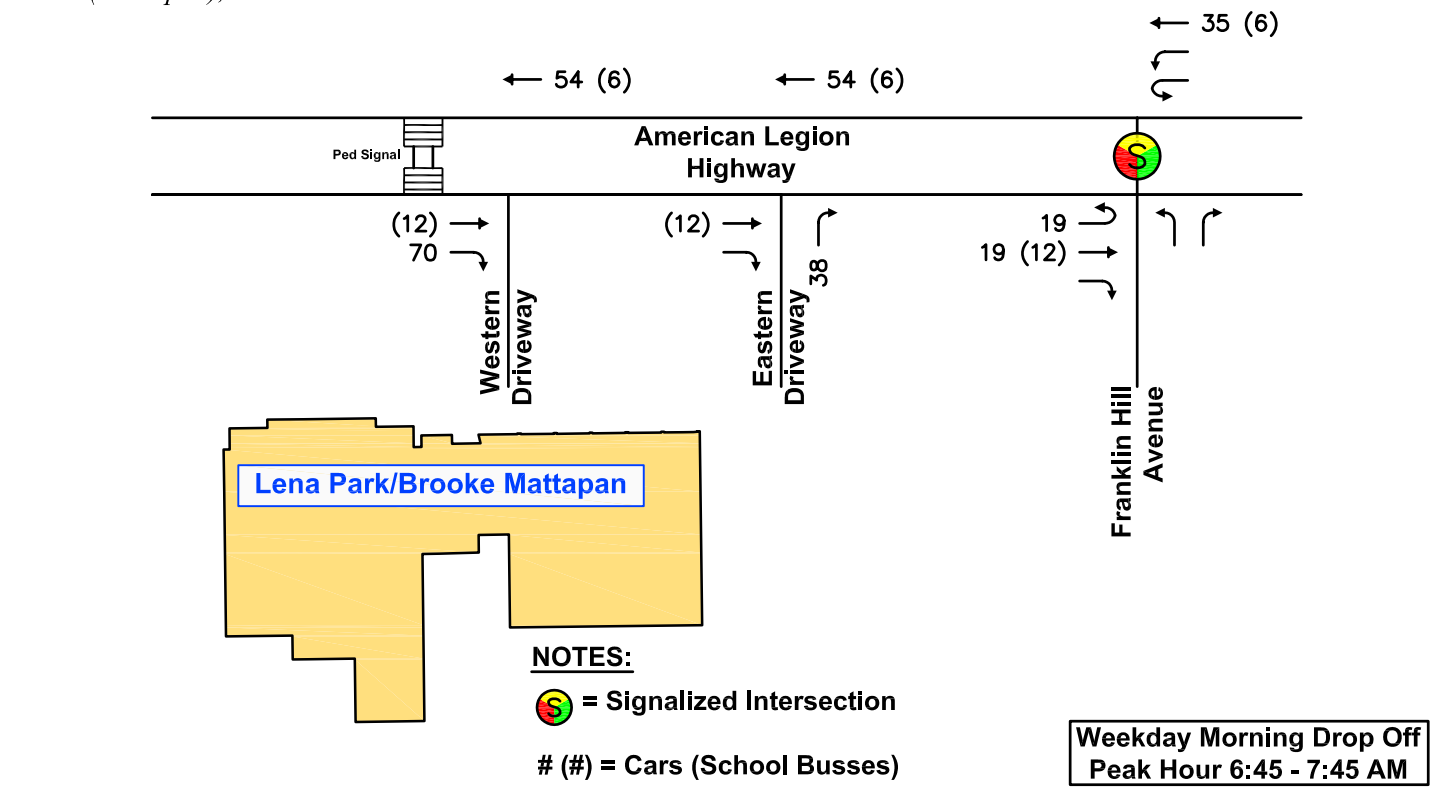
MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

