361 Belgrade Avenue, Roslindale MA

Roxbury Prep Charter High School

Small Project Review Application

January 8, 2019

Submitted Pursuant to Article 80E of the Boston Zoning Code

SUBMITTED BY:

Roxbury Prep Belgrade Avenue, LLC
c/o Uncommon Schools
826 Broadway, 9th Floor
New York, NY 10003

In Coordination with:
Upton + Partners, LLC

SUBMITTED TO:

Boston Planning & Development Agency
One City Hall Square, 8th Floor
Boston, MA 02201

PREPARED BY:

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Roxbury Prep Belgrade Avenue, LLC

January 8, 2019

Mr. Brian Golden, Director
Boston Planning and Development Agency
One City Hall Square, 9th Floor
Boston, MA 02201
Attn: Ms. Aisling Kerr, Project Manager

RE: Small Project Review Application ("SPRA")
Proposed Roxbury Preparatory Charter High School Development
361 Belgrade Avenue, Roslindale

Dear Director Golden:

On behalf of Roxbury Prep Belgrade Avenue, LLC (the "Proponent"), as developer of 43,014 square feet (approximately 1-acre) of real property located at 361 Belgrade Avenue in the Roslindale neighborhood of Boston (the "Project Site"), we are pleased to submit this Small Project Review Application ("SPRA") to the Boston Planning and Development Agency ("BPDA") in accordance with the Article 80E - Small Project Review Requirements of the Boston Zoning Code.

The Proponent envisions revitalizing this under-utilized, former automotive sales and services site in the Roslindale neighborhood, with the construction of a new charter high school facility for the long-existing and well-managed Roxbury Preparatory Charter High School. In particular, the Proposal involves the demolition of the existing uses and site redevelopment for a new structure with approximately 49,520 gross square feet (gsf) of floor area, including a three-story classroom wing, cafeteria, a gymnasium, administrative offices and storage space, two second-level exterior occupiable rooftop courtyards, and 30 spaces of valet-assisted surface parking and 46 below-level garage spaces (the "Proposed Project"). The Proposed Project has been carefully designed to include certain on-site vehicular drop-off, receiving, pedestrian safety and vehicular circulation measures to mitigate potential traffic impacts on the neighborhood.

The Project Site offers excellent transit access to downtown Boston via the adjacent MBTA Commuter Rail Bellevue Station. In addition, bus service along Belgrade Avenue will connect the high school students to Forest Hills and other Boston neighborhoods.

The Proponent has engaged in continuous community engagement over the past two-years including the following key activities:

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- Hosted numerous community gatherings in Roslindale and West Roxbury for neighbors to learn more about the project and ask questions directly to school leaders and project planners;
- Participated weekly at the Roslindale Farmer's Market to provide information to neighbors and answer questions from June - October, 2018;
- Appeared at an interfaith meeting in August, 2018 at the Theodore Parker Church to meet with school leaders and respond to questions about the project;
- Presented the Proposed Project in September, 2018 to Roslindale's Longfellow Area Neighborhood Association, and received a favorable letter from this neighborhood association;
- Held informational house gatherings at the homes of Roxbury Prep supporters in Roslindale and West Roxbury;
- Roxbury Prep supporters canvassed their neighbors with students from the school to provide more information about the Proposed Project; and
- In addition, Roxbury Prep students marched in the Roslindale Parade in October, 2018.

As a result of its continued outreach and community engagement, public support for the Proponent's proposal has expanded significantly in the immediate community and across the City, as follows:

- There has been a 302% increase in local support since filing the Letter of Intent for the original project with the BPDA in May, 2018;
- There has been a total of 813 recorded supporters from the immediate Roslindale and West Roxbury community;
- There have been 2,319 recorded supporters from across the City, registered by petition to the BPDA;
- There have been 18 Letters to the Editor sent by local residents and supporters across the City;
- The Boston Globe published an editorial in support of the project; and
- The proposal received favorable reviews from WBUR Public Radio and the Dorchester Reporter.

The Proposed Project will exceed the 20,000 square foot size threshold of Article 80E for a project within a Boston neighborhood, and, therefore, requires filings with the BPDA pursuant to Small Project Review procedures.

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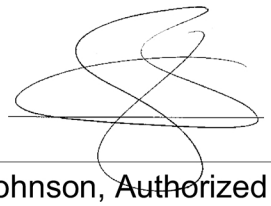
In support of the Article 80 Small Project Review process, the Proponent continues to conduct community outreach with neighbors and abutters of the Project Site, including meetings and discussions with elected representatives and other officials.

On behalf of the entire project team, we would like to thank you and the BPDA staff assigned to the Proposed Project, particularly the Project Manager, Aisling Kerr, and the reviewing BPDA Urban Designers, Michael Cannizzo and Matthew Martin, for their invaluable assistance to date in assisting the development team in shaping the Proposed Project.

We believe that the Proposed Project will constitute a significant positive addition to the Roslindale and West Roxbury neighborhoods, by revitalizing this under-utilized site with an attractive and thoughtfully designed building. We look forward to continuing the Small Project Review process and advancing the Proposed Project through public review with the cooperation of the BPDA, other City officials, and the Roslindale and nearby West Roxbury communities.

In accordance with BPDA requirements, please find attached eight (8) copies of the SPRA plus an electronic SPRA file that can be uploaded to the BPDA's online portal for public review.

Very truly yours,
ROXBURY PREP BELGRADE AVENUE, LLC



Ahkilah Z. Johnson, Authorized Representative
Roxbury Prep Belgrade Avenue, LLC
Senior Director of Facilities, Uncommon Schools

Attachment:
361 Belgrade Avenue, Roxbury Prep Charter High School
Small Project Review Application

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

This Small Project Review Application ("SPRA") is being submitted by **Roxbury Prep Belgrade Avenue, LLC** (the "Proponent") in accordance with Article 80, Section 80E, of the Boston Zoning Code ("the Code") for a new Uncommon Schools Charter High School ("Roxbury Prep"). The real estate property to be referred to as "361 Belgrade Avenue" includes several Belgrade Avenue properties on an approximately 43,014 square foot (approximately 1-acre) site bounded by the West Roxbury Parkway, the MBTA Needham Branch Commuter Line, and Anawan Avenue in the Roslindale neighborhood of Boston (the "Project Site").

1.1.1 Uncommon Schools and Roxbury Prep

Uncommon Schools is a nonprofit organization whose mission is to start and manage outstanding urban public charter schools that close the achievement gap and prepare low-income students to enter, succeed in, and graduate from college. Located in six regions across the Northeast, Uncommon manages 53 high-performing schools serving over 19,000 students and will ultimately grow to include over 60 schools serving over 22,000 students by 2020.

Roxbury Prep is a part of the Uncommon Schools network and was founded in 1999 by former Uncommon Schools CEO Evan Rudall, and U.S. Secretary of Education John King. The mission of Roxbury Prep is to prepare its students to enter, succeed in, and graduate from college. Roxbury Prep is free and open to all families living in the City of Boston and, in accordance with state law, accepts students by random, public lottery. Its existing middle-school enrollment already includes students from the Roslindale and West Roxbury neighborhoods, along with students from the Hyde Park, Roxbury, Dorchester and Mattapan neighborhoods.

1.1.2 Development Proposal

The Proponent envisions revitalizing this under-utilized, former automotive sales and services site in the Roslindale neighborhood with the construction of a new high school facility for the long-existing and well-managed Roxbury Prep Charter High School. In particular, the Proposed Project involves the demolition of the existing uses and site redevelopment for a new structure with approximately 49,520 gross square feet (gsf) of floor area plus an approximately 14,990 gsf garage.

The Proposed Project includes a 3-story classroom wing, cafeteria, a gymnasium, administrative offices and storage space, two second-level exterior occupiable rooftop courtyards and up to 30 valet spaces of surface parking and 46 below-level garage spaces. The Proposed Project has been carefully designed to include certain on-site vehicular drop-off, receiving, pedestrian safety and vehicle circulation measures to mitigate potential traffic impacts.

At the time of occupancy for the 2020 academic year, the school will have enough classrooms to accommodate freshman thru senior high school years, and 67 teachers and administrator staff. The new school will benefit students by creating a high functioning campus environment with state-of-the-art classrooms, multi-use performance/gymnasium space, common areas and recreational amenities. The charter high school currently operates under the name Uncommon Schools Roxbury Prep High School at two sites within Hyde Park and Roxbury, where it has been in operation for several years. Uncommon Schools seeks to consolidate the two existing operations into a single unified site with sufficient space and facilities to ensure the long-term success of the school.

This proposal has many important and unique characteristics. Most significant is the creation of a new charter high school facility to serve not only existing students from several Boston neighborhoods, but also increasing number of students from Roslindale and nearby West Roxbury neighborhoods.

The Project will substantially improve the existing site, replacing the existing, underutilized structures with a new active use that will improve the streetscape and surrounding properties. The Project will also improve access to the existing commuter rail drop-off activities on Anawan Avenue and the existing site's parking lot overlooking West Roxbury Parkway. The proposed new school will consist of approximately three floors across the eastern side of the Site. There also will be a new accessible pedestrian circulation path at the north side of the site providing access to the West Roxbury Parkway via the surface multi-use parking lot. While the western side of the Site will remain in use for a combination of an outdoor courtyard with permeable pavers for surface parking, new landscaping improvements will help to buffer the surface area and parking from the adjacent West Roxbury Parkway.

The new school will face Belgrade Avenue and Anawan Avenue. The building will step back from Belgrade Avenue to minimize the impact of the building massing on the street. The upper two floors are articulated to help minimize impact and create a pleasing massing for the building.

1.1.3 Project Site and Surroundings

Consisting of approximately 43,014 square feet of combined land area (approximately 1-acre), the immediate area is a mix of commercial and residential uses, with an active transportation node that includes several of the MBTA's major bus lines and the adjacent MBTA Bellevue Commuter Rail Station at the rear of the Project Site (partially accessed from Anawan Avenue). Surrounded by several abutting and nearby structures of three to four stories, the context of the surrounding neighborhood is well-suited for the scale and scope of the Proposed Project.

The Site generally slopes from a high point along West Roxbury Parkway to a low point near Anawan Avenue, a grade change of approximately of 15 to 17 feet. The Site is currently occupied by two single-story buildings occupied by the Clay Automobile Center and National Tire Brand. There is an open parking lot on the west side of the Site adjacent to West Roxbury Parkway.

To the east of the Site, across Anawan Avenue, is a recently constructed mixed-use residential/commercial building with ground level retail uses and upper floor residential condominiums. To the north of the Site are the existing MBTA commuter rail tracks and a residential neighborhood of single-family homes.

Please see See **Figure 1-1.** Project Locus, **Figure 1-2.** USGS Map, **Figure 1-3.** Existing site conditions, and **Figures 1-4** through **1-8**. Site and Surrounding Area Context Photographs.

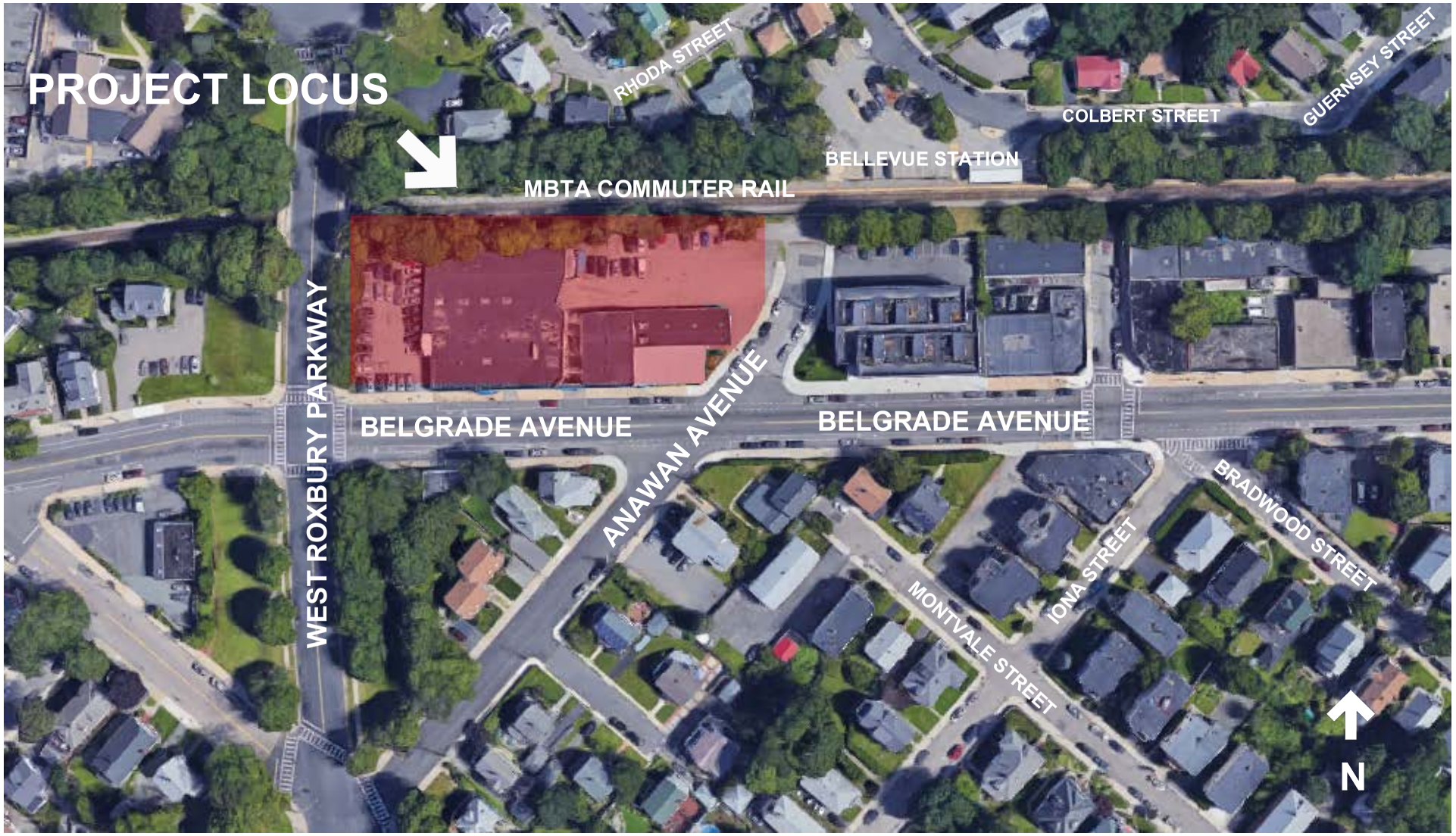
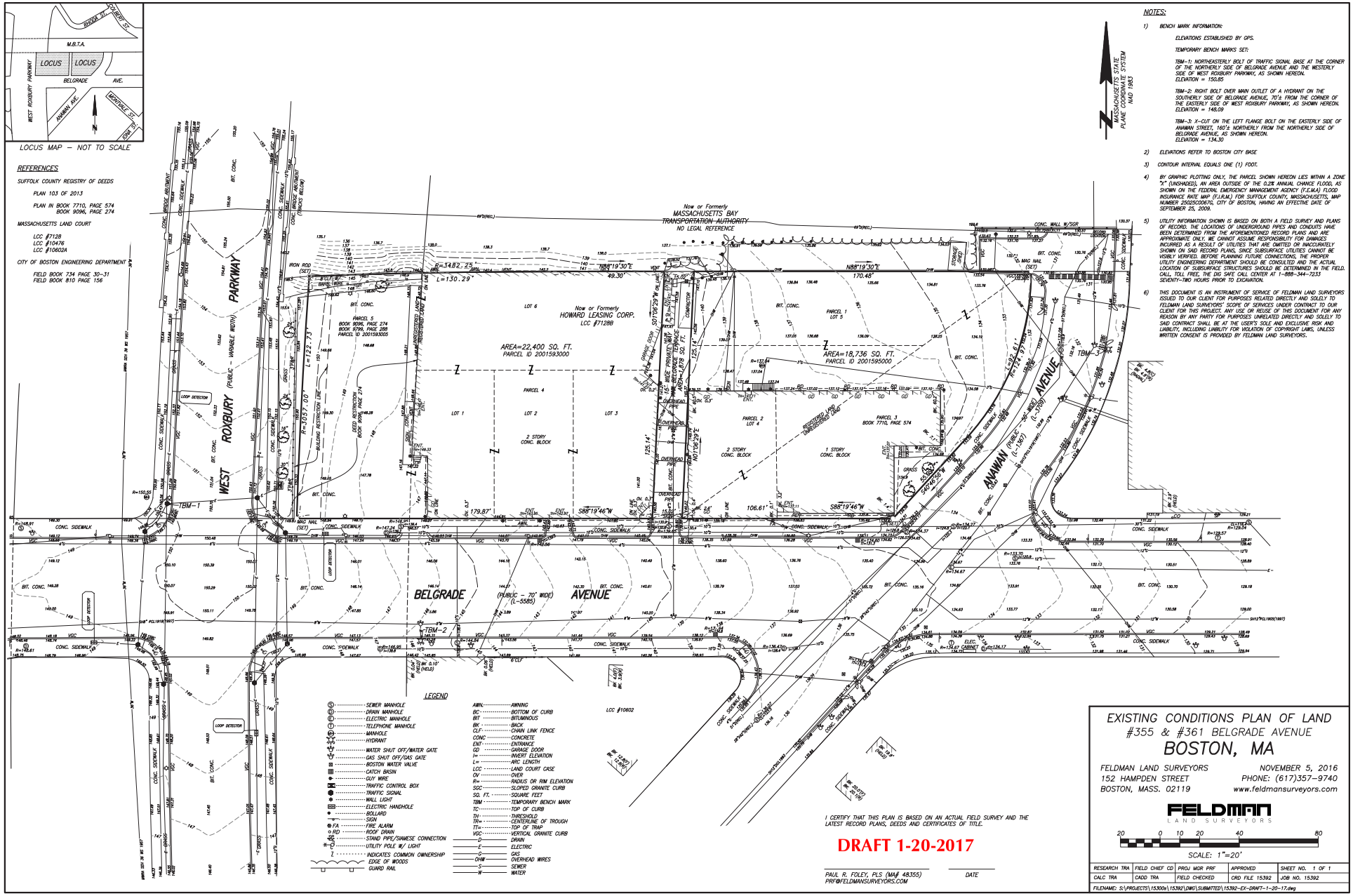


Figure 1-1. Project Locus
361 Belgrade Avenue, Roslindale

Figure 1-2. USGS Map-
361 Belgrade Avenue, West Roxbury



MLF CONSULTING LLC

Figure 1-3. Existing Conditions

361 Belgrade Avenue SPRA

View of Existing Buildings from Anawan Avenue.

View of Existing Buildings from Belgrade Avenue.

Figure 1-4 Site and Surrounding Area Photographs

View of Mixed-Use Building on other side of Anawan Avenue

View of Anawan Avenue and MBTA Commuter Rail Stop

Figure 1-5 Site and Surrounding Area Photographs

View of Lot Adjacent to West Roxbury Parkway

View of MBTA Commuter Rail Track at Rear of Site

Figure 1-6 Site and Surrounding Area Photographs

View of Rear of 361 Belgrade Avenue Site

View of Rear of Site and MBTA Bellevue Stop

Figure 1-7 Site and Surrounding Area Photographs

View of Buildings Along Belgrade Avenue and Anawan Avenue

View of Buildings Along Belgrade Avenue Across from Site

Figure 1-8 Site and Surrounding Area Photographs

1.2 Changes to the Proposed Project

1.2.1 Original Proposed Project

On May 8, 2018, the Proponent filed a Letter of Intent ("LOI") to File a Project Notification Form with the BPDA, pursuant to Article 80B - Large Project Review of the Boston Zoning Code (the "Code"), for the proposed revitalization of an under-utilized former automotive sales and services site in the Roslindale neighborhood with the construction of a new high school facility for the long-existing and well-managed Roxbury Prep Charter School (operated by Uncommon Schools). In particular, the proposal contemplated by the LOI involved the demolition of a former automobile dealership and the construction of a new three-story academic facility of approximately 92,000 gross square feet, including a three-story classroom wing, cafeteria, gymnasium, administrative and storage space, second-level outdoor pedestrian courtyard and approximately 66 on-site parking spaces, with 20 surface spaces and 46 spaces in a below-grade garage structure of approximately 11,600 gross square feet (the "Original Proposed Project").

Prior to filing its LOI on May 8, 2018 for the Original Proposed Project, the Proponent engaged in over 16-months of preliminary outreach with abutting and area residents, nearby business owners and institutions, local elected and appointed officials, and other interested parties, including the following actions:

- Organized two initial abutter meetings in January and March 2017, with participation by the Mayor's Office of Neighborhood Services;
- Made an initial presentation at the Bellevue Hill Improvement Association's community meeting in October, 2017;
- Conducted door-to-door canvassing and local interaction with abutting and nearby residents;
- Hosted a publicly-advertised open house forum in the neighborhood with attendance by over 500 members of local community and surrounding areas; and,
- Received written support from over 200 residents from the immediate area and 1,600 residents from within Boston.

As a result of the input received, the Proponent integrated certain project modifications and mitigation measures into its Original Proposed Project (as contemplated by the May 8, 2018 LOI), which was then the subject of the Elected Officials Letter to the BPDA. In particular, the Letter (see **Appenddix B**) identified the "size, transportation access and parking" as the "issues of most concern."

1.2.2 Further Public Support and Review

After filing its LOI, the Proponent's continued community engagement for the Original Proposed Project, with the following key activities:

- Hosted numerous community gatherings in Roslindale and West Roxbury for neighbors to learn more about the project and to ask questions directly to school leaders and project planners;
- Participated weekly at the Roslindale Farmer's Market to provide information to neighbors and answer questions from June-October, 2018;
- Presented at an interfaith meeting in August, 2018 at the Theodore Parker Church to meet with local residents and activists and respond to questions about the project;
- Presented a revised proposed project in September, 2018 to Roslindale's Longfellow Area Neighborhood Association;
- Roxbury Prep students marched in the Roslindale Parade in October, 2018;
- Roxbury Prep held informational house gatherings at the homes of supporters in Roslindale and West Roxbury; and
- Roxbury Prep supporters canvassed their neighbors with students from the school to share information about the project.

As a result of its continued outreach and community engagement, public support for the Original Proposed Project has expanded significantly in the immediate community and across the City, as follows (see also **Appendix C- Record of Community Support**):

- There has been a 302% increase in local support since filing the original Letter of Intent;
- There is a total of 813 recorded supporters from the immediate Roslindale and West Roxbury community;
- There are 2,319 recorded supporters from across the City, registered by petition to the BPDA;
- There have been 18 Letters to the Editor submitted by local residents and supporters across the City.
- The Boston Globe published an editorial in support of the proposed project;
- The proposed project received favorable reviews by WBUR Public Radio and the Dorchester Reporter; and
- Roslindale's Longfellow Area Neighborhood Association issued a favorable letter regarding the project.

1.2.3 Resulting Revised SPRA Project

In an effort to productively address the concerns enumerated in the Elected Officials Letter to the BPDA, as well as in response to comments and feedback from the City of Boston Transportation Department and Public Works Department, and the BPDA Planning Department (see **Appendix B** for May 13, 2018 letter), the Proponent is now proposing to significantly reduce the size and scope of its Original Proposed Project, along with a number of further design enhancements, in the following areas outlined by the Letter (as the main concerns):

1. **Proposed Size – Building Scale, Height and Student Population**

   - Reduction of anticipated student population to 562 total pupils (from its original 860).
   - Reduction of the building size by approximately 40%, to approximately 49,950 gross square feet (significantly reduced from the original 92,000 gross square foot building);
   - Reduction of building height to 2-to-3 stories and only 39 feet (with less height than its original 3-to-4 stories at 45 feet); and,
   - Substantial increase in the amount of the school's outdoor green space.

2. **Parking – On-Site Allocation for Original-Proposed Size and Scope**

   - Increased amount of on-site parking to an even greater number, combined with reduction in the new building size, scope and much smaller student population with valet parking;
   - Total on-site parking spaces could increase with valet parking to 76 spaces (from its original 66 spaces); and,
   - Total parking results in one of highest parking ratios for charter schools across the City, including the past three charter schools approved by the BPDA!

3. **Transportation Access – Existing Infrastructure for Original Proposed Project**

   - Recently improved distribution of expanded MBTA bus routes, including four (4) lines running every 6-minutes between the site and Forest Hills MBTA node;
   - Lessened demand/usage with reduced project size, scale and smaller student population, in addition to optimal MBTA commuter rail service with ample available seats;
   - Reverse commute direction for MBTA which currently has excess capacity of over 400% for the incremental demand from the school;
   - Improved plaza design and integration with the Bellevue MBTA commuter platform with additional access points into the building to further facilitate safe and efficient egress by students; and
   - Addition of direct pedestrian access to the Bellevue Commuter Line Station either from West Roxbury Parkway or via the surface multi-use parking/recreation area between the Parkway and the school facility to further commuter access for ALL residents and businesses along the Centre Street corridor (not just students).

As a result of its significant reduction in size and scale, the currently reduced scale and size proposed project is now subject to Small Project Review pursuant to Article 80E of the Code, and Large Project Review requirements are no longer required. Similarly, the extent of zoning relief is also lessened to the minimal necessary under the circumstances.

Please see **Table 1-1** below for summary information on the Proposed Project.

Table 1-1. 361 Belgrade Avenue, Approximate Project Dimensions

Lot Area:	43,014 sf (0.987 Acres)
Gross Square Feet:	14,990 gsf Garage (Non-FAR Space) 49,520 gsf Building (FAR Space)
FAR:	1.15
Floors:	2-3 Floors
Height:	39.25 feet
Parking:	76 Spaces (46 in Garage + 20* Surface Parking Spaces/30 valet-style spaces)

*With valet service, surface parking could increase to 30-spaces, bringing overall parking to 76 spaces.

The Site circulation plan is designed to create a safe and pleasant entry to the Proposed Project with two entrances, a pedestrian entrance from Belgrade Avenue and an automobile drop-off entrance from Anawan Avenue, which will also serve arriving commuter students and faculty from the MBTA Bellevue commuter rail stop at the rear of the site.

1.3 Existing Zoning

The Proposed Project is regulated by the Article 67 and other pertinent sections of the Code, which Allow the proposed Secondary School Use in the Neighborhood Shopping (NS) and 2F-5000 Subdistricts of the Roslindale Neighborhood Zoning District, which encompasses the land area at the Project Site (with the smaller 2F-5000 Subdistrict located on the surface parking lot along the West Roxbury Parkway). The Project Site is also located within a Greenbelt Protection Overlay District as well as subject to Parks Design Review Ordinance 7.4-11. Due to certain dimensional limitations and related conditions unique to the Property Site, however, it is anticipated that the Proposed Project will likely require certain zoning relief from the Floor Area Ratio, Building Height, and other possible requirements of the Code. Thus, the

Proponent intends to seek approvals from the City of Boston Zoning Board of Appeal (the "Board of Appeal"), as required and necessary for enforceable permitting of the Proposed Project.

1.4 Project, Site and Design Benefits

When completed, the new high school will provide the following improvements and public benefits to the Site and surrounding neighborhood:

- The existing commercial/ light industrial building will be replaced with a new and vibrant use that will contribute to the active streetscape of Belgrade Avenue and the surrounding neighborhood;
- The building will feature two new pedestrian terraces overlooking the street, creating multiple active edges for the building;
- The cafeteria will be designed with large storefront windows to create an active and exciting building frontage, helping to create dialogue between the school and the community;
- The end of Anawan Avenue will be reconfigured to improve automobile access, helping to create an active pick-up and drop-off for users of the MBTA Bellevue Commuter Rail Station;
- The building will have a staff and student entrance on the northeast corner nearest to the commuter rail stop, improving oversight of the rail station and limiting the impact of arriving students and staff on the adjacent residential neighbors; and
- The existing surface parking along West Roxbury Parkway will be improved with landscaping to help minimize the impact of the existing use on the Parkway.

1.5 Community and Public Benefits

The Proposed Project, with the relocation of the Uncommon Charter High School ("Roxbury Prep"), will generate a range of public benefits for the surrounding community, as discussed below:

- Currently, Roxbury Prep has had over 1,500 students enrolled across four campuses: Roxbury Prep High School; Roxbury Prep – Mission Hill; Roxbury Prep – Lucy Stone Campus; and Roxbury Prep – Dorchester Campus. All three of the middle schools serve grades 5–8 and Roxbury Prep High School currently serves grades 9-12. The proposed relocated, high school will grow to serve approximately 550 students in grades 9-12.

- The six-year college graduation rate among Boston Public Schools is 22.5%. Of the students who entered the Boston Public School system as 9th graders in 2012, 11.1% dropped out over the next five years. With a track record of success for current Roxbury Prep middle school alumni — including a five-year high school graduation rate of 95% and a six-year college graduation rate of 38% (over 3.5x times the national average for low-income students) — Roxbury Prep opened RPHS to extend its exceptional program to students in grades 9-12.

- With its high school launch, Roxbury Prep is now able to ensure a seamless, high-quality, 5th-12th grade public education continuum that prepares its students for success in college and beyond. Each Roxbury Prep campus is proving that low-income minority students in Boston can defy the odds and close the achievement gap.

- With convenient access to public transportation, the proposed site is immediately adjacent to the Bellevue Station stop on the MBTA commuter rail line as well as being serviced by several bus routes for the approximately 90% of the students to arrive by public transportation.

- The Proposed Project will create approximately 160-200 full-time construction jobs and approximately 70 permanent jobs for teachers, administrators and support staff.

- Roxbury Prep's gymnasium and cafeteria will provide space for community events outside of regular school hours. The community will also have the opportunity to enjoy the site's outdoor gathering spaces.

- The Project will replace the existing automobile dealership and repair uses with new community-oriented activities. The existing dilapidated buildings will be replaced with a new, active building designed to enhance the streetscape and improve the surrounding properties.

- The Project will also include improvements to the end of Anawan Avenue which will benefit users of the MBTA Bellevue Commuter Rail Station.

1.6 Summary of Project Impacts and Mitigation

1.6.1 Architectural Design

The overall design for the new Roxbury Prep is intended to reflect the educational vision, core values, and academic goals of the Uncommon Schools System: to start and manage outstanding urban charter public schools that close the achievement gap and prepare low-income students to graduate from college. The new building will support the educational goals of the school while contributing to the improvements of Belgrade Avenue and the surrounding neighborhood.

The proposed building design will be sensitive in both massing and material to the neighborhood. It will capitalize on the existing slope of the site to minimize the impact of the building. The major volumes of the building will be stepped and separated, replicating the adjacent commercial uses on Belgrade Avenue, while remaining sensitive to the adjacent residential streets.

A small surface visitor parking lot will be provided on the west side of the Site. The existing surface parking lot at this location will be reduced in size and improved with landscaping to screen parked cars from West Roxbury Parkway. The visitor lot will be designed and paved in a multi-use manner so as to provide an outdoor courtyard space for student and community use, yet also have the ability to be modified through the use of movable street furniture to function as a parking lot for overflow event and additional visitor parking. A larger underground garage will provide parking for the

majority of the faculty and staff. The garage will be located under the southeast portion of the building with access from Anawan Avenue.

Entries to the school will be located to create sensible adjacencies from parking, drop-off areas, and access from public transportation along Belgrade Avenue and the commuter rail stop at the end of Anawan Avenue. As further described below, approximately 90% of students are expected arrive via public transportation or walk to the Site. The main entrance will be located on Belgrade Avenue, providing access to students and staff arriving by foot or from the bus routes along Belgrade Avenue. A new pedestrian terrace will face the street, providing a gathering place for students and visitors. The cafeteria will face the pedestrian terrace with large storefront windows, helping to create an active edge for the building.

A staff and student entrance will be located on the northeast corner of the building at the end of Anawan Avenue. This entrance will be available to staff and students in the morning and afternoon to help facilitate access to the commuter rail station and the pick-up / drop-off activity at the end of Anawan Avenue. This side entrance will provide oversight to the rear of the building and will be activated with storefront glazing and landscaping. A new sloped walkway will also be provided along the northern side of the building from the northeast corner entrance up to the multi-use outdoor courtyard and visitor surface parking area on the western side of the site. This new pathway will provide an alternative circulation route around the building for students and the community.

The character of the school will be both welcoming and inclusive, achieved through building massing and organization and the placement of fenestration which allows for a clear understanding of the building's function and neighborhood hierarchy. The exterior walls of the school will include durable masonry veneer, high-density cement board and metal panels for the major materials. These will combine with metal canopies, windows, and bays to give the building a contemporary, civic, and contextual appearance. Classroom windows on all elevations allow for a high degree of transparency in the envelope, reinforcing the program of the building.

Given the sustainable goals for the project, materials selected for the project will be considered from both a first-cost and life-cycle cost perspective, employing an optimal balance between those two considerations.

1.6.2 Landscape Design and Accessibility

The site landscaping design will take cues from the established Roxbury Parkway green zone and provide areas of respite for the students and public alike. Despite an existing non-compliant grade along Belgrade Avenue, the new building will be fully accessible and will use the grade-responsive stepping of the building to provide varied accessible entries to the building.

1.6.3 Sustainable Design

Sustainability informs every design decision. Enduring and efficient buildings conserve embodied energy and preserve natural resources. The Proponent is working to minimize energy use as much as possible by evaluating every possible efficiency measure.

1.6.4 Wind

The Proposed Project is similar in massing to the nearby mixed-use apartment/office building and other buildings along Belgrade Avenue. Although the proposed 39.25-foot building height will exceed the existing zoning allowed of 35 feet, the Project is separated by the MBTA commuter rail tracks at the rear of the site, and by a major and wide roadway (Belgrade Avenue) at the building's front entrance. Therefore, the overall wind environment is not expected to change as a result of the Proposed Project.

1.6.5 Shadow

New shadow is generally limited to the streets surrounding the Site and the commuter rail tracks. Late afternoon and evening shadows will extend in a northeasterly direction toward the commuter rail station and the residential building across Anawan Avenue. Overall, the Proposed Project's shadow impacts will be consistent with current patterns and will not adversely impact the Project Site and surrounding area.

See **Section 4.1** for a more complete shadow study analysis graphically depicting the anticipated new shadow impacts from the Project compared to shadows from existing buildings. The study presents the existing and built conditions for the Project for the hours 9:00 AM, 12:00 Noon, and 3:00 PM for the vernal equinox, summer solstice, autumnal equinox, and winter solstice. In addition, shadows are depicted for 6:00 PM during the summer solstice and autumnal equinox.

1.6.6 Daylight

The Proposed Project will cause a slight increase in daylight obstruction when compared to the existing condition of the 2-story building on the site. The Project has been designed to be of a similar massing to existing buildings along Belgrade Avenue. Even though the Project would have reached a maximum of 39.25 feet in height, which is slightly higher than the existing abutting buildings along Belgrade Avenue as well as the existing zoning, daylight obstruction values from the Project are expected to be consistent with, and typical to, the surrounding neighborhood.

1.6.7 Solar Glare

It is not expected that the Proposed Project will include the use of reflective glass or other reflective materials on the building facades that would result in adverse impacts from reflected solar glare.

1.6.8 Noise Analysis

It is expected that the operation of the Proposed Project will comply with the Massachusetts DEP Noise Policy and City of Boston Noise Regulations.

Nighttime ambient baseline sound level (L_{90}) monitoring was conducted at four locations deemed to be representative of the nearby residential areas, during the time period when human activity is at a minimum and any future noise would be most noticeable. The lowest nighttime L_{90} measured in the Project area was 36 dBA.

The mechanical systems for the Proposed Project are in the early design stage. Typical sound power data for the equipment of the expected size and type for the Project have been used in the acoustic model to represent the Project's mechanical equipment.

The design for the Proposed Project is expected to require no more than approximately 220 tons of cooling load, and no more than (2) garage exhaust fans. Included in the acoustic modeling analysis completed by Tech Environmental of the building rooftop is a single 140-ton cooling tower, a 60-ton unit, and two 10-ton units, as well as two parking garage exhaust fans. An acoustic barrier (parapet wall or acoustic screen) with a minimum height of six feet is assumed around the noise generating equipment on the building roof. The anticipated mechanical equipment layout will comply with both the Massachusetts DEP noise regulations and City of Boston noise ordinances.

1.6.9 Stormwater Management and Water Quality

The Proposed Project will improve the quality of stormwater leaving this site. Under existing conditions, there are no known stormwater treatment features. The Proposed Project will occupy almost the entire Project site, however, there is an opportunity at the east side of the property to infiltrate stormwater. The overflow from the infiltration system will discharge to the 51-inch storm drain in Belgrade Avenue.

Stormwater runoff from vehicular surfaces will be collected by deep sump, hooded catch basins, and routed through proprietary water quality structures. The project will retain stormwater on site as required by the BWSC. Stormwater retention will be achieved using subsurface stormwater retention systems.

After construction, the Proposed Project will continue to consist primarily of impervious surfaces, associated with building roofs and the paved sidewalks surrounding the Site. The existing drainage patterns will not change significantly as the runoff will continue to drain to surrounding municipal storm drain systems.

All storm drain system improvements will be designed in accordance with BWSC's design standards and the BWSC "Requirements for Site Plans." A Site Plan will be submitted for BWSC approval and a General Service Application will be completed prior to any off-site storm drain

work. Any storm drain connections terminated as a result of construction will be cut and capped at the storm drain in the street in accordance with BWSC standards.

Erosion and sediment controls will be used during construction to protect adjacent properties and the municipal storm drain system. An operation and maintenance plan will be developed to support the long-term functionality of the proposed stormwater management system. All necessary dewatering will be conducted in accordance with applicable EPA, MWRA, and BWSC discharge permits. Once construction is complete, the Proposed Project will be in compliance with BWSC Site Plan requirements.

1.6.10 Solid and Hazardous Waste

Solid Waste

The Site includes two existing buildings, asphalt and concrete paving, and miscellaneous other materials. During the preparation of the Site, debris including asphalt, trash, and demolition debris will be removed from the Project Site. The Proponent will ensure that waste removal and disposal during construction and operation will be in conformance with City and DEP's Regulations for Solid Waste.

The Proposed Project will have a solid waste and single-stream dumpsters on site. The solid waste dumpster is expected to be emptied 5 times / weekly and the single stream dumpster will be emptied twice weekly. Once the commingled recyclables in the single stream dumpster are removed from the Project, they will be sorted at a Materials Recovery Facility where the recyclable materials will be separated and sent to various markets to be used in the manufacturing of new products. Roxbury Prep requires that all Commonwealth of Massachusetts and City of Boston regulations applicable to recycling and waste management must be strictly adhered to by the vendor selected to provide the waste management services to the school.

Hazardous Waste

Lightship Engineering, LLC ("Lightship Engineering") completed an ASTM Phase I Environmental Site Assessment and II Limited Site Investigation (the "Phase I and Phase II LSI Report"), on behalf of Upton + Partners, for the property located at 355 and 361 Belgrade Avenue, West Roxbury, Massachusetts ("Subject Property"). As part of the Phase I and Phase II LSI Report, Lightship Engineering reviewed the report titled *M.G.L 21E Assessment Report,* prepared by Kurz Associates, Inc. and dated December 3, 1986. No other environmental assessments were available for the property.

1.6.11 Geotechnical/Groundwater Impacts Analysis

Based on a Preliminary Geotechnical Summary for the Subject Property completed by KMM Geotechnical Consultants, LLC and dated November 9, 2016, the fill soils (approximately three to ten feet below-grade) needs to be more fully evaluated for their suitability for foundation bearing support due their poor strength and compressibility issues. If determined unsuitable, removal and replacement with structural fill are viable given the shallow depth of the excavation. Groundwater was encountered in the geotechnical borings at depths ranging from 12 to 15 feet below grade. The soils below the fill ("parent soils") were considered compact and stable.

1.6.12 Construction Impacts Analysis

Construction methodologies and scheduling will aim to minimize impacts on the surrounding environment. The Proponent will insure that the general contractor will be responsible for developing construction phasing and staging plans and for coordinating construction activities with all appropriate regulatory agencies. The Project's geotechnical consultant will also provide consulting services associated with foundation design recommendations, prepare geotechnical specifications, and review the construction contractor's proposed procedures.

The construction period for the Proposed Project is expected to extend for approximately 14 to 18 months, beginning in the third quarter 2019 and reaching completion in the third quarter of 2020.

1.6.13 Wetlands/Flood Hazard Zone

There are no wetlands within 500 feet of the Project Site. The Site is also located outside of the boundary of the 100-year floodplain. According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map (F.I.R.M.), for Suffolk County, Massachusetts, Panel 25025C0067G, Panel 67 or 151, dated September 25, 2009, the Property is above the 100-year flood level.

1.6.14 Rodent Control

The City of Boston has declared that the infestation of rodents in the City is a serious problem. In order to control this infestation, the City enforces the requirements established in the Massachusetts State Sanitary Code, Chapter 11, 105 CMR 410.550 and the State Building Code, Section 108.6 Policy Number 87-4 (City of Boston). These regulations established that extermination of rodents should be required for issuance of permits for demolition, excavation, foundation, and basement rehabilitation. The Proponent will develop a rodent control program prior to construction commencement.

1.6.15 Historic Resources

The site uses includes a used car lot, a former automobile dealership building and NTB National Tire & Battery. Abutting the site is the West Roxbury Parkway to the west, residential buildings to the south and the MBTA Bellevue Commuter Rail Station to the north.

The Proposed Project site is located within one-quarter mile of some historically significant residential and other properties. The West Roxbury Parkway, itself a Historic National Register District, abuts the Project site to the west.

The West Roxbury Parkway Historic National Register District is certified by the National Park Service within the Metropolitan Park System of Greater Boston and runs southeast to northwest in the West Roxbury neighborhood of Boston and Brookline, Massachusetts. Its northwestern terminus is the Horace James Circle, where it converges with other roadways including the Hammond Pond Parkway. Its southern terminus is Washington Street at the northern edge of the Stony Brook Reservation. It spans approximately 12-acres and runs 3-miles long, was constructed between 1919 and 1929 and designed by architects Charles Eliot and the Olmsted Brothers. Its historic and current functions are characterized as outdoor recreation and culture, landscape including parks and a conservation area, and road related transportation. It is significant as an intact example of a connecting parkway designed for the Metropolitan Parks Commission, designed and built to provide a connection between the Stony Brook, Fowl Meadows and Blue Hills Reservations and the Arnold Arboretum, Franklin Park and Jamaica Pond. The district was certified as a National Historic District in 2005.

No known archaeological resources were located within the Project site during the review of Massachusetts Historic Commission files and MACRIS; therefore, no impacts to archaeological resources are anticipated. In addition, a report on the West Roxbury Parkway references a low potentiality for Native American archaeological sites located within the adjacent West Roxbury Parkway National Historic District, but none have been identified at this time.

1.6.16 Infrastructure Systems

The Project's Civil and MEP Engineers will coordinate with the City agencies and private utility companies responsible for the area's utility systems as the design progresses. Utility connections will be designed to minimize impacts to the surrounding area and all appropriate permits and approvals will be acquired prior to construction.

The Boston Water and Sewer Commission (BWSC) owns and operates the sanitary sewer, storm drain, and water distribution systems in the City of Boston. A BWSC approved Site Plan and General Service Application is required for the construction of proposed sewer, storm drain, and water connections to the mains. The Proponent will submit the General Service Application and Site Plans to BWSC for review and approval prior to construction. The Site Plans will indicate the existing and proposed sewer lines, storm drain lines, and water mains within the site and in the abutting public ways. The proposed connections to the sewer, storm drain, and water distribution

systems will be designed in conformance with the BWSC's Site Plan requirements. The Site Plans will show any existing utilities to be abandoned, the locations of proposed connections, and the limit of work to be performed in the public ways. Abandoned services will be cut and capped at the main line according to BWSC standards.

The following items will be coordinated with the respective city agencies and utility companies:

- The Boston Fire Department reviews projects with respect to fire protection measures such as fire department connections, standpipes and hydrants.
- Energy and telecommunication system sizing and connections will be coordinated with the respective utility providers.
- New utility connections are authorized by the City of Boston Public Works Department through the street opening permit process.

1.6.17 Transportation

Appendix D presents the comprehensive transportation study completed by Howard Stein Hudson for the proposed Project in conformance with the BTD *Transportation Access Plan Guidelines* (2001). The study analyzes existing conditions within the Project study area, as well as conditions forecast to be in place under the seven-year planning horizon of 2023.

Howard Stein Hudson (HSH) has conducted an evaluation of the transportation impacts of a proposed charter high school to be located at 361 Belgrade Avenue (the "Project" and/or "Site") in Boston's Roslindale neighborhood. The transportation study adheres to the Boston Transportation Department (BTD) Transportation Access Plan Guidelines and the Boston Planning and Development Agency's (BPDA) Article 80 development review process. The study includes an evaluation of existing conditions, future conditions with and without the Project, projected parking demand, transit services, and pedestrian and bicycle activity, as well as conditions forecast to be in place under the seven-year planning horizon of 2023.

Vehicular access/egress will be provided in two locations. Access to a 46-space parking garage will be provided by a new curb-cut along the west side of Anawan Avenue. A second point of access will be provided along the north side of Belgrade Avenue to a courtyard that can accommodate up to an additional 30 valet-assisted vehicles for event and overflow parking. Anawan Avenue, north of Belgrade Avenue, will be reconstructed to provide a new time-restricted short-term pick-up/drop-off area that will serve both the school and the Bellevue Commuter Rail station. The Proponent is also exploring potential modifications to the curb usage along Belgrade Avenue, adjacent to the Site, to allow for additional pick-up/drop-off or other school related activity. All changes to the public right-of-way, including the reconstruction of Anawan Avenue, and changes to parking regulations will require BTD review and approval.

The Project is expected to generate approximately 262 vehicular trips on a typical school day, with 53 staff trips entering the school in the morning and exiting the school in the afternoon, and 39 vehicles completing pick-up/drop-off maneuvers during both the weekday a.m. and p.m. peak hours.

Many students are expected to utilize the bus from Forest Hills Station. A significant percentage of students that currently attend the Roxbury Prep High School are from the neighborhoods of Dorchester, Dudley, Mattapan, Hyde Square, and Roslindale. These students are expected to take one of many bus lines or the Orange Line that serve Forest Hills, and then transfer to a bus that serves the Project. Students from South Boston, Charlestown, and Back Bay that have access to South Station or Back Bay Station are expected to utilize the Needham Line to travel to Bellevue Station, adjacent to the Project. In addition, some students might transfer to the Needham Line at Forest Hills instead of transferring to a bus route.

Based on the residential zip codes of the existing student population, it is estimated that 75% of the students will use the bus and 25% of the students will use the Needham Line.

The Proponent is committed to implementing a transportation demand management ("TDM") program that supports the City's efforts to reduce dependency on the automobile by encouraging alternatives to driving alone, especially during peak travel periods. Proposed measures include, but are not limited to, providing transit information (schedules, maps, and fare information) to students and staff, providing on-site bicycle storage, providing a transit pass program to the students, and designating a transportation coordinator for the school. The transportation coordinator will oversee all transportation issues including managing vehicular operations, service and loading, parking, and TDM programs.

1.6.18 Response to City of Boston Accessibility Guidelines

The Proponent's response to the City of Boston Accessibility Guidelines is contained in **Appendix A.** When completed, the Project will be fully in conformance with state and federal guidelines for accessibility, including the requirements of 521 CMR Architectural Access Board and the Americans with Disabilities Act (ADA).

2.0 GENERAL INFORMATION

2.1 Applicant Information

2.1.1 Project Proponent and Developer

Uncommon Schools is a nonprofit organization whose mission is to start and manage outstanding urban public charter schools that close the achievement gap and prepare low-income students to enter, succeed in, and graduate from college. Located in six regions across the Northeast, Uncommon manages 53 high-performing schools serving over 19,000 students and will ultimately grow to include over 60 schools serving over 22,000 students by 2020.

Uncommon actively works to close the racial and socioeconomic achievement gap. With that in mind, Uncommon offers a rigorous, engaging academic system which ensures that students meet the network's high standards and are prepared for college. Academic programs are based on practices and approaches that have proven effective in producing significant academic gains across the Uncommon portfolio — some of the highest-performing urban public schools in the country. Each school exhibits the following key attributes: 1) a college preparatory mission; 2) high standards for academics and character; 3) an academically-focused learning environment; 4) a longer school day and a longer school year; 5) a focus on accountability and data-driven instruction; and 6) a faculty of committed and talented leaders and teachers.