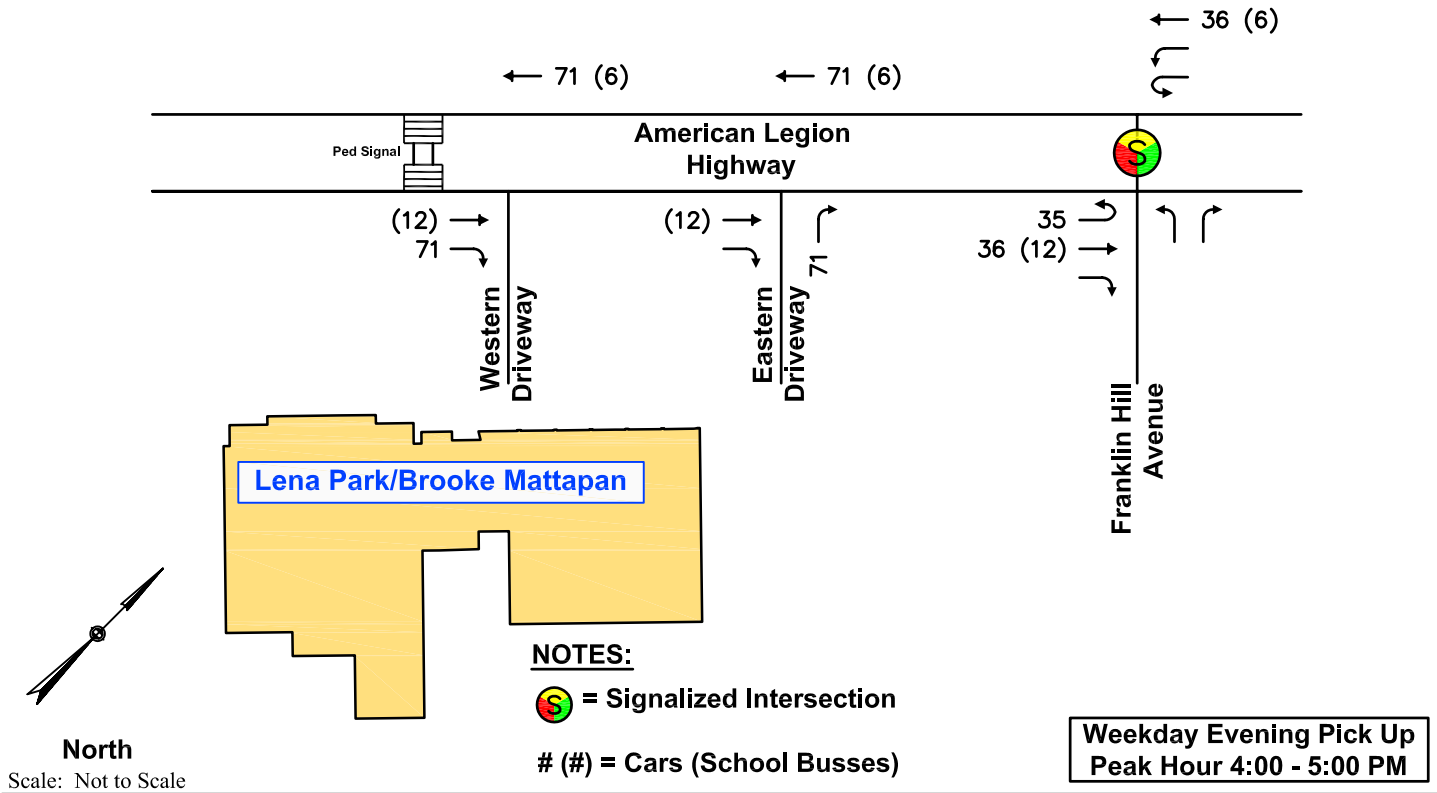
Lena Park CDC Site Trips

Date: August 2012
Dwg No. 675 TIAS.dwg

Brooke Mattapan Trip Distribution

Origin Zip Code	Area	Student Population	% of Population	American Legion Highway (From East)		American Legion Highway (From West)		Route 203 (From North)		Route 203 (From South)	
02115	Boston	7	1%	50%	1%		0%	50%	1%		0%
02116	Boston	4	1%	50%	0%		0%	50%	0%		0%
02118	Roxbury	18	4%	100%	4%		0%		0%		0%
02119	Roxbury	28	6%	50%	3%		0%	50%	3%		0%
02120	Roxbury	9	2%	50%	1%		0%	50%	1%		0%
02121	Dorchester	39	8%	100%	8%		0%		0%		0%
02122	Dorchester	20	4%	100%	4%		0%		0%		0%
02124	Dorchester	96	20%	50%	10%		0%		0%	50%	10%
02125	Dorchester	39	8%	100%	8%		0%		0%		0%
02126	Mattapan	48	10%	33%	3%	33%	3%		0%	34%	3%
02127	South Boston	11	2%	100%	2%		0%		0%		0%
02128	East Boston	2	0%	100%	0%		0%		0%		0%
02129	Charlestown	2	0%	100%	0%		0%		0%		0%
02130	Jamaica Plain	17	4%		0%	50%	2%	50%	2%		0%
02131	Roslindale	48	10%		0%	60%	6%	40%	4%		0%
02132	West Roxbury	7	1%		0%	50%	1%	50%	1%		0%
02135	Brighton	6	1%	60%	1%		0%	40%	1%		0%
02136	Hyde Park	74	16%		0%	100%	16%		0%		0%
-	Out of Boston	2	0%	50%	0%	25%	0%	10%	0%	15%	0%
	Total	**477**	**100%**		47%		**27%**		**12%**		**14%**





MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

Brooke Mattapan Site Trips

Date: August 2012
Dwg No. 675 TIAS.dwg

- Capacity Analysis Worksheets

LEVEL OF SERVICE METHODOLOGY

Capacity analysis of intersections is developed using the Synchro® computer software, which implements the methods of the 2000 Highway Capacity Manual (HCM). The resulting analysis presents a level-of-service (LOS) designation for individual intersection movements and (for signalized intersections) for the entire intersection. The LOS is a letter designation that provides a qualitative measure of operating conditions based on several factors including roadway geometry, speeds, ambient traffic volumes, traffic controls, and driver characteristics. Since the LOS of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of LOS, depending on the time of day, day of week, or period of year. A range of six levels of service are defined on the basis of average delay, ranging from LOS A (the least delay) to LOS F (delays greater than 50 seconds for unsignalized movements, and greater than 80 seconds for signalized movements).

Signalized Intersection Performance Measures

The six LOS designations for signalized intersections may be described as follows:

- *LOS A* describes operations with low control delay; most vehicles do not stop at all.
- *LOS B* describes operations with relatively low control delay. However, more vehicles stop than LOS A.
- *LOS C* describes operations with higher control delays. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
- *LOS D* describes operations with control delay in the range where the influence of congestion becomes more noticeable. Many vehicles stop and individual cycle failures are noticeable.
- *LOS E* describes operations with high control delay values. Individual cycle failures are frequent occurrences.
- *LOS F* describes operations with high control delay values that often occur with over-saturation. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

The LOS for signalized intersections are calculated using the operational analysis methodology of the 2000 *Highway Capacity Manual*.[1] This method assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on delay. LOS designations are based on the criterion of control or signal delay per vehicle. Control or signal delay is a measure of driver discomfort, frustration, and fuel consumption, and includes initial deceleration delay approaching the traffic signal, queue move-up time, stopped delay and final acceleration delay. **Table A1** summarizes the relationship between LOS and control delay. The tabulated control delay criterion may be applied in assigning LOS designations to individual lane groups, to individual intersection approaches, or to entire intersections.

Table A1
LEVEL-OF-SERVICE CRITERIA
FOR SIGNALIZED INTERSECTIONS[1]

Level of Service	Control (Signal) Delay per Vehicle (Seconds)
A	≤10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	>80.0

[1]Source: *Highway Capacity Manual 2000;* Transportation Research Board; Washington, DC; 2000.

[1]*Highway Capacity Manual* 2000; Transportation Research Board; Washington, DC; 2000.

Unsignalized Intersection Performance Measures

The six LOS designations for unsignalized intersections may be described as follows:

- *LOS A* represents a condition with little or no control delay to minor street traffic.
- *LOS B* represents a condition with short control delays to minor street traffic.
- *LOS C* represents a condition with average control delays to minor street traffic.
- *LOS D* represents a condition with long control delays to minor street traffic.
- *LOS E* represents operating conditions at or near capacity level, with very long control delays to minor street traffic.
- *LOS F* represents a condition where minor street demand volume exceeds capacity of an approach lane, with extreme control delays resulting.

The LOS designations of unsignalized intersections are determined by application of a procedure described in the 2000 *Highway Capacity Manual.*[2] LOS is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and STOP signs. Control delay includes the effects of initial deceleration delay approaching a STOP sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for LOS at unsignalized intersections are also given in the *Highway Capacity Manual 2000.* **Table A2** summarizes the relationship between LOS and average control delay.