Year after year, Uncommon Schools have consistently proven that they can defy the odds with students reversing the racial and economic achievement gaps on state exams. Although students typically enter Uncommon scoring on average two years below grade level, by their second year at an Uncommon School these same students have closed or are close to closing the academic achievement gap.

Upton + Partners, LLC is a real estate development company focused on executing development projects in the Boston Metropolitan area with unique and award-winning projects. Through clear vision and sound management, Upton + Partners have successfully created projects both for our own account and for select clients. Its unique portfolio consists of commercial mixed-use, residential, retail, cultural, medical, office, sports and entertainment facilities.

Upton + Partners' direct knowledge of the interrelationships of the differing real estate disciplines (investment, design, entitlement, finance, construction, operations) enable the company to execute unique real estate solutions to deliver distinctive projects that achieve superior results to their stakeholders. Upton + Partners' philosophy is to focus on opportunities that are selective and uniquely innovative, and have the prospect of contributing innovative solutions to communities.

2.1.2 Project Team

Project Name	361 Belgrade Avenue, Roslindale (Boston)
Project Proponent	**Roxbury Prep Belgrade Avenue LLC** **c/o Uncommon Schools** 826 Broadway, 9th Floor New York, NY 10003 Ahkilah Z. Johnson Senior Director of Real Estate & Facilities ajohnson@uncommonschools.org Tel: 916-583-7548 Cell
Property Developer (Based on a 99-Year Lease)	**Upton + Partners** 191 Lowder Street, 2nd Floor Dedham, MA 02026 Jake Upton, Partner j.upton@uptonpartners.com Tel: 781-326-9997 Direct
Article 80 Permitting Consultant	**Mitchell L. Fischman Consulting LLC** **("MLF Consulting")** 41 Brush Hill Road Newton, MA 02461 Mitchell Fischman mitchfischman@gmail.com Tel: 781-760-1726
Media Consultants	**Dot Joyce** 20 Park Plaza, Suite 447 Boston, MA 02116 Tel: 617-592-2967 dotjoyce1@gmail.com **Northwind Strategies** 55 Court Street, Suite 340 Boston, MA 02108 Tel: 617-367-0300 Autumn McLaughlin autumn@northwindstrategies.com Rosy Gonzalez Speers rosy@northwindstrategies.com

Local Counsel	**McDermott Quilty & Miller LLP** 28 State Street, Suite 802 Boston, MA 02109 Joseph Hanley, Esq. - Partner jhanley@mqmllp.com Tel: 617-946-4600, Ext. 4438 Nicholas Zozula, Esq. nzozula@mqmllp.com Tel: 617-946-4600 Ext. 4440
Architect	**SMMA / Symmes Maini & McKee Associates** 1000 Massachusetts Avenue Cambridge, MA 02138 Matthew Rice, Project Architect, AIA Tel: 617-520-9489 mrice@smma.com
Transportation Planner	**Howard Stein Hudson** 11 Beacon Street, Suite 1010 Boston, MA 02108 Tel: 617-482-7080 Brian Beisel bbeisel@hshassoc.com Michael Littman mlittman@hshassoc.com
Civil Engineer	**Nitsch Engineering, Inc.** 2 Center Plaza, Suite 430 Boston, MA 02108 Tel: 617-338-0063 Chelsea Christenson, PE cchristenson@nitscheng.com
Landscape Architect	**Terraink, Inc** 7 Central Street, Suite 150 Arlington, MA 02476 Jade Cummings, RLA, President

MEP Engineer	**SMMA / Symmes Maini & McKee Associates** 1000 Massachusetts Avenue Cambridge, MA 02138 Tel: 617-520-9489 Andrew K. Oldeman, PE
Construction Management	A construction manager will be selected for the project in accordance with the State required Ch. 149A Construction Manager at Risk process.
Construction Estimator	**PM&C** 20 Downer Avenue, Suite 1C Hingham, MA 02043 Peter Bradley, BSCQ.S, LEED AP peterbradley@pmc-ma.com Tel: 781-740-8007 Eileen Curto eileencurto@pmc-ma.com Tel: 781-740-8007
Environmental/ Geotechnical Engineer	**Lightship Engineering LLC** 39 Industrial Park Road Plymouth, MA 02360 Tel: 508-830-3344 Timothy Condon tcondon@lighshipengineering.com Tel: 617-291-8916 Cell

Project Schedule	**361 Belgrade Avenue**
Construction Commencement	3rd Quarter 2019
Construction Completion	3rd Quarter 2020
Status of Project Design	Schematic
Estimated Project Cost	$23,000,000

2.2 Legal Information

Legal Judgments or Actions Pending Concerning the Proposed Project:

None.

History of Tax Arrears on Property Owned in Boston by the Applicant:

There are no tax arrears on property owned by the Proponent.

Nature and Extent of Any and All Public Easements and Deed Restrictions:

The Project Site which will be leased to the development entity for 99-years is bounded by streets containing sewer, electric, telephone, and gas utilities. There is a deed restriction for a portion of the site along the West Roxbury Parkway restricting the use to parking spaces, as proposed.

2.3 Regulatory Controls and Permits

2.3.1 Compliance with Boston Zoning Code - Use and Dimensional Requirements

The Proposed Project is regulated by the Article 67 and other pertinent sections of the Code, which Allow the proposed Secondary School Use in the Neighborhood Shopping (NS) and 2F-5000 Subdistricts of the Roslindale Neighborhood Zoning District, which encompasses the land area at the Project Site (with the smaller of the three parcels, the surface parking lot along the West Roxbury Parkway, located in the 2F-5000 Subdistrict). The Project Site is also located within the West Roxbury Parkway Greenbelt Protection Overlay District, as referenced in Section 67-25 of Article 67 as well as subject to Parks Design Review Ordinance 7.4-11. Due to certain dimensional limitations and related conditions unique to the Property Site, however, it is anticipated that the Proposed Project will likely require certain zoning relief from the Floor Area Ratio, Building Height, and other possible requirements of the Code. Thus, the Proponent intends to seek approvals from the Board of Appeal, as required and necessary for enforceable permitting of the Proposed Project (see **Table 2-1. NS and 2F-5000 Subdistricts- Zoning Compliance).**

Specifically, relief will be required from the Board of Appeal as the proposed structure exceeds the maximum allowable floor-area-ratio (1.0 is allowed and 1.15 is proposed). It also slightly exceeds the height limitations for the district (39.25 ft is proposed and 35 feet is allowed). Relief may also be required for front and/or rear yard setbacks, depending on interpretation by the Inspectional Services Department upon initial review of the Proposed Project plans.

2.3.2 Compliance with Parking and Off-Street Loading Requirements

The Project provides 46 below-grade and 20 at-grade surface parking spaces in a garage for a total of 66 spaces (with up to 76 spaces with valet services). The school has estimated that is expects there will be approximately 67 teachers, administrators and other staff at the facility, and that the

proposed parking will be sufficient to accommodate them as 79% of this group will arrive by individual car or carpool.

It is proposed that a portion of the entry drive from Anawan Avenue serve as a loading area as the drive can accommodate a 40-foot long truck. Nevertheless, more formal relief may be required from the Board of Appeal to recognize this area for both access and loading purposes.

Table 2-1. NS and 2F-5000 Subdistricts (Article 67) – Zoning Compliance

Dimensional Element	NS Subdistrict	2F-5000 Subdistrict	Proposed Project (1)	Conditional Use Permits/ Variance(s) Required?
Minimum Lot Size	None	8,000 SF	43,014 SF	No
Lot Area for Each Additional Unit	N/A	N/A	N/A	No
Maximum Floor Area Ratio	1.0	0.5	1.15	Yes
Maximum Building Height	35-Feet / 3-Stories	35 -Feet / 2-1/2 Stories	39.25 Feet / 3-Stories	Yes
Minimum Lot Width	None	50 Feet	124.22 Feet	No
Minimum Lot Frontage	None	50 Feet	122.67 Feet	No
Minimum Usable Open Space per Dwelling Unit	None	1,750 sf	N/A	No
Minimum Front Yard	10 Feet	20 Feet	19.11 Feet (2)	Yes
Minimum Side Yard	10 Feet (3)	10 Feet	2.75 Feet	Yes
Minimum Rear Yard	10 Feet	40 Feet	58 Feet (2)	No

Dimensional Element	NS Subdistrict	2F-5000 Subdistrict	Proposed Project (1)	Conditional Use Permits/ Variance(s) Required?
Minimum Number of Parking Spaces	35 (0.7 spaces per 1,000sf of gross floor area)	35 (0.7 spaces per 1,000sf of gross floor area)	76 Spaces (46 in Garage + 20 Surface Parking Spaces or 30 Valet-Style Spaces)	No
Minimum Number of Loading Bays	1	1	1	Yes (based on potential location/access)

(1) The dimensions described in this table may change as the Proposed Project undergoes design review with the BPDA.
(2) Finalizing Front and Rear Yard setbacks will be determined after access to the building is finalized.
(3) In a Neighborhood Business Subdistrict, no side yard is required except in the case of a lot with a side lot line abutting a Residential Subdistrict, which shall have side yards as if it were in such abutting district.

Table 2-2. Preliminary List of Permits or other Approvals Which May Be Sought

Agency Name	Permit or Action*
Federal and State Agencies	
U.S. Environmental Protection Agency	Notice of Intent for EPA Construction Activities General Discharge Permit with associated SWPPP, If Required
MA Department of Transportation	Chapter 40, Section 54A Clearance, If Required
MA Department of Conservation and Recreation (DCR)	Due to Proximity to West Roxbury Parkway, may require DCR site planning review
MA Department of Environmental Protection, Division of Water Pollution Control	Sewer Connection Self-Certification (if sewage generation is less than 50,000 gpd)
MA Department of Environmental Protection, Division of Air Quality Control	Fossil Fuel Permit, If Required
Local Agencies	
Boston Planning and Development Agency	Article 80E- SPRA Review; Certificate of Completion
Boston Transportation Department	Construction Management Plan
Boston Parks Commission	Proposed Project is within 100 feet of Greenbelt Overlay District and Subject to Parks Commission Review
Zoning Board of Appeal	Variances and/or Conditional Use Permits, If Required
Boston Landmark Commission	Possible Article 85 Demolition Delay – Subject to Article 85 if buildings are at least 50-years of age or greater
Boston Public Safety Commission Committee on Licenses	License to Store Flammables; Garage License, if Garage is proposed

Local Agencies (Continued)	
Boston Fire Department	Approval of Fire Safety Equipment
Boston Water and Sewer Commission	Review of Utility Easement thru Site; Approval for Sewer and Water and Connections; Site Plan Review; Construction Site Dewatering; and Storm Drainage
Boston Department of Inspectional Services	Initial Denial of Building Permit and Issuance of Turndown Letter for ZBA Filing; Issuance of Building Permits; Certificates of Occupancy; Other Construction-Related Permits

*This is a preliminary list based on project information currently available. It is possible that not all of these permits or actions will be required, or that additional permits may be needed.

2.4 Community Engagement and Agency Coordination

Prior to submitting this Small Project Review Application, the Proponent engaged in over two years of extensive and continuous outreach with abutting and area residents, nearby business owners and institutions, local elected and appointed officials, and other interested parties, including the following actions:

- Organized two initial abutter meetings in January and March 2017, with participation by the Mayor's Office of Neighborhood Services;
- Made an initial presentation at the Bellevue Hill Improvement Association's community meeting in October, 2017;
- Hosted a publicly-advertised open house forum in the neighborhood with attendance by over 500 members of local community and surrounding areas;
- Hosted numerous community gatherings in Roslindale and West Roxbury for neighbors to learn more about the project and ask questions directly to school leaders and project planners;
- Participated weekly at the Roslindale Farmer's Market to provide information to neighbors and answer questions from June - October, 2018;
- Appeared at an interfaith meeting in August, 2018 at the Theodore Parker Church to meet with school leaders and respond to questions about the project;
- Presented the Proposed Project in September, 2018 to Roslindale's Longfellow Area Neighborhood Association, and received a favorable letter from this neighborhood association;
- Held informational house gatherings at the homes of Roxbury Prep supporters in Roslindale and West Roxbury;
- Roxbury Prep supporters canvassed their neighbors with students from the school to provide more information about the Proposed Project; and
- In addition, Roxbury Prep students marched in the Roslindale Parade in October, 2018.

As a result of the input received, the Proponent has integrated certain project modifications and mitigation measures into the Proposed Project.

The Proponent will continue to meet with public agencies, neighborhood representatives, local business organizations, abutting property owners, and other interested parties, and will follow the requirements of Article 80 pertaining to the public review process.

3.0 DESIGN

3.1 Architectural Design Concept

The new Roxbury Prep High School has been designed to reflect the educational vision, core values, and academic goals of the Uncommon Schools System: to start and manage outstanding urban charter public schools that close the achievement gap and prepare low-income students to graduate from college. The new building will support the educational goals of the school while contributing to the improvements of Belgrade Avenue and the surrounding neighborhood.

The proposed building design will be sensitive in both massing and material to the neighborhood. It will capitalize on the existing slope of the site to minimize the impact of the building. The major volumes of the building will be stepped and separated, replicating the adjacent commercial and industrial uses on Belgrade Avenue, while remaining sensitive to the adjacent residential streets.

A small visitor parking lot will be provided on the west side of the Site. The existing surface parking lot at this location will be reduced in size and improved with landscaping to screen the cars from West Roxbury Parkway. The visitor parking lot will be designed to function as an outdoor pedestrian courtyard for the majority of the time, but will incorporate movable street furnishings that will allow cars to enter at controlled times for overflow parking during events. A larger underground garage will provide parking for the faculty and staff. The garage will be located under the southern portion of the building with access from Anawan Avenue.

Entries to the school will be located to create sensible adjacencies from parking, drop-off areas, and access from public transportation along Belgrade Avenue and the commuter rail stop at the end of Anawan Avenue. As further described below, approximately 90% of students walk to the Site or arrive via public transportation. The main entrance will be located on Belgrade Avenue, providing access to students and staff arriving by foot or from the bus routes along Belgrade Avenue. A new pedestrian terrace will face the street, providing a gathering place for students and visitors. The cafeteria will face the pedestrian terrace with large storefront windows, helping to create an active edge for the building.

A staff and student entrance will be located on the northeast corner of the building at the end of Anawan Avenue. This entrance will be available to staff and students in the morning and afternoon to help facilitate access to the commuter rail station and the pick-up / drop-off activity at the end of Anawan Avenue. This side entrance will provide oversight to the rear of the building and will be activated with storefront glazing and landscaping.

A new connecting pedestrian pathway will be constructed on the northern side of the school between the new building and the MBTA right-of-way. This new sloped walkway will connect the staff and student entrance located in proximity to the commuter rail station to the new pedestrian courtyard that will double as the visitor parking area at the western side of the site. It will offer a secondary method of accessible circulation across the site and will help mitigate the density of pedestrians moving along Belgrade Avenue.

3.2 Materials and Finishes

The character of the school will be both welcoming and inclusive, achieved through building massing and organization and the placement of fenestration which allows for a clear understanding of the building's function and neighborhood hierarchy. The exterior walls of the school will include durable masonry veneer, metal panels and high-density cement board for the major materials. These will combine with metal canopies, windows, and bays to give the building a contemporary, civic, and contextual appearance. Classroom windows on all elevations allow for a high degree of transparency in the envelope, reinforcing the program of the building.

Given the sustainable goals for the project, materials selected for the project will be considered from both a first-cost and life-cycle cost perspective, employing an optimal balance between those two considerations.

3.3 Landscape Design

The building is surrounded on four sides by landscaping of varying character, and the landscape approach addresses each of these sides differently.

The site landscaping design will take cues from the established West Roxbury Parkway green zone and provide areas of respite for the students and public alike. Despite an existing non-compliant grade along Belgrade Avenue, the new building will be fully accessible and will use the grade-responsive stepping of the building to provide varied accessible entries to the building.

Along Belgrade Avenue, the building fronts the sidewalk for practically the entire length of the property frontage with little opportunity for greenscape within the property. From the back of curb to face of building is approximately 8 feet. As a result, the Proponent intends to improve the streetscape along this edge by following Boston Complete Streets guidelines; creating a furnishings zone, installing decorative paving along the curb edge and planting street trees in a 4-feet wide planting strip or in tree grates. The rhythm of the street tree planting strip is only interrupted by the mid-block short term parking space for functional purposes.

The trees help to create a pedestrian zone, bring scale to the building, reduce the heat island effect (as this is the southern exposure of the site), and create a buffer between cars and pedestrians. Signage and other site furnishings such as benches or bicycle racks may be added between the trees to help strengthen the separation between traffic and pedestrians. The trees will meet City of Boston standards for species selection for under utility lines since there are existing overhead wires that will remain in place.

The proposed terracing and stairs along Belgrade Avenue are intended to resolve the sloping site and allow an opportunity to create interesting pedestrian spaces between the sidewalk and building entry, with seating, lighting and raised or freestanding planters.

At the west end of the site, the existing paved parking area will be removed, the area re-graded, and improved to create a new 20 space surface parking lot. The edge of the new parking lot will be further from both West Roxbury Parkway and Belgrade Avenue, allowing for improved and expanded landscaped edges.

There are existing mature Zelkova trees in the West Roxbury Parkway right of way that will not be disturbed and that provide an effective green buffer to the site. By increasing the green space by 8-10 feet and regrading the parking lot, cars will be shielded from view from the Parkway with a retaining wall and shrubs plantings on top of the wall.

The northern edge of the site borders the MBTA commuter rail right of way and is currently characterized by volunteer vegetation consisting of a variety of deciduous trees and undergrowth. The volunteer vegetation along the northern edge of the site will be removed and replaced by the sloped pedestrian walkway that will connect the eastern and western ends of the site. The edge of the walkway will incorporate protective safety fencing that will prevent access to the rail right of way from the walkway itself.

At the east end of the site, Anawan Avenue, a dead-end street, will be improved by re-aligning the intersection with Belgrade Ave. and an expanding the turnaround to provide a vehicular drop off/pick up space that will serve both the school and the commuter rail station. Because many students, staff, and guests will be utilizing the commuter rail station, this is an important pedestrian space. An attractive landscaped entry plaza will be built at the northeast corner of the building, with seating, lighting and special paving. Special design consideration for safety in this area is paramount due to the proximity of cars, trucks and trains to pedestrians. This will take the form of curbing, bollards, fencing and hedge plantings. The proposed loading area and garage access will be screened from view with a site wall or fence and plantings.

Finally, if funding permits, there will be a pair of rooftop courtyards at the second-floor level of the building. These occupiable roof spaces are anticipated to include seating, tables and raised planters for social and educational uses, and appropriate perimeter guards to accommodate all rooftop safety requirements, and appropriate perimeter guards to accommodate all rooftop safety requirements.

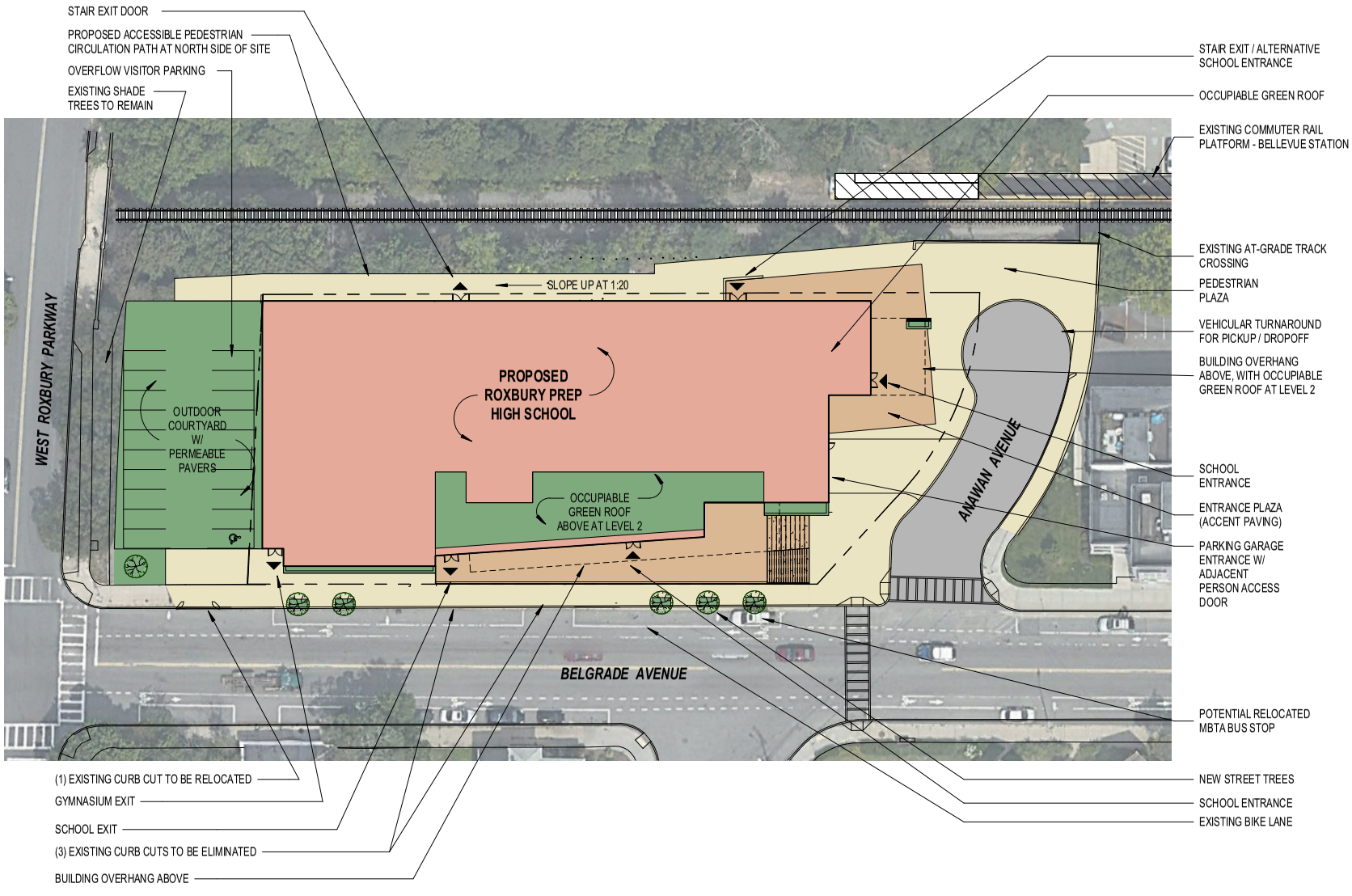
Discussion of design elements for the proposed new building is provided in the sections below, and is illustrated on the plans, perspectives, and photographs that are included at the end of this section (see **Figures 3-1** through **3-12).**

3.4 Response to Article 80 Accessibility Guidelines

See **Appendix A.**

3.5 Design Drawings and Perspectives

The 361 Belgrade Avenue design drawings and perspectives are contained in the following section and include:



PROPOSED SITE/LANDSCAPE PLAN

1" = 40'-0"

SECTION 3.5 FIGURE 3-1

ROXBURY PREP HS

NOVEMBER 17, 2018

Uncommon Schools | ROXBURY PREP

SMMA

PROPOSED FLOOR PLAN - LOWER LEVEL

1" = 20'-0"

SECTION 3.5 FIGURE 3-2

ROXBURY PREP HS

NOVEMBER 17, 2018

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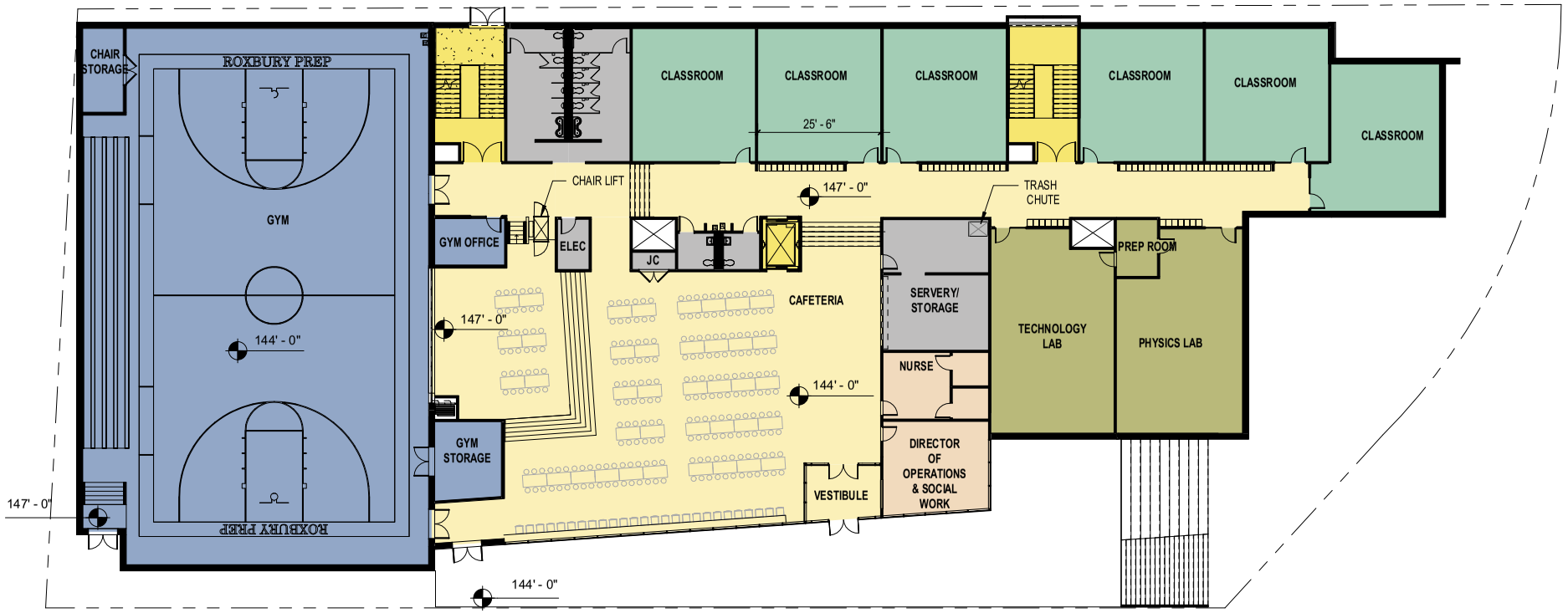
SMMA



PROPOSED FLOOR PLAN - FIRST FLOOR

1" = 20'-0"

SECTION 3.5 FIGURE 3-3

ROXBURY PREP HS

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PROPOSED FLOOR PLAN - SECOND FLOOR

1" = 20'-0"

SECTION 3.5 FIGURE 3-4

ROXBURY PREP HS

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EXISTING AERIAL

SECTION 3.5 FIGURE 3-5

ROXBURY PREP HS
NOVEMBER 17, 2018

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SMMA

PROPOSED AERIAL

SECTION 3.5 FIGURE 3-6

ROXBURY PREP HS

Uncommon Schools | ROXBURY PREP

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BELGRADE AVENUE VIEW - EXISTING

SECTION 3.5 FIGURE 3-7

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SMMA

BELLEVUE STATION VIEWS - EXISTING

SECTION 3.5 FIGURE 3-8

ROXBURY PREP HS
NOVEMBER 17, 2018

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WEST ROXBURY PARKWAY VIEW - EXISTING

SECTION 3.5 FIGURE 3-9

ROXBURY PREP HS

NOVEMBER 17, 2018

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RENDERING FROM ACROSS BELGRADE AVENUE / EAST OF ANAWAN AVENUE

SECTION 3.5 FIGURE 3-10

ROXBURY PREP HS

NOVEMBER 17, 2018

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RENDERING FROM WEST ROXBURY PARKWAY

3/64" = 1'-0"

SECTION 3.5 FIGURE 3-11

ROXBURY PREP HS

NOVEMBER 17, 2018

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RENDERING FROM ACROSS MBTA COMMUTER RAIL STATION

3/64" = 1'-0"

SECTION 3.5 **FIGURE 3-12**

ROXBURY PREP HS

NOVEMBER 17, 2018

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4.0 SHADOW IMPACT ANALYSIS

4.1 Shadow Impacts Analysis

The following shadow analysis describes and graphically depicts anticipated new shadow impacts from the Proposed Project on the surrounding neighborhood. The following times and dates were studied as a sample representative of the shadow cycle throughout a year.

Time of Year/ Date	Time of Day
Vernal Equinox (March 21)	9:00am, 12:00pm, 3:00pm
Summer Solstice (June 21)	9:00am, 12:00pm, 3:00pm, 6:00pm
Autumnal Equinox (September 21)	9:00am, 12:00pm, 3:00pm, 6:00pm
Winter Solstice (December 21)	9:00am, 12:00pm, 3:00pm

4.1.1 Vernal Equinox (March 21)

Figures 4-1 through **4-3** depicts shadows on March 21 for three time periods.

At 9:00 AM, shadows are cast in a northwesterly direction onto portions of the adjacent MBTA Commuter railroad tracks and adjacent surface parking lot. **(Figure 4-1).**

At 12:00 Noon, shadows are cast in the northerly direction onto portions of the adjacent MBTA Commuter railroad tracks **(Figure 4-2).**

At 3:00 PM, shadows from the project are cast northeasterly across the Anawan Avenue cul-de-sac and MBTA Commuter railroad. **(Figure 4-3)**

4.1.2 Summer Solstice (June 21)

Figures 4-4 through **4-7** depict shadow impacts on June 21 for four time periods.

At 9:00 AM, shadows are cast in a westerly direction onto portions of the adjacent surface parking lot. **(Figure 4-4).**

At 12:00 Noon, shadows are cast in the northerly direction, remaining on the project site. **(Figure 4-5).**

At 3:00 PM, shadows from the project are cast northeasterly across the Anawan Avenue sidewalk, and a small portion of the Anawan Avenue cul-de-sac. **(Figure 4-6)**

At 6:00 PM, shadows from the project are cast easterly across the Anawan Avenue and casts a shadow on the west façade of the adjacent structure across Anawan. **(Figure 4-7)**

4.1.3 Autumnal Equinox (September 21)

Figures 4-8 through **4-11** depict shadow impacts on September 21 depicts shadows on September 21 for four time periods.

At 9:00 AM, shadows are cast in a northwesterly direction onto portions of the adjacent MBTA Commuter railroad tracks and adjacent surface parking lot. **(Figure 4-8).**

At 12:00 Noon, shadows are cast in the northerly direction onto portions of the adjacent MBTA Commuter railroad tracks **(Figure 4-9).**

At 3:00 PM, shadows from the project are cast northeasterly across the Anawan Avenue cul-de-sac and MBTA Commuter railroad. **(Figure 4-10)**

At 6:00 PM, the entire site is in shade at this time. **(Figure 4-11)**

4.1.4 Winter Solstice (December 21)

Figures 4-12 through **4-14** depict shadow impacts on December 21 for three time periods. Winter sun casts the longest shadows of the year.

At 9:00 AM, shadows are cast in a northwesterly direction onto portions of the adjacent MBTA Commuter railroad tracks, adjacent surface parking lot, and trees located north of the Site. **(Figure 4-12).**

At 12:00 Noon, shadows are cast in the northerly direction onto portions of the adjacent MBTA Commuter railroad tracks, and trees located north of the Site. **(Figure 4-13).**

At 3:00 PM, shadows from the project are cast northeasterly across the Anawan Avenue cul-de-sac and MBTA Commuter railroad. **(Figure 4-14)**

4.1.5 Summary

New shadow is generally limited to the streets surrounding the Site and the commuter rail tracks. Late afternoon and evening shadows will extend in a northeasterly direction toward the commuter rail station and the residential building across Anawan Avenue. Overall, the Project's shadow impacts will be consistent with current patterns and will not adversely impact the Project Site and surrounding areas.

AZIMUTH: 112.6°
ALTITUDE: 23.4°

N

SHADOW STUDY PLAN - 361 BELGRADE AVE, ROSLINDALE MA - MARCH 21, 9 AM

1" = 50'-0"

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NOVEMBER 13, 2018

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AZIMUTH: 161.0°
ALTITUDE: 46.5°

N

SHADOW STUDY PLAN - 361 BELGRADE AVE, ROSLINDALE MA - MARCH 21, 12 PM - NOON

1" = 50'-0"

ROXBURY PREP HS

Uncommon Schools | ROXBURY PREP

SMMA

AZIMUTH: 223.3°
ALTITUDE: 39.2°

N

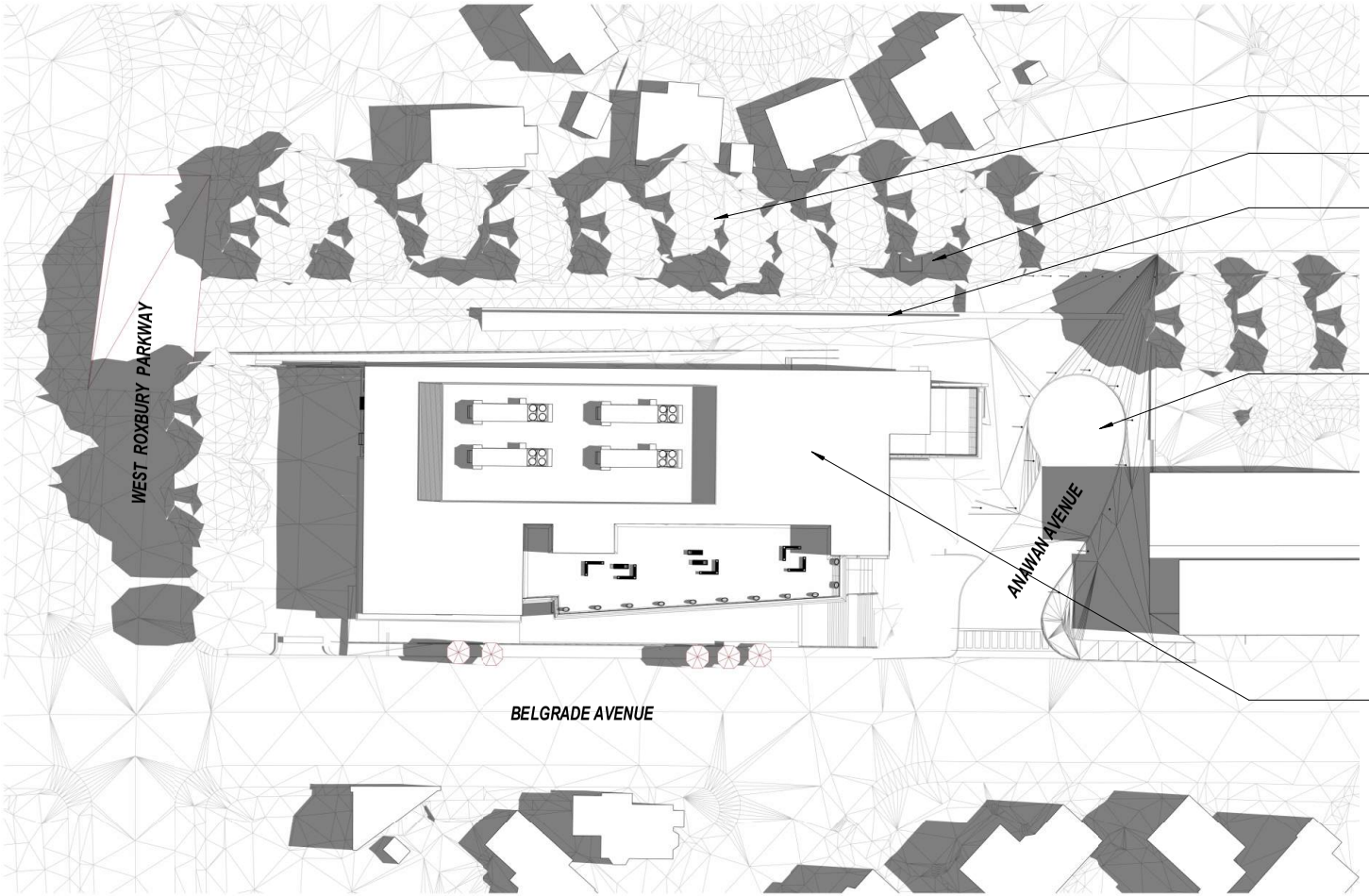
SHADOW STUDY PLAN - 361 BELGRADE AVE, ROSLINDALE MA - MARCH 21, 3 PM

1" = 50'-0"

ROXBURY PREP HS

Uncommon Schools | ROXBURY PREP

SMMA



AZIMUTH: 93.4°
ALTITUDE: 39.9°

N

SHADOW STUDY PLAN - 361 BELGRADE AVE, ROSLINDALE MA - JUNE 21, 9 AM

1" = 50'-0"

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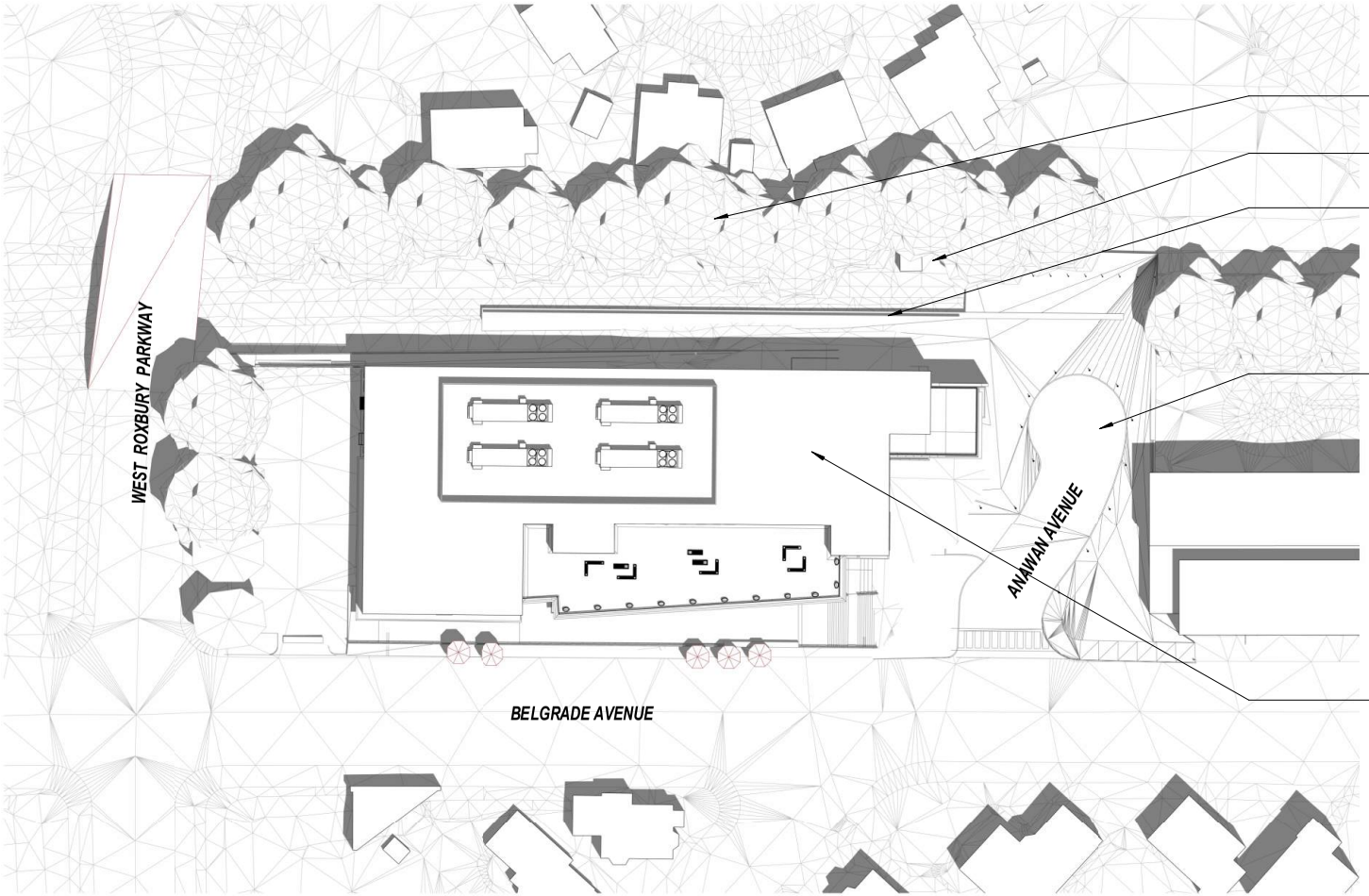
SMMA



AZIMUTH: 149.3°
ALTITUDE: 68.8°

N

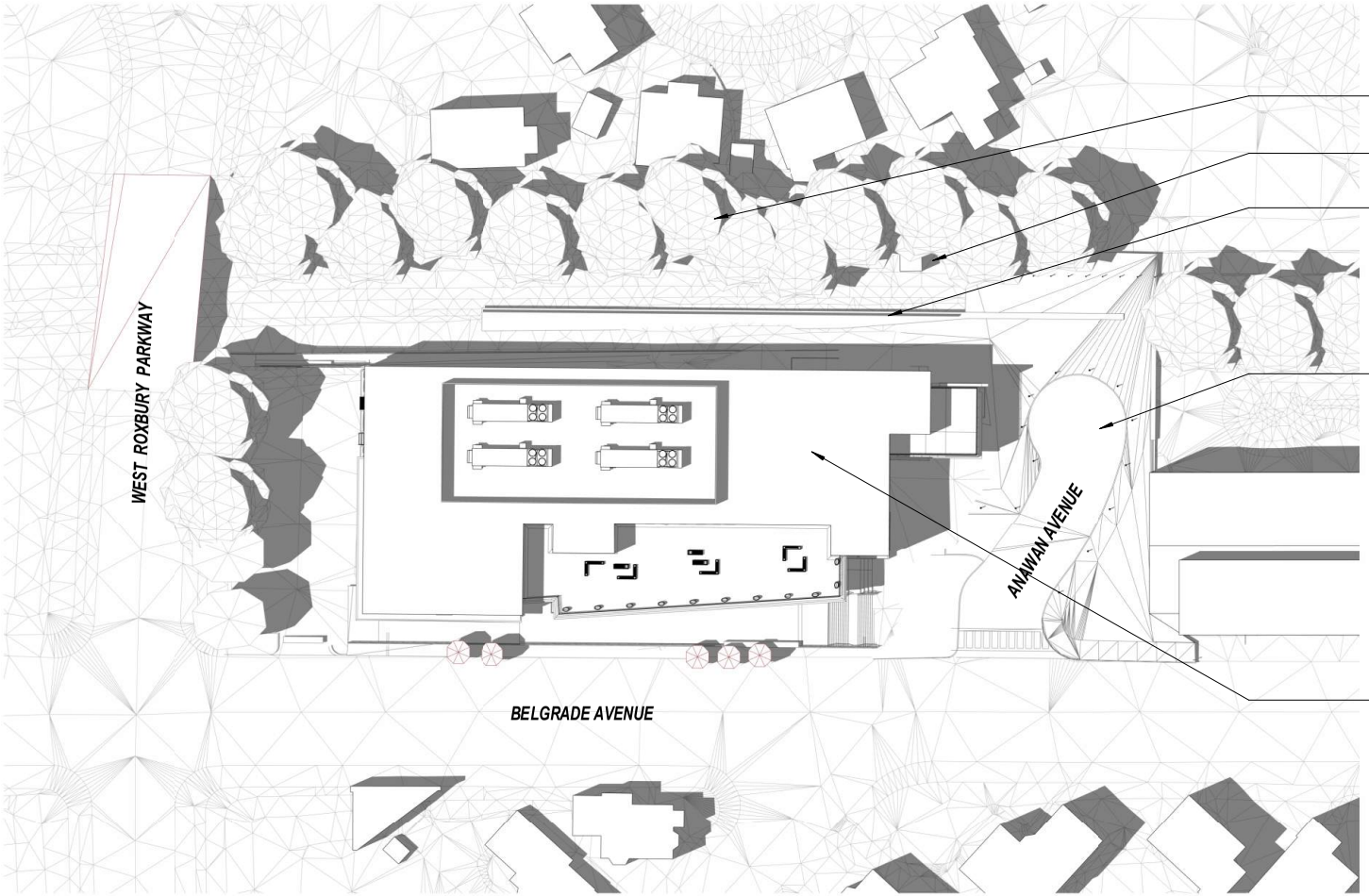
SHADOW STUDY PLAN - 361 BELGRADE AVE, ROSLINDALE MA - JUNE 21, 12 PM - NOON

1" = 50'-0"

ROXBURY PREP HS

Uncommon Schools | ROXBURY PREP

SMMA



AZIMUTH: 246.3°
ALTITUDE: 56.6°

N

SHADOW STUDY PLAN - 361 BELGRADE AVE, ROSLINDALE MA - JUNE 21, 3 PM

1" = 50'-0"

ROXBURY PREP HS

Uncommon Schools | ROXBURY PREP

SMMA

AZIMUTH: 280.7°
ALTITUDE: 23.88°

N

SHADOW STUDY PLAN - 361 BELGRADE AVE, ROSLINDALE MA - JUNE 21, 6 PM

1" = 50'-0"

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AZIMUTH: 115.3°
ALTITUDE: 26.0°

N

SHADOW STUDY PLAN - 361 BELGRADE AVE, ROSLINDALE MA - SEPT 21, 9 AM

1" = 50'-0"

ROXBURY PREP HS

Uncommon Schools | ROXBURY PREP

SMMA

AZIMUTH: 166.0°
ALTITUDE: 47.4°

N

SHADOW STUDY PLAN - 361 BELGRADE AVE, ROSLINDALE MA - SEPT 21, 12 PM - NOON

1" = 50'-0"

ROXBURY PREP HS

Uncommon Schools | ROXBURY PREP

SMMA

AZIMUTH: 227.1°
ALTITUDE: 37.4°

N

SHADOW STUDY PLAN - 361 BELGRADE AVE, ROSLINDALE MA - SEPT 21, 3 PM

1" = 50'-0"

ROXBURY PREP HS

Uncommon Schools | ROXBURY PREP

SMMA

AZIMUTH: 264.0°
ALTITUDE: 7.4°

N

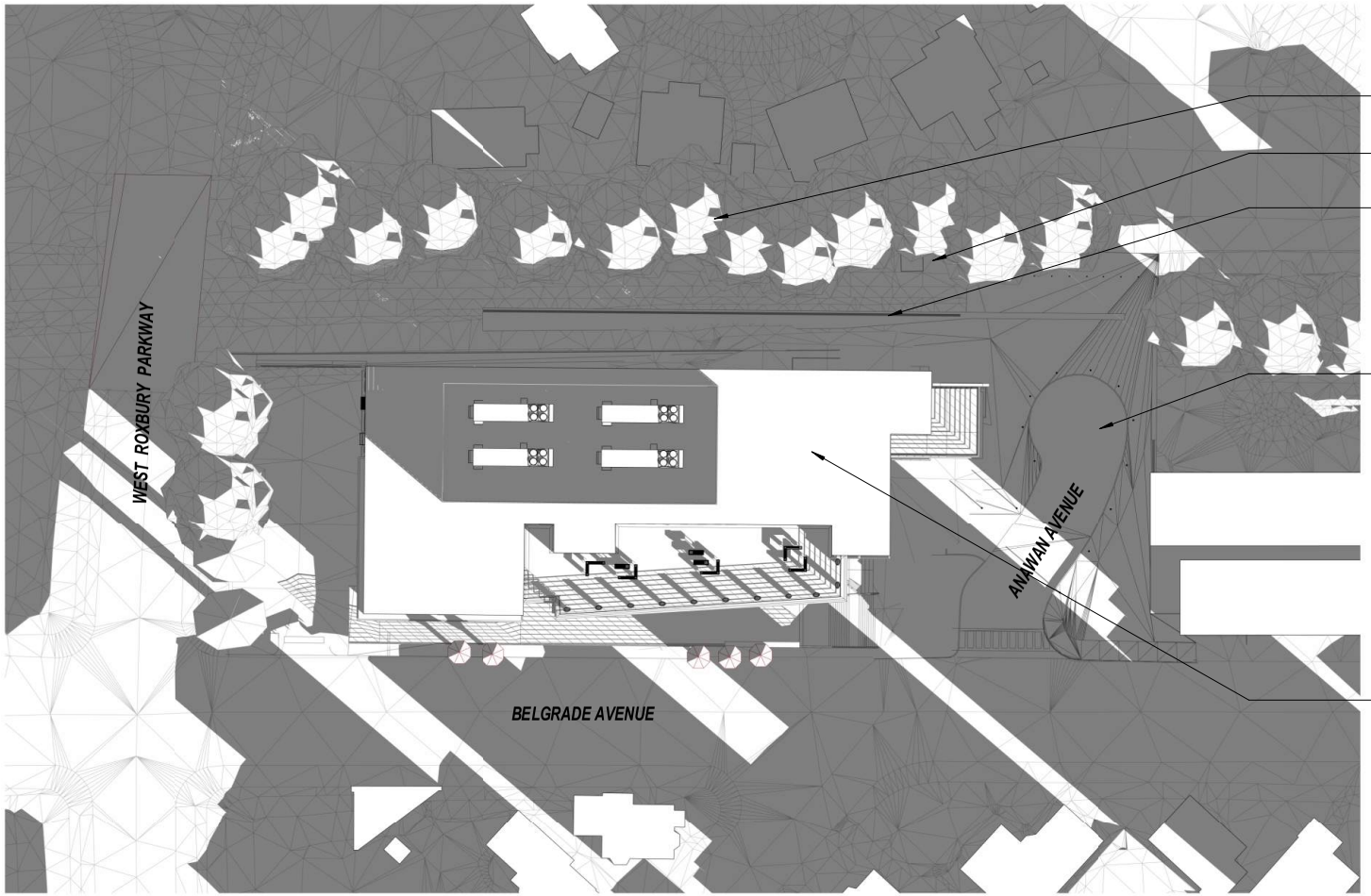
SHADOW STUDY PLAN - 361 BELGRADE AVE, ROSLINDALE MA - SEPT 21, 6 PM

1" = 50'-0"

ROXBURY PREP HS

Uncommon Schools | ROXBURY PREP

SMMA



AZIMUTH: 141.9°
ALTITUDE: 14.4°

N

SHADOW STUDY PLAN - 361 BELGRADE AVE, ROSLINDALE MA - DEC 21, 9 AM

1" = 50'-0"

ROXBURY PREP HS

Uncommon Schools | ROXBURY PREP

SMMA

AZIMUTH: 184.3°
ALTITUDE: 24.2°

N

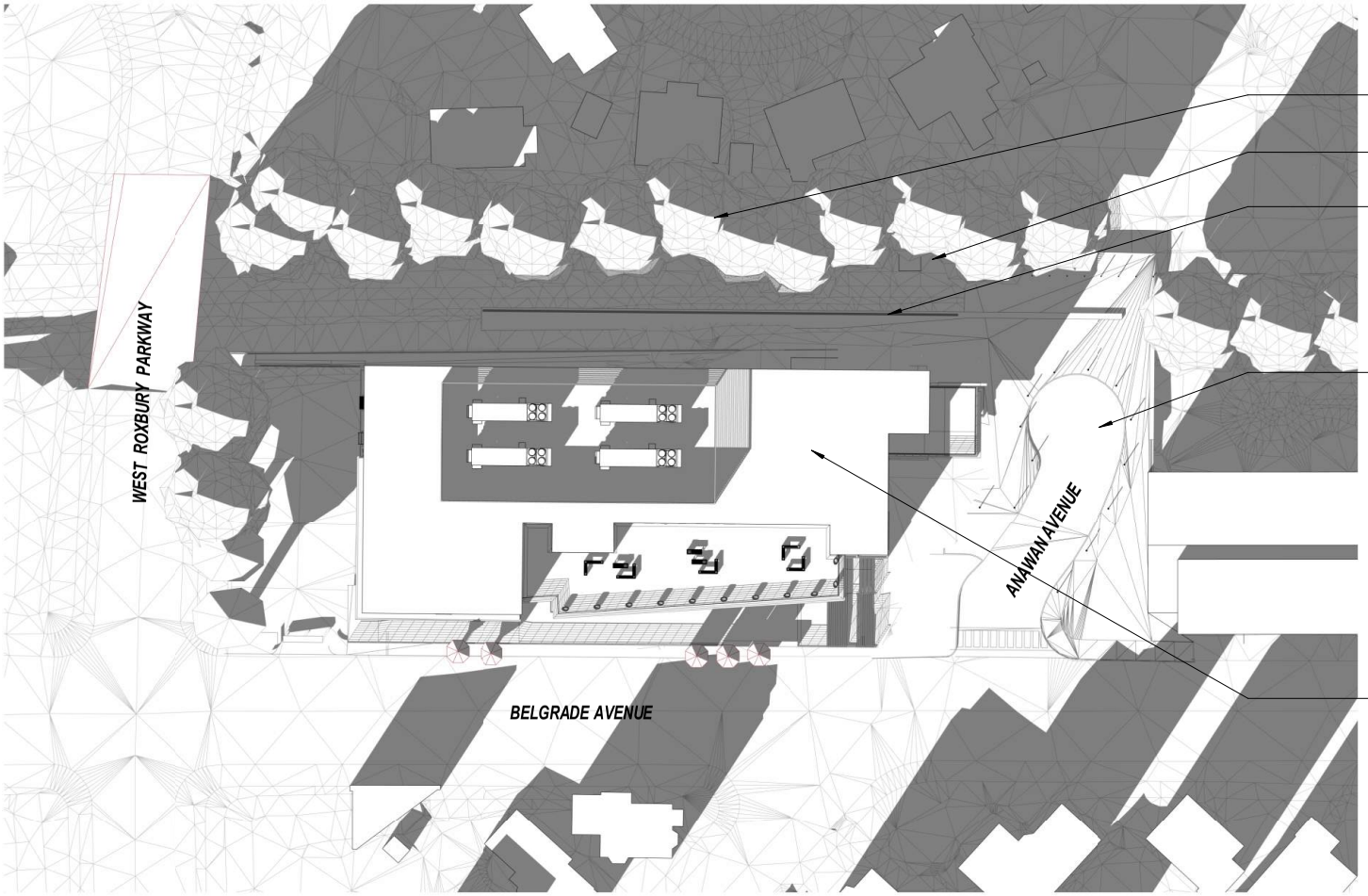
SHADOW STUDY PLAN - 361 BELGRADE AVE, ROSLINDALE MA - DEC 21, 12 PM - NOON

1" = 50'-0"

ROXBURY PREP HS

Uncommon Schools | ROXBURY PREP

SMMA



AZIMUTH: 224.9°
ALTITUDE: 10.2°

N

SHADOW STUDY PLAN - 361 BELGRADE AVE, ROSLINDALE MA - DEC 21, 3 PM

1" = 50'-0"

ROXBURY PREP HS

Uncommon Schools | ROXBURY PREP

SMMA

5.0 TRANSPORTATION, PARKING AND ACCESS

5.1 Introduction

Howard Stein Hudson (HSH) has conducted an evaluation of the transportation impacts of the proposed charter high school to be located at 361 Belgrade Avenue (the "Project" and/or "Site") in Boston's Roslindale neighborhood. This transportation study adheres to the Boston Transportation Department (BTD) Transportation Access Plan Guidelines and the Boston Planning and Development Agency's (BPDA) Article 80 development review process. The study includes an evaluation of existing conditions, future conditions with and without the Project, projected parking demand, transit services, and pedestrian and bicycle activity. The complete Transportation Study is presented in **Appendix D**.

The Project will include the construction of a new charter school expected to have a maximum student enrollment of approximately 562 students and 67 staff at full capacity. Staff parking will be provided on site and Anawan Avenue will be reconstructed to provide a circular short-term pick-up/drop-off area that will serve both the school and the nearby MBTA Bellevue commuter rail station.

5.2 Trip Generation

5.2.1 Trip Generation Methodology

Determining the future trip generation of the Project is a complex, multi-step process that produces an estimate of vehicle trips, transit trips, walk trips, and bicycle trips associated with a proposed development and a specific land use program. A project's location and proximity to regional roadways and different travel modes determines how people will travel to and from a project site.

The trip generation is based on information provided by the Proponent as well as field observations at the existing school located at 86 Wachusett Street, and at 5 Maywood Street. According to the proponent there will be approximately 562 students and 67 staff at the new location. The trip patterns observed at the existing schools as well as the student enrollment and staffing needs have been used to develop the trip generation estimates.

5.2.2 Mode Share

The mode share is the percentage of students and staff that expected to travel to the site by driving, public transportation, or walking/biking. The mode share for this Project have been developed through site observations of existing mode share, student and staff zip code data provided by the school, and additional information provided by the Proponent. Mode shares were developed for

students and staff separately, since there will be no student parking permitted. The student mode vehicle mode share includes parent pick-up/drop-off activity, while the staff vehicle mode share includes drive along as well as carpool estimates. The student and staff mode share projections are shown in **Table 5-1**.

Table 5-1. Travel Mode Shares

Time Period	Vehicle Share			Walk/Bike Share	Transit Share
	Drive Alone	Carpool	Parent Pick-up/Drop-Off		
Students	N/A	N/A	7%	3%	90%
Staff	60%	19%	N/A	1%	20%

5.2.3 Project Vehicular Trip Generation

The vehicle mode share percentages shown in **Table 5-1** were applied to the number of person trips to develop vehicle trip generation estimate, as shown in **Table 5-2**. The vehicle trip generation consist of staff drive alone vehicle trips, staff carpool vehicle trips, and parent pick-up/drop-off vehicle trips.

Table 5-2. Vehicle Trip Generation Summary

Time Period		Staff Drive Alone	Staff Carpool	Parent Pick-up/Drop-Off	Total Auto Trips
a.m. Peak Hour	In	41	12	39	92
	Out	**0**	**0**	39	39
	Total	**41**	**12**	**78**	**131**
p.m. Peak Hour	In	0	0	39	39
	Out	**41**	**12**	39	92
	Total	**41**	**12**	**78**	**131**

As shown in **Table 5-2**, during both the a.m. and p.m. peak hour, the Project is estimated to generate 131 total vehicle trips including 41 staff drive alone trips (entering during arrival and exiting during dismissal) 12 staff carpool trips (entering during arrival and exiting during dismissal), and 78 parent pick-up/drop-off vehicle trips (39 entering and exiting during both the arrival and dismissal).

5.3 Public Transportation

The Project is located adjacent to the MBTA Commuter Rail Needham Line and along four MBTA bus routes. The nearby public transit services are summarized in **Figure 5-1** and **Table 5-3.**

Table 5-3. Public Transportation Services

Route	Description	Peak-hour Headway (mins)*
Commuter Rail		
Needham Line	South Station – Needham Heights	45
Local Bus Routes		
35	Dedham Mall/Stimson Street – Forest Hills Station	12-25
36	Charles River Loop or VA Hospital – Forest Hills Station	8-12
37	Baker and Vermont Streets – Forest Hills Station	15-30
38	Wren Street – Forest Hills Station	22-25

* Headway is the scheduled time between trains or buses. Headways are approximate.

5.3.1 MBTA Commuter Rail

The Needham Line of the MBTA commuter rail system is located along the northern edge of the Project site, with the Bellevue Station located adjacent to the Project site. The Needham Line runs between South Station in downtown Boston to the east and Needham Heights in Needham to the west. There are 16 daily inbound and outbound trips. There are three reverse commuter trains (outbound in the morning and inbound in the afternoon) during the potential school arrival and dismissal periods. Any one of these trains could accommodate the expected commuter rail demand of the school.

5.3.2 MBTA Bus Routes

There are four MBTA bus routes that provide service to the Project site. The Nos. 35, 36, and 37 MBTA bus routes provide service between the Project and Forest Hills Station via Belgrade Avenue and Washington Street, including the recently installed a.m. bus-only lane between Roslindale and Forest Hills Station. Additionally, the No. 38 MBTA Bus route also provides service between the Project site and Forest Hills Station via Centre Street and West Roxbury Parkway.

The existing available capacity of 10 buses would meet the expected demand of the school the local buses. Of the four routes serving the site, there are approximately 15 to 20 buses traveling past the site in the hour before school start and school dismissal.

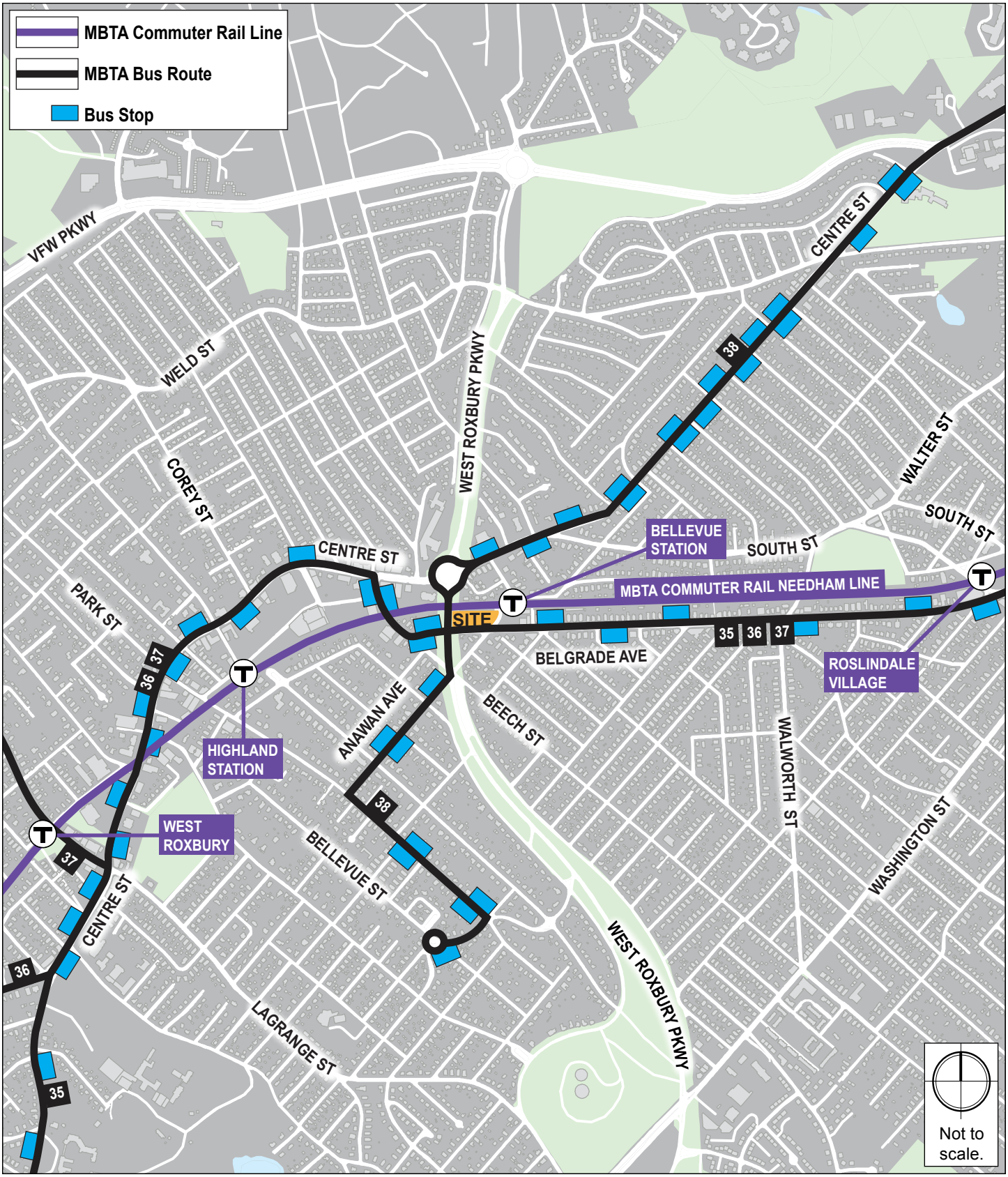


Figure 5-1.
Existing Public Transportation

5.3.3 Public Transportation Services and Capacity

As discussed, there are multiple public transportation options students and staff can take to Project site including four MBTA bus lines, the MBTA 35, 36, 37 and 38 bus routes, or the Needham Line of the commuter rail. Most students that utilize public transportation are expected to reverse commute, meaning that students will travel outbound in the morning to arrive at school and inbound in the evening to leave school, opposite of most commuters.

Many students are expected to utilize the bus from Forest Hills Station. A significant percentage of students that currently attend the Roxbury Prep High School are from the neighborhoods of Dorchester, Dudley, Mattapan, Hyde Square, and Roslindale. These students are expected to take one of many bus lines or the Orange Line that serve Forest Hills, and then transfer to a bus that serves the Project. Students from South Boston, Charlestown, and Back Bay that have access to South Station or Back Bay Station are expected to utilize the Needham Line to travel to Bellevue Station, adjacent to the Project. In addition, some students might transfer to the Needham Line at Forest Hills instead of transferring to a bus route.

Based on the residential zip codes of the existing student population and the frequency of the buses compared to the commuter rail, it is estimated that 75% of the students will use the bus and 25% of the students will use the Needham Line. The detailed ridership data is provided in the technical appendix to **Appendix D.**

As shown in **Appendix D**, there is capacity for over 500 passengers on each of the reverse commute MBTA commuter rail trains. In order to encourage students to take the commuter rail, which would lower the demand on the bus routes, the school has agreed to fund the difference in price to account for Zone 1A costs so that students are able to take the Needham Line to Bellevue Station. The school will also coordinate the school start and end times to align with the Needham Line schedule.

5.4 Site Access and Parking

5.4.1 Vehicle Site Access and Circulation

The site plan is shown in **Figure 5-2**. The Project site is located on the north side of Belgrade Avenue. There are two main pedestrian entrances; one on the southern edge of the building along Belgrade Avenue that will be used by pedestrians and visitors utilizing the MBTA buses. The second one is at the northeast corner of the building along Anawan Road and will be used by vehicular pick-up and drop-off as well as visitors utilizing the commuter rail.

The parking garage is accessed from Anawan Avenue. An existing curb cut along Belgrade Avenue will access the shared courtyard that can be used for parking when needed during events. Three existing curb cuts along Belgrade Avenue will be closed.

5.4.2 Parking

The project will construct 46 parking spaces in an underground garage. The parking garage will accommodate 30 vehicles in tandem parking spaces, and the remaining 16 spaces in regular perpendicular parking spaces. The garage will include two handicapped parking spaces.

A courtyard will be located to the west of the site for overflow parking during school events. While parking spaces will not be marked, it is estimated that approximately 20 vehicles will be able to park in the courtyard. During events with additional parking demand, such as school plays or graduation, the Project will hire a valet operator or park 10 additional vehicles in the courtyard as well as the underground parking garage to reduce the impact on the neighborhood. The courtyard will be used as a playground for outside activities when overflow vehicle parking is not needed.

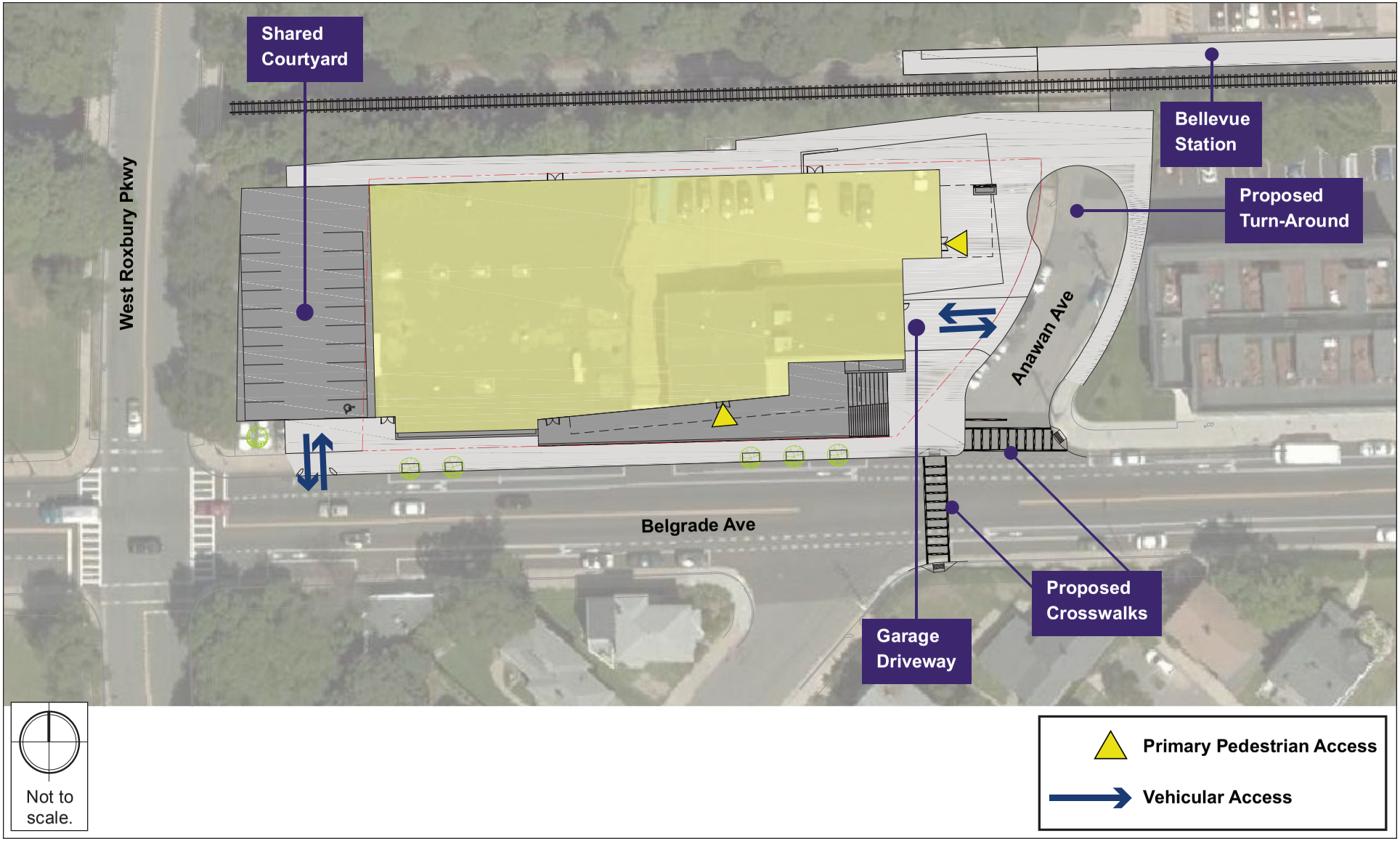
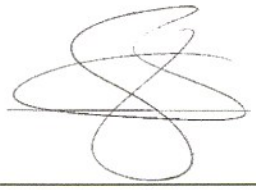


Figure 5-2.
Site AccessPlan

6.0 PROJECT CERTIFICATION

This SPRA form has been circulated to the Boston Planning and Development Agency as required by Article 80E of the Boston Zoning Code.

Roxbury Prep Belgrade Avenue LLC

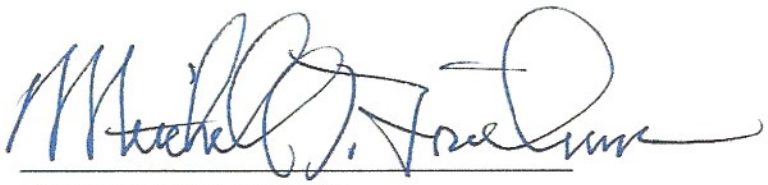


Signature of Proponent

01/08/19

Date

Mitchell L. Fischman ("MLF") Consulting LLC



Signature of Proponent's Representative

01/08/19

Date

Mitchell L. Fischman, Principal

7.0 APPENDICES

7.1 Appendix A. Response to Article 80 - Accessibility Guidelines

Article 80 – Accessibility Checklist

A requirement of the Boston Planning & Development Agency (BPDA)
Article 80 Development Review Process

The Mayor's Commission for Persons with Disabilities strives to reduce architectural, procedural, attitudinal, and communication barriers that affect persons with disabilities in the City of Boston. In 2009, a Disability Advisory Board was appointed by the Mayor to work alongside the Commission in creating universal access throughout the city's-built environment. The Disability Advisory Board is made up of 13 volunteer Boston residents with disabilities who have been tasked with representing the accessibility needs of their neighborhoods and increasing inclusion of people with disabilities.

In conformance with this directive, the BDPA has instituted this Accessibility Checklist as a tool to encourage developers to begin thinking about access and inclusion at the beginning of development projects, and strive to go beyond meeting only minimum MAAB / ADAAG compliance requirements. Instead, our goal is for developers to create ideal design for accessibility which will ensure that the built environment provides equitable experiences for all people, regardless of their abilities. As such, any project subject to Boston Zoning Article 80 Small or Large Project Review, including Institutional Master Plan modifications and updates, must complete this Accessibility Checklist thoroughly to provide specific detail about accessibility and inclusion, including descriptions, diagrams, and data.

For more information on compliance requirements, advancing best practices, and learning about progressive approaches to expand accessibility throughout Boston's built environment. Proponents are highly encouraged to meet with Commission staff, prior to filing.

Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
   http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
   http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Massachusetts State Building Code 780 CMR
   http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/csl/building-codebbrs.html
4. Massachusetts Office of Disability – Disabled Parking Regulations
   http://www.mass.gov/anf/docs/mod/hp-parking-regulations-summary-mod.pdf
5. MBTA Fixed Route Accessible Transit Stations
   http://www.mbta.com/riding_the_t/accessible_services/
6. City of Boston – Complete Street Guidelines
   http://bostoncompletestreets.org/
7. City of Boston – Mayor's Commission for Persons with Disabilities Advisory Board
   www.boston.gov/disability
8. City of Boston – Public Works Sidewalk Reconstruction Policy
   http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
9. City of Boston – Public Improvement Commission Sidewalk Café Policy
   http://www.cityofboston.gov/images_documents/Sidewalk_cafes_tcm3-1845.pdf

Glossary of Terms:

1. ***Accessible Route*** – A continuous and unobstructed path of travel that meets or exceeds the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 20
2. ***Accessible Group 2 Units*** – Residential units with additional floor space that meet or exceed the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 9.4
3. ***Accessible Guestrooms*** – Guestrooms with additional floor space, that meet or exceed the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 8.4
4. ***Inclusionary Development Policy (IDP)*** – Program run by the BPDA that preserves access to affordable housing opportunities, in the City. For more information visit: http://www.bostonplans.org/housing/overview
5. ***Public Improvement Commission (PIC)*** – The regulatory body in charge of managing the public right of way. For more information visit: https://www.boston.gov/pic
6. ***Visitability*** – A place's ability to be accessed and visited by persons with disabilities that cause functional limitations; where architectural barriers do not inhibit access to entrances/doors and bathrooms.

1. Project Information:

If this is a multi-phased or multi-building project, fill out a separate Checklist for each phase/building.

Project Name:	**Roxbury Prep Charter High School**
Primary Project Address:	**361 Belgrade Avenue, Roslindale, MA**
Total Number of Phases/Buildings:	**1**
Primary Contact (Name / Title / Company / Email / Phone):	**Uncommon Schools** 826 Broadway, 9th Floor New York, NY 10003 Contact: Ahkilah Z. Johnson, Senior Director of Real Estate & Facilities ajohnson@uncommonschools.org Tel: 916-583-7548 Cell
Developer:	**Upton + Partners** 191 Lowder Street, 2nd Floor Dedham, MA 02026 Contact: Jake Upton, Partner j.upton@uptonpartners.com Tel: 781-326-9997 Direct
Architect:	**SMMA / Symmes Maini & McKee Associates**
Civil Engineer:	**Nitsch Engineering, Inc.**
Landscape Architect:	**Terraink, Inc.**
Permitting:	**Mitchell L. Fischman ("MLF") Consulting LLC**
Construction Management:	**TBD**

At what stage is the project at time of this questionnaire? Select below:

Small Project Review Application Submitted	Draft / Final Project Impact Report Submitted	BPDA Board Approved
BPDA Design Approved	Under Construction	Construction Completed:

Do you anticipate filing for any variances with the Massachusetts Architectural Access Board (MAAB)? ***If yes,*** identify and explain.	**No.**

2. Building Classification and Description:

This section identifies preliminary construction information about the project including size and uses.

What are the dimensions of the project?

Site Area:	***43,014 SF***	Building Area:	***49, 520 GSF***
Building Height:	***39.25 FT***	Number of Stories:	***2-3 Flrs.***
First Floor Elevation:	**EL. 144.0 FT**	Is there below grade space:	***Yes***

What is the Construction Type? (Select most appropriate type)

	Wood Frame	Masonry	**Steel Frame**	Concrete

What are the principal building uses? (IBC definitions are below – select all appropriate that apply)

	Residential – One - Three Unit	Residential - Multi-unit, Four +	Institutional	**Educational**
	Business	Mercantile	Factory	Hospitality
	Laboratory / Medical	Storage, Utility and Other		

List street-level uses of the building:	***Educational, Assembly (Cafeteria & Gymnasium), Parking Garage***

3. Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and institutions, such as (but not limited to) hospitals, elderly & disabled housing, and general neighborhood resources. Identify how the area surrounding the development is accessible for people with mobility impairments and analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the neighborhood where this development is located and its identifying topographical characteristics:	**Mixed-Use: Residential, Commercial**
List the surrounding accessible MBTA transit lines and their proximity to development site: commuter rail / subway stations, bus stops:	**Bellevue MBTA Commuter Rail Station, Needham Line – immediately adjacent to the project site.** **Four MBTA bus routes travel near the project site. The 35, 36 & 37 all travel along Belgrade Avenue through Forest Hills Station via Washington St. The 38 travels along Centre Street and West Roxbury Parkway with stops adjacent to the Project site**

List the surrounding institutions: hospitals, public housing, elderly and disabled housing developments, educational facilities, others:	Holy Name Church Elementary School
List the surrounding government buildings: libraries, community centers, recreational facilities, and other related facilities:	Holy Name Parish, Boston Police District: E-5 West Station
4. Surrounding Site Conditions – Existing: *This section identifies current condition of the sidewalks and pedestrian ramps at the development site.*	
Is the development site within a historic district? ***If yes,*** identify which district:	No
Are there sidewalks and pedestrian ramps existing at the development site? ***If yes***, list the existing sidewalk and pedestrian ramp dimensions, slopes, materials, and physical condition at the development site:	**Yes, an existing sidewalk abuts the project along Belgrade Avenue and Anawan Avenue.** **The existing sidewalk material is concrete. The physical condition of the existing sidewalk is good.**
Are the sidewalks and pedestrian ramps existing-to-remain? ***If yes,*** have they been verified as ADA / MAAB compliant (with yellow composite detectable warning surfaces, cast in concrete)? ***If yes,*** provide description and photos:	**Some of the existing sidewalks and pedestrian ramps are to remain as is, primarily along Belgrade Avenue. The sidewalks and ramps along Anawan Avenue will be replaced and improved to provide ADA / MAAB compliant pathways.** **No, the existing sidewalks and pedestrian ramps have not been verified as being in compliance, but will be verified during the project design. Due to the existing grade of Belgrade Avenue, it is assumed that the existing sidewalk along that street are not ADA / MAAB compliant.**
5. Surrounding Site Conditions – Proposed *This section identifies the proposed condition of the walkways and pedestrian ramps around the development site. Sidewalk width contributes to the degree of comfort walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Wider sidewalks allow people to walk side by side and pass each other comfortably walking alone, walking in pairs, or using a wheelchair.*	

Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? ***If yes***, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, or Boulevard.	**It is the project's intent to be consistent with the Boston Complete Street Guidelines. The street type will be identified as part of the project design.**
What are the total dimensions and slopes of the proposed sidewalks? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone:	**The proposed sidewalk along Belgrade Ave is sloped at the existing non-compliant gradient of the street. The width of the sidewalk is approximately 9 feet 4 inches typically. Where street trees are planned to be added the available sidewalk width is reduced to 5 feet wide 4 inches for the length of the tree grate. The plaza area that is being planned adjacent to Anawan Ave is wide enough to comfortably accommodate students arriving and departing school. The tightest area of the plaza has a 15-foot width, but most areas are more than double that width.**
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	**Proposed sidewalk materials include both concrete and concrete unit pavers, and will be located both on private property and on City of Boston pedestrian right-of-ways.**
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way? ***If yes,*** what are the proposed dimensions of the sidewalk café or furnishings and what will the remaining right-of-way clearance be?	**Only site furnishings such as benches may be programmed for the pedestrian right-of-way. If present, these would be located in the new plaza area adjacent to the Anawan Ave entrance and drop-off area, and in no cases would the benches reduce the right-of-way clearance to less than 8 feet.**
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the Public Improvement Commission (PIC)?	**Ongoing review**

Will any portion of the Project be going through the PIC? ***If yes,*** identify PIC actions and provide details.	**Yes. Curb-cut revisions and modifications to the perimeter of Anawan Ave to accommodate a new turnaround & drop-off will be reviewed by the PIC.**
6. Accessible Parking: *See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability – Disabled Parking Regulations*.	
What is the total number of parking spaces provided at the development site? Will these be in a parking lot or garage?	**A total of 66 parking spaces will be provided at the development site. 46 spaces will be located in a garage. 20 spaces will be located in a surface parking lot.**
What is the total number of accessible spaces provided at the development site? How many of these are "Van Accessible" spaces with an 8 foot access aisle?	**A total of 3-accessible spaces has been provided, one of which will be van accessible.**
Will any on-street accessible parking spaces be required? ***If yes,*** has the proponent contacted the Commission for Persons with Disabilities regarding this need?	**No on-street accessible parking will be required.**
Where is the accessible visitor parking located?	**The accessible visitor parking will be located in the visitor parking area towards the western side of the site.**
Has a drop-off area been identified? ***If yes,*** will it be accessible?	**Yes – the drop-off area located at the terminus of Anawan Ave will be accessible.**
7. Circulation and Accessible Routes: *The primary objective in designing smooth and continuous paths of travel is to create universal access to entryways and common spaces, which accommodates persons of all abilities and allows for visitability with neighbors*.	
Describe accessibility at each entryway: Example: Flush Condition, Stairs, Ramp, Lift or Elevator:	**Flush entry condition at two different grade elevations. Internal full-service stretcher-compliant elevator.**

Are the accessible entrances and standard entrance integrated? ***If yes,*** *describe.* ***If no****,* what is the reason?	**Yes. Both of the main entrances to the school will accommodate all students, and both are fully accessible.**
If project is subject to Large Project Review/Institutional Master Plan, describe the accessible routes way-finding / signage package.	**Small Project Review Application (SPRA)**
8. Accessible Units (Group 2) and Guestrooms: (If applicable) *In order to facilitate access to housing and hospitality, this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing and hotel rooms.*	
What is the total number of proposed housing units or hotel rooms for the development?	**Zero – the proposed project is not a housing development nor hotel.**
If a residential development, how many units are for sale? How many are for rent? What is the breakdown of market value units vs. IDP (Inclusionary Development Policy) units?	**Not applicable.**
If a residential development, how many accessible Group 2 units are being proposed?	**Not applicable**
If a residential development, how many accessible Group 2 units will also be IDP units? ***If none***, describe reason.	**Not applicable**
If a hospitality development, how many accessible units will feature a wheel-in shower? Will accessible equipment be provided as well? ***If yes,*** provide amount and location of equipment.	**Not applicable**

Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs / thresholds at entry, step to balcony, others. ***If yes***, provide reason.	**Not applicable**
Are there interior elevators, ramps or lifts located in the development for access around architectural barriers and/or to separate floors? ***If yes***, describe:	**Not applicable**
9. Community Impact: *Accessibility and inclusion extend past required compliance with building codes. Providing an overall scheme that allows full and equal participation of persons with disabilities makes the development an asset to the surrounding community*.	
Is this project providing any funding or improvements to the surrounding neighborhood? Examples: adding extra street trees, building or refurbishing a local park, or supporting other community-based initiatives?	**The urban neighborhood improvements are limited to the immediate site perimeter and include those elements noted above.**
What inclusion elements does this development provide for persons with disabilities in common social and open spaces? Example: Indoor seating and TVs in common rooms; outdoor seating and barbeque grills in yard. Will all of these spaces and features provide accessibility?	**All occupiable spaces within the proposed school will be fully accessible, providing an inclusive educational environment. Common spaces include the cafeteria and gymnasium which are located at the first level. Outdoor courtyard spaces on the second level will allow access via a stretcher-compliant elevator, and doors leading out to the courtyard will be provided in a barrier-free manner.**
Are any restrooms planned in common public spaces? ***If yes,*** will any be single-stall, ADA compliant and designated as "Family"/ "Companion" restrooms? ***If no***, explain why not.	**Yes. Restrooms that are typically used by students during the course of the school day will be accessible from common public spaces for event usage, as will the single user staff restrooms. All restrooms in the building will feature MAAB/ADA compliant stalls/configurations, and the staff restrooms will be single stall and viable to function as family or companion restrooms.**

Has the proponent reviewed the proposed plan with the City of Boston Disability Commissioner or with their Architectural Access staff? ***If yes,*** did they approve? ***If no,*** what were their comments?	**Ongoing review**
Has the proponent presented the proposed plan to the Disability Advisory Board at one of their monthly meetings? Did the Advisory Board vote to support this project? ***If no,*** what recommendations did the Advisory Board give to make this project more accessible?	**Ongoing review**

10. Attachments

Include a list of all documents you are submitting with this Checklist. This may include drawings, diagrams, photos, or any other material that describes the accessible and inclusive elements of this project.

Provide a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations, including route distances. **SEE ATTACHED ACCESS DIAGRAMS**
Provide a diagram of the accessible route connections through the site, including distances. **SEE ATTACHED ACCESS DIAGRAMS**
Provide a diagram the accessible route to any roof decks or outdoor courtyard space? (if applicable) **SEE ATTACHED ACCESS DIAGRAMS**
Provide a plan and diagram of the accessible Group 2 units, including locations and route from accessible entry. **NOT APPLICABLE**
Provide any additional drawings, diagrams, photos, or any other material that describes the inclusive and accessible elements of this project.

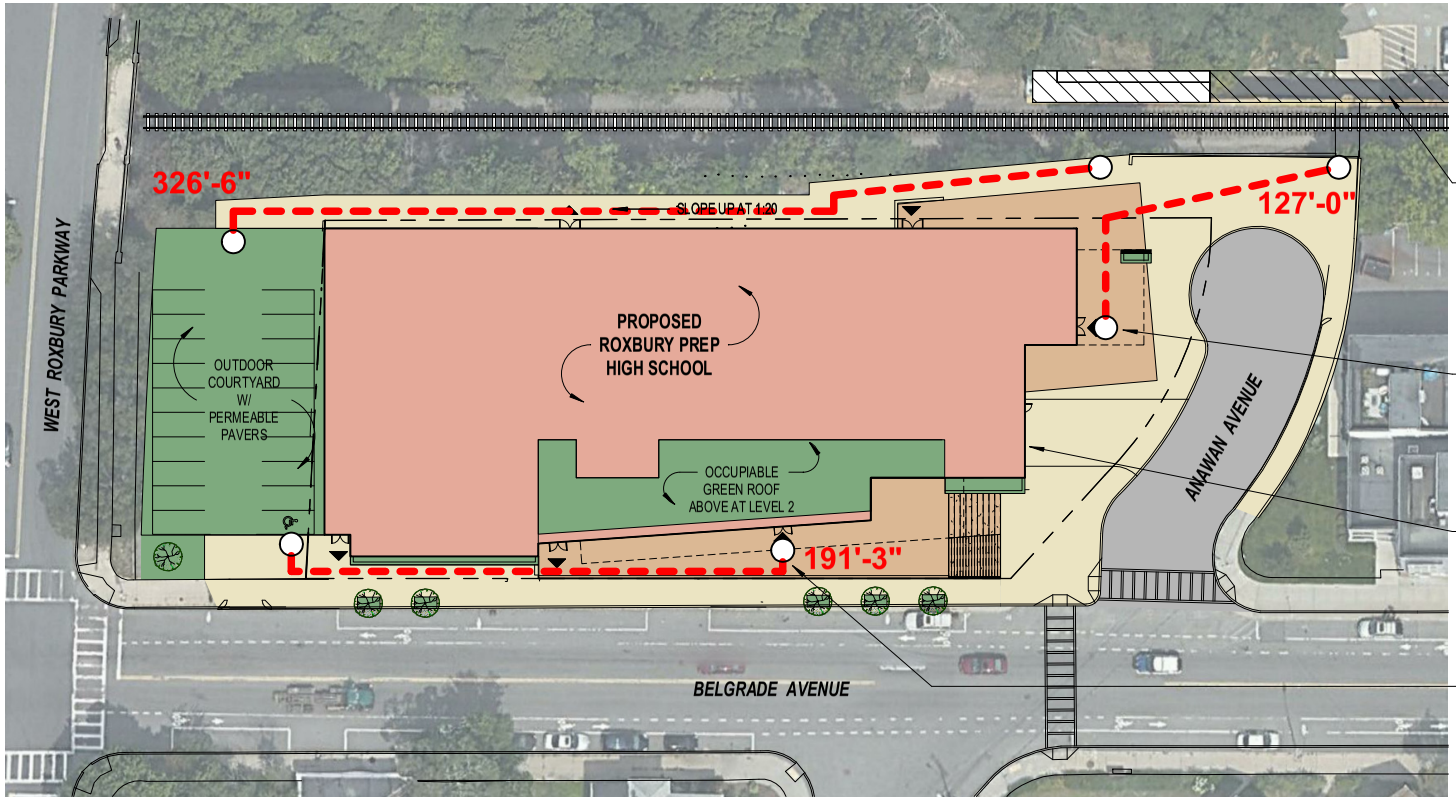
This completes the Article 80 Accessibility Checklist required for your project. Prior to and during the review process, Commission staff are able to provide technical assistance and design review, in order to help achieve ideal accessibility and to ensure that all buildings, sidewalks, parks, and open spaces are usable and welcoming to Boston's diverse residents and visitors, including those with physical, sensory, and other disabilities.

For questions or comments about this checklist, or for more information on best practices for improving accessibility and inclusion, visit www.boston.gov/disability, or our office:

The Mayor's Commission for Persons with Disabilities
1 City Hall Square, Room 967,
Boston MA 02201.

Architectural Access staff can be reached at:

accessibility@boston.gov | patricia.mendez@boston.gov | sarah.leung@boston.gov | 617-635-3682



ACCESSIBLE ROUTE DIAGRAM LEGEND:

- END POINT OF ACCESSIBLE ROUTE DISTANCE MEASUREMENT
- LINE OF ACCESSIBLE ROUTE
- XX'-X" ACCESSIBLE ROUTE DISTANCE

N

DIAGRAM OF ACCESSIBLE ROUTE - SITE PLAN

1" = 40'-0"

APPENDIX A FIGURE A-1

ROXBURY PREP HS

NOVEMBER 17, 2018

Uncommon Schools | ROXBURY PREP

SMMA

ACCESSIBLE ROUTE DIAGRAM LEGEND:

- END POINT OF ACCESSIBLE ROUTE DISTANCE MEASUREMENT
- LINE OF ACCESSIBLE ROUTE
- XX'-X" ACCESSIBLE ROUTE DISTANCE

N

DIAGRAM OF ACCESSIBLE ROUTE - LOWER LEVEL PLAN

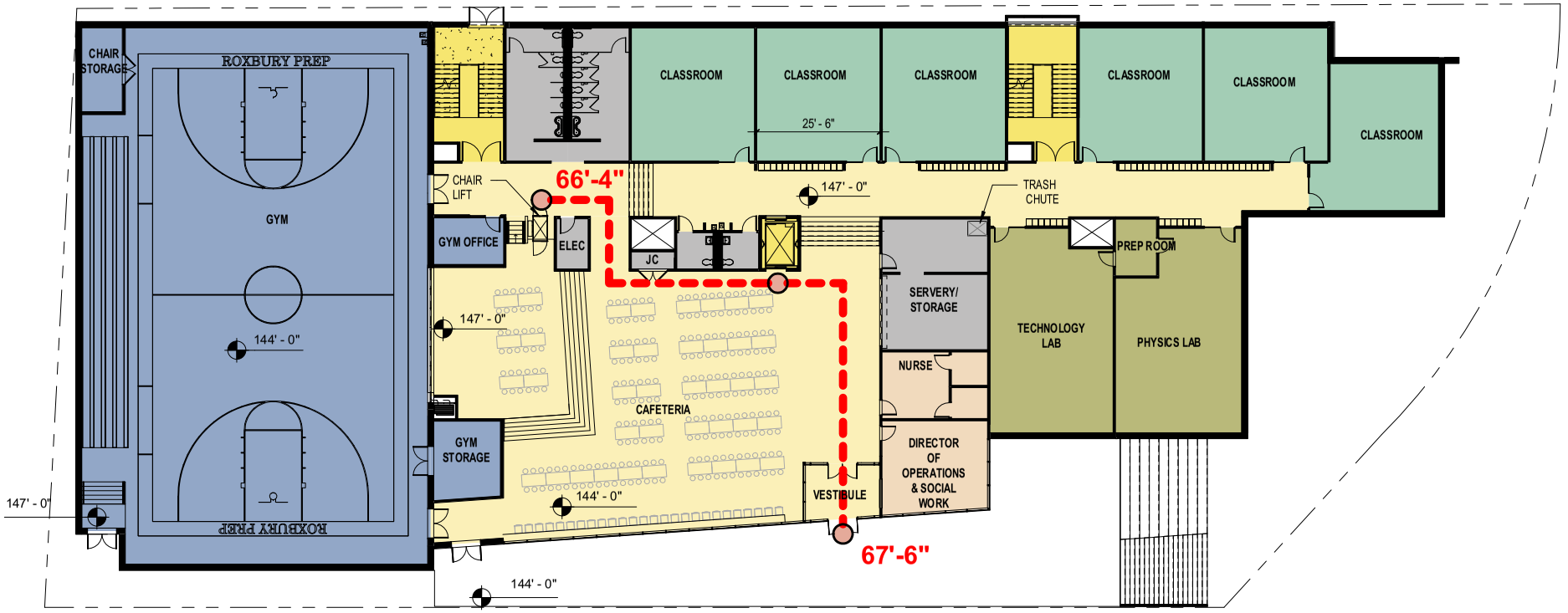
1" = 20'-0"

APPENDIX A FIGURE A-2

ROXBURY PREP HS

NOVEMBER 17, 2018

Uncommon Schools | ROXBURY PREP SMMA



ACCESSIBLE ROUTE DIAGRAM LEGEND:

- END POINT OF ACCESSIBLE ROUTE DISTANCE MEASUREMENT
- LINE OF ACCESSIBLE ROUTE
- XX'-X" ACCESSIBLE ROUTE DISTANCE

N

DIAGRAM OF ACCESSIBLE ROUTE - LEVEL 1 PLAN

1" = 20'-0"

APPENDIX A **FIGURE A-3**

ROXBURY PREP HS

Uncommon Schools | ROXBURY PREP

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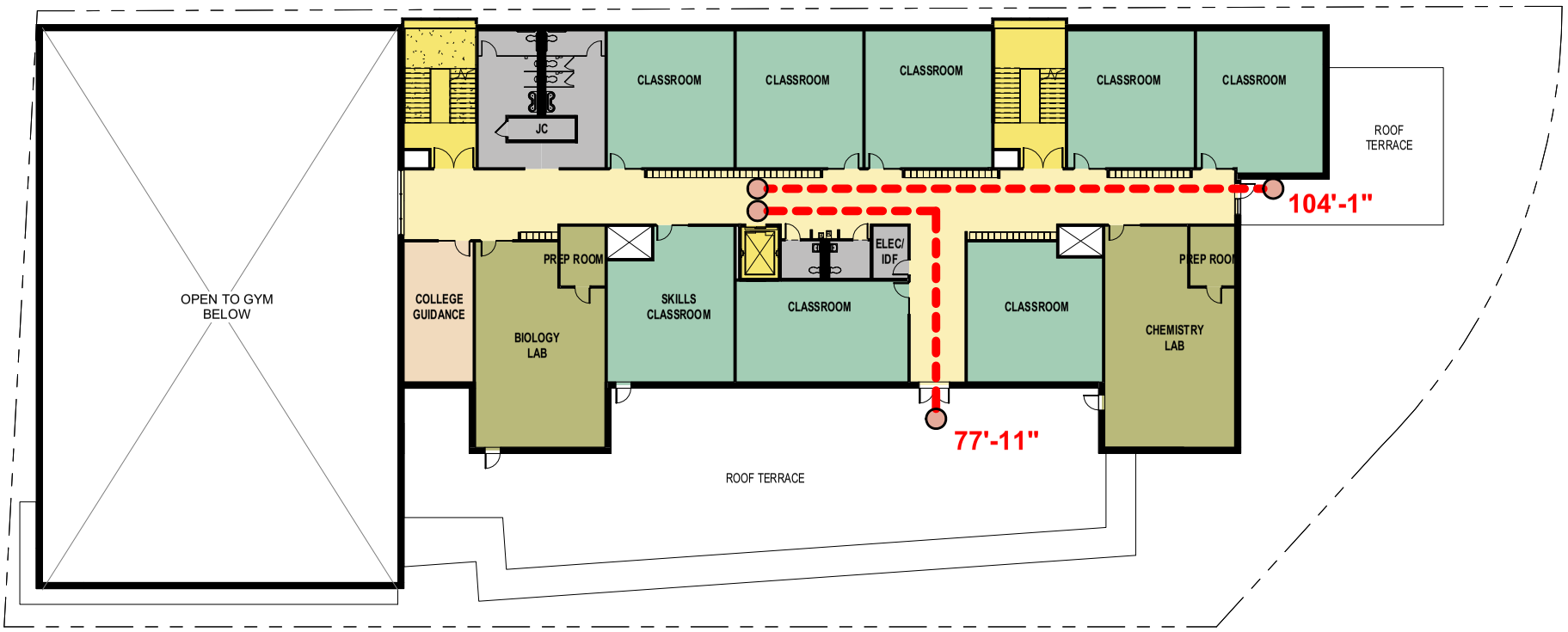


ACCESSIBLE ROUTE DIAGRAM LEGEND:

- END POINT OF ACCESSIBLE ROUTE DISTANCE MEASUREMENT
- LINE OF ACCESSIBLE ROUTE
- XX'-X" ACCESSIBLE ROUTE DISTANCE

N

DIAGRAM OF ACCESSIBLE ROUTE - LEVEL 2 PLAN

1" = 20'-0"

APPENDIX A FIGURE A-4

ROXBURY PREP HS

NOVEMBER 17, 2018

Uncommon Schools | ROXBURY PREP

SMMA

7.2 Appendix B. BPDA May 4, 2018 Letter from the Electeds and the Proponents November 19, 2018 Response to the BPDA and The Electeds

McDERMOTT
QUILTY &
MILLER LLP

28 STATE STREET, SUITE 802
BOSTON, MA 02109

30 ROWES WHARF, SUITE 600
Boston, MA 02110

November 19, 2018 ***Via In-Hand Delivery***

Mr. Brian Golden, Director
Boston Planning and Development Agency
One City Hall Square, 9th Floor
Boston, MA 02201
Attn: Aisling Kerr, Project Manager

RE: 361 Belgrade Avenue, Roslindale – Project Status Update

Dear Director Golden:

I am writing to provide you with an update of the Proponent's continued community engagement and suggested project modifications for 361 Belgrade Avenue in response to the input provided by the local elected delegation for this project site. Specifically, in response to the written correspondence of certain local elected officials for the Roslindale and/or nearby West Roxbury neighborhoods (the "Elected Officials Letter"), the Proponent is pleased to address the main areas of concern enumerated in their Letter, with a reduced-sized project to be filed with the Boston Planning and Development Agency ("BPDA") later this month and reviewed pursuant to Article 80E- Small Project Review requirements. *See attached hereto a copy of the Elected Officials Letter to the BPDA.*

ORIGINAL PROPOSED PROJECT

On May 8, 2018, the Proponent filed a Letter of Intent ("LOI") to File a Project Notification Form with the BPDA, pursuant to Article 80B- Large Project Review of the Boston Zoning Code (the "Code"), for the proposed revitalization of an under-utilized former automotive sales and services site in the Roslindale neighborhood with the construction of a new high school facility for the long-existing and well-managed Roxbury Preparatory Charter School (operated by Uncommon Schools). In particular, the proposal contemplated by the LOI involved the demolition of a former automobile dealership and the construction of a new three-story academic facility of approximately 92,000 gross square feet, including a three-story classroom wing, cafeteria, gymnasium, administrative and storage space, second-level outdoor pedestrian courtyard and approximately 66 on-site parking spaces, with 20 surface spaces and 46 spaces in a below-grade garage structure of approximately 11,600 gross square feet (the "Original Proposed Project").