Table A2
LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS[1]

Level of Service	Average Control Delay (seconds per vehicle)
A	≤ 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	>50.0

[1]Source: *Highway Capacity Manual 2000,* Transportation Research Board; Washington, DC; 2000.

[2] ibid

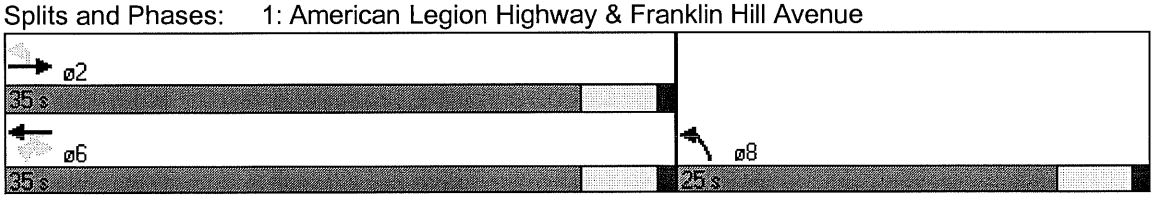
Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	
Trailing Detector (ft)	0	0		0	0	0	0	
Turning Speed (mph)	9		9	9	15		15	9
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	0.95	1.00	1.00
Frt		0.993					0.961	
Flt Protected					0.950		0.966	
Satd. Flow (prot)	0	3422	0	0	1714	3374	1696	0
Flt Permitted		0.953			0.263		0.966	
Satd. Flow (perm)	0	3261	0	0	474	3374	1696	0
Right Turn on Red			Yes					Yes
Satd. Flow (RTOR)		12					37	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35				30	30	
Link Distance (ft)		183				414	687	
Travel Time (s)		3.6				9.4	15.6	
Volume (vph)	4	762	37	2	15	485	122	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	5%	0%	0%	6%	7%	4%	4%
Adj. Flow (vph)	4	828	40	2	16	527	133	54
Lane Group Flow (vph)	0	872	0	0	18	527	187	0
Turn Type	Perm			Perm	Perm			
Protected Phases		2				6	8	
Permitted Phases	2			6	6			
Detector Phases	2	2		6	6	6	8	
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	6.0	
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	11.0	
Total Split (s)	35.0	35.0	0.0	35.0	35.0	35.0	25.0	0.0
Total Split (%)	58.3%	58.3%	0.0%	58.3%	58.3%	58.3%	41.7%	0.0%
Maximum Green (s)	30.0	30.0		30.0	30.0	30.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	
Act Effct Green (s)		24.2			24.2	24.2	10.5	
Actuated g/C Ratio		0.56			0.56	0.56	0.24	
v/c Ratio		0.47			0.07	0.28	0.42	
Control Delay		7.0			6.2	5.7	12.1	
Queue Delay		0.0			0.0	0.0	0.0	
Total Delay		7.0			6.2	5.7	12.1	
LOS		A			A	A	B	
Approach Delay		7.0				5.8	12.1	
Approach LOS		A				A	B	
90th %ile Green (s)	23.7	23.7		23.7	23.7	23.7	13.5	
90th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Gap	

Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
70th %ile Green (s)	17.8	17.8		17.8	17.8	17.8	10.1	
70th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Gap	
50th %ile Green (s)	15.0	15.0		15.0	15.0	15.0	8.2	
50th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Gap	
30th %ile Green (s)	18.7	18.7		18.7	18.7	18.7	7.1	
30th %ile Term Code	Dwell	Dwell		Dwell	Dwell	Dwell	Gap	
10th %ile Green (s)	45.6	45.6		45.6	45.6	45.6	6.0	
10th %ile Term Code	Dwell	Dwell		Dwell	Dwell	Dwell	Min	
Queue Length 50th (ft)		47			1	25	21	
Queue Length 95th (ft)		107			10	60	70	
Internal Link Dist (ft)		103				334	607	
Turn Bay Length (ft)								
Base Capacity (vph)		2128			309	2197	703	
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		0.41			0.06	0.24	0.27	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 43.1
Natural Cycle: 40
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 7.2 Intersection LOS: A
Intersection Capacity Utilization 41.5% ICU Level of Service A
Analysis Period (min) 15
90th %ile Actuated Cycle: 47.2
70th %ile Actuated Cycle: 37.9
50th %ile Actuated Cycle: 33.2
30th %ile Actuated Cycle: 35.8
10th %ile Actuated Cycle: 61.6

Splits and Phases: 1: American Legion Highway & Franklin Hill Avenue



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	801	0	0	611	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	871	0	0	664	0	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				183		
pX, platoon unblocked					0.94	
vC, conflicting volume			871		1203	435
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			871		1148	435
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			783		183	574

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	580	290	332	332	2
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	2
cSH	1700	1700	1700	1700	574
Volume to Capacity	0.34	0.17	0.20	0.20	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	11.3
Lane LOS					B
Approach Delay (s)	0.0		0.0		11.3
Approach LOS					B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	801	2	0	611	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	871	2	0	664	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				335		
pX, platoon unblocked					0.96	
vC, conflicting volume			873		1204	436
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			873		1171	436
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			781		181	573

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	580	292	332	332	0
Volume Left	0	0	0	0	0
Volume Right	0	2	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.34	0.17	0.20	0.20	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	25.5%	ICU Level of Service	A
Analysis Period (min)	15		

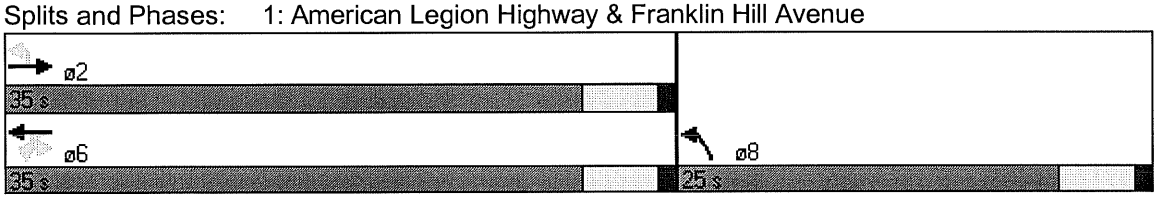
Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	
Trailing Detector (ft)	0	0		0	0	0	0	
Turning Speed (mph)	9		9	9	15		15	9
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	0.95	1.00	1.00
Frt		0.994					0.961	
Flt Protected		0.999			0.950		0.966	
Satd. Flow (prot)	0	3395	0	0	1714	3406	1696	0
Flt Permitted		0.933			0.242		0.966	
Satd. Flow (perm)	0	3171	0	0	437	3406	1696	0
Right Turn on Red			Yes					Yes
Satd. Flow (RTOR)		11					37	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35				30	30	
Link Distance (ft)		183				414	687	
Travel Time (s)		3.6				9.4	15.6	
Volume (vph)	23	791	37	2	15	526	122	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	0%	0%	6%	6%	4%	4%
Adj. Flow (vph)	25	860	40	2	16	572	133	54
Lane Group Flow (vph)	0	925	0	0	18	572	187	0
Turn Type	Perm			Perm	Perm			
Protected Phases		2				6	8	
Permitted Phases	2			6	6			
Detector Phases	2	2		6	6	6	8	
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	6.0	
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	11.0	
Total Split (s)	35.0	35.0	0.0	35.0	35.0	35.0	25.0	0.0
Total Split (%)	58.3%	58.3%	0.0%	58.3%	58.3%	58.3%	41.7%	0.0%
Maximum Green (s)	30.0	30.0		30.0	30.0	30.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	
Act Effct Green (s)		25.5			25.5	25.5	10.5	
Actuated g/C Ratio		0.57			0.57	0.57	0.24	
v/c Ratio		0.51			0.07	0.29	0.43	
Control Delay		7.2			6.1	5.7	13.2	
Queue Delay		0.0			0.0	0.0	0.0	
Total Delay		7.2			6.1	5.7	13.2	
LOS		A			A	A	B	
Approach Delay		7.2				5.7	13.2	
Approach LOS		A				A	B	
90th %ile Green (s)	26.9	26.9		26.9	26.9	26.9	14.0	
90th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Gap	

Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
70th %ile Green (s)	20.3	20.3		20.3	20.3	20.3	10.4	
70th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Gap	
50th %ile Green (s)	16.1	16.1		16.1	16.1	16.1	8.3	
50th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Gap	
30th %ile Green (s)	19.4	19.4		19.4	19.4	19.4	7.1	
30th %ile Term Code	Dwell	Dwell		Dwell	Dwell	Dwell	Gap	
10th %ile Green (s)	43.5	43.5		43.5	43.5	43.5	6.0	
10th %ile Term Code	Dwell	Dwell		Dwell	Dwell	Dwell	Min	
Queue Length 50th (ft)		53			1	28	22	
Queue Length 95th (ft)		120			10	66	76	
Internal Link Dist (ft)		103				334	607	
Turn Bay Length (ft)								
Base Capacity (vph)		2057			283	2205	685	
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		0.45			0.06	0.26	0.27	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 44.4
Natural Cycle: 40
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 7.3 Intersection LOS: A
Intersection Capacity Utilization 56.2% ICU Level of Service B
Analysis Period (min) 15
90th %ile Actuated Cycle: 50.9
70th %ile Actuated Cycle: 40.7
50th %ile Actuated Cycle: 34.4
30th %ile Actuated Cycle: 36.5
10th %ile Actuated Cycle: 59.5

Splits and Phases: 1: American Legion Highway & Franklin Hill Avenue



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	813	0	0	671	0	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	856	0	0	706	0	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				183		
pX, platoon unblocked					0.93	
vC, conflicting volume			856		1209	428
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			856		1151	428
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	93
cM capacity (veh/h)			793		181	581

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	571	285	353	353	40
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	40
cSH	1700	1700	1700	1700	581
Volume to Capacity	0.34	0.17	0.21	0.21	0.07
Queue Length 95th (ft)	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	11.7
Lane LOS					B
Approach Delay (s)	0.0		0.0		11.7
Approach LOS					B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	813	70	0	671	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	856	74	0	706	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				335		
pX, platoon unblocked					0.95	
vC, conflicting volume			929		1246	465
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			929		1210	465
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			744		170	550

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	571	359	353	353
Volume Left	0	0	0	0
Volume Right	0	74	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.34	0.21	0.21	0.21
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

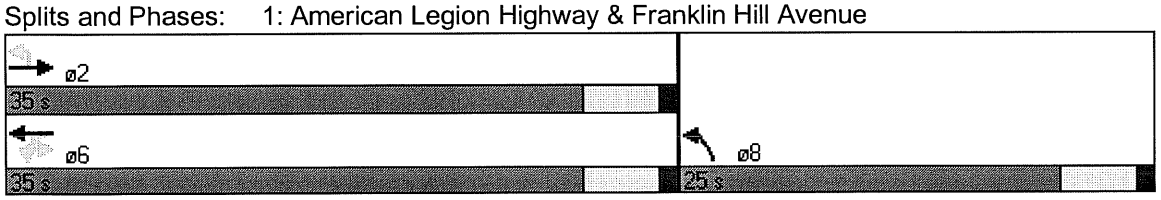
Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	
Trailing Detector (ft)	0	0		0	0	0	0	
Turning Speed (mph)	9		9	9	15		15	9
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	0.95	1.00	1.00
Frt		0.986					0.957	
Flt Protected					0.950		0.967	
Satd. Flow (prot)	0	3528	0	0	1771	3539	1742	0
Flt Permitted		0.953			0.259		0.967	
Satd. Flow (perm)	0	3362	0	0	483	3539	1742	0
Right Turn on Red			Yes					Yes
Satd. Flow (RTOR)		27					43	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35				30	30	
Link Distance (ft)		183				414	687	
Travel Time (s)		3.6				9.4	15.6	
Volume (vph)	3	763	80	3	53	886	137	64
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	2%	2%	0%	3%
Adj. Flow (vph)	3	795	83	3	55	923	143	67
Lane Group Flow (vph)	0	881	0	0	58	923	210	0
Turn Type	Perm			Perm	Perm			
Protected Phases		2				6	8	
Permitted Phases	2			6	6			
Detector Phases	2	2		6	6	6	8	
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	6.0	
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	11.0	
Total Split (s)	35.0	35.0	0.0	35.0	35.0	35.0	25.0	0.0
Total Split (%)	58.3%	58.3%	0.0%	58.3%	58.3%	58.3%	41.7%	0.0%
Maximum Green (s)	30.0	30.0		30.0	30.0	30.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	
Act Effct Green (s)		23.1			23.1	23.1	10.6	
Actuated g/C Ratio		0.55			0.55	0.55	0.25	
v/c Ratio		0.47			0.22	0.47	0.44	
Control Delay		7.0			8.4	7.2	12.4	
Queue Delay		0.0			0.0	0.0	0.0	
Total Delay		7.0			8.4	7.2	12.4	
LOS		A			A	A	B	
Approach Delay		7.0				7.2	12.4	
Approach LOS		A				A	B	
90th %ile Green (s)	25.4	25.4		25.4	25.4	25.4	14.4	
90th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Gap	

Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
70th %ile Green (s)	18.7	18.7		18.7	18.7	18.7	10.6	
70th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Gap	
50th %ile Green (s)	15.0	15.0		15.0	15.0	15.0	8.5	
50th %ile Term Code	Hold	Hold		Gap	Gap	Gap	Gap	
30th %ile Green (s)	15.9	15.9		15.9	15.9	15.9	7.1	
30th %ile Term Code	Dwell	Dwell		Dwell	Dwell	Dwell	Gap	
10th %ile Green (s)	38.6	38.6		38.6	38.6	38.6	6.0	
10th %ile Term Code	Dwell	Dwell		Dwell	Dwell	Dwell	Min	
Queue Length 50th (ft)		48			5	52	23	
Queue Length 95th (ft)		110			26	117	80	
Internal Link Dist (ft)		103				334	607	
Turn Bay Length (ft)								
Base Capacity (vph)		2165			310	2269	736	
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		0.41			0.19	0.41	0.29	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 42
Natural Cycle: 40
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 7.7 Intersection LOS: A
Intersection Capacity Utilization 64.7% ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 49.8
70th %ile Actuated Cycle: 39.3
50th %ile Actuated Cycle: 33.5
30th %ile Actuated Cycle: 33
10th %ile Actuated Cycle: 54.6

Splits and Phases: 1: American Legion Highway & Franklin Hill Avenue



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	843	1	0	1026	0	3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	878	1	0	1069	0	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				183		
pX, platoon unblocked					0.84	
vC, conflicting volume			879		1413	440
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			879		1302	440
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			777		130	571

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	585	294	534	534	3
Volume Left	0	0	0	0	0
Volume Right	0	1	0	0	3
cSH	1700	1700	1700	1700	571
Volume to Capacity	0.34	0.17	0.31	0.31	0.01
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	11.3
Lane LOS					B
Approach Delay (s)	0.0		0.0		11.3
Approach LOS					B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	844	1	0	1026	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	879	1	0	1069	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				335		
pX, platoon unblocked					0.85	
vC, conflicting volume			880		1414	440
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			880		1308	440
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			776		130	570

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	586	294	534	534	0
Volume Left	0	0	0	0	0
Volume Right	0	1	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.34	0.17	0.31	0.31	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

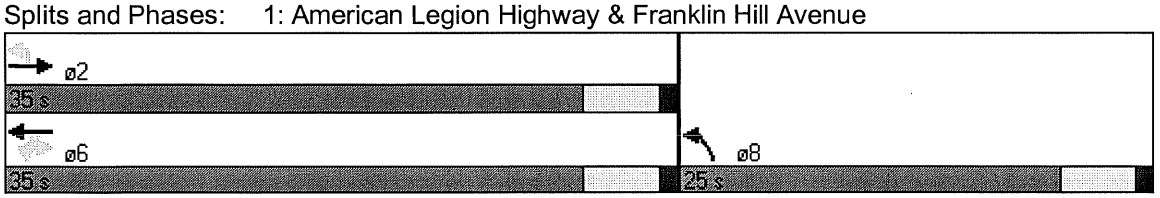
Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	
Trailing Detector (ft)	0	0		0	0	0	0	
Turning Speed (mph)	9		9	9	15		15	9
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	0.95	1.00	1.00
Frt		0.987					0.957	
Flt Protected		0.998			0.950		0.967	
Satd. Flow (prot)	0	3465	0	0	1755	3539	1742	0
Flt Permitted		0.878			0.224		0.967	
Satd. Flow (perm)	0	3049	0	0	414	3539	1742	0
Right Turn on Red			Yes					Yes
Satd. Flow (RTOR)		24					43	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		35				30	30	
Link Distance (ft)		183				414	687	
Travel Time (s)		3.6				9.4	15.6	
Volume (vph)	41	810	80	3	53	929	137	64
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	0%	0%	3%	2%	0%	3%
Adj. Flow (vph)	43	844	83	3	55	968	143	67
Lane Group Flow (vph)	0	970	0	0	58	968	210	0
Turn Type	Perm			Perm	Perm			
Protected Phases		2				6	8	
Permitted Phases	2			6	6			
Detector Phases	2	2		6	6	6	8	
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	6.0	
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	11.0	
Total Split (s)	35.0	35.0	0.0	35.0	35.0	35.0	25.0	0.0
Total Split (%)	58.3%	58.3%	0.0%	58.3%	58.3%	58.3%	41.7%	0.0%
Maximum Green (s)	30.0	30.0		30.0	30.0	30.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	
Act Effct Green (s)		25.6			25.6	25.6	10.8	
Actuated g/C Ratio		0.57			0.57	0.57	0.24	
v/c Ratio		0.55			0.24	0.48	0.46	
Control Delay		7.7			9.0	7.0	13.9	
Queue Delay		0.0			0.0	0.0	0.0	
Total Delay		7.7			9.0	7.0	13.9	
LOS		A			A	A	B	
Approach Delay		7.7				7.1	13.9	
Approach LOS		A				A	B	
90th %ile Green (s)	29.3	29.3		29.3	29.3	29.3	15.2	
90th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Gap	

Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
70th %ile Green (s)	22.1	22.1		22.1	22.1	22.1	11.0	
70th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Gap	
50th %ile Green (s)	17.3	17.3		17.3	17.3	17.3	8.7	
50th %ile Term Code	Gap	Gap		Hold	Hold	Hold	Gap	
30th %ile Green (s)	17.4	17.4		17.4	17.4	17.4	7.2	
30th %ile Term Code	Dwell	Dwell		Dwell	Dwell	Dwell	Gap	
10th %ile Green (s)	39.2	39.2		39.2	39.2	39.2	6.0	
10th %ile Term Code	Dwell	Dwell		Dwell	Dwell	Dwell	Min	
Queue Length 50th (ft)		58			6	57	26	
Queue Length 95th (ft)		137			28	128	89	
Internal Link Dist (ft)		103				334	607	
Turn Bay Length (ft)								
Base Capacity (vph)		1955			265	2258	705	
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			0.22	0.43	0.30	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 44.7
Natural Cycle: 40
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 8.0 Intersection LOS: A
Intersection Capacity Utilization 73.3% ICU Level of Service D
Analysis Period (min) 15
90th %ile Actuated Cycle: 54.5
70th %ile Actuated Cycle: 43.1
50th %ile Actuated Cycle: 36
30th %ile Actuated Cycle: 34.6
10th %ile Actuated Cycle: 55.2