Prior to filing its LOI for the Original Proposed Project, the Proponent engaged in over 16-months of preliminary outreach with abutting and area residents, nearby business owners and

institutions, local elected and appointed officials, and other interested parties, including the following actions:

- Organized two initial abutter meetings in January and March of 2017, with participation by the Mayor's Office of Neighborhood Services.
- Made an initial presentation at the Bellevue Hill Improvement Association's community meeting, in October, 2017.
- Conducted door-to-door canvassing and local interaction with abutting and nearby residents.
- Hosted a publicly-advertised open house forum in the neighborhood with attendance by over 500 members of local community and surrounding areas.
- Received written support from over 200 abutting and nearby residents and 1,600 Boston residents.

As a result of the input received, the Proponent integrated certain project modifications and mitigation measures into its Original Proposed Project (as contemplated by its LOI), which was then the subject of the Elected Officials Letter to the BPDA. In particular, the Letter identified the "size, transportation access and parking" as the "issues of most concern."

FURTHER PUBLIC REVIEW AND MAJOR SUPPORT

After filing its LOI, the Proponent's continued community engagement for the Original Proposed Project, with the following key activities:

- Hosted numerous community gatherings in Roslindale and West Roxbury for neighbors to learn more about the project and ask questions directly to school leaders and project planners.
- Participated weekly at the Roslindale Farmer's Market to provide information to neighbors and answer questions, from June-October, 2018.
- Presented at an interfaith meeting in August, 2018 at Theodore Parker Church to meet with local residents and activists and respond to questions about the project.
- Presented a revised proposed project in September, 2018 to the Longfellow Area Neighborhood Association.
- Roxbury Prep students marched in the Roslindale Parade in October, 2018.
- Held informational house gatherings at the homes of supporters in Roslindale and West Roxbury.
- Supporters canvassed neighbors with students from the school to share information about project.

As a result of its continued outreach and community engagement, public support for the Original Proposed Project has expanded significantly in the immediate community and across the City, as follows:

- 302% increase in local support since filing the LOI.
- 813 recorded supporters from the immediate Roslindale and West Roxbury community.
- 2,319 recorded supporters from across the City, registered by petition to the BPDA.
- 18 Letters to the Editor were submitted by local residents and supporters across the City.
- Boston Globe published an editorial in support of the project.
- Received favorable reviews by WBUR Public Radio and the Dorchester Reporter.

- Longfellow Area Neighborhood Association in Roslindale issued a favorable letter regarding the project.

RESULTING REVISED PROJECT

In an effort to productively address the concerns enumerated in the Elected Officials Letter to the BPDA, as well as comments and feedback from City of Boston Traffic Department, Department of Public Works and urban planning, the Proponent is now proposing to significantly reduce the size and scope of its Original Proposed Project along with a number of further design enhancements, in the following areas outlined by the Letter (as the main concerns):

1. **Proposed Size – Building Scale, Height and Student Population**

   - Reduction of anticipated student population to 562 total pupils (from its original 860).
   - Reduction of the building size by approximately 40%, to approximately 49,950 gross square feet (significantly reduced from the original 92,000 gross square foot building).
   - Reduction of building height to 2-to-3 stories and only 39 feet (with less height than its original 3-to-4 stories at 45 feet).
   - Substantial increase in the amount of the school's outdoor green space.

2. **Parking – On-Site Allocation for Original-Proposed Size and Scope**

   - Increased amount of on-site parking to an even greater number, combined with reduction in the new building size, scope and much smaller student population with valet parking.
   - Total on-site parking spaces could increase with valet parking to 76 spaces (from its original 66 spaces).
   - Total parking results in one of highest parking ratios for charter schools across the City, including the past 3 charter schools approved by the BPDA!

3. **Transportation Access – Existing Infrastructure for Original Proposed Project**

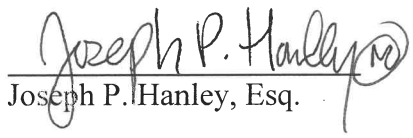
   - Recently improved distribution of expanded MBTA bus routes, including four (4) lines running every 6-minutes between the site and Forest Hills MBTA node.
   - Lessened demand/usage with reduced project size, scale and smaller student population, in addition to optimal MBTA commuter rail service with ample available seats.
   - Reverse commute direction for MBTA currently has excess capacity of over 400% of the incremental demand from school.
   - Improved plaza design and integration with Belview MBTA commuter platform with additional access points into the building to further facilitate safe and efficient egress by students.
   - Addition of direct pedestrian access to the Belview Commuter Line from West Roxbury Parkway to further facilitate commuter access for ALL residents and business along the Centre Street corridor (not just students).

As a result of its significant reduction in size and scale, the currently proposed project, expected to be under review by the BPDA by the end of this month, is now subject to Small Project Review pursuant to Article 80E of the Code, and Large Project Review requirements are no longer required. Similarly, the extent of zoning relief is also lessened to the minimal necessary under the circumstances.

In furtherance of the BPDA's continued review, as referenced, the Proponent is prepared to file the now-required Small Project Review Application with the BPDA by the end of this month.

Thank you for your time and attention, and I look forward to continuing to work with you and your appointed staff at the BPDA, the area's local elected officials, abutters, neighbors and the community at large on this responsive project modification for the future Roxbury Prep High School at this location. Please also do not hesitate to contact me with if you have any questions, or if I can provide any additional information.

Very truly yours,



Joseph P. Hanley, Esq.

Enclosure: Elected Officials Letter to the BPDA

cc: Jonathan Greeley, BPDA Director of Development Review and Policy
Michael Christopher, Deputy Director of Development
District City Councilor McCarthy
District City Councilor O'Malley
Jerome Smith, Chief of Neighborhood Services and Director of Civic Engagement
Jack Duggan, Mayor's Office of Neighborhood Services, West Roxbury
Joseph Coppinger, Mayor's Office of Neighborhood Services, Roslindale
State Senator Rush
State Representative Scaccia
State Representative Coppinger

The Commonwealth of Massachusetts
HOUSE OF REPRESENTATIVES
STATE HOUSE, BOSTON 02133-1054

EDWARD F. COPPINGER
STATE REPRESENTATIVE
10TH SUFFOLK DISTRICT

STATE HOUSE, ROOM 26
TEL. (617) 722-2080

Committee:
Chair
Joint Committee on Community Development
and Small Businesses

May 4, 2018

Brian P. Golden, Director
Boston Planning & Development Agency
One City Hall, Ninth Floor
Boston, Massachusetts 02201

RE: Roxbury Preparatory Charter School Proposal in Roslindale

Dear Director Golden,

We, the undersigned State Senator, State Representatives, and Boston City Councilors, are writing today in response to the recently submitted proposal for the Roxbury Preparatory Charter School at 361 Belgrade Avenue in Roslindale. After meeting with community members, stakeholders, and proponents, we feel as though this proposal does not take into consideration or address the concerns raised by the community throughout the process to date.

The proposed size, transportation access, and parking continue to be the issues of most concern to the community. The proposal submitted to build a three-story school on this property—with classrooms, science and computer labs, a full-sized gym, cafeteria, theater, and rehearsal space—is inconsistent with the scale of the neighborhood. Roxbury Preparatory anticipates that many students will use the MBTA bus lines and the Commuter Rail to travel to and from school, but we do not feel that the transportation required to do so can be met with the existing infrastructure. Furthermore, the proposed parking spaces seem insufficient to accommodate the teachers, school staff, parents, and visitors attending sports games or extracurricular events in an already congested neighborhood. Additionally, the recently approved mixed-use building at 317 Belgrade Avenue further adds to our concerns regarding adequate parking space and traffic access in the neighborhood.

Because Roxbury Preparatory Charter School has insufficiently addressed these concerns, we remain in opposition to this proposal.

Sincerely,

Edward F. Coppinger
State Representative
10th Suffolk District

Michael F. Rush
State Senator
Norfolk and Suffolk Districts

Angelo M. Scaccia
State Representative
14th Suffolk District

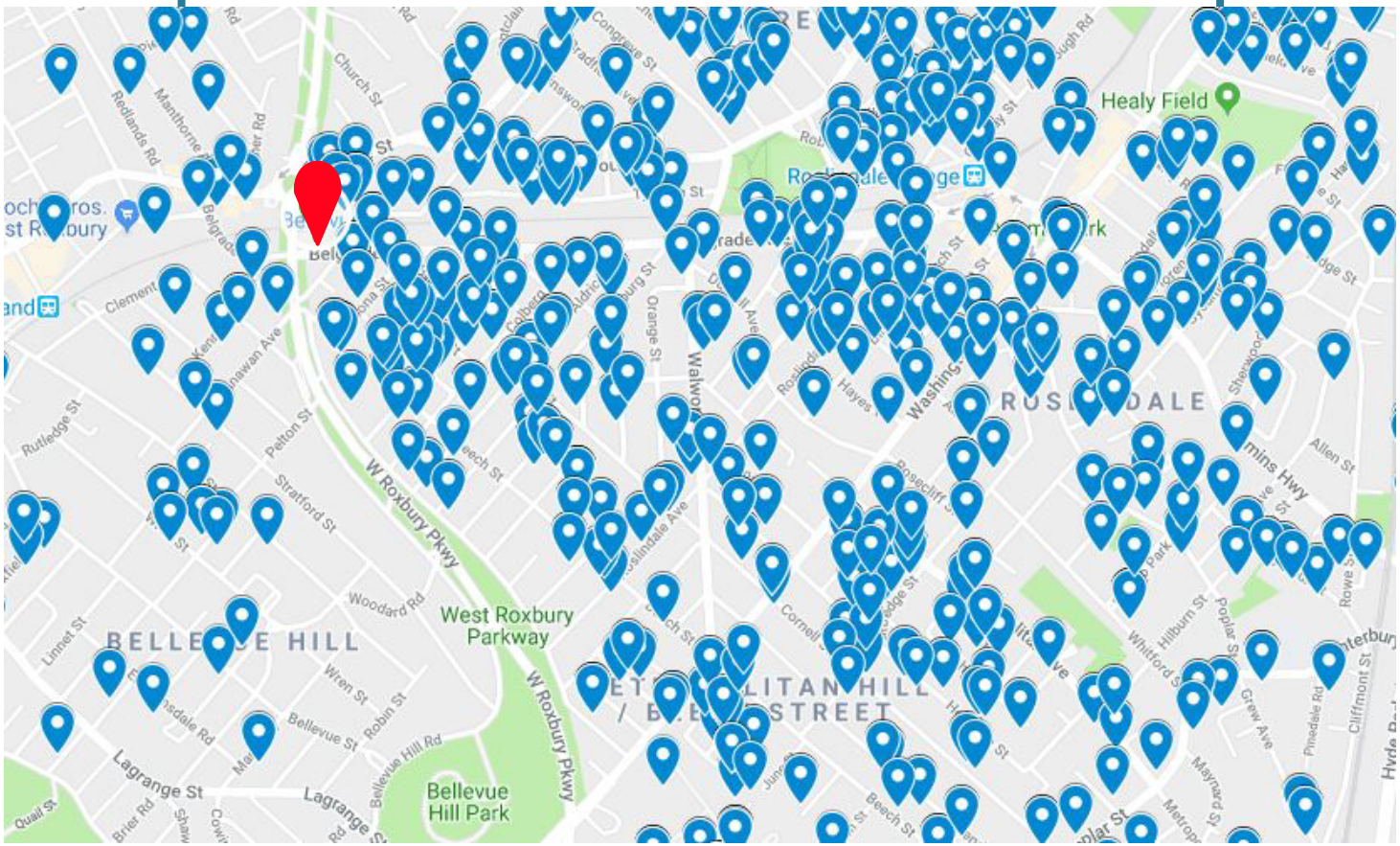
Timothy McCarthy
Boston City Councilor
District 5

Matthew O'Malley
Boston City Councilor
District 6

7.3 Appendix C. Record of Community Support for Roxbury Prep

COMMUNITY SUPPORT

Roslindale and West Roxbury



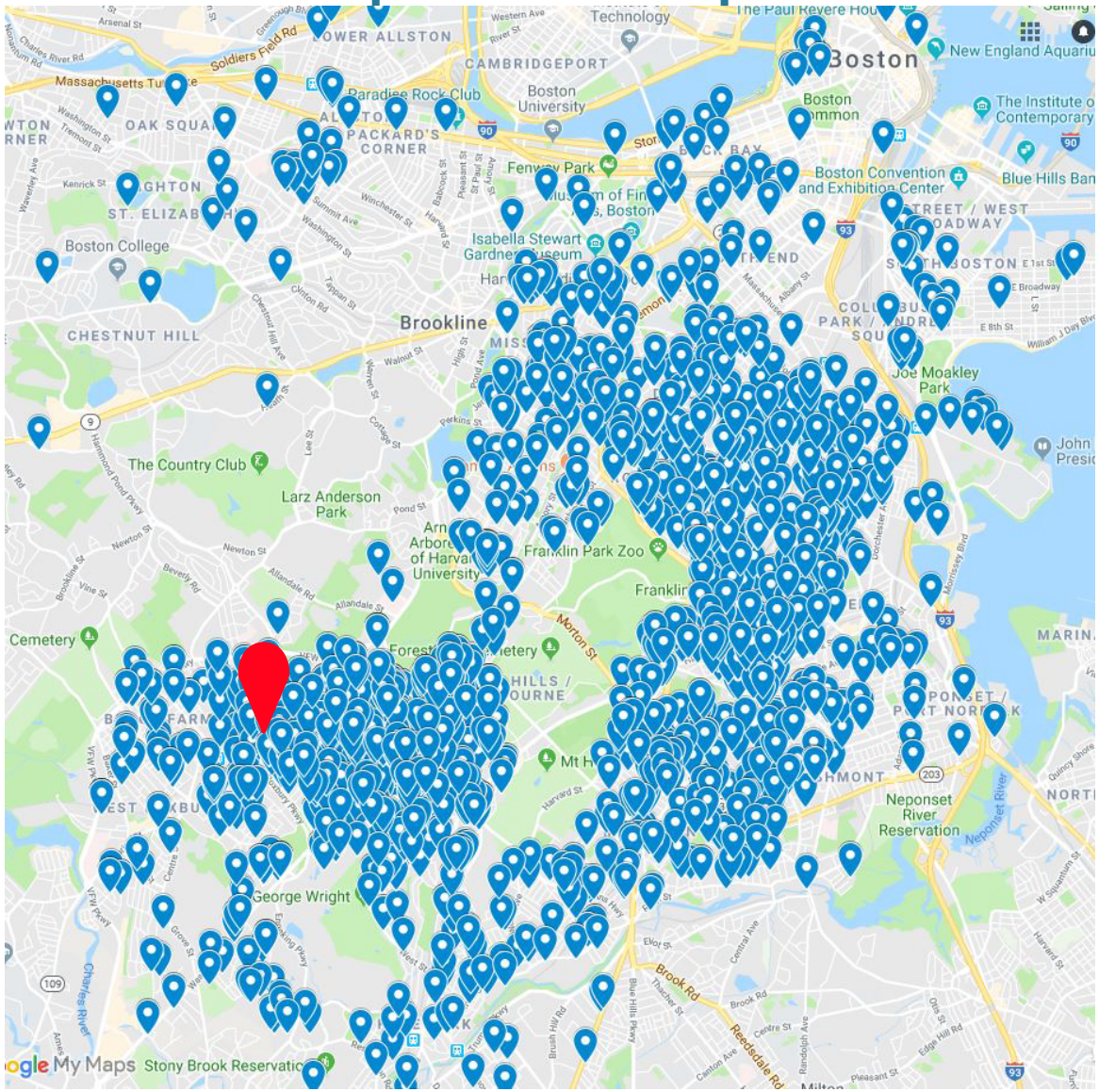
The dots represent Roslindale and West Roxbury residents who have signed a petition in support of Roxbury Prep Roslindale at 361 Belgrade Ave.

= 361 Belgrade Ave.

COMMUNITY SUPPORT

The dots represent Boston residents who have signed a petition in support of Roxbury Prep Roslindale at 361 Belgrade Ave.

= 361 Belgrade Ave.



PETITION SIGNERS

IN SUPPORT OF ROXBURY PREP AT 361 BELGRADE AVE.

813
Supporters from Roslindale & West Roxbury

302%
Growth in Local Support Since Filing LOI in May 2018

1,891
Emails Sent to Elected Officals by Roslindale & West Roxbury Residents

PETITION SIGNERS

IN SUPPORT OF ROXBURY PREP AT 361 BELGRADE AVE.

2,319
Supporters from Boston

43%
Growth in Support Since Filing LOI in May 2018

7,130
Emails Sent to Elected Officals by Boston Residents

ROXBURY PREP ROSLINDALE

Dear Councilor Essaibi-George,

Please see the enclosed letters to the editor and news stories as a sampling of support from West Roxbury and Roslindale residents for the Roxbury Prep High School project at 361 Belgrade Ave. in Roslindale. We continue to build community support each day and look forward to working with your office to make this school a reality.

Sincerely,
Supporters of Roxbury Prep Roslindale

WEST ROXBURY ~ ROSLINDALE
BULLETIN
Volume 18, Issue 16 APRIL 19, 2018 FREE

Letters to the Editor

LET'S SUPPORT ROXBURY PREP

To the Editor:

I participated in an event on Tuesday night hosted by Roxbury Prep and the community members supporting their new high school project in Roslindale. I was blown away by the support and energy in the room, which was filled with hundreds of people, all in support of my child's school.

I am a 16-year resident of Roslindale and have come to love and care about my community. My daughter attended the Charles Sumner Elementary School, and I have visited Roslindale Baptist Church and was a member of the Roslindale Community Center for a number of years. I'm happy to say that I have seen the Roslindale Community grow over the years. However, I was truly surprised to hear that the Roslindale Community did not have a high school.

Currently, Roxbury Prep High School is split between two campuses that are over three miles apart. In an effort to come together as a school under one roof, Roxbury Prep is seeking to build a new facility at 361 Belgrade Ave. in Roslindale. I support this project because I know the staff and students will be a positive addition to our community. Roxbury Prep is a high performing school; they hold their students and staff to high standards. No matter the time of day, when you see a RPHS scholar, you will know it because all of our students wear logo uniforms – whether it's morning or afternoon.

I am asking my fellow neighbors to support the new Roxbury Prep Roslindale High School. Our students deserve a new school and the Roslindale site is a great location for them to continue to learn and grow. Nothing would mean more to me than to have my child attend high school in the same community I love and serve.

Deborah Dunlap
Roslindale Resident

WEST ROXBURY ~ ROSLINDALE
BULLETIN
Volume 18, Issue 16 APRIL 19, 2018 FREE

Roxbury Prep rally brings big crowd

More than 500 people came out last Tuesday for a rally in support of the Roxbury Prep High School slated for Roslindale.

PHOTO BY JEFF SULLIVAN

Jeff Sullivan
Staff Reporter

More than 500 parents, residents and students crowded in at the Annunciation Church in West Roxbury to drum up support for the construction of a new high school at 361 Belgrade Ave.

The new school proposal is aimed at creating a central location for the high school students of Roxbury Prep, which currently has two high school locations in Roxbury and Jamaica Plain. The problem with these locations, according to students and teachers, is that they do not have many of the amenities some students take for granted. There are no athletic facilities or a cafeteria for instance; the students have to eat their lunches in their classroom.

The proposal would bring 800 students and faculty to the current location of Clay Auto in Roslindale on the Belgrade Avenue West Roxbury Parkway intersection. Last year, many residents flooded a public information session on the project (the school has not started any public meeting process with the Boston Planning and Development Agency at the time of publication) and many residents were concerned with the density of the project and the traffic it could create.

Organizers at the rally stuck with the prediction that students would use the MBTA as they do now, except with the Commuter Rail and buses instead of

Roxbury Prep
Continued on page 13

Roxbury Prep continued from page 1

the Orange Line many of them use now to get to the Jamaica Plain location. According to officials, at the time of publication about 198 residents and students have sent 1,200 emails to local officials in support of the project.

Jake Upton, of Upton Associates Architecture, also said they have made a few changes to the design of the school. He said they've widened the turnaround and the courtyard plaza on the eastern side of the site.

"It's so, for at peak times when the trains come, we have a reverse commute going in both directions. But 95 percent of the kids should take the Commuter Rail or buses, and currently the Commuter Rail has 2,000 seats open in the morning and 1,500 seats open in the evening going out so the city wanted to see how do kids get off the train and get into the building. So we opened up this plaza, added more covering and added multiple entrances so people can come around if it blocks up," he said.

Upton added that there will be a ramp on the northern side of the building going west to east that connects the end of the West Roxbury Parkway to Belgrade in a quicker fashion.

"From an urban planning perspective, this will be publicly accessible and would allow people not have to walk around the building or walk around through the neighborhood," he said. "We've also been able to come up with a design that allows this to be an outdoor courtyard and if we need it for parking, we can do pull in parking or tandem parking as we need it, but we really think that we have more parking than we need. There's underground parking too."

Upton said there are 46 total spaces for the building, not including any of the street parking.

"From our demand analysis it's more than we need," he said. "There's also some nuances on the building with creating a little bit more of a landing area. We've also had some discussions with the MBTA about having the bus stop relocate to right in front of the building and that allows the kids not to have to cross the street and just end up right there."

Roslindale resident Christie Bortolotto said she thinks the school would be a welcome addition to the neighborhood.

"I'm a direct abutter to 361, I live on Rhoda Street, so literally out my kitchen window is the building," she said. "I'm not concerned with the traffic at all, because they're going to have the staggered dismissal times and kids participate in drama, they participate in sports, they participate in tutoring, they're in clubs, so 700 kids aren't going to come out of the building at the same exact time every single day."

The school's design has changed since last year's meeting, with a larger turnaround and more space in the plaza for entering and exiting students.

COURTESY PHOTO

Bortolotto said traffic is also not a concern for her.

"Because they're high school, they mostly take the T. If parents do drive, then there's probably, I mean I don't know for sure, but there's probably carpools," she said.

Current students Savion Allen-Harding and Oliva Dunlap said they really need that new building.

"I want to take arts courses and meet with college counselors but we need a real space to do this," Allen-Harding said. "I want somewhere in my own neighborhood, it takes me 35 minutes to get to school every morning. This building is right down the road, and I'll get to school on time."

Dunlap said she's looking to get into a tech college, like MIT or Florida Tech or Wentworth, but without a dedicated building, offerings for tech learning opportunities is low for her.

"Though we have computer carts and access to some technology, a new building would allow us to have the resources we need to truly meet our goals," she said. "It would also give our awesome E Sports team a real space."

At other support events for other charter schools in the past, many students came because of incentives provided by the school - homework waivers, free days off, etc. - and Roxbury Prep offered their high schoolers a homework waiver for one class for one day and at the teacher's discretion. According to officials, 10 students took the waiver.

The school has not yet filed with the BPDA, but since the project qualifies for the BPDA Article 80 Large Project Review process, several public meetings will be coming down the pipeline in the future.

A Boston high school with a splendid reputation for academic excellence wants to expand and offer its students state-of-the-art classrooms on a site now occupied by a former auto dealership.

What's not to like?

But this is Boston, after all, where too often no good deed goes unpunished and old battles continue to be waged.

The case in point is a proposal by Roxbury Preparatory Charter School to build a new high school on an acre of land in Roslindale. Because it is a public charter school, it will be built at no cost to taxpayers.

Since 1999, Roxbury Prep, part of the Uncommon Schools network operating 52 schools in three states, has been turning out high-achieving students from its three middle schools. As of 2014, 78 percent of students have gone on to attend four-year-colleges, compared to 50 percent of their Boston district school counterparts.

Some 420 students are now enrolled in Roxbury Prep's high school, which will graduate its first class of 70 students next June. The school's 10th-graders are already outperforming the statewide average on MCAS in English and science and coming up just about even in math. And by 10th grade, every Roxbury Prep student has taken at least one advanced placement course.

Problem is, come September those high school students will be divided among three different sites — in Jamaica Plain, Roxbury, and Hyde Park. That's not only inefficient from an administrative point of view, it also denies the students a real high school campus experience.

So this spring, school officials filed a letter of intent with the Boston Planning and Development Agency to build a brand new school to accommodate 800 students on the site of the now-shuttered Clay Auto, at the juncture of Belgrade Avenue and West Roxbury Parkway.

The proposal, however has set off a wailing and gnashing of teeth from the Greater Belgrade Avenue Neighborhood Association, which in turn has succeeded in drumming up opposition from several of its elected officials. The latter, in particular, should simply be ashamed of themselves. State Representatives Edward F. Coppinger and Angelo M. Scaccia, state Senator Michael F. Rush, and City Councilors Tim McCarthy and Matt O'Malley insisted in a letter to the BPDA that the proposed three-story building "is inconsistent with the scale of the neighborhood" and lacks adequate parking. They dispute the school's contention that current public transportation will be adequate to meet student needs.

The association has attempted as best it could to spread such half-truths as, according to its website, this is a "charter, not a public school." Never mind that charter schools *are* public schools. This one, in fact, has students from Roslindale and nearby West Roxbury, along with Mattapan, Hyde Park, Roxbury, and Dorchester.

Roslindale, it should be noted, is the only neighborhood in the city without its own public high school. And many in the community — who don't buy into the GBANA brand of NIMBYism — think it's high time that situation was remedied.

The school administration has given neighbors assurances that 90 percent of students will be arriving via public transportation. A commuter rail stop — two stops from Forest Hills station — would deposit students virtually on campus. The planned 66 parking spaces would be for faculty, staff, and visitors. And the school has worked hard to respond to neighborhood concerns about traffic and logistics.

Roxbury Prep draws its students from all over Boston — 57 percent of them African-American, 39.5 percent of them Hispanic. The bottom line is those students deserve a high school they can be proud of — a physical structure that is as good as the education that is taking place inside.

WEST ROXBURY ~ ROSLINDALE
BULLETIN
Volume 18, Issue 21 MAY 24, 2018 FREE

ROXBURY PREP PRINCIPAL SEEKS PUBLIC SUPPORT

To the Editor:

I am a Roslindale resident and am an involved member of the community who has been a Boston resident and educator for almost 15 years. I support the new Roxbury Prep High School in Roslindale at 361 Belgrade Ave.; I voiced my support to Mayor Walsh at his coffee hour on May 8th. I know the staff and students will be a positive addition to our community because I work with them every day.

This project means a great deal to me. I am the Principal of the school, a resident of Roslindale, and the parent of a 4-year old. I have worked and been part of the Roxbury Prep family since 2003. I am honored and blessed to do work for the young people of Boston. I know, deeply, the power of a high quality education as the daughter of immigrants whose pathway to America was grounded in a strong education. I have seen, firsthand, the power of a Roxbury Prep education and the hope, commitment, and dedication of our students and families. For so many of us, this high school reflects our promise to close the opportunity and racial achievement gap for our scholars. As a resident of Roslindale, I know our young people would offer examples of leadership, service, and community that would serve our city far into the future in a positive and influential way.

I share my reflections because I know for myself, my students, my family, and for the many like me who know the power of school – a permanent facility – is part of the fulfillment of a promise that was made when our students first came to Roxbury Prep – that they will enter, succeed in and graduate from college regardless of their zip code, race, or class. This promise kept in Roslindale will have even greater meaning since many more students will be able to partake in this mission as it will be the only public high school in Roslindale.

I ask my fellow neighbors to support the new Roxbury Prep High School so that we can keep our promise in a most powerful way. Our students deserve a new school and a community that supports them to this end.

Shradha M. Patel
Roslindale, MA

WEST ROXBURY ~ ROSLINDALE
BULLETIN
Volume 18, Issue 17 APRIL 26, 2018 FREE

ROXBURY PREP IS AN OPPORTUNITY CREATOR

To the Editor,

Since 1999, Roxbury Prep has been offering a first-class education to thousands of students. Roxbury Prep primarily serves low-income students of color in a city and nation still beset with a pervasive and inherently unnecessary achievement gap. Roxbury Prep middle school graduates are graduating from college at five times the rate of low-income students across the country. When the opportunity to open a Roxbury Prep High School that would serve Roxbury Prep's middle school graduates as well as new students from other Boston schools, it presented a tremendous opportunity for our city. In its third year of operation, Roxbury Prep High School is housed in two temporary locations, miles apart. Roxbury Prep students and families and all its potential new students and families deserve a permanent home in a single location. I am proud to have been a teacher, a Principal, and the Managing Director of Roxbury Prep from 2001 – 2016. More importantly, I am proud to be a Roslindale resident and the mom to three adopted boys, ages 14, 11, and 4. My kids have attended district, parochial, and charter schools. Just like any mom, I will do anything to get my kids into schools that work for them. Every parent shares that same desire and our city needs to continue to provide high quality options for children in every neighborhood. Roxbury Prep is a conscientious neighbor – the new facility will provide opportunities for the whole community. Roxbury Prep is also an opportunity creator, an achievement equalizer, and a second family to thousands of children and parents. Let's support their opportunity to learn in a high-quality facility where they can have community and permanence. It's what we would all want for our kids.

Dana Lehman
Roslindale

WEST ROXBURY ~ ROSLINDALE
BULLETIN

Volume 18, Issue 26 JUNE 28, 2018 FREE

Letters to the Editor

A WR RESIDENT STRONGLY IN FAVOR OF ROXBURY PREP

To the Editor:

I am a parent of a Roxbury Prep student, a home owner and resident of West Roxbury, and a strong supporter of the new school in Roslindale. I grew up in West Roxbury and Roslindale; I am a member of the Civic Association of West Roxbury and a member of the Theodore Parker Unitarian Church. My daughter plays basketball for Roxbury Prep and was also part of the track team.

My daughter has been a student at Roxbury Prep since 5th grade and is currently a rising 11th grader. Roxbury Prep has been a wonderful experience for both of us. The teachers and I work very closely together to support my daughter in her academics and social needs. I often receive text messages after school hours from teachers keeping me updated on my daughter's progress. Earlier this year, my daughter was out of school for two weeks due to an injury and the staff went above and beyond during her recovery. The staff was incredibly supportive as they worked with my daughter to keep her on track. My daughter fully recovered and ended the quarter stronger than the quarter before! Roxbury Prep really cares for the students; the teachers are dedicated and we are very lucky to have them.

My daughter talks a lot about the colleges she wants to attend and the teachers, advisors and I have worked very closely with her to make sure she's on track - they support her in every way. Roxbury Prep High School is currently split between two separate facilities and is looking for a permanent home to continue to [illegible] their students under one roof. Despite the rigorous curriculum, my daughter is missing out on the full high school experience. My daughter wishes she could attend what she describes as a "normal" school with an "auditorium, a gym and a cafeteria" and of course, a school that she feels proud of. Nothing would mean more to us than to have my daughter attend a high school in the same community we love and serve. I know the staff and students will be a positive addition to our neighborhood.

I ask my fellow neighbors to join me in support of the new Roxbury Prep High School in Roslindale, offering them the opportunity to come together in a singular location to continue their path to college.

Ana Pena Estrella
West Roxbury

DENT

WEST ROXBURY ~ ROSLINDALE
BULLETIN
Volume 18, Issue 27 JULY 5, 2018 FREE

Letters to the Editor

ROXBURY PREP IS WORTH SUPPORTING

To the Editor:

I am a member of the Roslindale community, and I support the proposal for a new Roxbury Prep High School at 361 Belgrade Ave. in Roslindale.

As we begin to go through the public planning process and engage in a widespread conversation surrounding this project, let us be open-minded as a community. This high school will be a great addition to our neighborhood, a key step forward for Roxbury Prep and, most importantly, an incredibly positive development for the students.

The school's current situation in which the students are separated into two temporary locations is costly and unsustainable. The need for a solution drove the school to conduct an extensive search — one that landed on the proposed location. This site was decided on because it can aptly accommodate the school's needs (28 classrooms, a cafeteria, a gym, performing arts space, and parking). The site is also very well located with regards to public transportation, considering its proximity to the Commuter Rail and four bus lines.

Much of the negative outlook that I've seen on the project is rooted in logistical questions about the effects of the school's operation, such as traffic and parking. While these are important questions for all of us, we owe it to ourselves to take a clear, honest look at how the proposal addresses our concerns: 90 percent of Roxbury Prep students use public transportation to get to and from school; the school prevents students from driving to school unless there are extenuating circumstances; traffic engineers who have studied the project say that there is ample traffic capacity for the school and that the proposal includes more than enough parking.

It is clear that Roxbury Prep, in its commitment to high standards, student achievement and access to opportunity, is also committed to being a positive addition to our neighborhood.

This proposal is an opportunity for us to support a public school that will be a positive force in our community from the moment it opens its doors.

Robert Fair
Roslindale

WEST ROXBURY ~ ROSLINDALE
BULLETIN
Volume 18, Issue 24 JUNE 14, 2018 FREE

Letters

PLEASE KEEP OPEN MIND ON ROXBURY PREP

To the Editor:

There has been a lot of chatter in the community and online about Roxbury Prep's proposal to build a high school at 361 Belgrade Ave. The most common pushback I hear is that local students don't go to Roxbury Prep - that's just not true. My son attends Roxbury Prep and has had a wonderful experience with the school. He is one of more than 100 students from Roslindale and West Roxbury that go to Roxbury Prep. Since starting there last fall, he is more engaged in his learning and excited to go to class. I've been impressed by the teachers and staff and now completely agree that they will be a great neighbor when they move to Roslindale. Now that Roxbury Prep filed their Letter of Intent with the Boston Planning and Development Agency, they will go through a public planning process. It is my hope that my neighbors are open-minded about the project. It is easy to say "no" to new things; it takes thought and effort to say "yes" and welcome a new asset into our community. I know the team at Roxbury Prep will do their best to answer all questions and have an open dialogue with the neighborhood. In return, they deserve to be heard out in a respectful manner. I encourage those who are unsure about the project to get the facts from the BPDA - don't believe the rumor mill. These young people deserve a new building where all high school students can be united under one roof for the first time, where they can eat lunch in a cafeteria (not their classrooms) and have fully-functioning science labs. I hope you support this worthy endeavor.

Sarah Rocha
West Roxbury

Boston Bulletin

citywide news • street by street

VOLUME 12 - NUMBER 36 SEPTEMBER 6, 2018 FREE

ROXBURY PREP GOES THE EXTRA MILE FOR COMMUNITIES IT SERVES

To the Editor:

As a West Roxbury resident, Roxbury Prep alumnus, and current staff member, I am fully supportive of Roxbury Prep High School moving to 361 Belgrade Avenue in Roslindale. I have been a Boston resident my entire life and attended Roxbury Prep from sixth to eighth grade when it first opened in 1999.

I have now had the opportunity to come back to Roxbury Prep as a member of the staff, working with school leaders, students, and families. Across my experiences with Roxbury Prep, one consistent quality that I have found is the school's willingness to work with local communities in meeting needs and addressing concerns.

As a West Roxbury resident, I drive past the "STOP 361 Belgrade" signs every day on my way to work. I often wonder how many of my neighbors know about everything the school has done to accommodate the communities it serves. I have a personal understanding of the potential challenges others fear surrounding parking and traffic, as I live a half mile from the site. Nonetheless, I wholeheartedly believe the school will continue its track record of providing inventive solutions that mitigate any issues in these areas.

For example, Roxbury Prep has committed to staggering dismissal times to minimize all cars from exiting the building at the same time. Along with this strategy, because students will inevitably stay after school to participate in the athletics, arts, or other extra-curricular programs, concerns related to student dismissal as a source of traffic will be addressed. Further, most of the students will be doing a reverse commute and the school's design includes a "kiss and ride" to ensure families can pull off Belgrade Ave. when dropping off students. As a final precaution, students will not be allowed to drive to school. Not only will this policy be strictly enforced, but realistically speaking, buying a second car for their teenager is a financial privilege many of our families do not have. Working so closely with families and having gained demographic knowledge about them in my current role, I can make my former statement with relative certainty.

Considering the history of Roxbury Prep in catering to the needs of its communities, I believe the school can be trusted to craft the kinds of operational policies that will best serve the neighborhood it will be a part of. Over the last twenty years, I've seen Roxbury Prep partner with the people of Boston, always doing their due diligence to accommodate as necessary. I implore my fellow West Roxbury neighbors to research this project and its potential benefits to both the students and the community and to positively engage in dialogue with the school.

Janice Brea
West Roxbury

WEST ROXBURY ~ ROSLINDALE
BULLETIN

Volume 18, Issue 37 SEPTEMBER 13, 2018 FREE

Letters to the Editor

ROXBURY PREP STUDENT SPEAKS OUT

To the Editor:

I am an 11th grade student, a resident of West Roxbury, and I have been part of the Roxbury Prep family since I was in 5th grade. Being apart of Roxbury Prep middle school and high school has been both an exciting experience and a challenging one. Roxbury Prep has pushed me to discover a hidden potential regarding my intelligence that I never knew I could fulfil. For example, in middle school, grades were not always my main priority, and I sometimes prioritized other things. Once my grades began to drop, my teachers knew that something was wrong and immediately consulted me, spoke with my parents for their additional support, and offered to stay after school with me almost every day to ensure that I received the help I needed to be successful in school.

At times where I have struggled mentally and emotionally, I have always felt comfortable enough to confide inmy teachers and reach out for any support I need. My relationships with my teachers have only strengthened since entering high school. Not only are the teachers there to educate you, but the relationship between students and teachers grows organically. I enjoy going to classes and bumping into my teachers in the halls. I appreciate having a strong bond with my teachers while also knowing that they want the ultimate best for me.

Roxbury Prep High School has set me up for success. With all of the AP classes that the school provides, I feel prepared for future college courses that I will take. As a 10th grader taking senior level courses and still remaining on honor roll, I believe that Roxbury Prep's rigorous courses set students up to expand their knowledge, thinking, and creativity, helping them succeed in all their classes.

Although I am immensely grateful for the strong academic foundation I am building at Roxbury Prep, I do feel that I am missing out on a real high school experience. Having to eat in our classrooms feels restrictive and doesn't foster community in the same way a cafeteria would. Not having all of the grades in one building also makes us feel isolated from one another.

With all of the great things that Roxbury Prep is able to provide, we need a place to call home. I'm asking my Roslindale and West Roxbury neighbors to please support our new facility at 361 Belgrade Avenue.

Isabel Hernandez
West Roxbury

Letters
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VOLUME 12 NUMBER 34 AUGUST 23, 2018 FREE

Letters to the Editor

THROWING SUPPORT BEHIND WEST ROXBURY PREP

To the Editor:

I'm writing today to offer my support for the Roxbury Prep School project proposed for 361 Belgrade Ave. in Roslindale. As a true abutter to the property, I feel that this is the best use for this land, and we all know that the old Clay Motors site will become something else soon.

I've attended a number of public meetings about the proposed project, dating back to December, 2016 and I've engaged with the developers and the school administration. I've also had numerous discussions with my immediate neighbors and we seem to be on the same page-this is a great location for Roxbury Prep and we welcome the school to be part of the neighborhood.

I have no concerns about the school kids wandering around the neighborhood. We have assurances that these kids will be fully-engaged in their school schedule and are not allowed to be off school property during class hours. And I'm not convinced that this will add to the (already) problematic traffic issues on the Parkway and rotary. We understand that most of the Roxbury Prep students will be using the MBTA or walking to school most days. We've heard from a couple City Councilors that they want to explore alternate locations, but we haven't heard about those alternate locations.

These students have been working out of a few sub-standard locations around the city and they deserve better. Let's support these Boston school kids with a modern educational facility that enhances their educational and life experience and prepares them to be good citizens.

Again, I am in full support of the Roxbury Prep project proposed for 361 Belgrade Ave.

John E. Ryan
West Roxbury

Boston Bulletin

citywide news • street by street

VOLUME 12 NUMBER 32 AUGUST 9, 2018 FREE

ROXBURY PREP IS VITAL TO THE COMMUNITY

To the Editor:

As a member of the Roslindale community raising my children here, I support the proposal for a new Roxbury Prep High School at 361 Belgrade Ave.

This project is a chance to bring a new, high quality education option to our neighborhood. Creating more, better quality opportunities for our students is something we all stand to benefit from.

When it comes to raising our kids, my husband and I were delighted about doing so here in Roslindale because of the diverse community they would grow up in. We find it incredibly important to expose our children to varying experiences, people, and places, which is why this neighborhood has made such a great home.

My husband and I both attended public schools growing up and hope our girls will thrive in the BPS system. This may sound like we are opposed to charter schools, but as any parent can attest: we simply want to make the very best choices for our children. And I am sure that sentiment is shared by local Roxbury Prep parents, too.

This new building does not affect the cap on charter schools. Roxbury Prep will grow to serve 800 high school students no matter if this school is built or not. Arguments against the new school facility based on the state's lack of proper funding for BPS is irrelevant.

Currently, Roslindale does not have public high school; Roxbury Prep can be the solution. As an existing charter with a proven track record of excellence, Roxbury Prep will provide a high quality, publicly funded high school option for our community.

We support this project because it would be vital for the many families in the community whose children need a high-quality school option in their neighborhood.

Raina Santucci
Roslindale

Boston Bulletin
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VOLUME 12 NUMBER 31
AUGUST 2, 2018
FREE

Letters to the Editor

LOCAL STUDENT SUPPORTS NEW SCHOOL

To the Editor:

I am a resident of West Roxbury and high school student and I have taken advantage of everything this community has to offer - baseball, basketball, football, lacrosse, Boy Scouts, Holy Name Youth Service Project, the WRCC and the YMCA, just to name a few. I hope Roxbury Prep is allowed to build a new high school at 361 Belgrade Ave. It won't help me, but it will help all the families with younger kids. I attended Holy Name School, then entered the citywide public lottery for a seat at Boston Collegiate Charter School in Dorchester. I love Boston Collegiate but we eat in our classrooms, we have no sports fields, gymnasium or swimming pools. What we do have are amazing teachers and incredible outcomes, 100 percent of Boston Collegiate's graduates have been accepted into a four-year college.

I really want my neighbors to know that in high school we don't have recess, just like at Roxbury Prep. In my high school experience, students are staying after school for sports, clubs, or extra help. Others are going home to babysit siblings, going to after school jobs, or an activity in another part of the city. For example, I am on the Mayor's Youth Council, I leave school and take the Red Line to Boston City Hall and I am a lifeguard at Boston College, I take the green line to Chestnut Hill. I walk to through the neighborhood that my school is located in to take the MBTA and stop at local shops and restaurants along the way. I would imagine Roxbury Prep's students would also support local businesses like we do.

I love living in West Roxbury and I love that it's not overly congested, but there is development happening all around us, why not welcome a new school building? The kids at Roxbury Prep aren't allowed to drive to school, they take the MBTA. That's very different from Holy Name Parish School where the students are 3 years old to 12 years old. That's why their parents drive them to school on their way to work.

The students across Boston deserve high-performing, tuition-free public schools, parents deserve to send their children to good schools in safe communities, and 361 Belgrade Ave. is on the MBTA in a GREAT neighborhood, it seems perfect to me. I know some readers will object to my letter because I don't drive yet but I will soon enough.

Luke Bortolotto
West Roxbury

Tell 'em what you think with a Letter To The Editor

PLEASE WRITE TO:
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NEWS@BULLETINNEWSPAPERS.COM

Please include your name, address & telephone number. Unsigned letters will not be published.

Boston Bulletin

citywide news • street by street

VOLUME 12 NUMBER 32 AUGUST 9, 2018 FREE

LET'S SUPPORT ROXBURY PREP

To the Editor:

I am a member of the Roslindale community and I support the proposal for a new Roxbury Prep High School at 361 Belgrade Ave in Roslindale.

This project will bring a new, quality high school education option to our neighborhood. As a parent of two young children, I am excited to have this school as an option. I grew up in Boston and am committed to raising my children here, but as with other parents, I am concerned about choice for education, particularly for high school. Roxbury Prep has a track record of excellence. The school has out-performed the district every year and the students are exposed to college-prep and individualized support planning throughout their time in high school. Roxbury Prep does accept new students in the 9th grade, making this new location a great opportunity for families in Roslindale and West Roxbury.

This project is not about district schools vs. charter schools. Roxbury Prep's new facility is not about expanding charter schools, it is simply about creating a permanent home for a high-performing public school. No caps are being raised and charters are not being expanded.

There is so much development happening in our city. The Clay Auto site will inevitably be developed. Why not opt for a school building that will be an asset to our community and will serve future generations of Bostonians?

Let's welcome Roxbury Prep to our community and give current students and future students a new home!