Splits and Phases: 1: American Legion Highway & Franklin Hill Avenue



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	855	0	0	1107	0	76
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	900	0	0	1165	0	80
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				183		
pX, platoon unblocked					0.84	
vC, conflicting volume			900		1483	450
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			900		1383	450
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	86
cM capacity (veh/h)			763		115	562

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	600	300	583	583	80
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	80
cSH	1700	1700	1700	1700	562
Volume to Capacity	0.35	0.18	0.34	0.34	0.14
Queue Length 95th (ft)	0	0	0	0	12
Control Delay (s)	0.0	0.0	0.0	0.0	12.5
Lane LOS					B
Approach Delay (s)	0.0		0.0		12.5
Approach LOS					B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	855	74	0	1107	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	900	78	0	1165	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)				335		
pX, platoon unblocked					0.84	
vC, conflicting volume			978		1522	489
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			978		1431	489
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			714		107	530

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	600	378	583	583
Volume Left	0	0	0	0
Volume Right	0	78	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.35	0.22	0.34	0.34
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		

- Queue Analysis

Drop-Off/ Pick-Up Queue Analysis
Brooke Mattapan Charter School (475 Students)
150 American Legion Highway, Mattapan, MA

Period:	Weekday Morning Peak Hour - Drop-Off			
Input Rate (q)	38	Vehicles/30 Min		
Service Rate (u)	60	Vehicles/30 Min =	0.50	Minutes/Vehicle
No. Servers	3			
k	100			

n	p(n)	Cdist	
0	0.529785	-	
1	0.33553	0.87	
2	0.106251	0.97	**Avg**
3	0.022431	0.99	
4	0.004735	1.00	
5	0.001	1.00	
6	0.000211	1.00	
7	4.46E-05	1.00	
8	9.41E-06	1.00	
9	1.99E-06	1.00	
10	4.19E-07	1.00	
11	8.85E-08	1.00	
12	1.87E-08	1.00	
13	3.94E-09	1.00	
14	8.33E-10	1.00	
15	1.76E-10	1.00	
16	3.71E-11	1.00	
17	7.83E-12	1.00	
18	1.65E-12	1.00	
19	3.49E-13	1.00	
20	7.37E-14	1.00	

n = Number of Queued Vehicles
P(n)= probability of n queued vehicles
Cdist= Cumulative probability of n queued vehicles or less

Assumptions
1. Average service time is based on observations conducted at similar schools in the Boston area.
2. Average arrival for peak hour is based on entering trip generation.
3. Queuing algorithm based on M/M/S model, per Introduction to Operations Research, 6th Ed., Hillier & Lieberman, 1995 P. 686-689.

Drop-Off/ Pick-Up Queue Analysis
Brooke Mattapan Charter School (475 Students)
150 American Legion Highway, Mattapan, MA

Period:	Weekday Evening Peak Hour - Pick-up			
Input Rate (q)	71	Vehicles/30 Min		
Service Rate (u)	60	Vehicles/30 Min =	0.50	Minutes/Vehicle
No. Servers	3			
k	100			

n	p(n)	Cdist	
0	0.299444	-	
1	0.354342	0.65	
2	0.209652	0.86	
3	0.082696	0.95	**Avg**
4	0.032619	0.98	
5	0.012866	0.99	
6	0.005075	1.00	
7	0.002002	1.00	
8	0.00079	1.00	
9	0.000311	1.00	
10	0.000123	1.00	
11	4.85E-05	1.00	
12	1.91E-05	1.00	
13	7.54E-06	1.00	
14	2.97E-06	1.00	
15	1.17E-06	1.00	
16	4.63E-07	1.00	
17	1.83E-07	1.00	
18	7.2E-08	1.00	
19	2.84E-08	1.00	
20	1.12E-08	1.00	

n = Number of Queued Vehicles
P(n)= probability of n queued vehicles
Cdist= Cumulative probability of n queued vehicles or less

Assumptions
1. Average service time is based on observations conducted at similar schools in the Boston area.
2. Average arrival for peak hour is based on entering trip generation.
3. Queuing algorithm based on M/M/S model, per Introduction to Operations Research, 6th Ed., Hillier & Lieberman, 1995 P. 686-689.

Drop-Off/ Pick-Up Queue Analysis
Brooke Mattapan Charter School (475 Students)
150 American Legion Highway, Mattapan, MA

Period:	Weekday Morning Peak Hour - Drop-Off			
Input Rate (q)	38	Vehicles/30 Min		
Service Rate (u)	30	Vehicles/30 Min =	1.00	Minutes/Vehicle
No. Servers	3			
k	100			

n	p(n)	Cdist	
0	0.273588	-	
1	0.346545	0.62	
2	0.219479	0.84	
3	0.092669	0.93	
4	0.039127	0.97	**Max**
5	0.01652	0.99	
6	0.006975	0.99	
7	0.002945	1.00	
8	0.001243	1.00	
9	0.000525	1.00	
10	0.000222	1.00	
11	9.36E-05	1.00	
12	3.95E-05	1.00	
13	1.67E-05	1.00	
14	7.05E-06	1.00	
15	2.97E-06	1.00	
16	1.26E-06	1.00	
17	5.3E-07	1.00	
18	2.24E-07	1.00	
19	9.45E-08	1.00	
20	3.99E-08	1.00	

n = Number of Queued Vehicles
P(n)= probability of n queued vehicles
Cdist= Cumulative probability of n queued vehicles or less

Assumptions
1. Average service time is based on observations conducted at similar schools in the Boston area.
2. Average arrival for peak hour is based on entering trip generation.
3. Queuing algorithm based on M/M/S model, per Introduction to Operations Research, 6th Ed., Hillier & Lieberman, 1995 P. 686-689.

Drop-Off/ Pick-Up Queue Analysis
Brooke Mattapan Charter School (475 Students)
150 American Legion Highway, Mattapan, MA

Period:	Weekday Evening Peak Hour - Pick-up			
Input Rate (q)	71	Vehicles/30 Min		
Service Rate (u)	30	Vehicles/30 Min =	1.00	Minutes/Vehicle
No. Servers	3			
k	100			

n	p(n)	Cdist	
0	0.060154	-	
1	0.142365	0.20	
2	0.168465	0.37	
3	0.1329	0.50	
4	0.104844	0.61	
5	0.08271	0.69	
6	0.065249	0.76	
7	0.051474	0.81	
8	0.040607	0.85	
9	0.032035	0.88	
10	0.025272	0.91	
11	0.019937	0.93	
12	0.015728	0.94	
13	0.012408	0.95	**Max**
14	0.009788	0.96	
15	0.007722	0.97	
16	0.006092	0.98	
17	0.004806	0.98	
18	0.003791	0.99	
19	0.002991	0.99	
20	0.002359	0.99	

n = Number of Queued Vehicles
P(n)= probability of n queued vehicles
Cdist= Cumulative probability of n queued vehicles or less

Assumptions
1. Average service time is based on observations conducted at similar schools in the Boston area.
2. Average arrival for peak hour is based on entering trip generation.
3. Queuing algorithm based on M/M/S model, per Introduction to Operations Research, 6th Ed., Hillier & Lieberman, 1995 P. 686-689.

Drop-Off/ Pick-Up Queue Analysis - Sensitivity Analysis
Brooke Mattapan Charter School (475 Students)
150 American Legion Highway, Mattapan, MA

Input Rate (q)	165	Vehicles/30 Min		
Service Rate (u)	60	Vehicles/30 Min =	0.50	Minutes/Vehicle
No. Servers	3			
k	100			

n	p(n)	Cdist	
0	0.021707	-	
1	0.059695	0.08	
2	0.082081	0.16	
3	0.075241	0.24	
4	0.068971	0.31	
5	0.063223	0.37	
6	0.057954	0.43	
7	0.053125	0.48	
8	0.048698	0.53	
9	0.04464	0.58	
10	0.04092	0.62	
11	0.03751	0.65	
12	0.034384	0.69	
13	0.031519	0.72	
14	0.028892	0.75	
15	0.026484	0.78	
16	0.024277	0.80	
17	0.022254	0.82	
18	0.0204	0.84	
19	0.0187	0.86	
20	0.017141	0.88	
21	0.015713	0.89	
22	0.014404	0.91	
23	0.013203	0.92	
24	0.012103	0.93	
25	0.011094	0.94	
26	0.01017	0.95	**Max Queue (0.5 min/veh)**

n = Number of Queued Vehicles
P(n)= probability of n queued vehicles
Cdist= Cumulative probability of n queued vehicles or less

Assumptions
1. Average service time is based on observations conducted at similar schools in the Boston area.
2. Average arrival for peak hour is based on entering trip generation.
3. Queuing algorithm based on M/M/S model, per Introduction to Operations Research, 6th Ed., Hillier & Lieberman, 1995 P. 686-689.

Drop-Off/ Pick-Up Queue Analysis - Sensitivity Analysis
Brooke Mattapan Charter School (475 Students)
150 American Legion Highway, Mattapan, MA

Input Rate (q)	83	Vehicles/30 Min		
Service Rate (u)	30	Vehicles/30 Min =	1.00	Minutes/Vehicle
No. Servers	3			
k	100			

n	p(n)	Cdist	
0	0.020419	-	
1	0.056491	0.08	
2	0.078146	0.16	
3	0.072068	0.23	
4	0.066463	0.29	
5	0.061294	0.35	
6	0.056526	0.41	
7	0.05213	0.46	
8	0.048075	0.51	
9	0.044336	0.56	
10	0.040888	0.60	
11	0.037708	0.63	
12	0.034775	0.67	
13	0.03207	0.70	
14	0.029576	0.73	
15	0.027275	0.76	
16	0.025154	0.78	
17	0.023198	0.81	
18	0.021393	0.83	
19	0.019729	0.85	
20	0.018195	0.87	
21	0.01678	0.88	
22	0.015475	0.90	
23	0.014271	0.91	
24	0.013161	0.93	
25	0.012137	0.94	
26	0.011193	0.95	**Max Queue (1 min/veh)**

n = Number of Queued Vehicles
P(n)= probability of n queued vehicles
Cdist= Cumulative probability of n queued vehicles or less

Assumptions
1. Average service time is based on observations conducted at similar schools in the Boston area.
2. Average arrival for peak hour is based on entering trip generation.
3. Queuing algorithm based on M/M/S model, per Introduction to Operations Research, 6th Ed., Hillier & Lieberman, 1995 P. 686-689.

LEED-**NC**

LEED-SCH 2009 Registered Project Checklist

Project Name: Edward W. Brooke 2 Charter School
Project Location: Mattapan, MA

Yes	?	No			
14	7	**3**	**Sustainable Sites**		**24** Points
Y			Prereq 1	**Construction Activity Pollution Prevention**	Required
Y			Prereq 2	**Environmental Site Assessment**	Required
1			Credit 1	**Site Selection**	1
4			Credit 2	**Development Density & Community Connectivity**	4
		1	Credit 3	**Brownfield Redevelopment**	1
4			Credit 4.1	**Alternative Transportation**, Public Transportation Access	4
	1		Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
2			Credit 4.3	**Alternative Transportation**, Low-Emitting and Fuel-Efficient Vehicles	2
	2		Credit 4.4	**Alternative Transportation**, Parking Capacity	2
	1		Credit 5.1	**Site Development,** Protect or Restore Habitat	1
1			Credit 5.2	**Site Development,** Maximize Open Space	1
	1		Credit 6.1	**Stormwater Design,** Quantity Control	1
1			Credit 6.2	**Stormwater Design,** Quality Control	1
	1		Credit 7.1	**Heat Island Effect,** Non-Roof	1
		1	Credit 7.2	**Heat Island Effect,** Roof	1
		1	Credit 8	**Light Pollution Reduction**	1
	1		Credit 9	**Site Master Plan**	1
1			Credit 10	**Joint Use of Facilities**	1

Yes	?	No			
4	5	**2**	**Water Efficiency**		**11** Points
Y			Prereq 1	**Water Use Reduction, 20% Reduction**	Required
2			Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	2 to 4
	2		Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	2
		2	Credit 2	**Innovative Wastewater Technologies**	2
2	2		Credit 3	**Water Use Reduction**	2 to 4
			2	30% Reduction	2
				35% Reduction	3
				40% Reduction	4
	1		Credit 4	**Process Water Use Reduction**	1