Amanda Mezzetti-Quirk
Roslindale

WEST ROXBURY ~ ROSLINDALE
BULLETIN
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ROSLINDALE RESIDENT SPEAKS UP FOR SCHOOL PROPOSAL

To the Editor:

I have lived in Roslindale for 21 years and was saddened by a recent trip through the Belgrade neighborhood. One sign that stated "Take back our neighborhood" was particularly troubling. I found myself asking, what or who are we taking "our" neighborhood back from? The sign must be referring to "them" but who is that?

I live in Roslindale because it is a diverse and, I thought, welcoming community. I love that this wonderful area contains a Greek fish market, a Russian Orthodox church, my Syrian barber, an Irish pub, a hair braiding salon, a traditional Italian butcher, a halal grocery, and many other diverse, eclectic and wonderful establishments that reflect a vibrant community inhabited by people from many backgrounds.

And what could make Roslindale more vibrant and healthy than assuring the future by educating the communities and the city's young people in a modern facility capable of supporting the physical and mental wellbeing of dedicated teachers and learners? Nothing. To quote from Judith Chevarley letter in response to the June 29 Boston Globe editorial, (we) "are not opposed to the school. We recognize that it has an excellent academic reputation, with high-achieving students. We would welcome this school in Roslindale or West Roxbury…"So if we agree there is no "us" and no "them" and that a school would and should be welcomed into our neighborhood, let's restart conversations of reconciliation about 361 Belgrade and the proposed Roxbury Prep Charter High School building.

I have been at many meetings starting in February of 2017, up through this year, and I know that the good people at Roxbury Prep and their design team have made sincere efforts to address the concerns of some neighbors. The current design of the building and the site reflects those efforts. We need to restart these conversations in good faith, not with the aim of preventing the school from being built but with the aim of making it the best possible project that meets the needs of the school, its students and the neighbors. I think this is possible, but we need to assure that our minds are open. Proponents must not try to ram the project through without modification and opponents cannot fall back on the mantra that the site is too small – if there was a better site it would have been found. Let's get together and get this school built.

Tad Lawrence
Roslindale

WEST ROXBURY ~ ROSLINDALE
BULLETIN
Volume 18, Issue 23 JUNE 7, 2018 FREE

SUPPORT ROXBURY PREP

To the Editor:

I am a longtime Roslindale resident, the parent of two BPS students (8th and 5th grades) and have been an active member of the community for more than a decade. I support the new Roxbury Prep High School in Roslindale at 361 Belgrade Ave. because I believe that the new school will be a much-needed asset to our neighborhood and broader community. Roslindale remains the only neighborhood in Boston without a public high school — and we are in desperate need of new high school options that extend beyond our current exam school and lottery high school options.

I have lived in the neighborhood directly off of Belgrade Ave. for almost 15 years and have been disappointed by the slow development of the neighborhood, all while other Roslindale neighborhoods, like Roslindale Village, have come together to make improvements for the betterment of the direct and broader communities — and to the benefit of its neighbors and the businesses that rely on it. What's better than a high-quality school to boost and enrich a neighborhood?

I hope that my neighbors will review the proposed site plan, and take the time to get to know the school, its leadership and its high-performing scholars before raising objection. I ask my fellow neighbors to support the new Roxbury Prep Roslindale High School.

These students deserve a new school and I believe that they will be a positive addition to our neighborhood. Let's together make them feel welcome.

Juli Greenwood
Roslindale

Dorchester Reporter

"The News and Values Around the Neighborhood"

Roxbury Prep Charter School students deserve a state-of-the-art learning place

September 19, 2018

By Roy Lincoln Karp
Special to the Reporter

High school students at Roxbury Prep Charter School have to eat lunch in their classrooms. Their school has no gym and no performing arts space. The student body is split into two parts located five miles apart, a circumstance that presents significant practical challenges and makes it difficult to foster a shared sense of community. That could all change if the school's plan to build a new, state-of-the-art high school in Roslindale comes to fruition.

"When I graduate from this school I want to come back to a high school where I can see everyone," says Olivia Dunlap, a junior who lives in Roslindale, the only neighborhood in Boston without a public high school. "A new building would allow us to have space as a community and socialize. Whether it's a dance or sporting events, we need to be one school."

After reviewing more than 50 possible locations, the school concluded that a property at Belgrade Avenue and the West Roxbury Parkway was the only one feasible in terms of size, cost, and access to public transit. The site, which is zoned for educational purposes as of right, is adjacent to the Bellevue Commuter Line stop and four bus lines. The school justifiably touts the project as transit-driven development that will put students on underutilized trains and buses in a reverse commute.

But some residents are not happy. The school is up against a "Not in My Backyard" campaign replete with lawn signs, a website, and rotary visibilities. Conspicuously absent from their slogan, "Stop 361 Belgrade," is any mention of a school. The site, currently home to an autobody shop and a shuttered tire dealership, will likely be developed whether a school is built there or not.

The residents leading the charge have registered with the city as the Greater Belgrade Avenue Neighborhood Association. "GBANA is essentially a single-issue organization seeking legitimacy by calling itself a neighborhood association," says Rachel Young, a member of the nearby Longfellow Area Neighborhood Association, which recently hosted a presentation by Roxbury Prep. Young is also active with "We Support Roxbury Prep," a campaign that has gathered more than 2,000

signatures in support of the high school, including 650 from residents of Roslindale and West Roxbury.

While residents remain divided, local pols have lined up in opposition to the school. Tim McCarthy, whose City Council district would house the school, told me he has to look out for the interests of his constituents. As for constituents who favor the proposal, he says he "doesn't put a lot of stock into petitions."

McCarthy says he doesn't "look at this as a school, but like any other development proposal" before complaining that a school would have a greater impact on traffic and parking than a residential development at the same location. Presented with the fact that 90 percent of Roxbury Prep students get to school on public transit, he reminds me that "the school day does not end at 2:15. There are basketball games and performances that take place after school." The very thing for which Olivia Dunlap was yearning – a rich high school experience with sporting events and dances – is for McCarthy an unsolvable parking problem.

Councillor Matt O'Malley, whose district abuts the site, also opposes the project. He believes the school provides inadequate space for a school of its size, but is vague about specifics. The school's plan for a 96,000 square foot building for 800 students provides comparable space per pupil to several recently built charter schools including Academy of the Pacific Rim, Boston Collegiate Middle School, and the new Brooke Charter High School.

O'Malley also opposes the project because of the lack of Chapter 46 funding, which reimburses school districts for students they lose to charter schools. Boston, he asserts, is missing out on $60 million to which it is entitled under the statute. But Roxbury Prep is authorized to expand its high school to 800 students based on its existing state charter whether or not they build a new school in Roslindale.

So what is really going on here? Many have accused GBANA of being motivated by racist fears of black and Latino teens coming to "their" neighborhood. Not surprisingly, neither GBANA nor the school want to talk about race, saying they would prefer instead to debate the project on its merits. That debate should go forward. In the meantime, elected officials should get off the NIMBY bandwagon, especially one that is being driven by fear more than facts.

Community Divided Over A Proposed New Home For Roxbury Prep Charter High School

September 21, 2018
By Max Larkin

On a Saturday morning in Boston, the Roslindale farmer's market is about as mellow a scene as you can find.

But just outside its borders, there's an edge in the air, as one of the city's top-performing charter schools pleads its case for a new school building just down the street.

“I’ve been heckled at when I’m out canvassing in the neighborhood," says Rachel Young, a Roslindale resident who is collecting signatures and handing out lawn signs in support of the school. "I was sworn at just this morning. ... These are not the kind of conversations I want to be having with my neighbors!”

For months, Young has been arguing online and in person in favor of the project at 361 Belgrade Ave., on a lot occupied by the Clay Chevrolet dealership — right on the line between Roslindale and West Roxbury.

For the past few years, Roxbury Prep High School has been a schoolhouse divided: two campuses, five crosstown miles apart.

Half of its students go to school on Maywood Street in Roxbury, in a converted office building that the school is renting.

“This is only our 11th and 12th grade in this building," says Bridget McElduff, a Roxbury Prep staff member. "And we barely fit with what we have right now!"

Her tour begins in a medium-sized, all-brick room that does triple duty — as cafeteria, auditorium and art class. The room is packed with students during lunchtime — and it’s still too small to fit more than half a grade's students.

Like many charter schools, Roxbury Prep emphasizes hard work and high expectations. Its hallways are kept quiet and its courses are rigorous. The Maywood Street building has been dressed up to reflect those goals — with Ivy League pennants and the school's top GPAs mounted on its walls.

But you can't help but notice the building's limitations: cramped stairwells, a conference room-turned-science lab and other tenants just on the other side of the wall.

Meanwhile, the school’s ninth and 10th graders study in a former parochial school in Hyde Park. This can mean up to an hour in traffic for anyone who has to shuttle between the two campuses, including staff, student clubs and sports teams.

That disjointedness is Deborah Dunlap's one reservation about Roxbury Prep, where her daughter Olivia is a satisfied student in her junior year.

“I’m really sad that she’s not getting a real high school experience," Deborah Dunlap says. "How close-knit can a school be if you’ve got ninth and 10th in one spot, and 11th and 12th in another?”

After a five-year search through 57 sites, Roxbury Prep landed on the Belgrade Avenue site. A rendering of the school they hope to build is hanging on the wall of the Maywood Street campus: a 96,000-square-foot building complete with a gym and a cafeteria, just steps from the commuter rail and bus routes.

They submitted their "letter of intent" to the Boston Planning and Development Agency in May.

But almost as soon as the school began to push for the site early last year, some in the neighborhood pushed back.

“When we first started out, [the concern] was traffic. It was 'kids on our lawns, kids on our porch,'" Dunlap recalls.

Like 10 percent of Roxbury Prep families, the Dunlaps live in Roslindale. So they’ve watched as the fight over 361 Belgrade has balkanized their neighborhood. Lawn signs — some in support of the project, but even more against — have sprouted up everywhere. (You’d think it was a hotly contested political campaign.)

Sixteen-year-old Olivia Dunlap has also gone door-to-door for the school, though it won't be built until at least a year after she plans to graduate.

At times, many of her neighbors — whom she describes as "old and Caucasian" — seem to listen to her. It was inspiring: “A lot of people actually ask me questions about the school: What do I do, like what do I learn, how does it affect me and my future? It makes me feel like people actually want to hear my side.”

Deborah Dunlap was especially moved when her daughter persuaded one resident to back the school: “I was so amazed that my baby, my daughter, was speaking the way she was. And for him to come back and say, ‘Your daughter helped sway me,’ that was a wonderful thing."

And Deborah says the school has modified its plans in response to community concerns. It added a covered outdoor space, where students could congregate before and after hours, and a drop-off area for parents.

But after months of arguing, the “Stop 361 Belgrade” signs are still up. That's left the Dunlaps with a bad taste in their mouths.

Like when neighbors worry about ‘traffic,’ even though few of the school's students drive. Olivia says: "They pause when they say ‘traffic.’ Like, ‘We don’t want you here because of — traffic.’ And it’s just like — there’s going to be traffic everywhere! Like, there’s condos going up!”

It feels like code — like there is something under the surface of the neighborhood resistance.

Given the circumstances, it's not surprising that some school supporters detect a racial undercurrent in the opposition. Roxbury Prep’s students are almost exclusively black or Latino, while the abutting neighborhoods — especially West Roxbury — are largely white.

An early petition to block the building warned it could make the neighborhood less desirable, or spoil its “suburban feel." One lawn sign put up on a block away reads: “Stop 361 Belgrade — Save Our Neighborhood.”

Sara Harold is one of the directors of the Greater Belgrade Area Neighborhood Association (GBANA), a new group that was formed, in part, to oppose the Roxbury Prep building. Harold and her family live about a block from the proposed building site. She says the "Save Our Neighborhood" sign wasn't put up by a GBANA member, and she denies that the group is motivated by racial concerns.

"In this city as a whole, race is an issue; racism is an issue," Harold says. "But as far as the whole opposition to the project started and formed, race has not ever been a part of [it]."

Harold says her issue is space — not race.

She noted that the school expects to enroll 800 or so high school students at 361 Belgrade, along with staff. At about 120 square feet per student, that would make the school more densely packed than almost all of Boston's existing public high schools, according to a 2016 audit of school facilities.

"You're looking at about 900 commuting individuals to an acre lot. That's a lot of people to put in such a small space," Harold said.

Along Belgrade Avenue, as in much of the city, developers are building condos. Traffic snarls the Parkway intersection as it does most other parts of the city.

There's another tension at play: Roxbury Prep is a charter school. Harold says she doesn't have an opinion on that subject, but some in the community do oppose charter schools: either on principle in general or to the way they work in Boston today.

From the beginning of the building process, many were under the impression that the Roxbury Prep building would represent the flouting of the forceful "no" vote against charter expansion taken in 2016.

But state officials actually authorized Roxbury Prep to enroll up to 1,800 students back in 2011, long before that vote. This building would combine the two high-school sites, bringing about 800 students currently in the system into a single facility.

That's not good enough for City Councilor Matt O'Malley of West Roxbury. He was one of six elected officials to oppose the school in a May letter to the Boston Planning and Development Agency (BPDA), which will oversee the process.

In an interview, O'Malley echoes GBANA's concerns about space, and added that his "larger concern" is the growing sum of money that Boston pays out to charter schools each year.

It's worth noting that Roxbury Prep staff expect to reach 1,800 students in total enrollment in the near future, regardless of whether the new school is built. That means the city would eventually end up paying the same amount in either scenario. For several years, the state has failed to meet its obligation to reimburse districts who lose students — and dollars — to charter schools.

O'Malley adds that he doesn't believe the "Save Our Neighborhood" sign, or other "ugly rhetoric" that has emerged in the community debate, is reflective of the neighborhood at large.

Meanwhile, Mayor Marty Walsh and other officials declined to take sides on the issue, noting that Roxbury Prep still has not filed a detailed plan for the building with the BPDA.

For now, the battle of Belgrade Ave. has reached a standoff. But it promises to flare up again as the process advances. First, would come that detailed plan, followed by community meetings that could be disputatious.

Still, it's a long, uncertain road to a groundbreaking.

WEST ROXBURY ~ ROSLINDALE
BULLETIN
Volume 18, Issue 38 SEPTEMBER 20, 2018

HELP US BUILD THE ROXBURY PREP COMMUNITY

To the Editor:

As a current Roxbury Prep teacher and a resident of Roslindale, I am eager to support Roxbury Prep High School moving to 361 Belgrade Avenue. I am an active member of the performance music scene in the surrounding areas just as long as having lived here. Over the last two years, I have taught pre-AP chemistry and AP chemistry to sophomores, juniors, and seniors, and have served as an academic advisor for over 30 students at Roxbury Prep.

It has been one of the most enriching experiences of my life to have the privilege of helping our students succeed. Our students continue to amaze me every ay in the way they support each other and their community, inside and outside of school. Whether it's showing impressive sportsmanship on the football field, or bolstering each other up with genuine support in the classroom when their peers struggle, our students consistently demonstrate maturity and character. Spending so much time around this kind of energy has inspired me to be a better person. It's exciting to think about all the ways they will inspire those around them in the communities they build now and after graduation.

Our students are resilient and flexible, making the most out of being divided between two buildings over 5 miles apart. Our staff members have also taken to creative problem solving in managing sports teams across buildings, teaching at two locations, and more. Providing Roxbury Prep with a permanent building to call home will further strengthen our student body and remove the logistical complications of multiple campuses, allowing our staff to focus solely on the work that matters most—offering our students an outstanding education.

Help us give Roxbury Prep's high school students the opportunity to come together as a single community under one roof. Help give our alumni a home to come back to, allowing them to visit favorite teachers and see old friends. Help give these outstanding young adults the quality education and high school experience they deserve.I'm calling on my neighbors to support the brilliant, hardworking students at Roxbury Prep by backing the site at 361 Belgrade Avenue.

Collin Cherubim
Roslindale

WEST ROXBURY ~ ROSLINDALE
BULLETIN
Volume 18, Issue 39 SEPTEMBER 27, 2018

EXCITED ABOUT PROSPECTS OF NEW SCHOOL

To the Editor:

I live in Roslindale and have had lots of conversations with friends and neighbors about the proposal to build a high school at 361 Belgrade Ave. I think the idea of bringing a high school to this area is a no-brainer. It would be a huge value-add for Roslindale because it would present residents with another high-quality school choice for their kids. There is no public high school in Roslindale right now so our young people have to travel all over the city to attend grades 9-12. While this is normal practice in Boston, wouldn't it be nice to have a contingent of Roslindale and West Roxbury kids who can walk to high school without the price tag that comes with private school?

The more I learn about the academics at Roxbury Prep, the more appealing the proposal becomes. This isn't just any public school—this school is delivering results for its students and delivering on its promise to get kids to and through college. Their curriculum and culture truly sets kids up for success—something not all schools are able to do.

After meeting some members of the Roxbury Prep team, I have to believe that their commitment to their students will transfer to the surrounding neighborhood. They are attentive, responsive and willing to put in the work to make this school a reality. I commute to work via public transportation and am always on the bus with students from other schools; I sometimes run into students from Roxbury Prep and I have silently witnessed them conduct themselves as respectful, kind students that are part of the community.

I love driving down my street and seeing all the "We Support Roxbury Prep" signs. I am a young adult who lives in this area, I plan to stay here for many years, and continuously be a part of the community; I would not be an advocate for something I did not truly believe in long term. Support is growing, momentum is gaining and I encourage more of my neighbors to get involved in this positive addition to our neighborhood.

Katherine Chousa
Roslindale

WEST ROXBURY ~ ROSLINDALE
BULLETIN

Volume 18, Issue 41 OCTOBER 11, 2018 FREE

THE THEME IS TROUBLING

To the Editor:

I was struck by the common theme between the opposition to the proposed charter high school at 361 Belgrade Avenue and the opposition to new housing on Sprague Street in Readville.

The theme is "no change in my neighborhood", which left me wondering what world the opposition lives in. After all, most of the opponents have children and even grandchildren who need good schools to go to and homes to live in. The main complaints center around traffic congestion. Yes, there are backs ups in both areas during peak commuting times, but they are minor and can be resolved by improved public transportation and road design.

The complaint that Roxbury Prep will make congestion worse on West Roxbury Parkway is spurious since the vast majority of the students will use public transportation. And, it is disingenuous when one considers how much congestion is created by the drop-offs for Holy Name School. The city could improve traffic by rebuilding the Parkway/Centre rotary into a more efficient and safer modern roundabout design. It is pedestrian hell now and prevents parents from letting children walk to the school.

As for the Sprague Street development, how do the opponents plan to solve the housing shortage that is making it so expensive to live in Boston and, in particular, is harming lower income residents? Increasing housing supply is the only way to put a check on price increases. Not in my backyard attitudes harm other people and stopping development hurts the economic health of cities. Asking developers to provide additional benefits to the neighborhood in exchange for building is the better and smarter way to work with inevitable and necessary change.

Allan Wright
Roslindale

WEST ROXBURY ~ ROSLINDALE
BULLETIN

Volume 18, Issue 44 NOVEMBER 1, 2018 FREE

LOOKING FORWARD TO ROXBURY PREP NEW HOME

To the Editor:

As a Roslindale homeowner and current Roxbury Prep school leader, I am eager for Roxbury Prep High School to find its home at 361 Belgrade Avenue. I am in my sixth year at Roxbury Prep and have served as a math teacher and Director of Operations at Roxbury Prep Mission Hill and Roxbury Prep Lucy Stone middle schools. I cherish living in a community that our schools serve, because it allows me to interact with our students and families outside of school. On my daily afternoon dog walks, I frequently run into current and former students of mine who live in Roslindale. I live for those moments.

Throughout my time at Roxbury Prep, I have established tight bonds and maintained strong relationships with a multitude of our students across various campuses – including both Roxbury Prep High School sites. Seeing my former middle school students transform into brilliant, confident, responsible, young men and women makes me proud to be a Roxbury Prep educator. I have no doubt that RPHS is cultivating tomorrow's leaders, who will serve as agents of change in our communities.

Having our students find a home in Roslindale would finally allow our student body, staff, families, and alumni to settle and establish roots. It will allow us to focus on the work that matters – preparing our students to enter, succeed in, and graduate from college. Our students can build deeper community across grades, rather than simply within their campus. Our alumni will know where to find us when visiting former teachers and staff when home for fall break. I look forward to the day where I don't have to make two trips and drive nearly 6 miles between campuses to catch up with my former middle-schoolers.

Help us give Roxbury Prep's high school students the opportunity to come together as a single community under one roof. I'm calling on my neighbors to support our college-bound students at Roxbury Prep by backing the site at 361 Belgrade Avenue.

Jon Beck
Roslindale

7.4 Appendix D. Transportation Study

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D.0 TRANSPORTATION

D.1 Introduction

Howard Stein Hudson (HSH) has conducted an evaluation of the transportation impacts of a proposed charter high school to be located at 361 Belgrade Avenue (the "Project" and/or "Site") in Boston's Roslindale neighborhood. This transportation study adheres to the Boston Transportation Department (BTD) Transportation Access Plan Guidelines and the Boston Planning and Development Agency's (BPDA) Article 80 development review process. The study includes an evaluation of existing conditions, future conditions with and without the Project, projected parking demand, transit services, and pedestrian and bicycle activity.

D.1.1 Project Description

The Project site is located along the north side of Belgrade Avenue between the West Roxbury Parkway and Anawan Avenue in Roslindale. The Needham Line of the commuter rail system and the Bellevue Station are located adjacent to the north side of the Project site. The site currently contains a used automobile dealership and an automobile service business.

The Project will include the construction of a new charter school expected to have a maximum enrollment of approximately 562 students and 67 staff at full capacity. The new school facility will relocate existing Roxbury Prep High School from other existing facilities. The Project will construct a new circular, short-term, pick-up/drop-off area at the end of Anawan Avenue that will serve both the school and Bellevue Station.

Staff parking for 46 vehicles will be provided in an underground parking garage. The Project will also construct a courtyard to the west of the school building that will be able to accommodate an additional 20-30 parking spaces during school events, with the assistance of a valet operator.

D.1.2 Study Methodology

The Existing Condition analysis includes an inventory of the existing transportation conditions such as traffic characteristics, parking, curb usage, transit, pedestrian circulation, bicycle facilities, crash history, loading, and site conditions. Existing counts for vehicles, bicycles, and pedestrians were collected at the study area intersections. A traffic data collection effort forms the basis for the transportation analysis conducted as part of this evaluation.

The future transportation conditions analysis evaluates potential transportation impacts associated with the Project. Long-term impacts are evaluated for the year 2023, based on a five-year horizon from the year of the filing of this traffic study.

The No-Build (2023) Condition includes both general background traffic growth, traffic growth associated with specific developments (not including this Project) and transportation improvements that are planned in the vicinity of the Project site.

The Build (2023) Condition includes a net increase in traffic volume due to the addition of project generated trip estimates to the traffic volumes developed as part of the No-Build (2023) Condition. Expected roadway, parking, transit, pedestrian, and bicycle accommodations, as well as loading capabilities and deficiencies are identified.

The final part of the transportation study identifies measures to mitigate Project-related impacts and to address any traffic, pedestrian, bicycle, transit, safety, or construction related issues that are necessary to accommodate the Project.

An evaluation of short-term traffic impacts associated with construction activities is also provided.

D.1.3 Study Area

The transportation study area is generally bounded by Belgrade Avenue to the north, Beech Street to the southwest, and Anawan Avenue to the southeast. The study area is shown in **Figure D-1** and includes the following four intersections:

- West Roxbury Parkway/Belgrade Avenue (signalized);
- West Roxbury Parkway/Beech Street/Anawan Avenue (signalized);
- Belgrade Avenue/Beech Street (unsignalized); and
- Belgrade Avenue/Anawan Avenue (unsignalized).

D.2 Existing Condition

This section includes descriptions of existing study area roadway geometries, intersection traffic control, peak-hour vehicular and pedestrian volumes, average daily traffic volumes, transit availability, parking, curb usage, and loading conditions.

D.2.1 Existing Roadway Conditions

The study area includes the following roadways, which are categorized according to the Massachusetts Department of Transportation (MassDOT) Office of Transportation Planning functional classifications:

West Roxbury Parkway is a two-way, two- to four-lane roadway located west of the Project site. West Roxbury Parkway is classified as an urban principal arterial roadway under DCR jurisdiction and runs in a predominately north-south direction between Newton Street in Brookline to the north and Washington Street in Roslindale to the south. In the vicinity of the site, sidewalks are provided along both side of the roadway and on-street parking is restricted along both sides of the roadway.

Belgrade Avenue is a two-way, two-lane roadway located adjacent to the south side of the Project site. Belgrade Avenue is classified as an urban principal arterial roadway under BTD jurisdiction and runs in a predominately east-west direction between Centre Street in West Roxbury to the west and Roslindale Village to the east. In the vicinity of the site, sidewalks, bicycle lanes, and on-street parking are provided along both sides of the roadway.

Beech Street is located to the south of the Project site. Between Belgrade Avenue and West Roxbury Parkway Beech Street is a two-way, two-lane roadway and classified as an urban principal arterial. Between West Roxbury Parkway and Westbourne Street, Beech Street becomes a one-way northwest-bound, one lane roadway classified as an urban collector. Between Westbourne Street and Washington Street, Beech Street becomes a one-way southeast-bound, one lane roadway classified as an urban collector. Beech Street is under BTD jurisdiction and runs in a predominately southeast-northwest direction between Belgrade Avenue in West Roxbury to the northwest and Washington Street in Roslindale to the southeast. In the vicinity of the site, sidewalks and on-street parking are provided along both sides of the roadway.

Anawan Avenue is a two-way, two-lane roadway located to the south of the Project site. Anawan Avenue is classified as an urban collector between Belgrade Avenue and West Roxbury Parkway, and is classified as a local roadway north of Belgrade Avenue and south of West Roxbury Parkway. Anawan Avenue is under BTD jurisdiction and runs in a predominately southwest-northeast direction between the MBTA Commuter Rail tracks to the northeast and Park Street to the southwest. In the vicinity of the site, sidewalks and on-street parking are provided along both sides of the roadway.

D.2.2 Existing Intersection Conditions

The existing study area intersections are described below. Intersection characteristics such as traffic control, lane usage, pedestrian facilities, pavement markings, and adjacent land use are described.

West Roxbury Parkway/Belgrade Avenue is a four-legged, signalized intersection located southwest of the Project site. The Belgrade Avenue eastbound and westbound approaches consist of a shared left-turn/through/right-turn travel lane. The bus stop also functions as a default right-turn lane. The West Roxbury Parkway northbound and southbound approaches consist of two unmarked lanes, a shared left-turn/through lane, and a shared through/right-turn lane. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across all approaches to the intersection. MBTA bus stops are located along both sides of Belgrade Avenue, west of West Roxbury Parkway.

West Roxbury Parkway/Beech Street/Anawan Avenue is a six-legged, signalized intersection located south of the Project site. The West Roxbury Parkway northbound and southbound approaches consist of a shared left-turn/through lane, and a shared through/right-turn lane. The Beech Street and Anawan Avenue approaches consist of single lanes. The Beech Street southeast-bound approach also consists of a parking lane. An MBTA bus stop is located along the Anawan Avenue north-eastbound approach. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across all approaches to the intersection.

Belgrade Avenue/Beech Street is a three-legged, unsignalized intersection located to the west of the Project site. The Belgrade Avenue eastbound approach operates under free control and consists of a shared through/right-turn lane, a bike lane, and a parking lane. The Belgrade Avenue westbound approach operates under free control and consists of one shared left-turn/through lane, a bike lane, and a parking lane. The Beech Street northbound approach operates under stop control and consists of a shared left-turn/right-turn lane, and a parking lane. Wheelchair ramps are not provided at the intersection.

Belgrade Avenue/Anawan Avenue is a four-legged, unsignalized intersection, located adjacent to the southeast of the Project site. The Belgrade Avenue eastbound and westbound approaches operate under free control and consist of a travel lane and a bike lane. The Anawan Avenue northbound and southbound approaches operate under stop control and consist of a travel lane. Wheelchair ramps are provided across the south side and the north sides of the intersection, with no painted crosswalks. Parking is allowed along both sides of all approaches.

D.2.3 Existing Parking and Curb Use

An inventory of the on-street parking in the vicinity of the Project was collected. On-street parking is generally unrestricted and time restricted residential parking. Additional curb side space is dedicated towards MBTA bus stops, handicapped parking, and driveways. The on-street parking regulations within the study area are shown in **Figure D-2**.

D.2.4 Existing Traffic Data

Turning Movement Counts (TMCs) were conducted during the weekday a.m. and p.m. peak periods (6:30 – 9:00 a.m. and 2:30 – 6:00 p.m., respectively), consistent with typical school arrival and dismissal times at the study area intersections on Wednesday, October 26, 2016. The TMCs consist of vehicle classification including car, heavy vehicle, pedestrian, and bicycle movements. Based on the TMC data, the vehicular traffic peak hours for the study area intersection are 7:00 a.m. – 8:00 a.m. and 4:00 p.m. – 5:00 p.m. The detailed traffic counts are provided in the **Appendix.**

D.2.5 Existing Traffic Volumes

Existing traffic volumes were collected to develop the Existing Condition vehicular traffic volumes. The Existing Condition weekday a.m. and p.m. peak hour traffic volumes are shown in **Figure D-3**.

Seasonal Adjustment

In order to account for seasonal variation in traffic volumes throughout the year, the most recent (2011) MassDOT Weekday Seasonal Factors were used to determine the need for seasonal adjustments to the October 2016 TMCs. The seasonal adjustment factor for roadways similar to the study area (Group 6) during the month of October are 0.92. This indicates that average month traffic volumes are approximately eight percent less than the traffic volumes that were collected.

The traffic counts were not adjusted downward to reflect average month conditions in order to provide a conservatively high analysis consistent with the peak season traffic volumes. The MassDOT 2011 Weekday Seasonal Factors table is provided in the **Appendix** to this study**.**

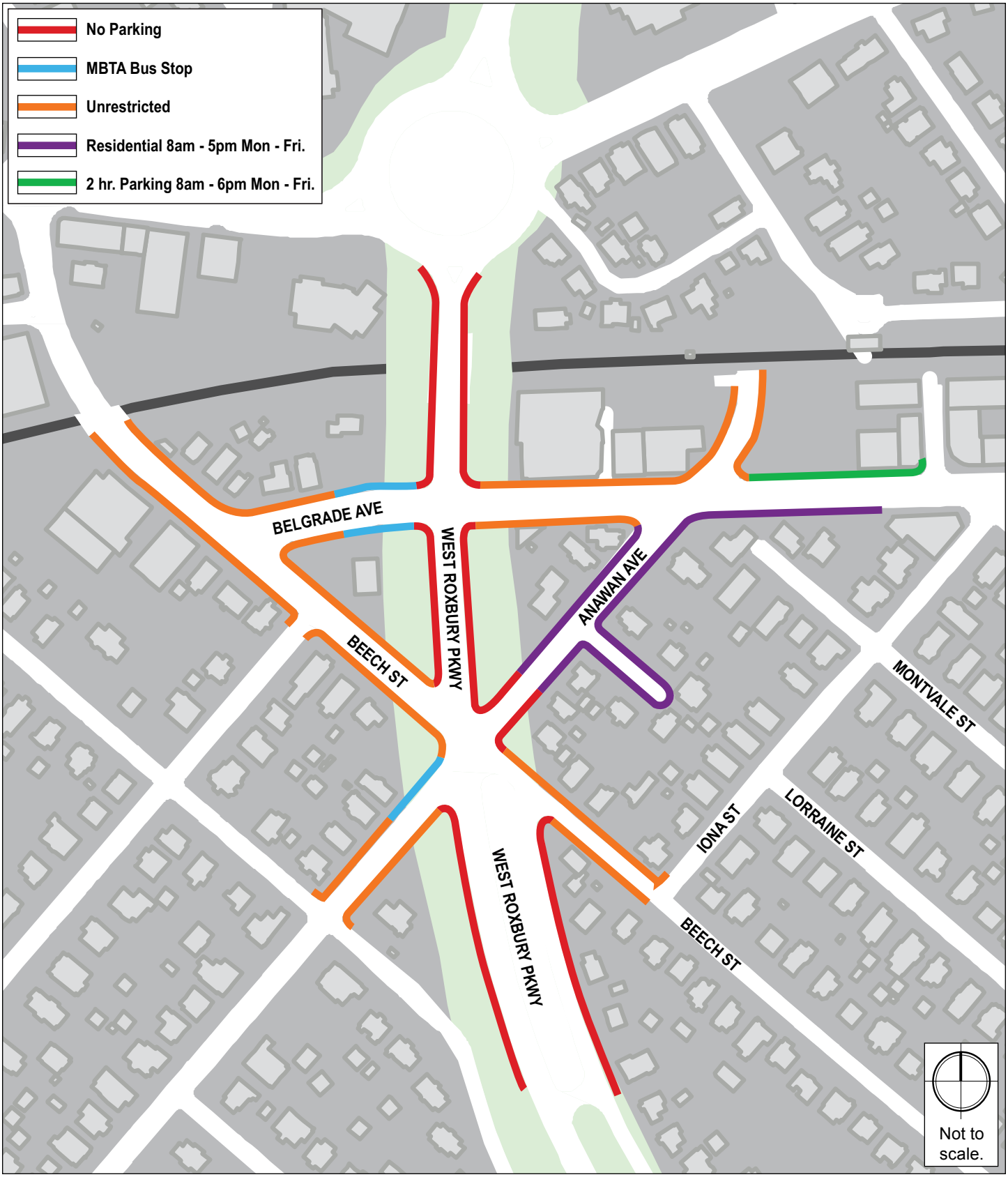


Figure D-2.
On-Street Parking Regulations

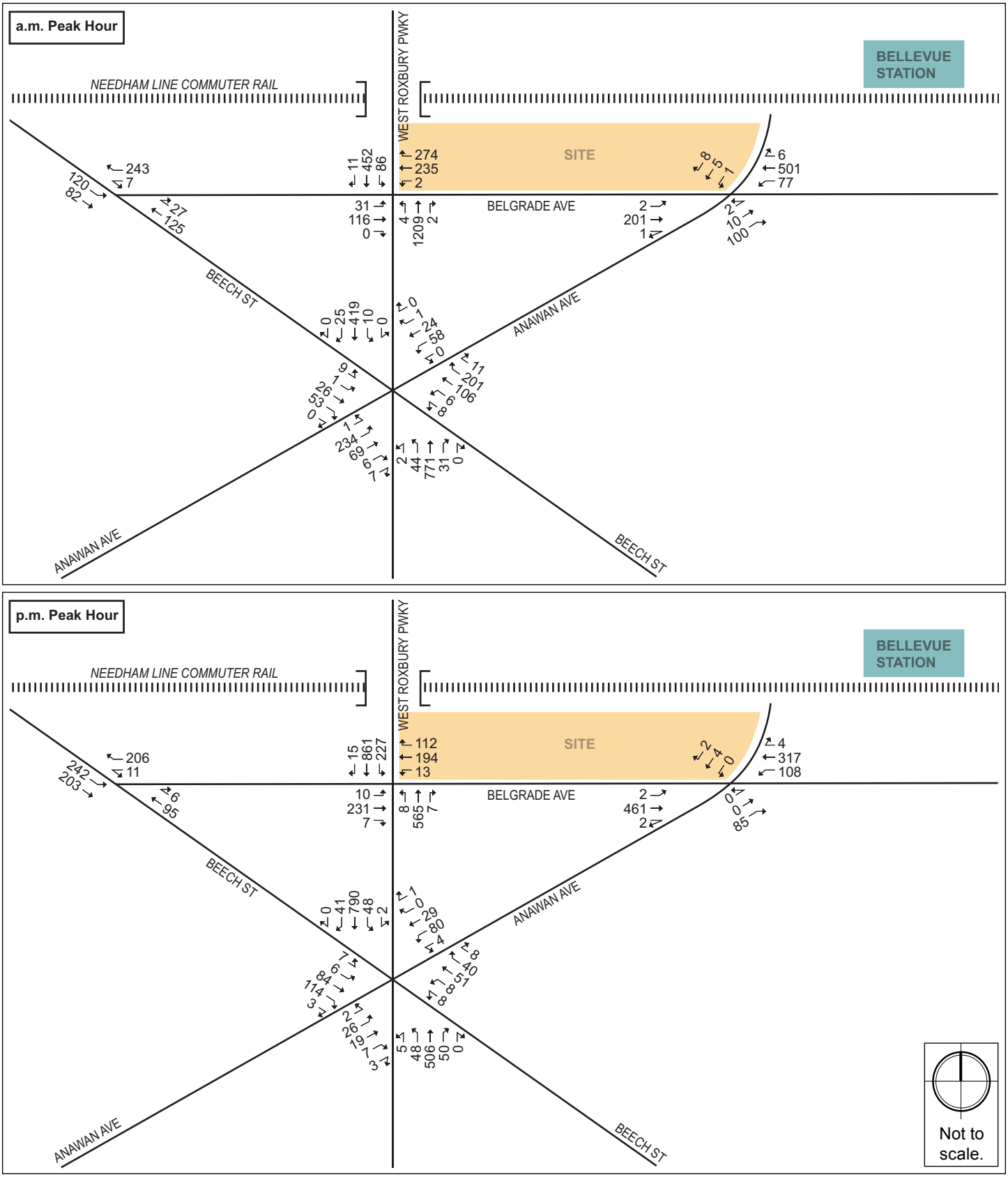


Figure D-3.
Existing Condition Traffic Volumes, Weekday a.m. and p.m. Peak Hours

D.2.6 Existing Bicycle Volumes and Accommodations

In recent years, bicycle use has increased dramatically throughout the City of Boston. The Project site is conveniently located in close proximity to several bicycle facilities Belgrade Avenue and Centre Street have painted bike lanes. The VFW parkway, just over one-half mile to the north, is designated as a part of the greenway network and also has painted bike lanes.

To determine the amount of bicycle activity within the study area, bicycle counts were collected concurrent with the TMCs. The weekday a.m. and p.m. peak hour bicycles volumes are presented in **Figure D-4.**

D.2.7 Existing Pedestrian Volumes and Accommodations

In general, sidewalks are provided on both sides of all roadways and are in good condition. Crosswalks and wheelchair ramps are provided at most study area intersections. Pedestrian signal equipment is provided at both of the signalized study area intersections.

To determine the amount of pedestrian activity within the study area, pedestrian counts were conducted concurrent with the TMCs at the study area intersection. The weekday a.m. and p.m. peak hour pedestrian volumes are also presented in **Figure D-4**.

D.2.8 Existing Public Transportation

The Project is located adjacent to the MBTA Commuter Rail Needham Line and along several MBTA bus routes. The nearby public transit services are shown in **Figure D-5.**

MBTA Commuter Rail

The Needham Line of the MBTA commuter rail system is located along the northern edge of the Project site, with the Bellevue Station located adjacent to the Project site. The Needham Line runs between South Station in downtown Boston to the east and Needham Heights in Needham to the west. There are 16 daily inbound and outbound trips.

The MBTA ridership data was obtained for the Needham Line and is shown in **Table D-1**. There are three outbound trains in the morning and three inbound trains in the afternoon.

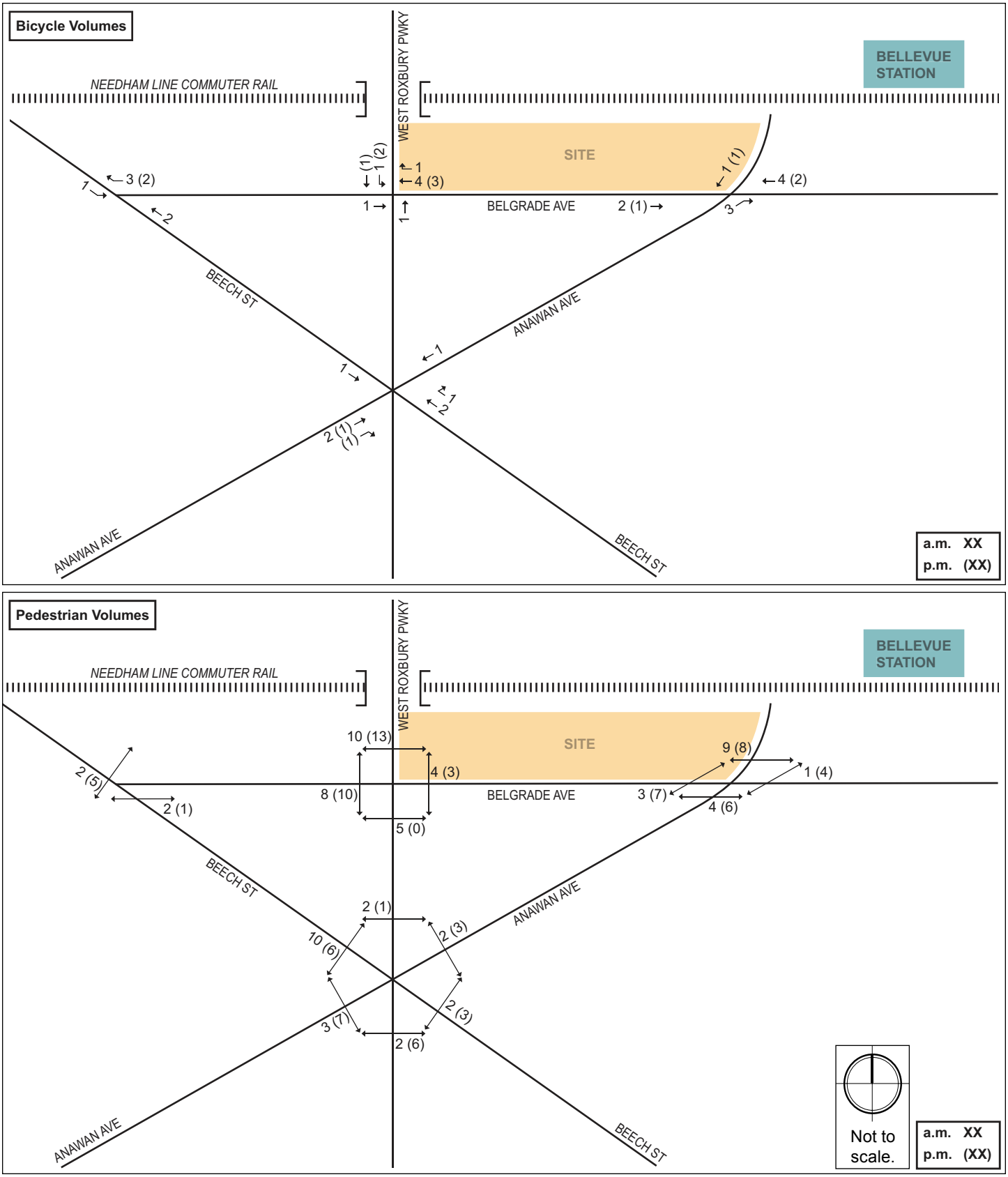


Figure D-4.
Existing Condition Bicycle and Pedestrian Volumes, Weekday a.m. and p.m. Peak Hours

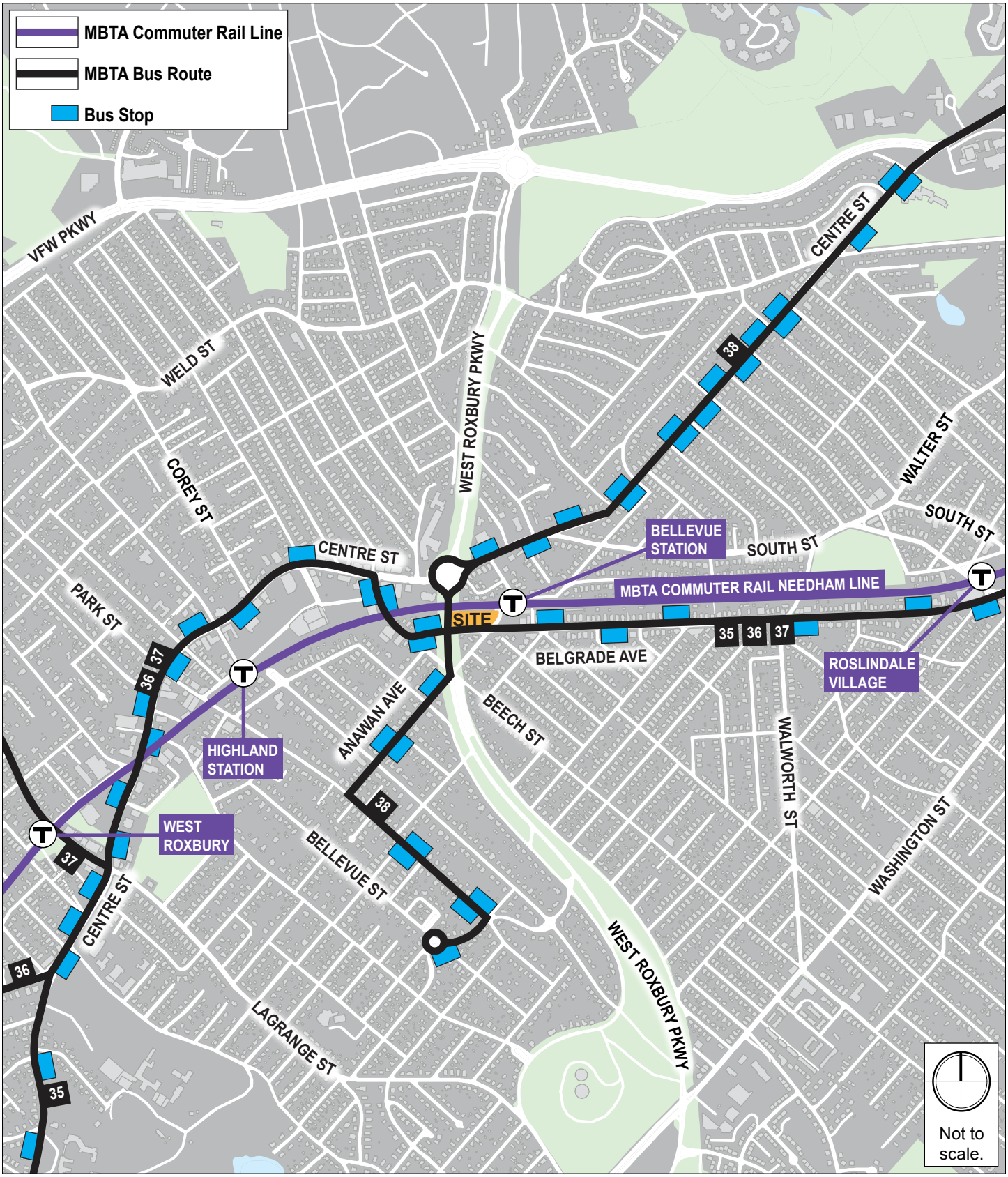


Figure D-5.
Existing Public Transportation Services

Table D-1 Existing MBTA Needham Line Ridership

Train Number[1]	Time at South Station[1]	Time at Forest Hills	Time at Bellevue[1]	Approximate Passenger Load[2]	Approximate Passenger Capacity[3]
Morning Outbound (6:30 – 9:00 a.m.)					
601	7:05 a.m.	7:17 a.m.	7:23 a.m.	43	600-780
603	7:52 a.m.	N/A	8:06 a.m.*	17	
605	9:05 a.m.	9:18	9:24 a.m.	28	
Afternoon Inbound (2:30 – 6:00 p.m.)					
616	3:29 p.m.	3:16 p.m.	3:10 p.m.	29	600-780
618	4:30 p.m.	N/A	4:13 p.m.*	19	
620	5:47 p.m.	5:28 p.m.	5:22 p.m.	31	

1. Based on schedule from MBTA.com, effective October 29, 2018.
2. Needham Line Commuter Rail Passenger Counts conducted Winter/Spring 2012.
3. Capacity varied depending on MBTA vehicles.

* Indicates that the train does not currently stop. The time shown is the time the train passes the station.

MBTA Bus Routes

There are four MBTA bus routes that provide service to the Project site. The 35, 36, and 37 MBTA bus routes provide service between the Project and Forest Hills Station via Belgrade Avenue and Washington Street, including the recently installed a.m. bus-only lane between Roslindale and Forest Hills Station. Additionally, the 38 MBTA Bus route also provides service between the Project site and Forest Hills Station via Centre Street and West Roxbury Parkway. **Table D-2** shows the available capacity for each of the four bus routes and the travel time between Forest Hills Station and the Project site.