Yes	?	No			
1	6	26	**Energy & Atmosphere**		**33** Points
Y			Prereq 1	**Fundamental Commissioning of the Building Energy Systems**	Required
Y			Prereq 2	**Minimum Energy Performance:** 10% New Bldgs or 5% Existing Bldgs Renovations	Required
Y			Prereq 3	**Fundamental Refrigerant Management**	Required
	2	17	Credit 1	**Optimize Energy Performance**	1 to19
				12% New Buildings or 8% Existing Building Renovations	1
				14% New Buildings or 10% Existing Building Renovations	2
				16% New Buildings or 12% Existing Building Renovations	3
				18% New Buildings or 14% Existing Building Renovations	4
				20% New Buildings or 16% Existing Building Renovations	5
				22% New Buildings or 18% Existing Building Renovations	6
				24% New Buildings or 20% Existing Building Renovations	7
				26% New Buildings or 22% Existing Building Renovations	8
				28% New Buildings or 24% Existing Building Renovations	9
				30% New Buildings or 26% Existing Building Renovations	10
				32% New Buildings or 28% Existing Building Renovations	11
				34% New Buildings or 30% Existing Building Renovations	12
				36% New Buildings or 32% Existing Building Renovations	13
				38% New Buildings or 34% Existing Building Renovations	14
				40% New Buildings or 36% Existing Building Renovations	15
				42% New Buildings or 38% Existing Building Renovations	16
				44% New Buildings or 40% Existing Building Renovations	17
				46% New Buildings or 42% Existing Building Renovations	18
				48% New Buildings or 44% Existing Building Renovations	19
Yes	?	No			
		7	Credit 2	**On-Site Renewable Energy**	1 to 7
				1% Renewable Energy	1
				3% Renewable Energy	2
				5% Renewable Energy	3
				7% Renewable Energy	4
				9% Renewable Energy	5
				11% Renewable Energy	6
				13% Renewable Energy	7
		2	Credit 3	**Enhanced Commissioning**	2
1			Credit 4	**Enhanced Refrigerant Management**	1
	2		Credit 5	**Measurement & Verification**	2
	2		Credit 6	**Green Power**	2

Yes	?	No			
5	**3**	**5**	**Materials & Resources**		**13** Points
Y			Prereq 1	**Storage & Collection of Recyclables**	Required
2			Credit 1.1	**Building Reuse**, Maintain % of Existing Walls, Floors & Roof	1 to 2
				Maintain 75% of Existing Walls, Floors & Roof 1	
				Maintain 95% of Existing Walls, Floors & Roof 2	
		1	Credit 1.2	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements	1
1			Credit 2.1	**Construction Waste Management**, Divert 50% from Disposal	1
1			Credit 2.2	**Construction Waste Management**, Divert 75% from Disposal	1
		1	Credit 3.1	**Materials Reuse**, 5%	1
		1	Credit 3.2	**Materials Reuse**, 10%	1
	1		Credit 4.1	**Recycled Content**, 10% (post-consumer + ½ pre-consumer)	1
		1	Credit 4.2	**Recycled Content**, 20% (post-consumer + ½ pre-consumer)	1
	1		Credit 5.1	**Regional Materials**, 10% Extracted, Processed & Manufactured Regionally	1
		1	Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manufactured Regionally	1
	1		Credit 6	**Rapidly Renewable Materials**	1
1			Credit 7	**Certified Wood**	1

Yes	?	No			
9	**9**	**1**	**Indoor Environmental Quality**		**19** Points
Y			Prereq 1	**Minimum IAQ Performance**	Required
Y			Prereq 2	**Environmental Tobacco Smoke** (ETS) **Control**	Required
Y			Prereq 3	**Minimum Acoustical Performance**	Required
1			Credit 1	**Outdoor Air Delivery Monitoring**	1
	1		Credit 2	**Increased Ventilation**	1
1			Credit 3.1	**Construction IAQ Management Plan**, During Construction	1
	1		Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1
1			Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1
1			Credit 4.2	**Low-Emitting Materials**, Paints & Coatings	1
1			Credit 4.3	**Low-Emitting Materials**, Flooring Systems	1
	1		Credit 4.4	**Low-Emitting Materials**, Composite Wood & Agrifiber Products	1
	1		Credit 5	**Indoor Chemical & Pollutant Source Control**	1
1			Credit 6.1	**Controllability of Systems**, Lighting	1
	1		Credit 6.2	**Controllability of Systems**, Thermal Comfort	1
	1		Credit 7.1	**Thermal Comfort**, Design	1
	1		Credit 7.2	**Thermal Comfort**, Verification	1
2	1		Credit 8.1	**Daylight & Views,** Daylight	1 to 3
		1	Credit 8.2	**Daylight & Views**, Views	1
	1		Credit 9	**Enhanced Acoustical Performance**	1
1			Credit 10	**Mold Prevention**	1

Yes	?	No			
2	**4**		**Innovation & Design Process**		**6** Points
1			Credit 1.1	**Innovation in Design**: Exemplary Performance - SSc5.2 … 53% open space	1
	1		Credit 1.2	**Innovation in Design**: Provide Specific Title	1
	1		Credit 1.3	**Innovation in Design**: Provide Specific Title	1
	1		Credit 1.4	**Innovation in Design**: Provide Specific Title	1
1			Credit 2	**LEED® Accredited Professional**	1
	1		Credit 3	**The School as a Teaching Tool**	1

Yes	?	No		
1	3		**Regional Priority Credits (select 4 max.)**	**4** Points

1			Credit 1.1	**Regional Priority Credit:** MRc1.1 Building Reuse: 75%	1
	1		Credit 1.2	**Regional Priority Credit:** EAc2 Renewable Energy - 1%	1
			Credit 1.3	**Regional Priority Credit:** SSc3 - Brownfield Redevelopment	1
	1		Credit 1.4	**Regional Priority Credit:** SSc6.1 - Stormwater Design, Quantity Control	1
	1		Credit 1.5	**Regional Priority Credit:** SSc7.1 - Heat Island Effect, Non-Roof	1
			Credit 1.6	**Regional Priority Credit:** SSc7.2 - Heat Island Effect, Roof	1

Yes	?	No		
36	37	37	**Project Totals (pre-certification estimates)**	**110** Points

Certified 40-49 points **Silver** 50-59 points **Gold** 60-79 points **Platinum** 80+ points