Table D-2 Existing MBTA Bus Ridership

MBTA Bus Route	Peak Service Headways (minutes)	Current Bus Ridership[2]		Available Capacity Per Bus[3]	
		Average	Max	Average	Min
Morning Outbound (6:30 – 9:00 a.m.)					
35	23-25	10	16	45	39
36	11-12	25	38	30	17
37	20-23	7	13	48	42
38	23	8	10	33	45
Afternoon Inbound (2:30 – 6:00 p.m.)					
35	11-12	12	21	43	34
36	12-13	18	39	37	16
37	10-15	10	15	45	40
38	16	8	11	47	44

1. Based on schedule from MBTA.com, effective September 2, 2018.
2. Based on Automated Passenger Count data received from MBTA, updated Fall 2017.
3. Based on planning capacity of 55 passengers per bus (140% of seats available). MBTA Service Delivery Policy, Approved January 23, 2017.

D.2.9 Existing School Operations

In addition to the typical traffic data collection effort, HSH performed site observations at the then existing Roxbury Prep Charter High School locations at 86 Wachusett Street in Jamaica Plain and 5 Maywood Street in Roxbury on November 2, 2016, February 8, 2017, and February 14, 2017. The observations were conducted during the morning (7:00 – 8:00 a.m.) and afternoon (3:30 – 4:30 p.m.) peak periods, consistent with the school's arrival and dismissal times.

The Wachusett Street school was located within a 12-minute walk from the Forest Hills MBTA station and several bus routes that run along Hyde Park Avenue. The Maywood Street school is located adjacent to several bus routes (the 10, 14, 19, 23, 28) that run along Warren Street and is within a 5-minute walk of the MBTA #45 bus route that runs along Blue Hill Avenue.

Based on the observations, most of the students travel to and from both schools via walking, or biking. This includes students that arrived at the Wachusett Street school as pedestrians from the nearby bus stop along Hyde Park Avenue or from Forest Hills Station. There was also one school bus that arrived at the school during the morning to drop off a few students. However, some students were observed arriving or departing in a private vehicle.

The two schools had a total of 18 students being dropped-off and 19 staff members arriving by vehicle during the morning arrival period. Activity during the afternoon pick-up period was even less intense than the morning drop-off. Two students were picked-up by vehicle and five staff

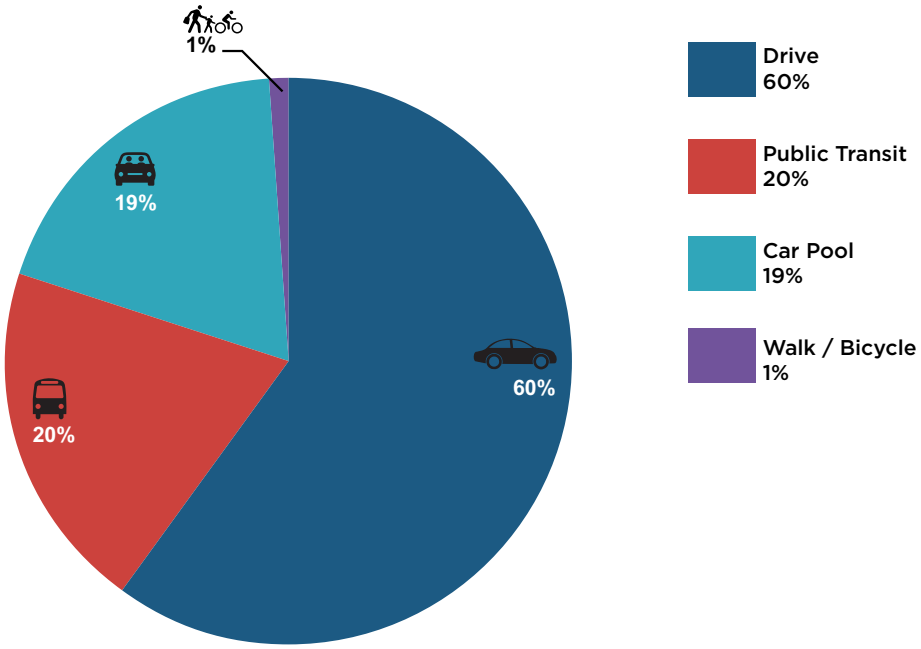
members left during the observation period. This is most likely due to a staggered release and after school programs for the students and staff.

The observations indicate that most students currently use alternate modes of transportation such as public transit, walking, or biking, to travel to school and few students rely on a private vehicle, such as parent pick-up/drop-off activity.

In addition to the observations, the Project proponent also provided specific information related to travel mode share for students and staff and residence of enrolled students by zip code. This data was used to estimate future projections at the proposed site. **Figure D-6** shows the estimated mode share of current students at the schools. Most of the students (93 percent) either take public transportation or walk/bike to school, with only 7 percent of the students being dropped off or picked up. Approximately 60 percent of the staff members drive alone with an additional 19 percent of staff driving in a carpool. The remaining 21 percent of the staff use public transportation, walk, or bike to school.

Figure D-7 shows the zip code and neighborhoods of current students at the schools. Most of the students (75 percent) live in Hyde Park, Mattapan, Dorchester (including Uphams Corner and Neponset), and Roxbury (including Franklin Park and Dudley). The remainder of the students are dispersed throughout the City of Boston.

Staff Mode Share



Student Mode Share

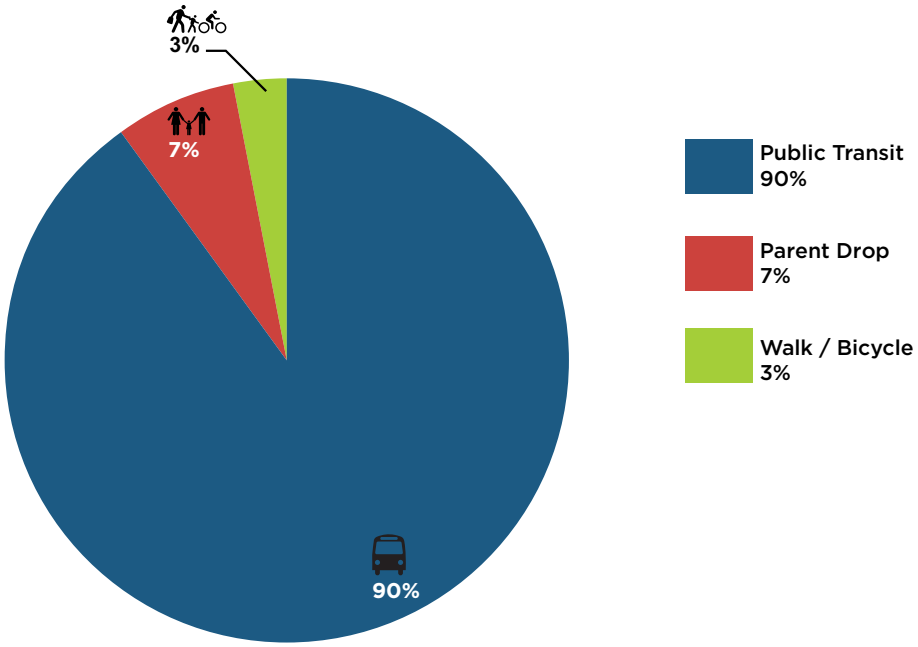


Figure D-6.
Students and Staff Mode Share

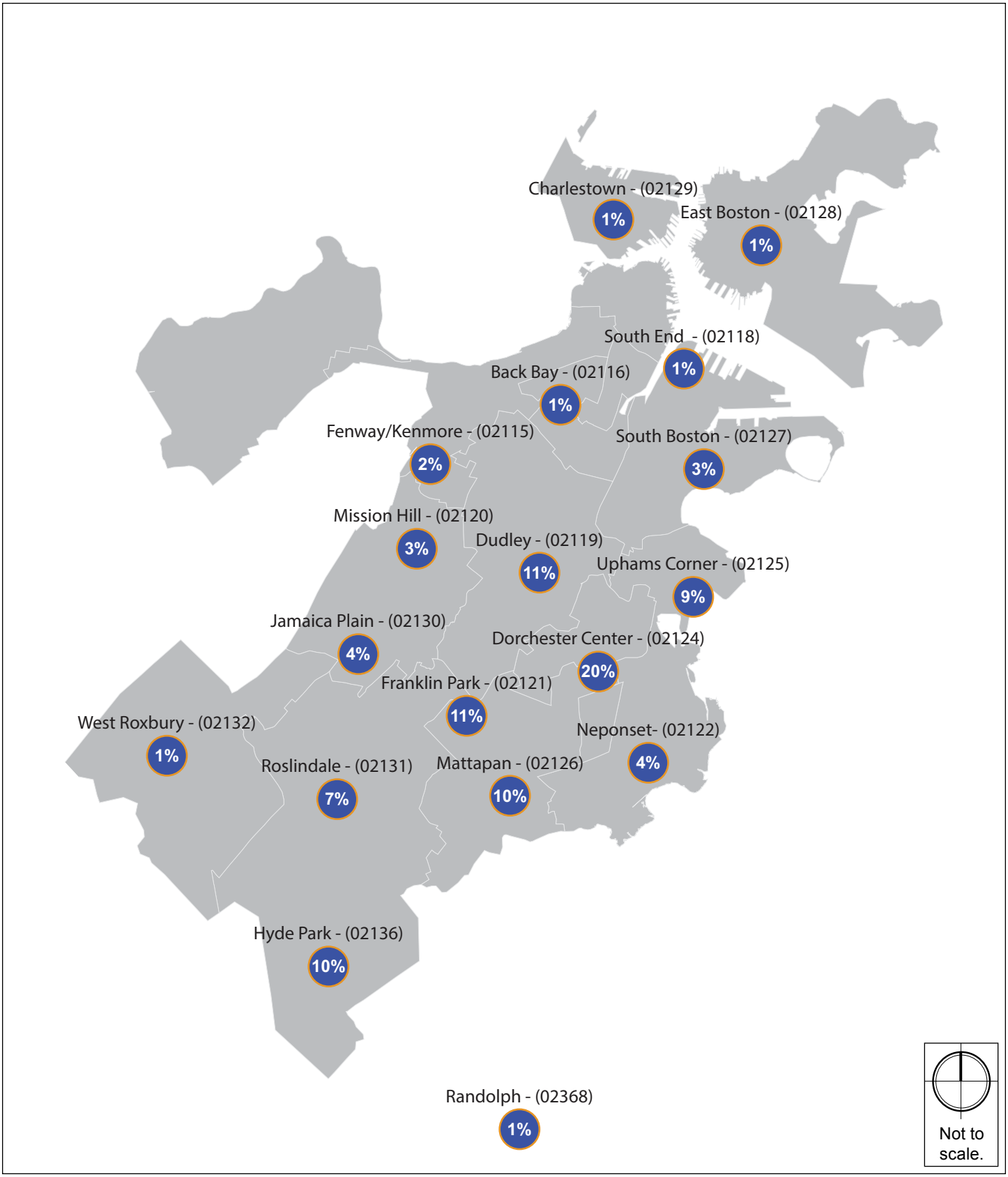


Figure D-7.
Existing Student Enrollment by Zip Code

D.3 No-Build (2023) Condition

The No-Build (2023) Condition reflects a future scenario that incorporates anticipated traffic volume changes associated with background traffic growth independent of any specific project, traffic associated with other planned specific developments, and planned infrastructure improvements that will affect travel patterns throughout the study area. These infrastructure improvements include roadway, public transportation, pedestrian and bicycle improvements. The No-Build (2023) Condition does not include the impact of the Project.

D.3.1 Background Traffic Growth

The methodology to account for generic future background traffic growth, independent of large development projects, may be affected by changes in demographics, smaller scale development projects, or projects unforeseen at this time. Based on a review of recent and historic traffic data collected recently and to account for any additional unforeseen traffic growth, a one-half percent per year annual traffic growth rate was used.

D.3.2 Specific Development Traffic Growth

Traffic volumes associated with the larger or closer known development projects can affect traffic patterns throughout the study area within the future analysis time horizon. Five such projects were specifically accounted for in the future traffic. **Figure D-8** shows the nearby development projects.

1789 Centre Street – This project will include the demolition of the existing West Roxbury Motors site and the construction of a new building consisting of approximately 16 residential units, one office unit, and 29 parking spaces. This project is under construction.

West Roxbury YMCA – This project includes the demolition of 16,000 sf of the existing pool and gym and the construction of a new gym and aquatic center totaling 24,000 sf, bringing the entire YMCA to 36,000 sf. The project is currently under construction

100 Weld Street – This project includes the construction of 17 residential condominiums and 29 parking spaces. This project is currently under construction.

400 Belgrade Avenue – This project will include the demolition of the existing one-story building and the construction of a new four-story building consisting of approximately 20 residential units and 20 parking spaces. This project has been approved by the BPDA.

317 Belgrade Avenue – This project includes the construction of a four-story residential mixed-use building including of 21 residential units, ground floor retail space, and 24 below grade parking spaces. This project has been approved by the BPDA board.

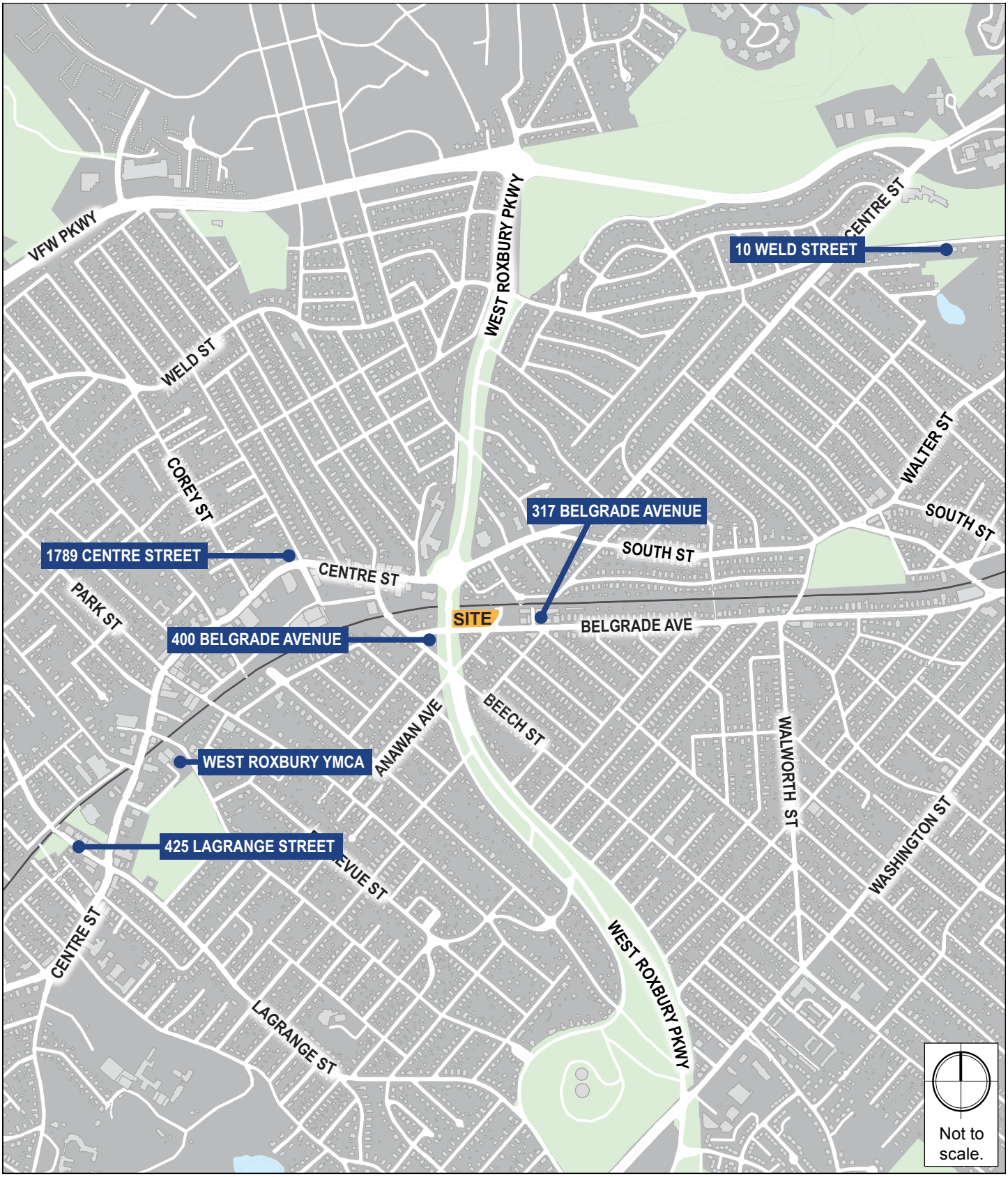


Figure D-8.
Specific Development Projects

425 Lagrange Street – This project consists of the construction of a new residential building consisting of 48 units and parking for 81 vehicles. This project has been approved by the BPDA.

D.3.3 Proposed Infrastructure Improvements

A review of planned improvements to roadway, transit, bicycle, and pedestrian facilities was conducted to determine if there are any nearby improvement projects in the vicinity of the study area. Based on this review, no planned infrastructure improvements that will have an effect on traffic patterns are expected in the area.

D.3.4 No-Build (2023) Condition Traffic Volumes

The one-half percent per year annual growth rate was applied to the Existing Condition traffic volumes, then the traffic volumes associated with the background development project listed above was added to develop the No-Build (2023) Condition traffic volumes. The No-Build (2023) weekday a.m. Peak Hour and weekday p.m. Peak Hour traffic volumes are shown on **Figure D-9.**

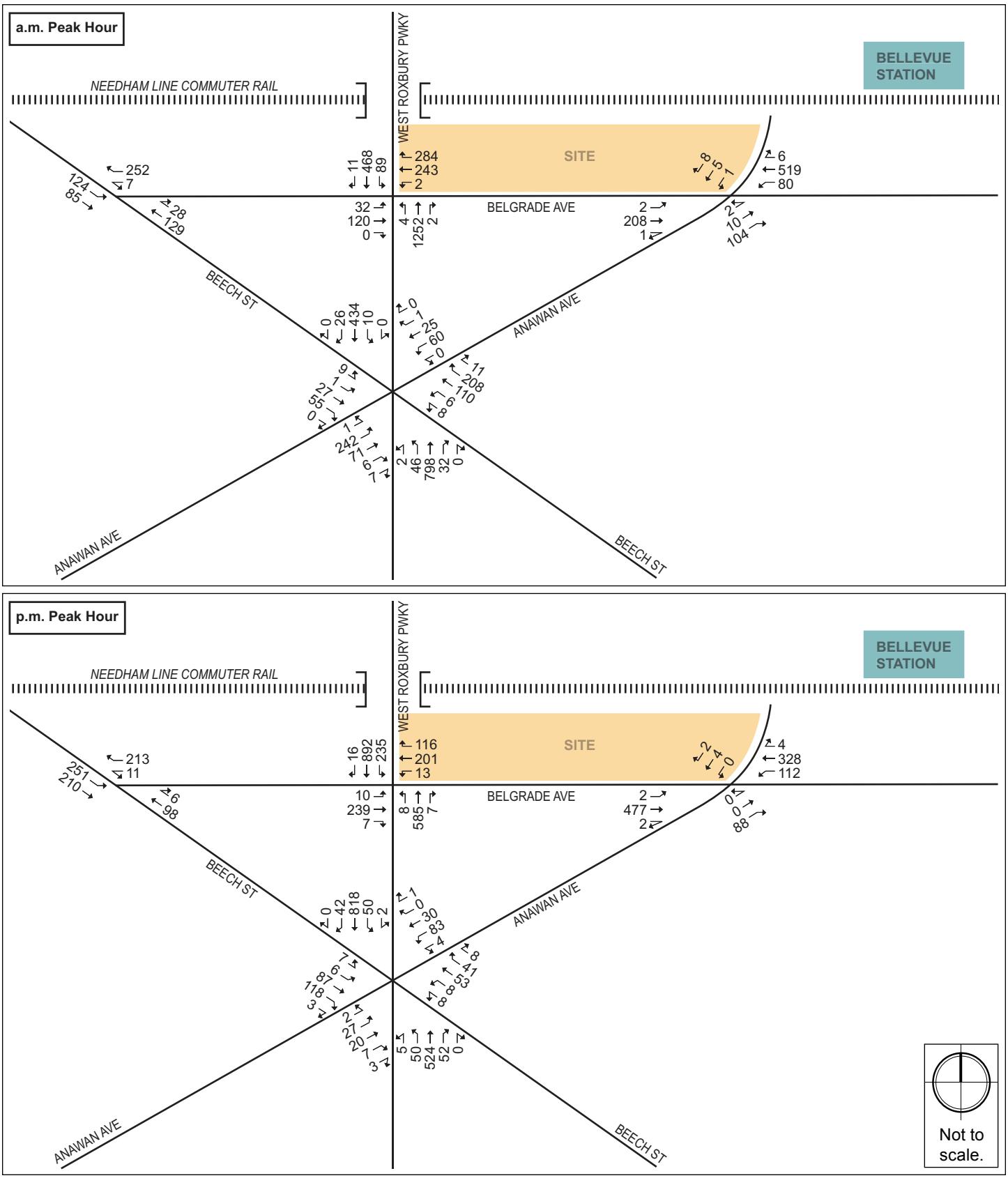


Figure D-9.
No-Build (2023) Condition Traffic Volumes, Weekday a.m. and p.m. Peak Hours

D.4 Build (2023) Condition

As previously summarized, the Project site is located at 361 Belgrade Avenue in Boston's Roslindale neighborhood. The Project will include the construction of a new charter school expected to have a maximum enrollment of approximately 562 students and 67 staff at full capacity. The Project will construct a new circular, short-term, pick-up/drop-off along Anawan Avenue that will serve both the school and Bellevue Station. The proposed circular end to Anawan Ave will accommodate the vehicular movements, while the enlarged pedestrian plaza will accommodate all visitors waiting to enter the school.

Staff parking for 46 vehicles will be provided in an underground parking garage. The Project will also construct a courtyard to the west of the school that will be able to accommodate an additional 20 parking spaces or more during school events, with the assistance of a valet operator.

The school day will begin and end to best match up with the schedule for the Needham Line. Although most students are expected to travel to the school via the bus from Forest Hills, the Needham Line will offer an additional public transportation option that could serve many students, especially from neighborhoods that have easy access to South Station or Back Bay Station. Depending on the future Needham Line schedule, the school day will begin approximately 15 minutes after an outbound train stops at Bellevue Station and the school day will end approximately 15 minutes before an inbound train stops at Bellevue. The site plan is shown in **Figure D-10**.

D.4.1 Site Access and Vehicle Circulation

The Project site is located on the north side of Belgrade Avenue. There are two main pedestrian entrances; one on the southern edge of the building along Belgrade Avenue that will be used by pedestrians and visitors utilizing the MBTA buses. The second one is at the northeast corner of the building along Anawan Road and will be used by vehicular pick-up and drop-off as well as visitors utilizing the commuter rail.

The parking garage is accessed from Anawan Avenue. An existing curb cut along Belgrade Avenue will access the shared courtyard that can be used for parking when needed during events. Three existing curb cuts along Belgrade Avenue will be closed.

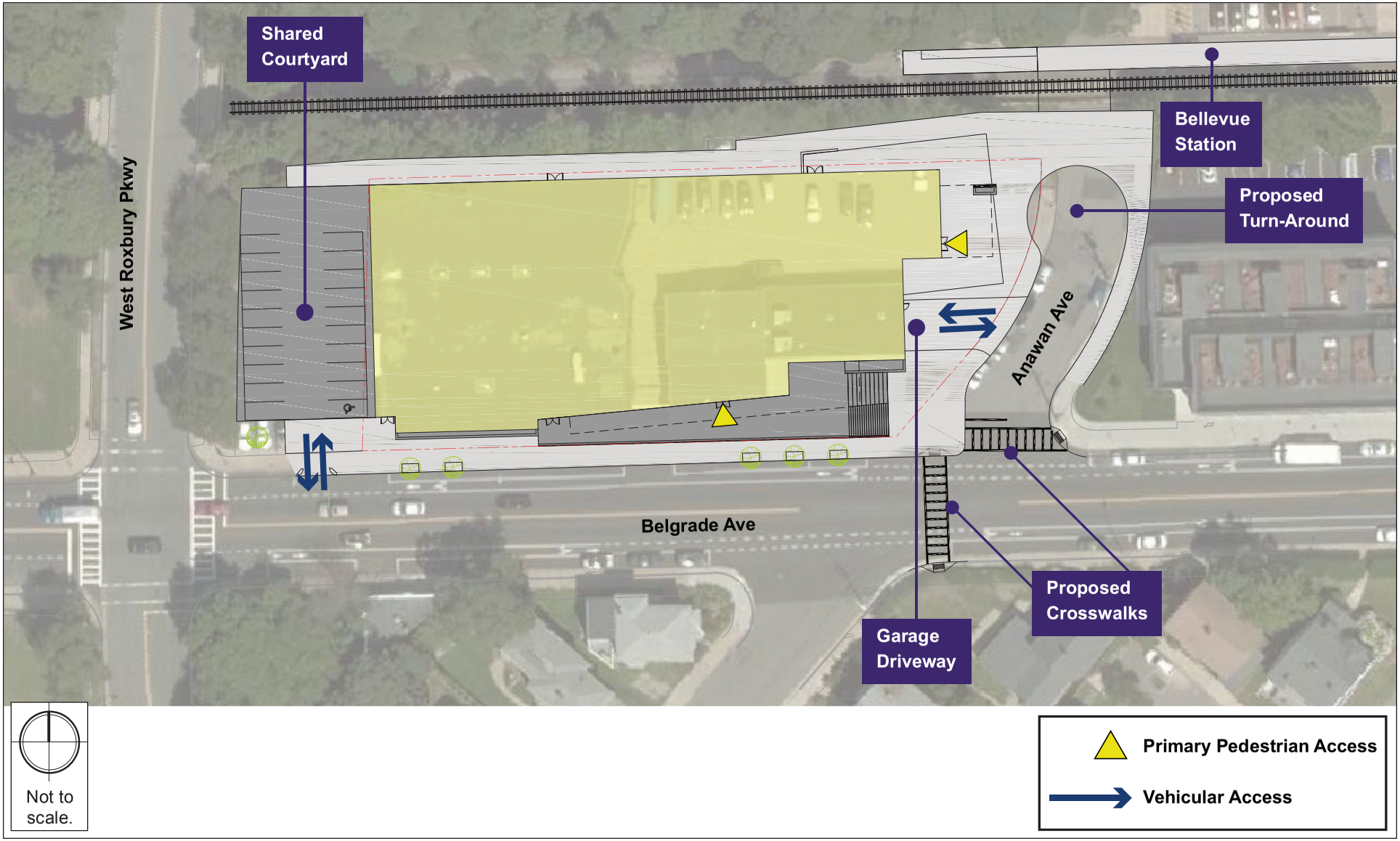


Figure D-10.
Site AccessPlan

D.4.2 Parking

The project will construct 46 parking spaces in an underground garage. The parking garage will accommodate 30 vehicles in tandem parking spaces, and the remaining 16 spaces in regular perpendicular parking spaces. The garage will include two handicapped parking spaces.

A courtyard will be located to the west of the site for overflow parking during school events. While parking spaces will not be marked, it is estimated that approximately 20 vehicles will be able to park in the courtyard. During events with additional parking demand, such as school plays or graduation, the Project will hire a valet operator or park an additional 10 vehicles in the courtyard as well as the underground parking garage to reduce the impact on the neighborhood. The courtyard will be used as a playground for outside activities when overflow vehicle parking is not needed.

D.4.3 Loading and Service Accommodations

Loading and service operations will occur on-site, however a designated loading area has not been determined. The school will primarily generate delivery trips related to small packages, and food for the cafeteria. Deliveries are expected to be made multiple times a week during off-peak hours in small box-trucks approximately 36-feet long.

D.4.4 Bicycle Accommodations

BTD has established guidelines requiring projects subject to Transportation Access Plan Agreements to provide secure bicycle parking new buildings. The Project will provide on-site bicycle parking via outdoor bicycle racks for students and secure covered storage for staff. Specific placement of bicycle parking facilities has not been identified.

D.4.5 Trip Generation Methodology

Determining the future trip generation of the Project is a complex, multi-step process that produces an estimate of vehicle trips, transit trips, walk trips, and bicycle trips associated with a proposed development and a specific land use program. A project's location and proximity to regional roadways and different travel modes determines how people will travel to and from a project site.

The trip generation is based on information provided by the Proponent According to the proponent there will be approximately 562 students and 67 staff at the new location.

D.4.6 Mode Share

The mode share is the percentage of students and staff expected to travel to the site by driving, public transit, or walking/biking. The mode share for this Project have been developed through data provided by the Proponent. Mode shares were developed for students and staff separately, since

there will not be any student parking permitted. The student mode vehicle mode share includes parent pick-up/drop-off activity, while the staff vehicle mode share includes drive along as well as carpool estimates. The student and staff mode share projections are shown in **Table D-3**.

Table D-3 Travel Mode Shares

Time Period	Vehicle Share			Walk/Bike Share	Transit Share
	Drive Alone	Carpool	Parent Pick-up/ Drop-Off		
Students	N/A	N/A	7%	3%	90%
Staff	60%	19%	N/A	1%	20%

D.4.7 Project Vehicular Trip Generation

The vehicle mode share percentages shown in **Table D-3** were applied to the number of person trips to develop vehicle trip generation estimate, as shown in **Table D-4**. The vehicle trip generation consist of staff drive alone vehicle trips, staff carpool vehicle trips, and parent pick-up/drop-off vehicle trips. It is assumed that all staff driving to school enter the site for school arrival and exit the site during school dismissal. Parent pick-up/drop-off activity includes one entering trip and one exiting trip for each student being dropped off or picked up.

Table D-4 Vehicle Trip Generation Summary

Time Period		Staff Drive Alone	Staff Carpool	Parent Pick-up/Drop-Off	Total Auto Trips
a.m. Peak Hour	In	41	12	39	92
	Out	**0**	**0**	39	39
	Total	**41**	**12**	**78**	**131**
p.m. Peak Hour	In	0	0	39	39
	Out	**41**	**12**	39	92
	Total	**41**	**12**	**78**	**131**

As shown in **Table D-4**, during both the a.m. and p.m. peak hour, the Project is estimated to generate 131 total vehicle trips including 41 staff drive alone trips (entering during arrival and exiting during dismissal), 12 staff carpool trips (entering during arrival and exiting during dismissal), and 78 parent pick-up/drop-off vehicle trips (39 entering and exiting during both the arrival and dismissal).

D.4.8 Vehicle Trip Distribution

The trip distribution patterns identify the various travel paths for vehicles arriving and leaving the Project site. Trip distribution for the Project were based on student and staff zip code data provided by the Proponent. The trip distribution patterns for the Project are shown in **Figure D-11**.

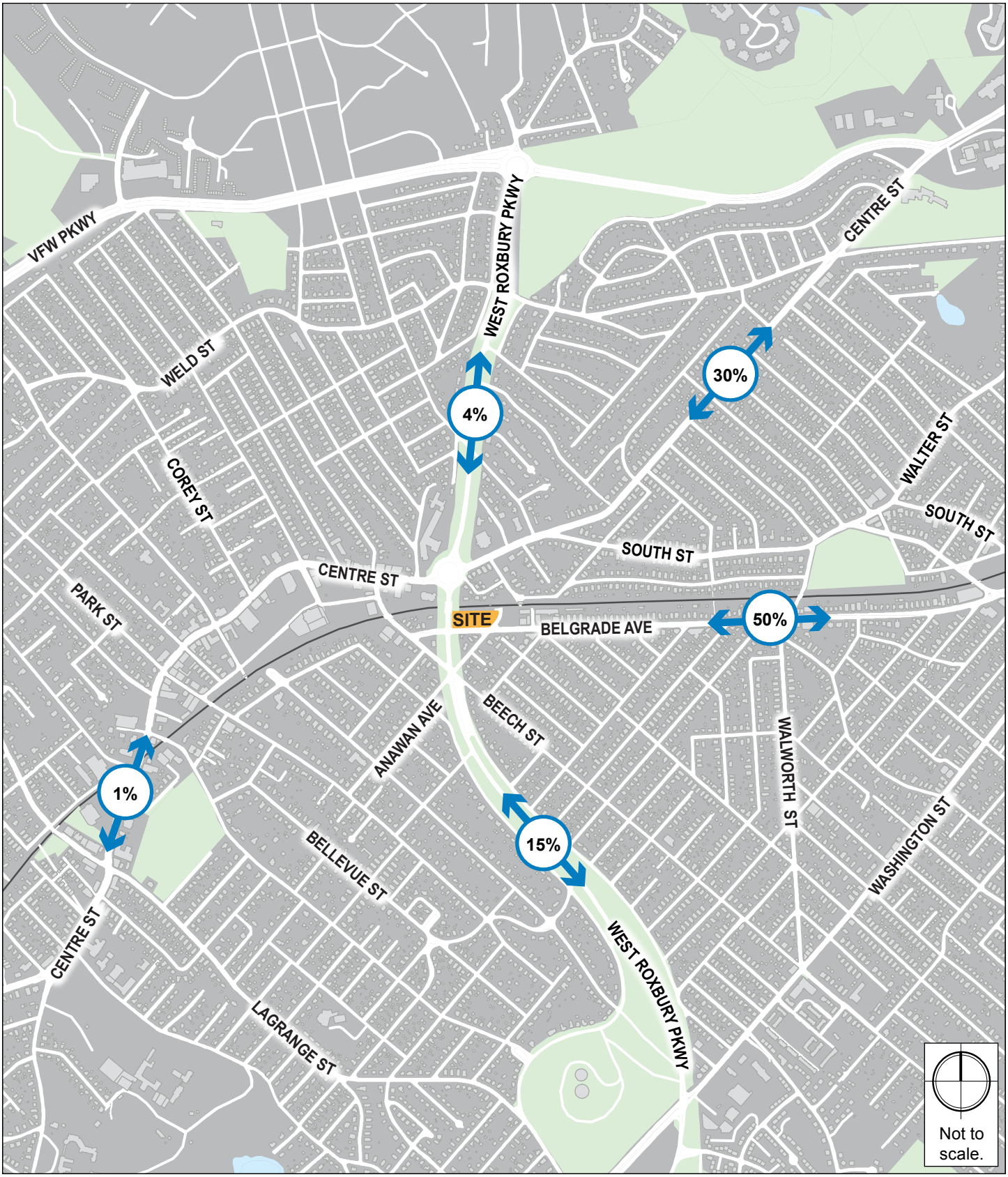


Figure D-11.
Vehicle Trip Distribution

D.4.9 Build (2023) Traffic Volumes

The vehicle trips were distributed through the study area. The Project-generated trips for the weekday a.m. and p.m. peak hours are shown in **Figure D-12**. The trip assignments were added to the No-Build (2023) Condition vehicular traffic volumes to develop the Build (2023) Condition vehicular traffic volumes. The Build (2023) weekday a.m. and p.m. peak hour traffic volumes are shown on **Figure D-13.**

D.4.10 Project Non-Vehicular Trip Generation

The non-vehicle mode share percentages shown in **Table D-3** were applied to the number of person trips to develop student and staff walk/bike and public transportation trip generation estimates, shown in **Table D-5**.

Table D-5 Non-Vehicle Trip Generation Summary

Time Period		Walk/Bike			Public Transportation		
		Students	Staff	Total	Students	Staff	Total
a.m. Peak Hour	In	17	1	18	506	13	519
	Out	0	0	0	0	0	0
	Total	**17**	**1**	**18**	**506**	**13**	**519**
p.m. Peak Hour	In	0	0	0	0	0	0
	Out	17	1	18	506	13	519
	Total	**17**	**1**	**18**	**506**	**13**	**519**

As shown in **Table D-5,** the Project is estimated to generate 36 daily walk/bike trips, 1,038 daily public transportation trips. During the morning arrival peak hour and the afternoon dismissal peak hour, the Project is estimated to generate 17 student walk/bike trips, 1 staff walk/bike trip, 506 student public transportation trips, and 13 staff public transportation trips entering or exiting the site.

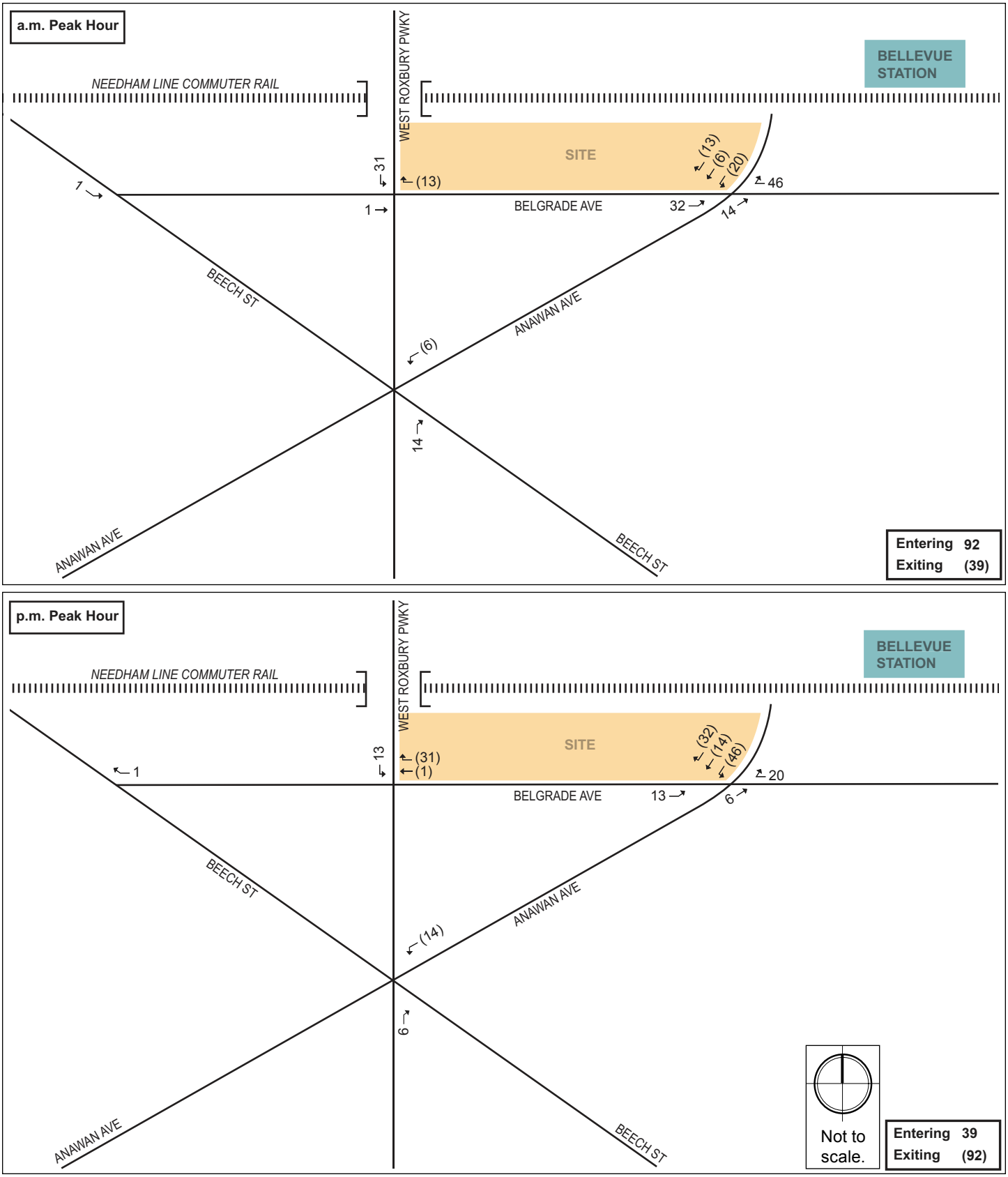


Figure D-12.
Project-Generated Vehicles Trips, Weekday a.m. and p.m. Peak Hours

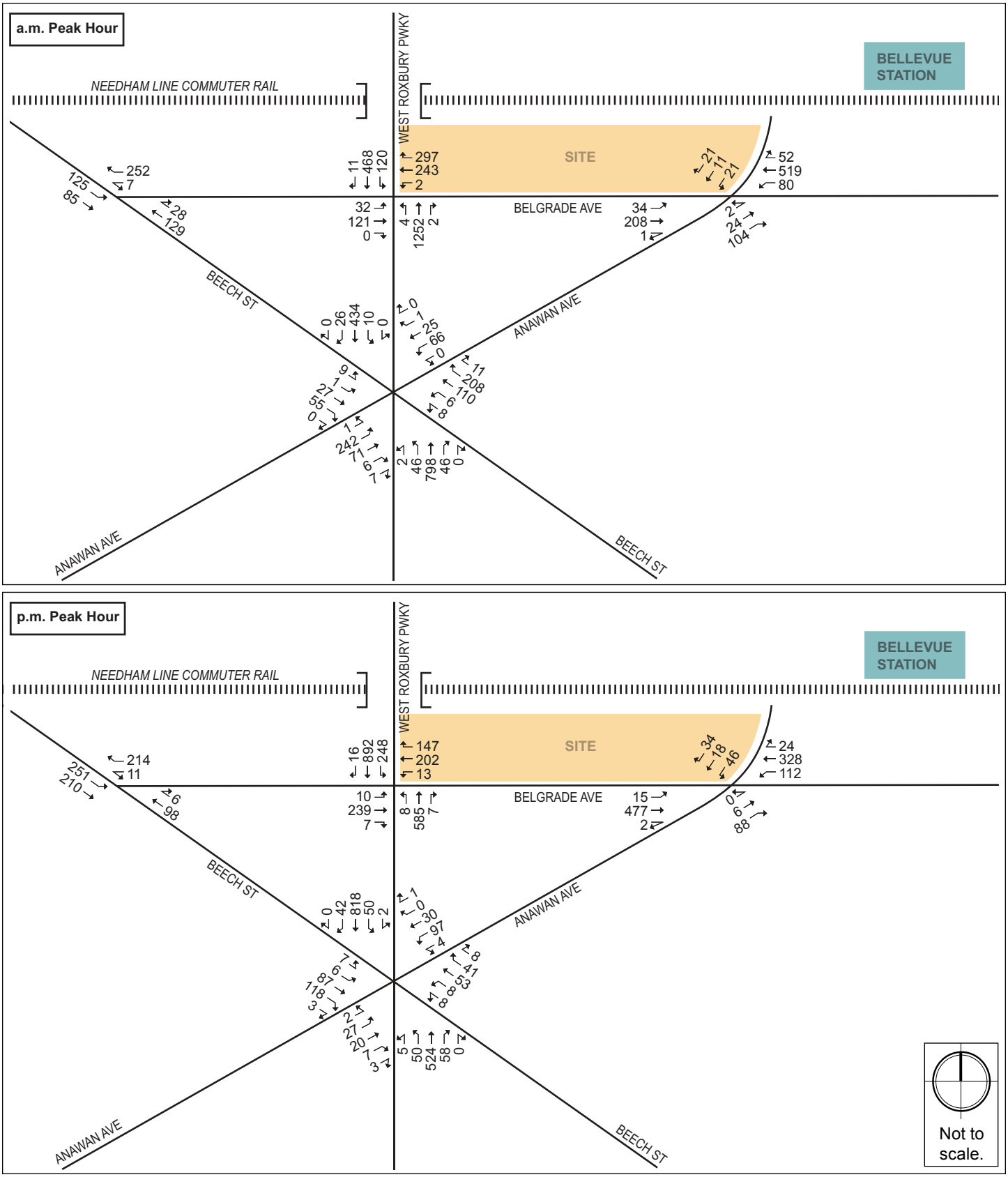


Figure D-13.
Build (2023) Condition Traffic Volumes, Weekday a.m. and p.m. Peak Hours

D.4.11 Public Transportation Services and Capacity

There are multiple public transportation options students and staff can take to Project site including four MBTA bus lines, the MBTA 35, 36, 37 and 38 bus routes, or the Needham Line of the commuter rail. Most students that utilize public transportation are expected to reverse commute, meaning that students will travel outbound in the morning to arrive at school and inbound in the evening to leave school, opposite of most commuters.

Many students are expected to utilize the bus from Forest Hills Station. A significant percentage of students that currently attend the Roxbury Prep High School are from the neighborhoods of Dorchester, Dudley, Mattapan, Hyde Square, and Roslindale. These students are expected to take one of many bus lines or the Orange Line that serve Forest Hills, and then transfer to a bus that serves the Project. Students from South Boston, Charlestown, and Back Bay that have access to South Station or Back Bay Station are expected to utilize the Needham Line to travel to Bellevue Station, adjacent to the Project. Additionally, some students might transfer to the Needham Line at Forest Hills instead of transferring to a bus route.

Based on the residential zip codes of the existing student population and the frequency of the buses compared to the commuter rail, it is estimated that 75% of the students will use the bus and 25% of the students will use the Needham Line. The detailed ridership data is provided in the **Appendix** to this study.

MBTA Commuter Rail Capacity

Students that plan to take the commuter rail will likely board at South Station or Back Bay Station and take the commuter rail directly to the Bellevue Station in the morning and reverse direction after school. Some students could also board at Forest Hills Station and other stations located in Boston along the Needham Line.

According to the 2012 passenger counts, students were observed taking the reverse commuter train to West Roxbury Station to schools nearby, including Catholic Memorial School. Bellevue Station is located within Zone 1, which costs roughly 3 times the amount as a Zone 1A station and the local buses. In order to encourage students to take the commuter rail, the school has agreed to fund the difference in price, so students are able to take the Needham Line to Bellevue Station at no additional cost.

The school will coordinate the school start and end times to align with the Needham Line schedule. Based on the Needham Line schedule at the time, the school day will begin approximately 15 minutes after an outbound train stops at Bellevue Station and the school day will end approximately 15 minutes before an inbound train stops at Bellevue Station.

As shown in **Table D-1** there is capacity for over 500 passengers on each of the reverse commute trains. Any one of these trains could not only accommodate the expected commuter rail demand, but the entire public transportation demand of the school.

MBTA Bus Capacity

Between Forest Hills and the Project site, the 35, 36, and 37 bus routes are expected to take between 7 – 11 minutes in the outbound direction and 11 – 15 minutes in the inbound direction. The 38 Bus Route is expected to take approximately 12 – 14 minutes in the outbound direction and 16 minutes in the inbound direction between Forest Hills and the Project site.

All four MBTA bus routes that serve the Project, use the upper busway at Forest Hills Station, allowing for students to wait at the same place and take the first available bus. Since the students can take any of the four bus routes, they can be analyzed as one single route. Looking at them together, one of the four buses leaves Forest Hills an average of every four minutes in the morning and passes the site an average of every five minutes in the afternoon to get back to Forest Hills Station.

As shown in **Table D-2**, there is an average outbound available capacity of approximately 40 passengers per bus. There would only need to be approximately 10 buses to accommodate this demand. In reality, there is approximately 15 to 20 buses traveling past the site in the hour before school start and school dismissal.

D.5 Traffic Operations Analysis

Trafficware's Synchro (version 9) software package was used to calculate average delay and associated LOS at the study area intersections. This software is based on the traffic operational analysis methodology of the Transportation Research Board's 2010 Highway Capacity Manual (HCM).

LOS designations are based on average delay per vehicle for all vehicles entering an intersection. **Table D-6** displays the intersection LOS criteria. LOS A indicates the most favorable condition, with minimum traffic delay, while LOS F represents the worst condition, with significant traffic delay. LOS D or better is typically considered acceptable in an urban area. However, LOS E or F is often typical for a stop controlled minor street that intersects a major roadway.

Table D-6 Vehicle Level of Service Criteria

Level of Service	Average Stopped Delay (seconds/vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Source: 2010 Highway Capacity Manual, Transportation Research Board.

In addition to delay and LOS, the operational capacity and vehicular queues are calculated and used to further quantify traffic operations at intersections. The following describes these other calculated measures.

The volume-to-capacity (v/c) ratio is a measure of congestion at an intersection approach. A v/c ratio below one indicates that the intersection approach has adequate capacity to process the arriving traffic volumes over the course of an hour. A v/c ratio of one or greater indicates that the traffic volume on the intersection approach exceeds capacity.

The 50th percentile queue length, measured in feet, represents the maximum queue length during a cycle of the traffic signal with typical (or median) entering traffic volumes.

The 95th percentile queue length, measured in feet, represents the farthest extent of the vehicle queue (to the last stopped vehicle) upstream from the stop line during five percent of all signal cycles. The 95th percentile queue will not be seen during each cycle. The queue would be this long only five percent of the time and would typically not occur during off-peak hours. Since volumes fluctuate throughout the hour, the 95th percentile queue represents what can be considered a "worst case" scenario. Queues at the intersection are generally below the 95th percentile queue throughout the course of the peak hour. It is also unlikely that the 95th percentile queues for each approach to the intersection will occur simultaneously.

Table D-7 and **Table D-8** summarize the Existing Condition, the No-Build (2025) Condition, and the Build (2025) Condition capacity analysis for the study area intersection during the weekday a.m. and p.m. peak hours, respectively. The detailed analysis of the Synchro results is provided in the **Appendix** to this study.

Table D-7 Capacity Analysis Summary, Weekday a.m. Peak Hour

Intersection/Approach	LOS	Delay (s)	V/C Ratio	%ile Queue (ft)		LOS	Delay (s)	V/C Ratio	%ile Queue (ft)		LOS	Delay (s)	V/C Ratio	%ile Queue (ft)	
				50th	95th				50th	95th				50th	95th
	Existing Condition					No-Build (2023) Condition					Build (2023) Condition				
Signalized Intersections															
WRP/Belgrade Ave	**C**	**28.7**	**-**	**-**	**-**	**C**	**32.1**	**-**	**-**	**-**	**C**	**33.2**	**-**	**-**	**-**
Belgrade Ave EB L/T	D	35.7	0.53	77	135	D	36.5	0.55	79	140	D	36.4	0.55	80	141
Belgrade Ave EB R	A	0.0	0.00	0	0	A	0.0	0.00	0	0	A	0.0	0.00	0	0
Belgrade Ave WB L/T	D	39.3	0.67	136	204	D	39.7	0.69	140	211	D	39.4	0.68	140	211
Belgrade Ave WB R	B	10.2	0.55	25	86	B	11.0	0.57	30	93	B	11.1	0.58	32	97
WRP NB L/T | T/R	C	32.1	0.79	~421	#561	D	37.9	0.82	~480	#592	D	39.0	0.83	~480	#592
WRP SB L/T | T/R	C	23.9	1.18dl	163	#256	C	25.5	1.21l	175	#276	C	28.8	1.66l	195	#309
WRP/Beech St/Anawan Ave	**F**	**124.2**	**-**	**-**	**-**	**F**	**133.5**	**-**	**-**	**-**	**F**	**132.8**	**-**	**-**	**-**
WRP NB L/T | T/R	D	41.7	0.85	360	#487	D	44.6	0.87	381	#522	D	46.0	0.89	390	#535
WRP SB L/T | T/R	C	31.1	0.48	180	210	C	31.6	0.49	188	219	C	31.7	0.49	189	220
Beech St SEB L/T/R	D	53.0	0.53	94	118	D	53.7	0.55	97	123	D	53.7	0.55	97	123
Beech St NWB L/T/R	F	207.3	1.45	~528	#533	F	292.9	1.54	~554	#555	F	292.9	1.54	~554	#555
Anawan Ave NEB L/T/R	F	319.8	1.43	~463	#570	F	347.0	1.67	~485	#590	F	344.1	1.66	~485	#590
Anawan Ave SWB L/T/R	D	49.1	0.41	86	109	D	49.7	0.47	90	112	D	50.8	0.51	97	120
Unsignalized Intersections															
Belgrade Ave/Beech St	**-**	**-**	**-**	**-**	**-**	-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Belgrade Avenue EB T/R	A	0.0	0.14	-	0	A	0.0	0.28	-	0	A	0.0	0.15	-	0
Belgrade Avenue WB L/T	A	0.3	0.01	-	1	A	0.5	0.01	-	1	A	0.3	0.01	-	1
Beech Street NB L/R	B	14.0	0.31	-	33	C	15.7	0.27	-	26	B	14.5	0.33	-	36
Belgrade Ave/Anawan Ave	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belgrade Ave EB L/T/R	A	0.1	0.00	-	0	A	0.1	0.00	-	0	A	1.7	0.04	-	4
Belgrade Ave WB L/T/R	A	1.8	0.07	-	6	A	3.2	0.11	-	10	A	1.9	0.08	-	6
Anawan Ave NB L/T/R	B	12.9	0.25	-	25	B	12.1	0.16	-	14	C	19.2	0.41	-	49
Anawan Ave SB L/T/R	C	18.5	0.06	-	4	C	20.5	0.03	-	3	F	51.8	0.45	-	51

Grey shading indicates LOS E or F under Existing Condition or a decrease to LOS E or F under the No-Build (2023) or Build (2023) Condition.

dl indicates defacto left turn lane

~ 50th percentile volumes exceed capacity. Queue shown is maximum after two cycles

95th percentile volumes exceed capacity. Queue shown is maximum after two cycles

Table D-8 Capacity Analysis Summary, Weekday p.m. Peak Hour

Intersection/Approach	LOS	Delay (s)	V/C Ratio	%ile Queue (ft)		LOS	Delay (s)	V/C Ratio	%ile Queue (ft)		LOS	Delay (s)	V/C Ratio	%ile Queue (ft)	
				50th	95th				50th	95th				50th	95th
	Existing Condition					No-Build (2023) Condition					Build (2023) Condition				
Signalized Intersections															
WRP/Belgrade Ave	**D**	**43.4**	**-**	**-**	**-**	**D**	**52.7**	**-**	**-**	**-**	**E**	**56.8**	**-**	**-**	**-**
Belgrade Ave EB L/T	D	39.9	0.69	142	207	D	40.4	0.70	147	214	D	39.9	0.70	145	214
Belgrade Ave EB R	A	0.1	0.02	0	0	A	0.1	0.02	0	0	A	0.1	0.02	0	0
Belgrade Ave WB L/T	D	38.5	0.65	130	175	D	38.8	0.66	134	181	D	38.6	0.66	133	182
Belgrade Ave WB R	A	8.6	0.30	9	39	A	9.1	0.31	11	42	A	9.0	0.37	14	47
WRP NB L/T | T/R	B	17.2	0.39	144	192	B	17.5	0.41	152	200	B	17.6	0.41	155	200
WRP Pkwy SB L/T | T/R	E	64.0	1.04	~480	#630	F	83.1	1.10	~516	#663	F	92.8	1.12	~535	#674
WRP/Beech St/Anawan Ave	**E**	**56.1**	**-**	**-**	**-**	**E**	**64.8**	**-**	**-**	**-**	**E**	**66.2**	**-**	**-**	**-**
WRP NB L/T | T/R	D	36.5	0.78	265	#345	D	40.8	0.85	285	#379	D	43.1	0.87	294	#398
WRP SB L/T | T/R	E	75.7	0.87	373	#547	F	92.2	0.93	~431	#591	F	93.8	0.94	~439	#608
Beech St SEB L/T/R	E	60.2	0.78	168	#309	E	61.1	0.79	175	#326	E	62.3	0.80	177	#333
Beech St NWB L/T/R	D	44.7	0.45	83	148	D	44.9	0.46	86	153	D	45.7	0.46	86	155
Anawan Ave NEB L/T/R	D	51.0	0.40	45	84	D	51.0	0.41	47	86	D	49.3	0.38	47	85
Anawan Ave SWB L/T/R	C	27.2	0.55	32	80	C	28.4	0.57	36	84	C	32.1	0.62	48	100
Unsignalized Intersections															
Belgrade Ave/Beech St	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Belgrade Avenue EB T/R	A	0.0	0.28	-	0	A	0.0	0.29	-	0	A	0.0	0.29	-	0
Belgrade Avenue WB L/T	A	0.5	0.01	-	1	A	0.5	0.01	-	1	A	0.5	0.01	-	1
Beech Street NB L/R	C	15.7	0.27	-	26	C	16.4	0.28	-	29	C	16.3	0.28	-	29
Belgrade Ave/Anawan Ave	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belgrade Ave EB L/T/R	A	0.1	0.00	-	0	A	0.1	0.00	-	0	A	0.4	0.01	-	1
Belgrade Ave WB L/T/R	A	3.2	0.11	-	10	A	3.3	0.12	-	10	A	3.3	0.12	-	10
Anawan Ave NB L/T/R	B	12.1	0.16	-	14	B	12.4	0.17	-	15	B	14.7	0.22	-	21
Anawan Ave SB L/T/R	C	20.5	0.03	-	3	C	21.6	0.04	-	3	E	45.9	0.41	-	44

Grey shading indicates LOS E or F under Existing Condition or a decrease to LOS E or F under the No-Build (2023) or Build (2023) Condition.

~ 50th percentile volumes exceed capacity. Queue shown is maximum after two cycles

95th percentile volumes exceed capacity. Queue shown is maximum after two cycles

As shown in **Table D-7** and **Table D-8**, all intersections and the majority of approaches have acceptable operations (LOS D or better) under all conditions with the following exceptions:

The **West Roxbury Avenue/Belgrade Avenue** intersection operates at LOS C during the weekday morning peak hour and LOS D during the weekday evening peak hour under the Existing Condition. The intersection continues to operate at LOS C during the weekday morning peak hour under both the No-Build (2023) Condition and Build (2023) Condition. During the weekday evening peak hour, the intersection continues to operate at LOS D for the No-Build (2023) Condition and decreases to LOS E for the Build (2023) Condition. The West Roxbury Parkway southbound left/thru | thru/right movement will decrease from LOS E to LOS F during the weekday evening peak hour under the No-Build (2023) Condition. This is due to an increase in traffic projected from the background traffic growth of the surrounding area, and the increased traffic from the Project. The longest queue lengths occur at the West Roxbury Parkway northbound approach during the weekday morning peak hour and range from 480 feet to 592 feet (19 to 24 vehicles) and at the West Roxbury Parkway southbound approach during the weekday evening peak hour ranging from 535 feet to 674 feet (21 to 27 vehicles).

The **West Roxbury Avenue/Beech Street/Anawan Avenue** intersection operates at LOS F during the weekday morning peak hour and LOS E during the weekday evening peak hour under the Existing Condition. The intersection continues to operate at LOS F during the weekday morning peak hour and LOS E during the weekday evening peak hour under both the No-Build (2023) Condition and Build (2023) Condition. During the weekday morning peak hour, the Beech Street north-westbound approach operates at LOS F. During the weekday evening peak hour, the West Roxbury Parkway southbound approach and the Beech Street south-eastbound approach both operate at LOS E. During the weekday evening peak hour, the West Roxbury Parkway southbound approach will decrease from LOS E to LOS F under the No-Build (2023) Condition. This is due to an increase in traffic projected from the background traffic growth of the surrounding area. The longest queue lengths occur at the Anawan Avenue northeastbound approach during the weekday morning peak hour and range from 485 feet to 590 feet (19 to 24 vehicles) and at the West Roxbury Parkway southbound approach during the weekday evening peak hour ranging from 439 feet to 608 feet (18 to 24 vehicles).

At the unsignalized **Belgrade Avenue/Beech Street** intersection, all approaches operate at an acceptable LOS during the weekday morning and evening peak hours for Existing, No-Build (2023), and Build (2023) Conditions. The longest queue lengths occur at the Beech Street northbound approach during both the weekday morning and evening peak hours and range from 29 to 36 feet (1 to 2 vehicles).

At the unsignalized **Belgrade Avenue/Anawan Avenue** intersection, the Anawan Avenue southbound approach will decrease from LOS C to LOS F during the morning peak hour and from LOS C to LOS E during the evening peak hours under the Build (2023) Condition. This is due to an increase in traffic from parent pick-up/drop-off activity in the newly constructed turn around

area and the garage driveway. The longest queue lengths occur at the Anawan Avenue southbound approach during both the weekday morning and evening peak hours and range from 44 to 51 feet (2 vehicles).

D.6 Transportation Demand Management

The Proponent is committed to implementing Transportation Demand Management (TDM) measures to minimize automobile usage and Project-traffic impacts. The TDM program may include an on-site transportation coordinator; transit pass subsidies for students and staff; secure bicycle parking areas; and distributions of transit maps and schedules to students, staff, and visitors. TDM measures will be described and evaluated in Transportation Access Plan Agreement ("TAPA").

On-site management will keep a supply of transit information (schedules, maps, and fare information) to be made available to the students, staff, and visitors of the site. The Proponent will work with the City to develop a TDM program appropriate to the Proposed Project and consistent with its level of impact.

The Proponent is prepared to take advantage of good transit access to allow students and staff convenient travel to/from the school. The Proponent will develop a TDM program that will encourage the use of non-vehicular modes of travel. The TDM measures for the Proposed Project may include but are not limited to the following:

Alternative Mode Benefits/Tactics

The primary alternative transportation modes to be encouraged will be public transportation, bicycling, and walking.

- The Proponent will designate a transportation coordinator to oversee transportation issues, including parking, service and loading, and deliveries;
- The Proponent will encourage carpooling for staff to reduce the number of single-occupancy vehicles and the demand for on-site parking.
- The Proponent will provide orientation packets to students and staff containing information on available transportation choices, including public transportation routes/schedules, nearby vehicle sharing and bicycle sharing locations, and walking opportunities;
- Provide information on travel alternatives for students, staff, and visitors via the Internet and in the building lobby.

Bicycle/Pedestrian Trips

Promotions and incentives to encourage bicycle and pedestrian trips include:

- Providing covered, secure bicycle storage for staff; and
- Providing on-site external bike racks for students and visitors.

Public Transportation

The goal of the following promotion and incentive measures are to increase public transit use to and from the site:

- The school arrival and dismissal times will be coordinated to match up with the current MBTA schedule;
- Posting information about public transportation in the lobby of the school;
- The proponent will subsidize the purchase of monthly transit passes for students and staff;
- Work with the MBTA commuter rail to provide extra reverse commute stops to better serve the school;
- The proponent will fund the difference between the Zone 1 pass and the Zone 1A pass to encourage students to take the commuter rail instead of the buses; and
- The proponent will work with the MBTA and BTD to relocate the bus stops to be located adjacent to the school.

D.7 Transportation Mitigation Measures

The Proponent will continue to work with the City of Boston to create a Project that efficiently serves vehicle trips, improves the pedestrian environment, and encourages transit and bicycle use. As part of the Project, the Proponent will bring all abutting sidewalks and pedestrian ramps to the City of Boston standards in accordance with the Boston Complete Streets design guidelines. This will include the reconstruction and widening of the sidewalks where possible, the installation of new, accessible ramps, improvements to street lighting where necessary, planting of street trees, and providing bicycle storage racks surrounding the site, where appropriate.

The Proponent is responsible for preparation of the Transportation Access Plan Agreement (TAPA), a formal legal agreement between the Proponent and the BTD. The TAPA formalizes the findings of the transportation study, mitigation commitments, elements of access and physical design, travel demand management measures, and any other responsibilities that are agreed to by both the Proponent and the BTD. Because the TAPA must incorporate the results of the technical analysis, it must be executed after these other processes have been completed. The proposed

measures listed above and any additional transportation improvements to be undertaken as part of this Project will be defined and documented in the TAPA.

The Proponent will also produce a Construction Management Plan (CMP) for review and approval by BTD. The CMP will detail the schedule, staging, parking, delivery, and other associated impacts of the construction of the Project.

D.8 Evaluation of Short-Term Construction Impacts

Most construction activities will be accommodated within the current site boundaries. Details of the overall construction schedule, working hours, number of construction workers, worker transportation and parking, number of construction vehicles, and routes will be addressed in detail in a Construction Management Plan to be filed with BTD in accordance with the City's transportation maintenance plan requirements.

To minimize transportation impacts during the construction period, the following measures will be considered for the Construction Management Plan:

- Limited construction worker parking on-site;
- Encouragement of worker carpooling;
- Consideration of a subsidy for MBTA passes for full-time employees; and
- Providing secure spaces on-site for workers' supplies and tools so they do not have to be brought to the site each day.

The Construction Management Plan to be executed with the City prior to commencement of construction will document all committed measures.

N/S: West Roxbury Parkway
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

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File Name : 165344 B
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	West Roxbury Parkway From North				Belgrade Avenue From East				West Roxbury Parkway From South				Belgrade Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
06:30 AM	0	33	7	0	63	34	1	0	0	287	1	0	0	20	3	0	449
06:45 AM	1	67	13	0	73	46	0	0	2	359	2	0	0	14	4	0	581
Total	1	100	20	0	136	80	1	0	2	646	3	0	0	34	7	0	1030
07:00 AM	0	71	15	0	70	57	0	0	0	327	1	0	0	24	9	0	574
07:15 AM	2	113	16	0	62	50	0	0	1	363	1	0	0	31	8	0	647
07:30 AM	4	115	22	0	80	69	1	0	1	305	0	0	0	29	8	0	634
07:45 AM	5	117	23	0	65	68	1	0	0	268	2	0	0	29	6	0	584
Total	11	416	76	0	277	244	2	0	2	1263	4	0	0	113	31	0	2439
08:00 AM	4	149	38	0	50	51	2	0	1	234	1	0	0	29	8	0	567
08:15 AM	2	105	23	0	66	47	0	0	0	267	0	0	0	40	3	0	553
08:30 AM	2	116	20	0	46	52	2	0	1	270	1	0	1	33	4	0	548
08:45 AM	0	96	28	0	47	35	0	0	2	242	1	0	0	28	5	0	484
Total	8	466	109	0	209	185	4	0	4	1013	3	0	1	130	20	0	2152
Grand Total	20	982	205	0	622	509	7	0	8	2922	10	0	1	277	58	0	5621
Apprch %	1.7	81.4	17	0	54.7	44.7	0.6	0	0.3	99.4	0.3	0	0.3	82.4	17.3	0	
Total %	0.4	17.5	3.6	0	11.1	9.1	0.1	0	0.1	52	0.2	0	0	4.9	1	0	
Cars	20	948	193	0	614	448	5	0	7	2879	2	0	1	225	58	0	5400
% Cars	100	96.5	94.1	0	98.7	88	71.4	0	87.5	98.5	20	0	100	81.2	100	0	96.1
Heavy Vehicles	0	34	12	0	8	61	2	0	1	43	8	0	0	52	0	0	221
% Heavy Vehicles	0	3.5	5.9	0	1.3	12	28.6	0	12.5	1.5	80	0	0	18.8	0	0	3.9

	West Roxbury Parkway From North					Belgrade Avenue From East					West Roxbury Parkway From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	71	15	0	86	70	57	0	0	127	0	327	1	0	328	0	24	9	0	33	574
07:15 AM	2	113	16	0	131	62	50	0	0	112	1	363	1	0	365	0	31	8	0	39	647
07:30 AM	4	115	22	0	141	80	69	1	0	150	1	305	0	0	306	0	29	8	0	37	634
07:45 AM	5	117	23	0	145	65	68	1	0	134	0	268	2	0	270	0	29	6	0	35	584
Total Volume	11	416	76	0	503	277	244	2	0	523	2	1263	4	0	1269	0	113	31	0	144	2439
% App. Total	2.2	82.7	15.1	0		53	46.7	0.4	0		0.2	99.5	0.3	0		0	78.5	21.5	0		
PHF	.550	.889	.826	.000	.867	.866	.884	.500	.000	.872	.500	.870	.500	.000	.869	.000	.911	.861	.000	.923	.942
Cars	11	408	73	0	492	275	220	1	0	496	2	1248	2	0	1252	0	90	31	0	121	2361
% Cars	100	98.1	96.1	0	97.8	99.3	90.2	50.0	0	94.8	100	98.8	50.0	0	98.7	0	79.6	100	0	84.0	96.8
Heavy Vehicles	0	8	3	0	11	2	24	1	0	27	0	15	2	0	17	0	23	0	0	23	78
% Heavy Vehicles	0	1.9	3.9	0	2.2	0.7	9.8	50.0	0	5.2	0	1.2	50.0	0	1.3	0	20.4	0	0	16.0	3.2

N/S: West Roxbury Parkway
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

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File Name : 165344 B
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Cars

	West Roxbury Parkway From North				Belgrade Avenue From East				West Roxbury Parkway From South				Belgrade Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
06:30 AM	0	31	7	0	62	28	1	0	0	285	0	0	0	15	3	0	432
06:45 AM	1	65	12	0	72	37	0	0	2	356	0	0	0	9	4	0	558
Total	1	96	19	0	134	65	1	0	2	641	0	0	0	24	7	0	990
07:00 AM	0	70	15	0	70	49	0	0	0	324	1	0	0	19	9	0	557
07:15 AM	2	109	15	0	61	46	0	0	1	359	0	0	0	24	8	0	625
07:30 AM	4	114	22	0	80	63	0	0	1	301	0	0	0	22	8	0	615
07:45 AM	5	115	21	0	64	62	1	0	0	264	1	0	0	25	6	0	564
Total	11	408	73	0	275	220	1	0	2	1248	2	0	0	90	31	0	2361
08:00 AM	4	142	36	0	49	44	1	0	0	230	0	0	0	24	8	0	538
08:15 AM	2	103	22	0	65	42	0	0	0	263	0	0	0	34	3	0	534
08:30 AM	2	108	20	0	44	45	2	0	1	262	0	0	1	28	4	0	517
08:45 AM	0	91	23	0	47	32	0	0	2	235	0	0	0	25	5	0	460
Total	8	444	101	0	205	163	3	0	3	990	0	0	1	111	20	0	2049
Grand Total	20	948	193	0	614	448	5	0	7	2879	2	0	1	225	58	0	5400
Apprch %	1.7	81.7	16.6	0	57.5	42	0.5	0	0.2	99.7	0.1	0	0.4	79.2	20.4	0	
Total %	0.4	17.6	3.6	0	11.4	8.3	0.1	0	0.1	53.3	0	0	0	4.2	1.1	0	

	West Roxbury Parkway From North					Belgrade Avenue From East					West Roxbury Parkway From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	70	15	0	85	70	49	0	0	119	0	324	1	0	325	0	19	9	0	28	557
07:15 AM	2	109	15	0	126	61	46	0	0	107	1	359	0	0	360	0	24	8	0	32	625
07:30 AM	4	114	22	0	140	80	63	0	0	143	1	301	0	0	302	0	22	8	0	30	615
07:45 AM	5	115	21	0	141	64	62	1	0	127	0	264	1	0	265	0	25	6	0	31	564
Total Volume	11	408	73	0	492	275	220	1	0	496	2	1248	2	0	1252	0	90	31	0	121	2361
% App. Total	2.2	82.9	14.8	0		55.4	44.4	0.2	0		0.2	99.7	0.2	0		0	74.4	25.6	0		
PHF	.550	.887	.830	.000	.872	.859	.873	.250	.000	.867	.500	.869	.500	.000	.869	.000	.900	.861	.000	.945	.944

N/S: West Roxbury Parkway
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

File Name : 165344 B
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Heavy Vehicles

	West Roxbury Parkway From North				Belgrade Avenue From East				West Roxbury Parkway From South				Belgrade Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
06:30 AM	0	2	0	0	1	6	0	0	0	2	1	0	0	5	0	0	17
06:45 AM	0	2	1	0	1	9	0	0	0	3	2	0	0	5	0	0	23
Total	0	4	1	0	2	15	0	0	0	5	3	0	0	10	0	0	40
07:00 AM	0	1	0	0	0	8	0	0	0	3	0	0	0	5	0	0	17
07:15 AM	0	4	1	0	1	4	0	0	0	4	1	0	0	7	0	0	22
07:30 AM	0	1	0	0	0	6	1	0	0	4	0	0	0	7	0	0	19
07:45 AM	0	2	2	0	1	6	0	0	0	4	1	0	0	4	0	0	20
Total	0	8	3	0	2	24	1	0	0	15	2	0	0	23	0	0	78
08:00 AM	0	7	2	0	1	7	1	0	1	4	1	0	0	5	0	0	29
08:15 AM	0	2	1	0	1	5	0	0	0	4	0	0	0	6	0	0	19
08:30 AM	0	8	0	0	2	7	0	0	0	8	1	0	0	5	0	0	31
08:45 AM	0	5	5	0	0	3	0	0	0	7	1	0	0	3	0	0	24
Total	0	22	8	0	4	22	1	0	1	23	3	0	0	19	0	0	103
Grand Total	0	34	12	0	8	61	2	0	1	43	8	0	0	52	0	0	221
Apprch %	0	73.9	26.1	0	11.3	85.9	2.8	0	1.9	82.7	15.4	0	0	100	0	0	
Total %	0	15.4	5.4	0	3.6	27.6	0.9	0	0.5	19.5	3.6	0	0	23.5	0	0	

	West Roxbury Parkway From North					Belgrade Avenue From East					West Roxbury Parkway From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	7	2	0	9	1	7	1	0	9	1	4	1	0	6	0	5	0	0	5	29
08:15 AM	0	2	1	0	3	1	5	0	0	6	0	4	0	0	4	0	6	0	0	6	19
08:30 AM	0	8	0	0	8	2	7	0	0	9	0	8	1	0	9	0	5	0	0	5	31
08:45 AM	0	5	5	0	10	0	3	0	0	3	0	7	1	0	8	0	3	0	0	3	24
Total Volume	0	22	8	0	30	4	22	1	0	27	1	23	3	0	27	0	19	0	0	19	103
% App. Total	0	73.3	26.7	0		14.8	81.5	3.7	0		3.7	85.2	11.1	0		0	100	0	0		
PHF	.000	.688	.400	.000	.750	.500	.786	.250	.000	.750	.250	.719	.750	.000	.750	.000	.792	.000	.000	.792	.831

N/S: West Roxbury Parkway
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

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Start Date : 10/26/2016
Page No : 1

Groups Printed- Peds and Bikes

	West Roxbury Parkway From North					Belgrade Avenue From East					West Roxbury Parkway From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
06:30 AM	0	0	0	2	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	6
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	4
Total	0	0	0	2	2	0	0	0	1	1	0	1	0	1	1	0	0	0	0	1	10
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	3
07:30 AM	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	5
07:45 AM	0	0	1	2	0	0	0	0	0	2	0	0	0	0	1	0	0	0	3	0	9
Total	0	0	1	3	2	0	0	0	1	3	0	0	0	1	1	0	1	0	4	0	17
08:00 AM	0	0	0	0	2	0	1	0	1	0	0	0	0	2	0	0	0	0	0	1	7
08:15 AM	0	0	0	1	4	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	8
08:30 AM	0	0	0	0	1	1	2	0	0	1	0	1	0	1	0	0	1	0	1	2	11
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	2	5
Total	0	0	0	1	7	1	4	0	1	1	0	1	0	4	2	0	1	0	3	5	31
Grand Total	0	0	1	6	11	1	4	0	3	5	0	2	0	6	4	0	2	0	7	6	58
Apprch %	0	0	5.6	33.3	61.1	7.7	30.8	0	23.1	38.5	0	16.7	0	50	33.3	0	13.3	0	46.7	40	
Total %	0	0	1.7	10.3	19	1.7	6.9	0	5.2	8.6	0	3.4	0	10.3	6.9	0	3.4	0	12.1	10.3	

	West Roxbury Parkway From North						Belgrade Avenue From East						West Roxbury Parkway From South						Belgrade Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:45 AM																									
07:45 AM	0	0	1	2	0	3	0	0	0	0	2	2	0	0	0	0	1	1	0	0	0	3	0	3	9
08:00 AM	0	0	0	0	2	2	0	1	0	1	0	2	0	0	0	2	0	2	0	0	0	0	1	1	7
08:15 AM	0	0	0	1	4	5	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0	1	0	1	8
08:30 AM	0	0	0	0	1	1	1	2	0	0	1	4	0	1	0	1	0	2	0	1	0	1	2	4	11
Total Volume	0	0	1	3	7	11	1	4	0	1	3	9	0	1	0	4	1	6	0	1	0	5	3	9	35
% App. Total	0	0	9.1	27.3	63.6		11.1	44.4	0	11.1	33.3		0	16.7	0	66.7	16.7		0	11.1	0	55.6	33.3		
PHF	.000	.000	.250	.375	.438	.550	.250	.500	.000	.250	.375	.563	.000	.250	.000	.500	.250	.750	.000	.250	.000	.417	.375	.563	.795

N/S: West Roxbury Parkway
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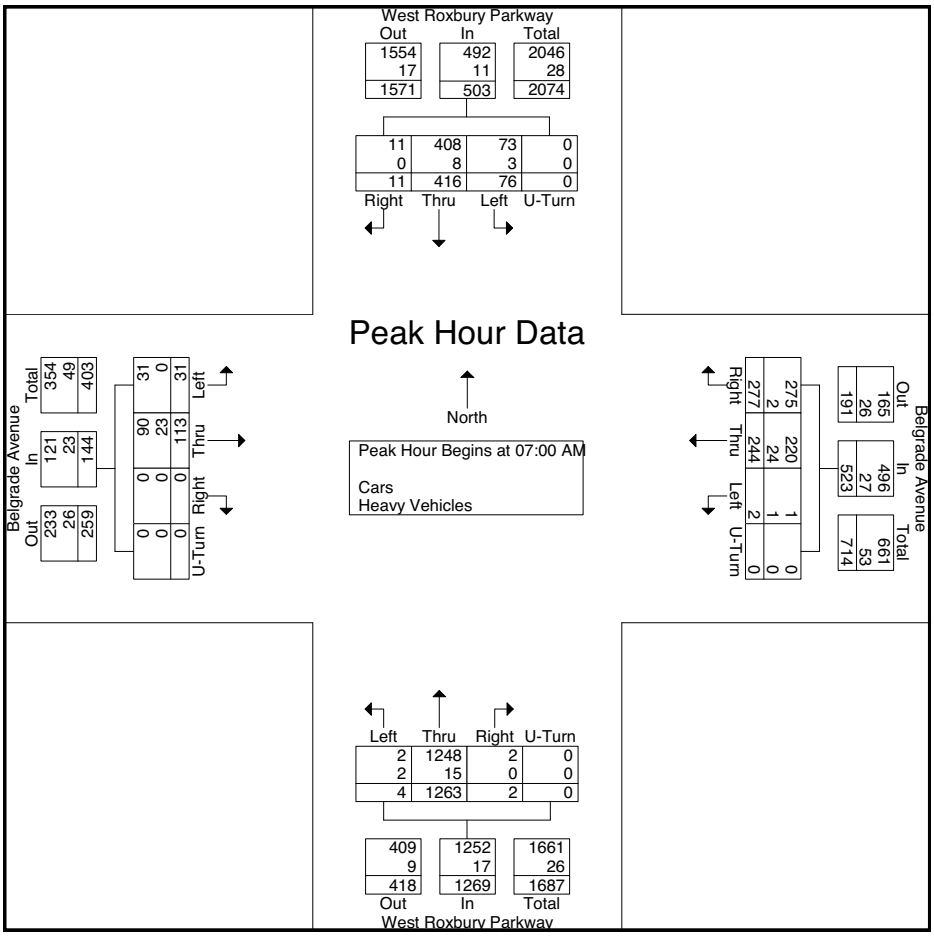
	West Roxbury Parkway From North					Belgrade Avenue From East					West Roxbury Parkway From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	71	15	0	86	70	57	0	0	127	0	327	1	0	328	0	24	9	0	33	574
07:15 AM	2	113	16	0	131	62	50	0	0	112	1	363	1	0	365	0	31	8	0	39	647
07:30 AM	4	115	22	0	141	80	69	1	0	150	1	305	0	0	306	0	29	8	0	37	634
07:45 AM	5	117	23	0	145	65	68	1	0	134	0	268	2	0	270	0	29	6	0	35	584
Total Volume	11	416	76	0	503	277	244	2	0	523	2	1263	4	0	1269	0	113	31	0	144	2439
% App. Total	2.2	82.7	15.1	0		53	46.7	0.4	0		0.2	99.5	0.3	0		0	78.5	21.5	0		
PHF	.550	.889	.826	.000	.867	.866	.884	.500	.000	.872	.500	.870	.500	.000	.869	.000	.911	.861	.000	.923	.942
Cars	11	408	73	0	492	275	220	1	0	496	2	1248	2	0	1252	0	90	31	0	121	2361
% Cars	100	98.1	96.1	0	97.8	99.3	90.2	50.0	0	94.8	100	98.8	50.0	0	98.7	0	79.6	100	0	84.0	96.8
Heavy Vehicles	0	8	3	0	11	2	24	1	0	27	0	15	2	0	17	0	23	0	0	23	78
% Heavy Vehicles	0	1.9	3.9	0	2.2	0.7	9.8	50.0	0	5.2	0	1.2	50.0	0	1.3	0	20.4	0	0	16.0	3.2



N/S: West Roxbury Parkway
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Start Date : 10/26/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	West Roxbury Parkway From North				Belgrade Avenue From East				West Roxbury Parkway From South				Belgrade Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
02:30 PM	4	149	39	0	31	38	2	0	4	134	2	0	1	36	4	0	444
02:45 PM	5	172	45	0	23	44	2	0	2	123	2	0	0	44	3	0	465
Total	9	321	84	0	54	82	4	0	6	257	4	0	1	80	7	0	909
03:00 PM	2	186	44	0	35	44	3	0	0	118	3	0	4	55	2	0	496
03:15 PM	8	195	54	0	30	45	2	0	0	126	2	0	0	53	2	0	517
03:30 PM	7	218	53	0	32	33	1	0	2	136	2	0	3	48	5	0	540
03:45 PM	6	223	65	0	31	36	2	0	1	133	2	0	1	53	3	0	556
Total	23	822	216	0	128	158	8	0	3	513	9	0	8	209	12	0	2109
04:00 PM	7	211	66	0	26	53	1	0	2	119	4	0	0	48	4	0	541
04:15 PM	4	190	59	0	23	38	3	0	3	106	0	0	1	47	2	0	476
04:30 PM	5	209	62	0	30	59	3	0	5	106	1	0	0	55	3	0	538
04:45 PM	5	174	63	0	32	47	4	0	0	116	2	0	1	52	2	0	498
Total	21	784	250	0	111	197	11	0	10	447	7	0	2	202	11	0	2053
05:00 PM	4	247	56	0	37	56	4	0	3	119	3	0	0	51	3	0	583
05:15 PM	6	184	50	0	31	42	2	0	1	129	2	0	3	63	1	0	514
05:30 PM	3	229	58	0	23	40	3	0	1	166	2	0	2	50	3	0	580
05:45 PM	2	201	63	0	21	48	4	0	2	150	1	0	2	67	3	0	564
Total	15	861	227	0	112	186	13	0	7	564	8	0	7	231	10	0	2241
Grand Total	68	2788	777	0	405	623	36	0	26	1781	28	0	18	722	40	0	7312
Apprch %	1.9	76.7	21.4	0	38.1	58.6	3.4	0	1.4	97.1	1.5	0	2.3	92.6	5.1	0	
Total %	0.9	38.1	10.6	0	5.5	8.5	0.5	0	0.4	24.4	0.4	0	0.2	9.9	0.5	0	
Cars	66	2739	764	0	396	562	35	0	25	1743	21	0	16	660	39	0	7066
% Cars	97.1	98.2	98.3	0	97.8	90.2	97.2	0	96.2	97.9	75	0	88.9	91.4	97.5	0	96.6
Heavy Vehicles	2	49	13	0	9	61	1	0	1	38	7	0	2	62	1	0	246
% Heavy Vehicles	2.9	1.8	1.7	0	2.2	9.8	2.8	0	3.8	2.1	25	0	11.1	8.6	2.5	0	3.4

	West Roxbury Parkway From North					Belgrade Avenue From East					West Roxbury Parkway From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	4	247	56	0	307	37	56	4	0	97	3	119	3	0	125	0	51	3	0	54	583
05:15 PM	6	184	50	0	240	31	42	2	0	75	1	129	2	0	132	3	63	1	0	67	514
05:30 PM	3	229	58	0	290	23	40	3	0	66	1	166	2	0	169	2	50	3	0	55	580
05:45 PM	2	201	63	0	266	21	48	4	0	73	2	150	1	0	153	2	67	3	0	72	564
Total Volume	15	861	227	0	1103	112	186	13	0	311	7	564	8	0	579	7	231	10	0	248	2241
% App. Total	1.4	78.1	20.6	0		36	59.8	4.2	0		1.2	97.4	1.4	0		2.8	93.1	4	0		
PHF	.625	.871	.901	.000	.898	.757	.830	.813	.000	.802	.583	.849	.667	.000	.857	.583	.862	.833	.000	.861	.961
Cars	15	839	226	0	1080	111	169	12	0	292	7	556	5	0	568	5	214	9	0	228	2168
% Cars	100	97.4	99.6	0	97.9	99.1	90.9	92.3	0	93.9	100	98.6	62.5	0	98.1	71.4	92.6	90.0	0	91.9	96.7
Heavy Vehicles	0	22	1	0	23	1	17	1	0	19	0	8	3	0	11	2	17	1	0	20	73
% Heavy Vehicles	0	2.6	0.4	0	2.1	0.9	9.1	7.7	0	6.1	0	1.4	37.5	0	1.9	28.6	7.4	10.0	0	8.1	3.3

N/S: West Roxbury Parkway
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Groups Printed- Cars

	West Roxbury Parkway From North				Belgrade Avenue From East				West Roxbury Parkway From South				Belgrade Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
02:30 PM	4	148	38	0	30	34	2	0	4	128	1	0	1	34	4	0	428
02:45 PM	4	168	44	0	21	38	2	0	2	120	2	0	0	39	3	0	443
Total	8	316	82	0	51	72	4	0	6	248	3	0	1	73	7	0	871
03:00 PM	1	181	42	0	34	41	3	0	0	114	2	0	4	51	2	0	475
03:15 PM	8	191	53	0	29	40	2	0	0	124	2	0	0	50	2	0	501
03:30 PM	7	214	53	0	31	32	1	0	2	133	2	0	3	43	5	0	526
03:45 PM	6	220	63	0	30	33	2	0	1	127	1	0	1	46	3	0	533
Total	22	806	211	0	124	146	8	0	3	498	7	0	8	190	12	0	2035
04:00 PM	7	209	66	0	25	47	1	0	1	115	4	0	0	42	4	0	521
04:15 PM	4	188	58	0	23	33	3	0	3	105	0	0	1	42	2	0	462
04:30 PM	5	207	59	0	30	51	3	0	5	105	0	0	0	51	3	0	519
04:45 PM	5	174	62	0	32	44	4	0	0	116	2	0	1	48	2	0	490
Total	21	778	245	0	110	175	11	0	9	441	6	0	2	183	11	0	1992
05:00 PM	4	241	56	0	37	53	3	0	3	118	1	0	0	47	3	0	566
05:15 PM	6	180	50	0	30	34	2	0	1	127	2	0	3	57	1	0	493
05:30 PM	3	222	58	0	23	35	3	0	1	165	1	0	1	48	3	0	563
05:45 PM	2	196	62	0	21	47	4	0	2	146	1	0	1	62	2	0	546
Total	15	839	226	0	111	169	12	0	7	556	5	0	5	214	9	0	2168
Grand Total	66	2739	764	0	396	562	35	0	25	1743	21	0	16	660	39	0	7066
Apprch %	1.8	76.7	21.4	0	39.9	56.6	3.5	0	1.4	97.4	1.2	0	2.2	92.3	5.5	0	
Total %	0.9	38.8	10.8	0	5.6	8	0.5	0	0.4	24.7	0.3	0	0.2	9.3	0.6	0	

	West Roxbury Parkway From North					Belgrade Avenue From East					West Roxbury Parkway From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	4	241	56	0	301	37	53	3	0	93	3	118	1	0	122	0	47	3	0	50	566
05:15 PM	6	180	50	0	236	30	34	2	0	66	1	127	2	0	130	3	57	1	0	61	493
05:30 PM	3	222	58	0	283	23	35	3	0	61	1	165	1	0	167	1	48	3	0	52	563
05:45 PM	2	196	62	0	260	21	47	4	0	72	2	146	1	0	149	1	62	2	0	65	546
Total Volume	15	839	226	0	1080	111	169	12	0	292	7	556	5	0	568	5	214	9	0	228	2168
% App. Total	1.4	77.7	20.9	0		38	57.9	4.1	0		1.2	97.9	0.9	0		2.2	93.9	3.9	0		
PHF	.625	.870	.911	.000	.897	.750	.797	.750	.000	.785	.583	.842	.625	.000	.850	.417	.863	.750	.000	.877	.958

N/S: West Roxbury Parkway
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

File Name : 165344 BB
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Heavy Vehicles

	West Roxbury Parkway From North				Belgrade Avenue From East				West Roxbury Parkway From South				Belgrade Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
02:30 PM	0	1	1	0	1	4	0	0	0	6	1	0	0	2	0	0	16
02:45 PM	1	4	1	0	2	6	0	0	0	3	0	0	0	5	0	0	22
Total	1	5	2	0	3	10	0	0	0	9	1	0	0	7	0	0	38
03:00 PM	1	5	2	0	1	3	0	0	0	4	1	0	0	4	0	0	21
03:15 PM	0	4	1	0	1	5	0	0	0	2	0	0	0	3	0	0	16
03:30 PM	0	4	0	0	1	1	0	0	0	3	0	0	0	5	0	0	14
03:45 PM	0	3	2	0	1	3	0	0	0	6	1	0	0	7	0	0	23
Total	1	16	5	0	4	12	0	0	0	15	2	0	0	19	0	0	74
04:00 PM	0	2	0	0	1	6	0	0	1	4	0	0	0	6	0	0	20
04:15 PM	0	2	1	0	0	5	0	0	0	1	0	0	0	5	0	0	14
04:30 PM	0	2	3	0	0	8	0	0	0	1	1	0	0	4	0	0	19
04:45 PM	0	0	1	0	0	3	0	0	0	0	0	0	0	4	0	0	8
Total	0	6	5	0	1	22	0	0	1	6	1	0	0	19	0	0	61
05:00 PM	0	6	0	0	0	3	1	0	0	1	2	0	0	4	0	0	17
05:15 PM	0	4	0	0	1	8	0	0	0	2	0	0	0	6	0	0	21
05:30 PM	0	7	0	0	0	5	0	0	0	1	1	0	1	2	0	0	17
05:45 PM	0	5	1	0	0	1	0	0	0	4	0	0	1	5	1	0	18
Total	0	22	1	0	1	17	1	0	0	8	3	0	2	17	1	0	73
Grand Total	2	49	13	0	9	61	1	0	1	38	7	0	2	62	1	0	246
Apprch %	3.1	76.6	20.3	0	12.7	85.9	1.4	0	2.2	82.6	15.2	0	3.1	95.4	1.5	0	
Total %	0.8	19.9	5.3	0	3.7	24.8	0.4	0	0.4	15.4	2.8	0	0.8	25.2	0.4	0	

	West Roxbury Parkway From North					Belgrade Avenue From East					West Roxbury Parkway From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	0	3	2	0	5	1	3	0	0	4	0	6	1	0	7	0	7	0	0	7	23
04:00 PM	0	2	0	0	2	1	6	0	0	7	1	4	0	0	5	0	6	0	0	6	20
04:15 PM	0	2	1	0	3	0	5	0	0	5	0	1	0	0	1	0	5	0	0	5	14
04:30 PM	0	2	3	0	5	0	8	0	0	8	0	1	1	0	2	0	4	0	0	4	19
Total Volume	0	9	6	0	15	2	22	0	0	24	1	12	2	0	15	0	22	0	0	22	76
% App. Total	0	60	40	0		8.3	91.7	0	0		6.7	80	13.3	0		0	100	0	0		
PHF	.000	.750	.500	.000	.750	.500	.688	.000	.000	.750	.250	.500	.500	.000	.536	.000	.786	.000	.000	.786	.826

N/S: West Roxbury Parkway
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

File Name : 165344 BB
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Peds and Bikes

	West Roxbury Parkway From North					Belgrade Avenue From East					West Roxbury Parkway From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
02:30 PM	0	0	1	1	0	0	1	0	1	0	0	0	0	3	1	0	0	0	0	0	8
02:45 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	4
Total	0	0	1	2	1	0	1	0	1	0	0	0	0	3	2	0	0	0	0	1	12
03:00 PM	0	0	0	3	2	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	8
03:15 PM	0	1	0	2	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	2	8
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
03:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
Total	0	1	0	6	2	0	1	0	0	1	0	0	0	2	3	0	0	0	0	3	19
04:00 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
04:15 PM	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	4
04:30 PM	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	4
04:45 PM	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	10
Total	0	0	0	5	7	0	0	0	1	1	0	0	0	0	1	0	0	0	2	4	21
05:00 PM	0	0	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
05:15 PM	0	1	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	4	10
05:30 PM	0	0	0	1	1	0	1	0	3	0	0	0	0	0	0	0	0	0	1	0	7
05:45 PM	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	4
Total	0	1	2	5	3	0	4	0	3	0	0	0	0	0	1	0	0	0	3	4	26
Grand Total	0	2	3	18	13	0	6	0	5	2	0	0	0	5	7	0	0	0	5	12	78
Apprch %	0	5.6	8.3	50	36.1	0	46.2	0	38.5	15.4	0	0	0	41.7	58.3	0	0	0	29.4	70.6	
Total %	0	2.6	3.8	23.1	16.7	0	7.7	0	6.4	2.6	0	0	0	6.4	9	0	0	0	6.4	15.4	

	West Roxbury Parkway From North						Belgrade Avenue From East						West Roxbury Parkway From South						Belgrade Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 02:30 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	2	4	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4	10
05:00 PM	0	0	1	3	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
05:15 PM	0	1	1	0	1	3	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	1	4	5	10
05:30 PM	0	0	0	1	1	2	0	1	0	3	0	4	0	0	0	0	0	0	0	0	0	1	0	1	7
Total Volume	0	1	2	6	7	16	0	3	0	3	0	6	0	0	0	0	0	0	0	0	0	3	7	10	32
% App. Total	0	6.2	12.5	37.5	43.8		0	50	0	50	0		0	0	0	0	0		0	0	0	30	70		
PHF	.000	.250	.500	.500	.438	.667	.000	.375	.000	.250	.000	.375	.000	.000	.000	.000	.000	.000	.000	.000	.000	.750	.438	.500	.800

N/S: West Roxbury Parkway
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
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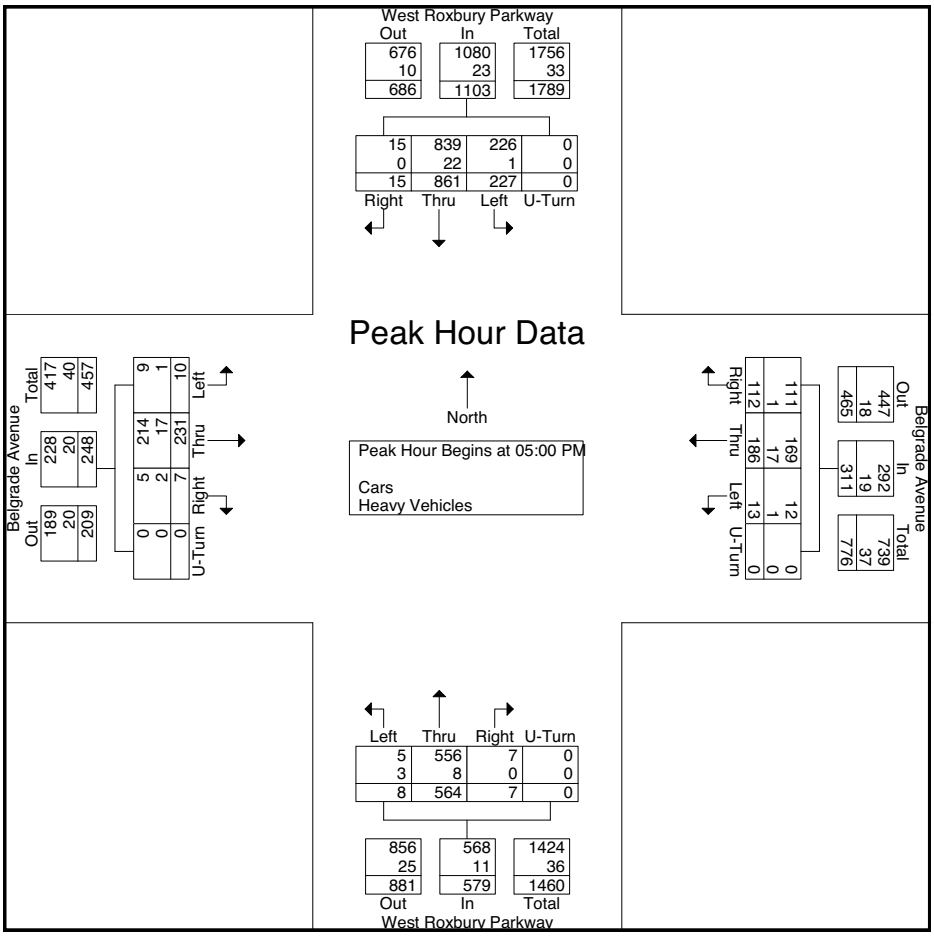
	West Roxbury Parkway From North					Belgrade Avenue From East					West Roxbury Parkway From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	4	247	56	0	307	37	56	4	0	97	3	119	3	0	125	0	51	3	0	54	583
05:15 PM	6	184	50	0	240	31	42	2	0	75	1	129	2	0	132	3	63	1	0	67	514
05:30 PM	3	229	58	0	290	23	40	3	0	66	1	166	2	0	169	2	50	3	0	55	580
05:45 PM	2	201	63	0	266	21	48	4	0	73	2	150	1	0	153	2	67	3	0	72	564
Total Volume	15	861	227	0	1103	112	186	13	0	311	7	564	8	0	579	7	231	10	0	248	2241
% App. Total	1.4	78.1	20.6	0		36	59.8	4.2	0		1.2	97.4	1.4	0		2.8	93.1	4	0		
PHF	.625	.871	.901	.000	.898	.757	.830	.813	.000	.802	.583	.849	.667	.000	.857	.583	.862	.833	.000	.861	.961
Cars	15	839	226	0	1080	111	169	12	0	292	7	556	5	0	568	5	214	9	0	228	2168
% Cars	100	97.4	99.6	0	97.9	99.1	90.9	92.3	0	93.9	100	98.6	62.5	0	98.1	71.4	92.6	90.0	0	91.9	96.7
Heavy Vehicles	0	22	1	0	23	1	17	1	0	19	0	8	3	0	11	2	17	1	0	20	73
% Heavy Vehicles	0	2.6	0.4	0	2.1	0.9	9.1	7.7	0	6.1	0	1.4	37.5	0	1.9	28.6	7.4	10.0	0	8.1	3.3



N/S/NW: West Roxbury Pkwy/ Beech Street
E/W/SE: Anawan Avenue/ Beech Street
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
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File Name : 165344 D
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	West Roxbury Parkway From North						Anawan Avenue From East						Beech Street From Southeast						West Roxbury Parkway From South						Anawan Avenue From West						Beech Street From Northwest						
Start Time	Hard Right	Right	Thru	Bear Left	Left	U-Turn	Right	Bear Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Bear Left	Left	U-Turn	Right	Bear Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	Int. Total
06:30 AM	0	0	36	0	0	0	2	0	3	5	0	0	3	34	10	2	1	0	0	7	207	6	0	0	0	0	10	36	2	0	0	6	4	0	0	0	374
06:45 AM	0	5	62	0	0	0	1	0	1	4	0	0	1	50	11	1	3	0	0	7	245	6	0	0	0	2	9	56	2	0	0	8	1	0	0	0	475
Total	0	5	98	0	0	0	3	0	4	9	0	0	4	84	21	3	4	0	0	14	452	12	0	0	0	2	19	92	4	0	0	14	5	0	0	0	849
07:00 AM	0	2	64	2	0	0	0	0	0	11	1	0	2	53	10	3	3	0	0	2	212	4	0	0	0	1	14	75	2	0	0	18	3	1	1	0	484
07:15 AM	0	3	103	4	0	0	0	0	4	11	0	0	1	77	25	2	2	0	0	5	195	5	1	0	1	0	14	80	0	1	0	8	7	0	2	0	551
07:30 AM	0	6	117	2	0	0	0	0	6	16	0	0	5	40	21	0	2	0	0	6	204	9	0	0	1	2	10	57	0	0	0	16	2	0	2	0	524
07:45 AM	0	7	97	3	0	0	0	1	6	9	0	0	2	51	19	3	1	0	0	9	174	8	0	0	1	4	20	56	0	0	0	7	7	0	2	0	487
Total	0	18	381	11	0	0	0	1	16	47	1	0	10	221	75	8	8	0	0	22	785	26	1	0	3	7	58	268	2	1	0	49	19	1	7	0	2046
08:00 AM			141																		167																
08:15 AM	0	2	103	5	0	0	0	0	3	11	0	0	2	42	16	2	3	0	0	14	189	13	0	0	0	1	10	33	1	0	1	17	9	1	1	0	479
08:30 AM	0	3	112	4	0	0	0	0	1	11	0	0	8	28	13	2	3	0	0	5	193	7	0	0	1	1	10	47	2	0	0	11	6	0	1	0	469
08:45 AM	0	1	96	3	1	0	0	0	3	9	1	0	6	21	18	4	4	0	0	12	191	10	0	0	1	1	7	36	1	0	0	22	9	0	0	0	457
Total	0	15	452	13	1	0	0	0	15	54	1	0	19	116	66	9	13	0	0	41	740	43	1	0	6	3	49	148	5	0	1	68	32	2	5	0	1918
Grand Total	0	38	931	24	1	0	3	1	35	110	2	0	33	421	162	20	25	0	0	77	1977	81	2	0	9	12	126	508	11	1	1	131	56	3	12	0	4813
Apprch %	0	3.8	93.7	2.4	0.1	0	2	0.7	23.2	72.8	1.3	0	5	63.7	24.5	3	3.8	0	0	3.6	92.5	3.8	0.1	0	1.3	1.8	18.9	76.2	1.6	0.1	0.5	64.5	27.6	1.5	5.9	0	
Total %	0	0.8	19.3	0.5	0	0	0.1	0	0.7	2.3	0	0	0.7	8.7	3.4	0.4	0.5	0	0	1.6	41.1	1.7	0	0	0.2	0.2	2.6	10.6	0.2	0	0	2.7	1.2	0.1	0.2	0	
Cars	0	31	907	22	1	0	3	1	33	106	2	0	31	418	158	19	25	0	0	75	1942	69	1	0	8	12	124	495	11	1	1	121	53	3	10	0	4683
% Cars	0	81.6	97.4	91.7	100		100	100	94.3	96.4	100		93.9	99.3	97.5		100			97.4	98.2	85.2			88.9	100	98.4	97.4	100	100	100	92.4	94.6	100	83.3		
Heavy Vehicles	0	7	24	2	0	0	0	0	2	4	0	0	2	3	4	1	0	0	0	2	35	12	1	0	1	0	2	13	0	0	0	10	3	0	2	0	130
% Heavy Vehicles	0	18.4	2.6	8.3	0	0	0	0	5.7	3.6	0	0	6.1	0.7	2.5	5	0	0	0	2.6	1.8	14.8	50	0	11.1	0	1.6	2.6	0	0	0	7.6	5.4	0	16.7	0	2.7

	West Roxbury Parkway From North							Anawan Avenue From East							Beech Street From Southeast							West Roxbury Parkway From South							Anawan Avenue From West							Beech Street From Northwest							
Start Time	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																																										
Peak Hour for Entire Intersection Begins at 07:15 AM																																										
07:15 AM	0	3	103	4	0	0	110	0	0	4	11	0	0	15	1	77	25	2	2	0	107	0	5	195	5	1	0	206	1	0	14	80	0	1	96	0	8	7	0	2	0	17	551
07:30 AM	0	6	117	2	0	0	125	0	0	6	16	0	0	22	5	40	21	0	2	0	68	0	6	204	9	0	0	219	1	2	10	57	0	0	70	0	16	2	0	2	0	20	524
07:45 AM	0	7	97	3	0	0	107	0	1	6	9	0	0	16	2	51	19	3	1	0	76	0	9	174	8	0	0	191	1	4	20	56	0	0	81	0	7	7	0	2	0	16	487
08:00 AM	0	9	141	1	0	0	151	0	0	8	23	0	0	31	3	25	19	1	3	0	51	0	10	167	13	1	0	191	4	0	22	32	1	0	59	0	18	8	1	3	0	30	513
Total Volume	0	25	458	10	0	0	493	0	1	24	59	0	0	84	11	193	84	6	8	0	302	0	30	740	35	2	0	807	7	6	66	225	1	1	306	0	49	24	1	9	0	83	2075
% App. Total	0	5.1	92.9	2	0	0		0	1.2	28.6	70.2	0	0		3.6	63.9	27.8	2	2.6	0		0	3.7	91.7	4.3	0.2	0		2.3	2	21.6	73.5	0.3	0.3		0	59	28.9	1.2	10.8	0		
PHF	.000	.694	.812	.625	.000	.000	.816	.000	.250	.750	.641	.000	.000	.677	.550	.627	.840	.500	.667	.000	.706	.000	.750	.907	.673	.500	.000	.921	.438	.375	.750	.703	.250	.250	.797	.000	.681	.750	.250	.750	.000	.692	.941
Cars	0	22	447	9	0	0	478	0	1	23	56	0	0	80	10	192	83	6	8	0	299	0	28	729	28	1	0	786	6	6	64	220	1	1	298	0	47	23	1	8	0	79	2020
% Cars	0	88.0	97.6	90.0	0	0	97.0	0	100	95.8	94.9	0	0	95.2	90.9	99.5	98.8	100	100	0	99.0	0	93.3	98.5	80.0	50.0	0	97.4	85.7	100	97.0	97.8	100	100	97.4	0	95.9	95.8	100	88.9	0	95.2	97.3
Heavy Vehicles	0	3	11	1	0	0	15	0	0	1	3	0	0	4	1	1	1	0	0	0	3	0	2	11	7	1	0	21	1	0	2	5	0	0	8	0	2	1	0	1	0	4	55
% Heavy Vehicles	0	12.0	2.4	10.0	0	0	3.0	0	0	4.2	5.1	0	0	4.8	9.1	0.5	1.2	0	0	0	1.0	0	6.7	1.5	20.0	50.0	0	2.6	14.3	0	3.0	2.2	0	0	2.6	0	4.1	4.2	0	11.1	0	4.8	2.7

N/S/NW: West Roxbury Pkwy/ Beech Street
E/W/SE: Anawan Avenue/ Beech Street
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

File Name : 165344 D
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Cars

	West Roxbury Parkway From North						Anawan Avenue From East						Beech Street From Southeast						West Roxbury Parkway From South						Anawan Avenue From West						Beech Street From Northwest						
Start Time	Hard Right	Right	Thru	Bear Left	Left	U-Turn	Right	Bear Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Bear Left	Left	U-Turn	Right	Bear Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	Int. Total
06:30 AM	0	0	34	0	0	0	2	0	2	5	0	0	3	34	9	1	1	0	0	7	206	6	0	0	0	0	10	34	2	0	0	4	3	0	0	0	363
06:45 AM	0	4	61	0	0	0	1	0	1	4	0	0	1	50	11	1	3	0	0	7	241	5	0	0	0	2	9	54	2	0	0	7	1	0	0	0	465
Total	0	4	95	0	0	0	3	0	3	9	0	0	4	84	20	2	4	0	0	14	447	11	0	0	0	2	19	88	4	0	0	11	4	0	0	0	828
07:00 AM	0	1	64	2	0	0	0	0	0	10	1	0	2	53	10	3	3	0	0	2	210	4	0	0	0	1	14	73	2	0	0	18	3	1	1	0	478
07:15 AM	0	3	100	3	0	0	0	0	4	11	0	0	1	77	25	2	2	0	0	5	194	3	1	0	1	0	14	79	0	1	0	8	7	0	2	0	543
07:30 AM	0	5	115	2	0	0	0	0	6	14	0	0	5	39	21	0	2	0	0	5	203	6	0	0	1	2	10	55	0	0	0	16	2	0	2	0	511
07:45 AM	0	7	97	3	0	0	0	1	6	8	0	0	2	51	18	3	1	0	0	8	169	6	0	0	1	4	19	55	0	0	0	7	6	0	2	0	474
Total	0	16	376	10	0	0	0	1	16	43	1	0	10	220	74	8	8	0	0	20	776	19	1	0	3	7	57	262	2	1	0	49	18	1	7	0	2006
08:00 AM			135																		163																
08:15 AM	0	2	102	5	0	0	0	0	3	11	0	0	2	41	16	2	3	0	0	14	183	11	0	0	0	1	10	33	1	0	1	17	9	1	1	0	469
08:30 AM	0	1	106	4	0	0	0	0	1	11	0	0	8	27	12	2	3	0	0	5	190	7	0	0	1	1	10	46	2	0	0	9	6	0	0	0	452
08:45 AM	0	1	93	2	1	0	0	0	3	9	1	0	5	21	17	4	4	0	0	12	183	8	0	0	1	1	7	35	1	0	0	19	8	0	0	0	436
Total	0	11	436	12	1	0	0	0	14	54	1	0	17	114	64	9	13	0	0	41	719	39	0	0	5	3	48	145	5	0	1	61	31	2	3	0	1849
Grand Total	0	31	907	22	1	0	3	1	33	106	2	0	31	418	158	19	25	0	0	75	1942	69	1	0	8	12	124	495	11	1	1	121	53	3	10	0	4683
Apprch %	0	3.2	94.4	2.3	0.1	0	2.1	0.7	22.8	73.1	1.4	0	4.8	64.2	24.3	2.9	3.8	0	0	3.6	93.1	3.3	0	0	1.2	1.8	19	76	1.7	0.2	0.5	64.4	28.2	1.6	5.3	0	
Total %	0	0.7	19.4	0.5	0	0	0.1	0	0.7	2.3	0	0	0.7	8.9	3.4	0.4	0.5	0	0	1.6	41.5	1.5	0	0	0.2	0.3	2.6	10.6	0.2	0	0	2.6	1.1	0.1	0.2	0	

	West Roxbury Parkway From North							Anawan Avenue From East							Beech Street From Southeast							West Roxbury Parkway From South							Anawan Avenue From West							Beech Street From Northwest							
Start Time	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																																									
Peak Hour for Entire Intersection Begins at 07:15 AM																																									
07:15 AM	0	3	100	3	0	0	106	0	0	4	11	0	0	15	1	77	25	2	2	0	107	0	5	194	3	1	0	203	1	0	14	79	0	1	95	0	8	7	0	2	0	17	543
07:30 AM	0	5	115	2	0	0	122	0	0	6	14	0	0	20	5	39	21	0	2	0	67	0	5	203	6	0	0	214	1	2	10	55	0	0	68	0	16	2	0	2	0	20	511
07:45 AM	0	7	97	3	0	0	107	0	1	6	8	0	0	15	2	51	18	3	1	0	75	0	8	169	6	0	0	183	1	4	19	55	0	0	79	0	7	6	0	2	0	15	474
08:00 AM	0	7	135	1	0	0	143	0	0	7	23	0	0	30	2	25	19	1	3	0	50	0	10	163	13	0	0	186	3	0	21	31	1	0	56	0	16	8	1	2	0	27	492
Total Volume	0	22	447	9	0	0	478	0	1	23	56	0	0	80	10	192	83	6	8	0	299	0	28	729	28	1	0	786	6	6	64	220	1	1	298	0	47	23	1	8	0	79	2020
% App. Total	0	4.6	93.5	1.9	0	0		0	1.2	28.8	70	0	0		3.3	64.2	27.8	2	2.7	0		0	3.6	92.7	3.6	0.1	0		2	2	21.5	73.8	0.3	0.3		0	59.5	29.1	1.3	10.1	0		
PHF	.000	.786	.828	.750	.000	.000	.836	.000	.250	.821	.609	.000	.000	.667	.500	.623	.830	.500	.667	.000	.699	.000	.700	.898	.538	.250	.000	.918	.500	.375	.762	.696	.250	.250	.784	.000	.734	.719	.250	1.00	.000	.731	.930

N/S/NW: West Roxbury Pkwy/ Beech Street
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46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

File Name : 165344 D
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Heavy Vehicles

	West Roxbury Parkway From North						Anawan Avenue From East						Beech Street From Southeast						West Roxbury Parkway From South						Anawan Avenue From West						Beech Street From Northwest						
Start Time	Hard Right	Right	Thru	Bear Left	Left	U-Turn	Right	Bear Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Bear Left	Left	U-Turn	Right	Bear Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	Int. Total
06:30 AM	0	0	2	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	2	1	0	0	0	11
06:45 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	2	0	0	0	1	0	0	0	0	10
Total	0	1	3	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	5	1	0	0	0	0	0	4	0	0	0	3	1	0	0	0	21
07:00 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	6
07:15 AM	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	8
07:30 AM	0	1	2	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	1	1	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	13
07:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	5	2	0	0	0	0	1	1	0	0	0	0	1	0	0	0	13
Total	0	2	5	1	0	0	0	0	0	4	0	0	0	1	1	0	0	0	0	2	9	7	0	0	0	0	1	6	0	0	0	0	1	0	0	0	40
08:00 AM	0	2	6	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	4	0	1	0	1	0	1	1	0	0	0	2	0	0	1	0	21
08:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
08:30 AM	0	2	6	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	3	0	0	0	0	0	0	1	0	0	0	2	0	0	1	0	17
08:45 AM	0	0	3	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	8	2	0	0	0	0	0	1	0	0	0	3	1	0	0	0	21
Total	0	4	16	1	0	0	0	0	1	0	0	0	2	2	2	0	0	0	0	0	21	4	1	0	1	0	1	3	0	0	0	7	1	0	2	0	69
Grand Total	0	7	24	2	0	0	0	0	2	4	0	0	2	3	4	1	0	0	0	2	35	12	1	0	1	0	2	13	0	0	0	10	3	0	2	0	130
Apprch %	0	21.2	72.7	6.1	0	0	0	0	33.3	66.7	0	0	20	30	40	10	0	0	0	4	70	24	2	0	6.2	0	12.5	81.2	0	0	0	66.7	20	0	13.3	0	
Total %	0	5.4	18.5	1.5	0	0	0	0	1.5	3.1	0	0	1.5	2.3	3.1	0.8	0	0	0	1.5	26.9	9.2	0.8	0	0.8	0	1.5	10	0	0	0	7.7	2.3	0	1.5	0	

	West Roxbury Parkway From North							Anawan Avenue From East							Beech Street From Southeast							West Roxbury Parkway From South							Anawan Avenue From West							Beech Street From Northwest							
Start Time	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																																										
Peak Hour for Entire Intersection Begins at 08:00 AM																																										
08:00 AM	0	2	6	0	0	0	8	0	0	1	0	0	0	1	1	0	0	0	0	0	1	0	0	4	0	1	0	5	1	0	1	1	0	0	3	0	2	0	0	1	0	3	21
08:15 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	6	2	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
08:30 AM	0	2	6	0	0	0	8	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	3	0	0	0	3	0	0	0	1	0	0	1	0	2	0	0	1	0	3	17
08:45 AM	0	0	3	1	0	0	4	0	0	0	0	0	0	0	1	0	1	0	0	0	2	0	0	8	2	0	0	10	0	0	0	1	0	0	1	0	3	1	0	0	0	4	21
Total Volume	0	4	16	1	0	0	21	0	0	1	0	0	0	1	2	2	2	0	0	0	6	0	0	21	4	1	0	26	1	0	1	3	0	0	5	0	7	1	0	2	0	10	69
% App. Total	0	19	76.2	4.8	0	0		0	0	100	0	0	0		33.3	33.3	33.3	0	0	0		0	0	80.8	15.4	3.8	0		20	0	20	60	0	0		0	70	10	0	20	0		
PHF	.000	.500	.667	.250	.000	.000	.656	.000	.000	.250	.000	.000	.000	.250	.500	.500	.500	.000	.000	.000	.750	.000	.000	.656	.500	.250	.000	.650	.250	.000	.250	.750	.000	.000	.417	.000	.583	.250	.000	.500	.000	.625	.821

N/S/NW: West Roxbury Pkwy/ Beech Street
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File Name : 165344 D
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Peds and Bikes

	West Roxbury Parkway From North							Anawan Avenue From East							Beech Street From Southeast							West Roxbury Parkway From South							Anawan Avenue From West							Beech Street From Northwest							
Start Time	Hard Right	Right	Thru	Bear Left	Left	Peds EB	Peds WB	Right	Bear Right	Thru	Left	Hard Left	Peds SB	Peds NB	Hard Right	Bear Right	Thru	Bear Left	Hard Left	Peds SWB	Peds NEB	Hard Right	Right	Thru	Bear Left	Left	Peds WB	Peds EB	Right	Bear Right	Thru	Left	Hard Left	Peds NB	Peds SB	Hard Right	Bear Right	Thru	Bear Left	Hard Left	Peds NEB	Peds SWB	Int. Total
06:30 AM	0	0	0	0	0	2	2	0	0	0	0	0	2	1	0	0	0	0	0	2	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
06:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	4
Total	0	0	0	0	0	3	2	0	0	0	0	0	2	1	0	0	0	0	0	2	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	1	1	16
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	3
07:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	5
07:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	8
Total	0	0	0	0	0	1	1	0	0	1	0	0	2	1	1	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	5	1	18
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	5
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	2	0	9
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	4
08:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	8
Total	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	2	0	0	0	1	0	0	1	0	0	0	1	0	0	3	0	0	2	3	0	0	0	0	4	5	26
Grand Total	0	0	0	0	0	4	4	0	0	1	0	0	5	3	2	0	2	0	0	2	2	0	0	1	0	0	4	3	0	0	3	0	0	4	3	0	0	0	0	10	7	60
Apprch %	0	0	0	0	0	50	50	0	0	11.1	0	0	55.6	33.3	25	0	25	0	0	25	25	0	0	12.5	0	0	50	37.5	0	0	30	0	0	40	30	0	0	0	0	0	58.8	41.2	
Total %	0	0	0	0	0	6.7	6.7	0	0	1.7	0	0	8.3	5	3.3	0	3.3	0	0	3.3	3.3	0	0	1.7	0	0	6.7	5	0	0	5	0	0	6.7	5	0	0	0	0	0	16.7	11.7	

	West Roxbury Parkway From North								Anawan Avenue From East								Beech Street From Southeast								West Roxbury Parkway From South								Anawan Avenue From West								Beech Street From Northwest								
Start Time	Hard Right	Right	Thru	Bear Left	Left	Peds EB	Peds WB	App. Total	Right	Bear Right	Thru	Left	Hard Left	Peds SB	Peds NB	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	Peds SWB	Peds NEB	App. Total	Hard Right	Right	Thru	Bear Left	Left	Peds WB	Peds EB	App. Total	Right	Bear Right	Thru	Left	Hard Left	Peds NB	Peds SB	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	Peds NEB	Peds SWB	App. Total	Int. Total
Peak Hour Analysis From 06:30 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	0	1	1		0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	2	5
07:45 AM	0	0	0	0	0	1	0	1	0	0	1	0	0	0	1		0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	3	0	3	8
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	3	3	5
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1		1	0	1	0	0	0	1	3	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	2	0	0	0	0	0	2	0	2	9
Total Volume	0	0	0	0	0	1	1	2	0	0	1	0	0	1	1	3	1	0	2	0	0	0	2	5	0	0	0	0	0	1	1	2	0	0	2	0	0	2	1	5	0	0	0	0	0	7	3	10	27
% App. Total	0	0	0	0	0	50	50		0	0	33.3	0	0	33.3	33.3		20	0	40	0	0	0	40		0	0	0	0	0	50	50		0	0	40	0	0	40	20		0	0	0	0	0	70	30		
PHF	.000	.000	.000	.000	.000	.250	.250	.500	.000	.000	.250	.000	.000	.250	.250	.750	.250	.000	.500	.000	.000	.000	.500	.417	.000	.000	.000	.000	.000	.250	.250	.500	.000	.000	.250	.000	.000	.250	.250	.625	.000	.000	.000	.000	.000	.583	.250	.833	.750

N/S/NW: West Roxbury Pkwy/ Beech Street
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	West Roxbury Parkway From North							Anawan Avenue From East							Beech Street From Southeast							West Roxbury Parkway From South							Anawan Avenue From West							Beech Street From Northwest							
Start Time	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																																									
Peak Hour for Entire Intersection Begins at 07:15 AM																																									
07:15 AM	0	3	103	4	0	0	110	0	0	4	11	0	0	15	1	77	25	2	2	0	107	0	5	195	5	1	0	206	1	0	14	80	0	1	96	0	8	7	0	2	0	17	551
07:30 AM	0	6	117	2	0	0	125	0	0	6	16	0	0	22	5	40	21	0	2	0	68	0	6	204	9	0	0	219	1	2	10	57	0	0	70	0	16	2	0	2	0	20	524
07:45 AM	0	7	97	3	0	0	107	0	1	6	9	0	0	16	2	51	19	3	1	0	76	0	9	174	8	0	0	191	1	4	20	56	0	0	81	0	7	7	0	2	0	16	487
08:00 AM	0	9	141	1	0	0	151	0	0	8	23	0	0	31	3	25	19	1	3	0	51	0	10	167	13	1	0	191	4	0	22	32	1	0	59	0	18	8	1	3	0	30	513
Total Volume	0	25	458	10	0	0	493	0	1	24	59	0	0	84	11	193	84	6	8	0	302	0	30	740	35	2	0	807	7	6	66	225	1	1	306	0	49	24	1	9	0	83	2075
% App. Total	0	5.1	92.9	2	0	0		0	1.2	28.6	70.2	0	0		3.6	63.9	27.8	2	2.6	0		0	3.7	91.7	4.3	0.2	0		2.3	2	21.6	73.5	0.3	0.3		0	59	28.9	1.2	10.8	0		
PHF	.000	.694	.812	.625	.000	.000	.816	.000	.250	.750	.641	.000	.000	.677	.550	.627	.840	.500	.667	.000	.706	.000	.750	.907	.673	.500	.000	.921	.438	.375	.750	.703	.250	.250	.797	.000	.681	.750	.250	.750	.000	.692	.941
Cars	0	22	447	9	0	0	478	0	1	23	56	0	0	80	10	192	83	6	8	0	299	0	28	729	28	1	0	786	6	6	64	220	1	1	298	0	47	23	1	8	0	79	2020
% Cars	0	88.0	97.6	90.0	0	0	97.0	0	100	95.8	94.9	0	0	95.2	90.9	99.5	98.8	100	100	0	99.0	0	93.3	98.5	80.0	50.0	0	97.4	85.7	100	97.0	97.8	100	100	97.4	0	95.9	95.8	100	88.9	0	95.2	97.3
Heavy Vehicles	0	3	11	1	0	0	15	0	0	1	3	0	0	4	1	1	1	0	0	0	3	0	2	11	7	1	0	21	1	0	2	5	0	0	8	0	2	1	0	1	0	4	55
% Heavy Vehicles	0	12.0	2.4	10.0	0	0	3.0	0	0	4.2	5.1	0	0	4.8	9.1	0.5	1.2	0	0	0	1.0	0	6.7	1.5	20.0	50.0	0	2.6	14.3	0	3.0	2.2	0	0	2.6	0	4.1	4.2	0	11.1	0	4.8	2.7

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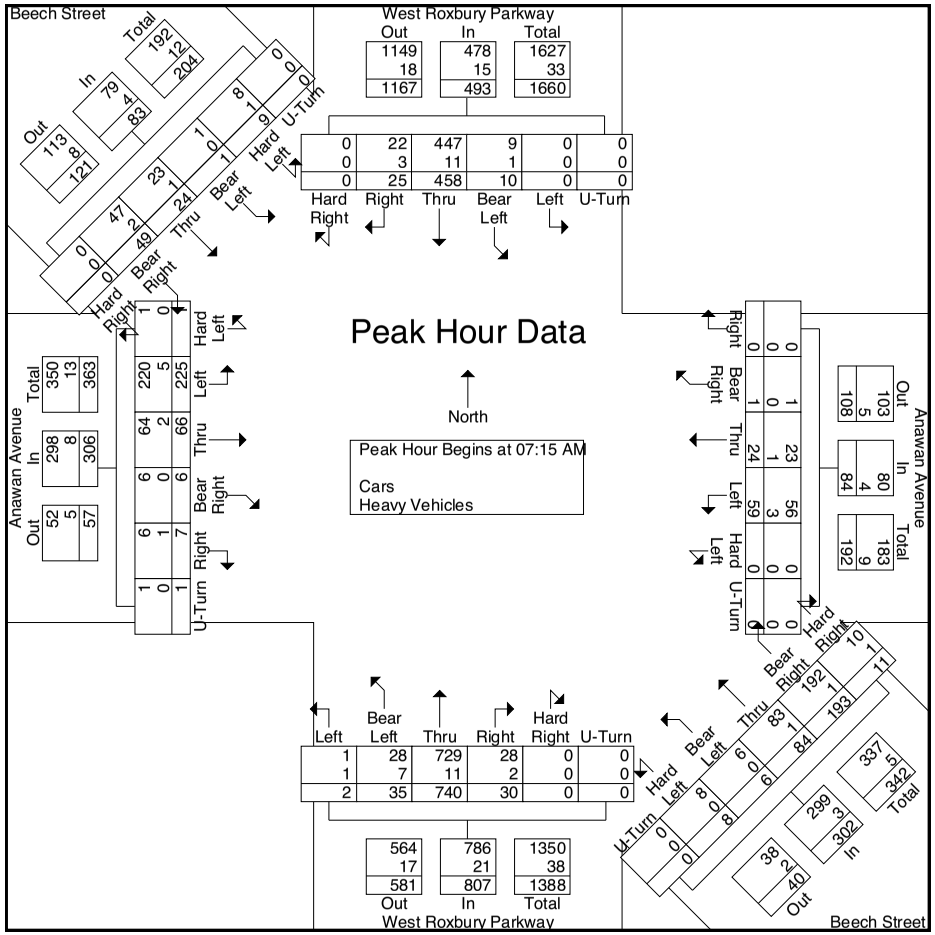

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Groups Printed- Cars - Heavy Vehicles

	West Roxbury Parkway From North						Anawan Avenue From East						Beech Street From Southeast						West Roxbury Parkway From South						Anawan Avenue From West						Beech Street From Northwest						
Start Time	Hard Right	Right	Thru	Bear Left	Left	U-Turn	Right	Bear Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Bear Left	Left	U-Turn	Right	Bear Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	Int. Total
02:30 PM	2	10	127	9	0	0	1	0	3	7	0	0	2	9	5	1	4	0	0	17	126	15	1	0	1	3	5	5	2	0	0	25	18	0	0	0	398
02:45 PM	0	11	158	4	0	0	0	2	5	9	1	0	5	10	9	1	2	0	0	12	113	24	2	0	3	1	1	5	0	0	2	20	10	0	2	0	412
Total	2	21	285	13	0	0	1	2	8	16	1	0	7	19	14	2	6	0	0	29	239	39	3	0	4	4	6	10	2	0	2	45	28	0	2	0	810
03:00 PM	1	10	181	6	0	0	0	0	3	23	1	0	0	8	11	0	1	0	0	15	111	12	0	0	1	1	4	4	0	0	2	29	15	0	1	0	440
03:15 PM	0	5	175	11	0	0	0	1	8	16	1	0	1	11	4	4	1	0	0	9	110	14	0	0	1	1	5	5	1	0	0	31	14	0	0	0	429
03:30 PM	0	7	210	13	0	0	0	0	5	24	2	0	1	12	18	1	2	0	0	14	125	12	0	0	2	5	2	5	1	0	2	27	15	0	0	0	505
03:45 PM	0	5	214	15	0	0	0	0	5	17	1	0	0	12	12	2	3	0	0	11	103	9	1	0	1	0	3	9	0	0	0	23	20	1	0	0	467
Total	1	27	780	45	0	0	0	1	21	80	5	0	2	43	45	7	7	0	0	49	449	47	1	0	5	7	14	23	2	0	4	110	64	1	1	0	1841
04:00 PM			195																		113																
04:15 PM	0	7	172	11	0	0	0	0	9	20	0	0	1	11	13	0	0	0	1	11	99	12	2	0	0	1	4	4	1	0	0	28	13	0	0	0	420
04:30 PM	0	7	195	17	1	0	0	1	11	22	0	0	2	8	12	1	0	0	0	13	101	7	2	0	0	3	2	7	1	0	2	23	16	0	1	0	455
04:45 PM	0	2	182	11	0	0	0	0	7	18	0	0	4	8	13	4	0	0	0	16	94	14	1	0	1	0	3	8	1	0	2	21	15	1	0	0	426
Total	0	27	744	54	1	0	0	1	33	79	0	0	9	37	48	9	0	0	1	61	407	41	5	0	2	5	11	25	3	0	4	94	63	3	1	0	1768
05:00 PM			226																		110																
05:15 PM	0	6	166	12	2	0	0	0	5	11	1	0	4	16	11	0	1	0	0	12	117	5	1	0	0	2	6	4	2	0	2	18	17	2	0	0	423
05:30 PM	0	13	223	15	0	0	1	0	12	21	2	0	0	8	12	1	1	0	0	15	152	17	2	0	0	2	3	12	0	0	0	27	28	2	0	0	569
05:45 PM	0	9	175	11	0	0	0	0	9	24	1	0	3	8	11	4	1	0	0	10	127	10	2	0	2	0	4	3	0	0	1	33	13	1	3	0	465
Total	0	41	790	48	2	0	1	0	30	83	4	0	8	40	47	8	8	0	0	49	506	44	5	0	3	7	19	26	2	0	3	109	80	6	7	0	1976
Grand Total	3	116	2599	160	3	0	2	4	92	258	10	0	26	139	154	26	21	0	1	188	1601	171	14	0	14	23	50	84	9	0	13	358	235	10	11	0	6395
Apprch %	0.1	4	90.2	5.6	0.1	0	0.5	1.1	25.1	70.5	2.7	0	7.1	38	42.1	7.1	5.7	0	0.1	9.5	81.1	8.7	0.7	0	7.8	12.8	27.8	46.7	5	0	2.1	57.1	37.5	1.6	1.8	0	
Total %	0	1.8	40.6	2.5	0	0	0	0.1	1.4	4	0.2	0	0.4	2.2	2.4	0.4	0.3	0	0	2.9	25	2.7	0.2	0	0.2	0.4	0.8	1.3	0.1	0	0.2	5.6	3.7	0.2	0.2	0	
Cars	3	106	2554	158	3	0	2	3	92	256	10	0	25	138	149	26	19	0	1	186	1567	170	13	0	13	23	47	76	9	0	13	349	230	10	11	0	6262
% Cars	100	91.4	98.3	98.8	100		100		100	99.2	100		96.2	99.3	96.8	100	90.5		100	98.9	97.9	99.4	92.9		92.9	100		90.5	100		100	97.5	97.9	100	100		
Heavy Vehicles	0	10	45	2	0	0	0	1	0	2	0	0	1	1	5	0	2	0	0	2	34	1	1	0	1	0	3	8	0	0	0	9	5	0	0	0	133
% Heavy Vehicles	0	8.6	1.7	1.2	0	0	0	25	0	0.8	0	0	3.8	0.7	3.2	0	9.5	0	0	1.1	2.1	0.6	7.1	0	7.1	0	6	9.5	0	0	0	2.5	2.1	0	0	0	2.1

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	West Roxbury Parkway From North							Anawan Avenue From East							Beech Street From Southeast							West Roxbury Parkway From South							Anawan Avenue From West							Beech Street From Northwest							
Start Time	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																																									
Peak Hour for Entire Intersection Begins at 05:00 PM																																									
05:00 PM	0	13	226	10	0	0	249	0	0	4	27	0	0	31	1	8	13	3	5	0	30	0	12	110	12	0	0	134	1	3	6	7	0	0	17	0	31	22	1	4	0	58	519
05:15 PM	0	6	166	12	2	0	186	0	0	5	11	1	0	17	4	16	11	0	1	0	32	0	12	117	5	1	0	135	0	2	6	4	2	0	14	2	18	17	2	0	0	39	423
05:30 PM	0	13	223	15	0	0	251	1	0	12	21	2	0	36	0	8	12	1	1	0	22	0	15	152	17	2	0	186	0	2	3	12	0	0	17	0	27	28	2	0	0	57	569
05:45 PM	0	9	175	11	0	0	195	0	0	9	24	1	0	34	3	8	11	4	1	0	27	0	10	127	10	2	0	149	2	0	4	3	0	0	9	1	33	13	1	3	0	51	465
Total Volume	0	41	790	48	2	0	881	1	0	30	83	4	0	118	8	40	47	8	8	0	111	0	49	506	44	5	0	604	3	7	19	26	2	0	57	3	109	80	6	7	0	205	1976
% App. Total	0	4.7	89.7	5.4	0.2	0		0.8	0	25.4	70.3	3.4	0		7.2	36	42.3	7.2	7.2	0		0	8.1	83.8	7.3	0.8	0		5.3	12.3	33.3	45.6	3.5	0		1.5	53.2	39	2.9	3.4	0		
PHF	.000	.788	.874	.800	.250	.000	.877	.250	.000	.625	.769	.500	.000	.819	.500	.625	.904	.500	.400	.000	.867	.000	.817	.832	.647	.625	.000	.812	.375	.583	.792	.542	.250	.000	.838	.375	.826	.714	.750	.438	.000	.884	.868
Cars	0	36	770	47	2	0	855	1	0	30	83	4	0	118	8	39	46	8	8	0	109	0	49	499	44	5	0	597	3	7	19	23	2	0	54	3	107	78	6	7	0	201	1934
% Cars	0	87.8	97.5	97.9	100	0	97.0	100	0	100	100	100	0	100	100	97.5	97.9	100	100	0	98.2	0	100	98.6	100	100	0	98.8	100	100	100	88.5	100	0	94.7	100	98.2	97.5	100	100	0	98.0	97.9
Heavy Vehicles	0	5	20	1	0	0	26	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	7	0	0	0	7	0	0	0	3	0	0	3	0	2	2	0	0	0	4	42
% Heavy Vehicles	0	12.2	2.5	2.1	0	0	3.0	0	0	0	0	0	0	0	0	2.5	2.1	0	0	0	1.8	0	0	1.4	0	0	0	1.2	0	0	0	11.5	0	0	5.3	0	1.8	2.5	0	0	0	2.0	2.1

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Groups Printed- Cars

	West Roxbury Parkway From North						Anawan Avenue From East						Beech Street From Southeast						West Roxbury Parkway From South						Anawan Avenue From West						Beech Street From Northwest						
Start Time	Hard Right	Right	Thru	Bear Left	Left	U-Turn	Right	Bear Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Bear Left	Left	U-Turn	Right	Bear Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	Int. Total
02:30 PM	2	10	126	9	0	0	1	0	3	7	0	0	1	9	5	1	3	0	0	17	122	15	1	0	1	3	4	4	2	0	0	24	18	0	0	0	388
02:45 PM	0	11	154	4	0	0	0	1	5	8	1	0	5	10	9	1	1	0	0	12	111	24	2	0	3	1	1	5	0	0	2	20	9	0	2	0	402
Total	2	21	280	13	0	0	1	1	8	15	1	0	6	19	14	2	4	0	0	29	233	39	3	0	4	4	5	9	2	0	2	44	27	0	2	0	790
03:00 PM	1	7	179	6	0	0	0	0	3	23	1	0	0	8	11	0	1	0	0	14	107	11	0	0	1	1	4	3	0	0	2	29	15	0	1	0	428
03:15 PM	0	5	172	11	0	0	0	1	8	15	1	0	1	11	4	4	1	0	0	9	108	14	0	0	1	1	4	5	1	0	0	30	14	0	0	0	421
03:30 PM	0	6	207	13	0	0	0	0	5	24	2	0	1	12	17	1	2	0	0	14	121	12	0	0	2	5	2	5	1	0	2	27	15	0	0	0	496
03:45 PM	0	5	211	15	0	0	0	0	5	17	1	0	0	12	10	2	3	0	0	11	98	9	0	0	1	0	3	8	0	0	0	23	20	1	0	0	455
Total	1	23	769	45	0	0	0	1	21	79	5	0	2	43	42	7	7	0	0	48	434	46	0	0	5	7	13	21	2	0	4	109	64	1	1	0	1800
04:00 PM			192																		109															
04:15 PM	0	7	171	10	0	0	0	0	9	20	0	0	1	11	12	0	0	0	1	11	98	12	2	0	0	1	4	4	1	0	0	27	13	0	0	0	415
04:30 PM	0	6	193	17	1	0	0	1	11	22	0	0	2	8	12	1	0	0	0	13	100	7	2	0	0	3	2	6	1	0	2	21	16	0	1	0	448
04:45 PM	0	2	179	11	0	0	0	0	7	18	0	0	4	8	13	4	0	0	0	16	94	14	1	0	0	0	2	8	1	0	2	21	15	1	0	0	421
Total	0	26	735	53	1	0	0	1	33	79	0	0	9	37	47	9	0	0	1	60	401	41	5	0	1	5	10	23	3	0	4	89	61	3	1	0	1738
05:00 PM			221																		108															
05:15 PM	0	6	163	11	2	0	0	0	5	11	1	0	4	15	11	0	1	0	0	12	117	5	1	0	0	2	6	4	2	0	2	17	16	2	0	0	416
05:30 PM	0	12	214	15	0	0	1	0	12	21	2	0	0	8	12	1	1	0	0	15	150	17	2	0	0	2	3	11	0	0	0	27	28	2	0	0	556
05:45 PM	0	7	172	11	0	0	0	0	9	24	1	0	3	8	11	4	1	0	0	10	124	10	2	0	2	0	4	3	0	0	1	32	13	1	3	0	456
Total	0	36	770	47	2	0	1	0	30	83	4	0	8	39	46	8	8	0	0	49	499	44	5	0	3	7	19	23	2	0	3	107	78	6	7	0	1934
Grand Total	3	106	2554	158	3	0	2	3	92	256	10	0	25	138	149	26	19	0	1	186	1567	170	13	0	13	23	47	76	9	0	13	349	230	10	11	0	6262
Apprch %	0.1	3.8	90.4	5.6	0.1	0	0.6	0.8	25.3	70.5	2.8	0	7	38.7	41.7	7.3	5.3	0	0.1	9.6	80.9	8.8	0.7	0	7.7	13.7	28	45.2	5.4	0	2.1	56.9	37.5	1.6	1.8	0	
Total %	0	1.7	40.8	2.5	0	0	0	0	1.5	4.1	0.2	0	0.4	2.2	2.4	0.4	0.3	0	0	3	25	2.7	0.2	0	0.2	0.4	0.8	1.2	0.1	0	0.2	5.6	3.7	0.2	0.2	0	

	West Roxbury Parkway From North							Anawan Avenue From East							Beech Street From Southeast							West Roxbury Parkway From South							Anawan Avenue From West							Beech Street From Northwest							
Start Time	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																																									
Peak Hour for Entire Intersection Begins at 05:00 PM																																									
05:00 PM	0	11	221	10	0	0	242	0	0	4	27	0	0	31	1	8	12	3	5	0	29	0	12	108	12	0	0	132	1	3	6	5	0	0	15	0	31	21	1	4	0	57	506
05:15 PM	0	6	163	11	2	0	182	0	0	5	11	1	0	17	4	15	11	0	1	0	31	0	12	117	5	1	0	135	0	2	6	4	2	0	14	2	17	16	2	0	0	37	416
05:30 PM	0	12	214	15	0	0	241	1	0	12	21	2	0	36	0	8	12	1	1	0	22	0	15	150	17	2	0	184	0	2	3	11	0	0	16	0	27	28	2	0	0	57	556
05:45 PM	0	7	172	11	0	0	190	0	0	9	24	1	0	34	3	8	11	4	1	0	27	0	10	124	10	2	0	146	2	0	4	3	0	0	9	1	32	13	1	3	0	50	456
Total Volume	0	36	770	47	2	0	855	1	0	30	83	4	0	118	8	39	46	8	8	0	109	0	49	499	44	5	0	597	3	7	19	23	2	0	54	3	107	78	6	7	0	201	1934
% App. Total	0	4.2	90.1	5.5	0.2	0		0.8	0	25.4	70.3	3.4	0		7.3	35.8	42.2	7.3	7.3	0		0	8.2	83.6	7.4	0.8	0		5.6	13	35.2	42.6	3.7	0		1.5	53.2	38.8	3	3.5	0		
PHF	.000	.750	.871	.783	.250	.000	.883	.250	.000	.625	.769	.500	.000	.819	.500	.650	.958	.500	.400	.000	.879	.000	.817	.832	.647	.625	.000	.811	.375	.583	.792	.523	.250	.000	.844	.375	.836	.696	.750	.438	.000	.882	.870

N/S/NW: West Roxbury Pkwy/ Beech Street
E/W/SE: Anawan Avenue/ Beech Street
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

File Name : 165344 DD
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	West Roxbury Parkway From North						Anawan Avenue From East						Beech Street From Southeast						West Roxbury Parkway From South						Anawan Avenue From West						Beech Street From Northwest						Int. Total
	Hard Right	Right	Thru	Bear Left	Left	U-Turn	Right	Bear Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Bear Left	Left	U-Turn	Right	Bear Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	
02:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	4	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	10
02:45 PM	0	0	4	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	10
Total	0	0	5	0	0	0	0	1	0	1	0	0	1	0	0	0	2	0	0	0	6	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	20
03:00 PM	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	12
03:15 PM	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	8
03:30 PM	0	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
03:45 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	5	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	12
Total	0	4	11	0	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	1	15	1	1	0	0	0	1	2	0	0	0	1	0	0	0	0	41
04:00 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	1	0	0	0	2	2	0	0	0	13
04:15 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5
04:30 PM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	7
04:45 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	5
Total	0	1	9	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	6	0	0	0	1	0	1	2	0	0	0	5	2	0	0	0	30
05:00 PM	0	2	5	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	13
05:15 PM	0	0	3	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	7
05:30 PM	0	1	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	13
05:45 PM	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	9
Total	0	5	20	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	7	0	0	0	0	0	0	3	0	0	0	2	2	0	0	0	42
Grand Total	0	10	45	2	0	0	0	1	0	2	0	0	1	1	5	0	2	0	0	2	34	1	1	0	1	0	3	8	0	0	0	9	5	0	0	0	133
Apprch %	0	17.5	78.9	3.5	0	0	0	33.3	0	66.7	0	0	11.1	11.1	55.6	0	22.2	0	0	5.3	89.5	2.6	2.6	0	8.3	0	25	66.7	0	0	0	64.3	35.7	0	0	0	
Total %	0	7.5	33.8	1.5	0	0	0	0.8	0	1.5	0	0	0.8	0.8	3.8	0	1.5	0	0	1.5	25.6	0.8	0.8	0	0.8	0	2.3	6	0	0	0	6.8	3.8	0	0	0	

Start Time	West Roxbury Parkway From North							Anawan Avenue From East							Beech Street From Southeast							West Roxbury Parkway From South							Anawan Avenue From West							Beech Street From Northwest							Int. Total
	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																																										
Peak Hour for Entire Intersection Begins at 03:15 PM																																										
03:15 PM	0	0	3	0	0	0	3	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	1	0	0	0	1	0	1	0	0	0	0	1	8
03:30 PM	0	1	3	0	0	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
03:45 PM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	5	0	1	0	6	0	0	0	1	0	0	1	0	0	0	0	0	0	0	12
04:00 PM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	5	0	0	0	1	0	0	1	0	2	2	0	0	0	4	13
Total Volume	0	1	12	0	0	0	13	0	0	0	1	0	0	1	0	0	3	0	0	0	3	0	1	15	0	1	0	17	0	0	1	2	0	0	3	0	3	2	0	0	0	5	42
% App. Total	0	7.7	92.3	0	0	0		0	0	0	100	0	0		0	0	100	0	0	0		0	5.9	88.2	0	5.9	0		0	0	33.3	66.7	0	0		0	60	40	0	0	0		
PHF	.000	.250	1.00	.000	.000	.000	.813	.000	.000	.000	.250	.000	.000	.250	.000	.000	.375	.000	.000	.000	.375	.000	.250	.750	.000	.250	.000	.708	.000	.000	.250	.500	.000	.000	.750	.000	.375	.250	.000	.000	.000	.313	.808

N/S/NW: West Roxbury Pkwy/ Beech Street
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City, State: West Roxbury, MA
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PRECISION DATA INDUSTRIES, LLC
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Email: datarequests@pdillc.com

File Name : 165344 DD
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Peds and Bikes

	West Roxbury Parkway From North							Anawan Avenue From East							Beech Street From Southeast							West Roxbury Parkway From South							Anawan Avenue From West							Beech Street From Northwest							
Start Time	Hard Right	Right	Thru	Bear Left	Left	Peds EB	Peds WB	Right	Bear Right	Thru	Left	Hard Left	Peds SB	Peds NB	Hard Right	Bear Right	Thru	Bear Left	Hard Left	Peds SWB	Peds NEB	Hard Right	Right	Thru	Bear Left	Left	Peds WB	Peds EB	Right	Bear Right	Thru	Left	Hard Left	Peds NB	Peds SB	Hard Right	Bear Right	Thru	Bear Left	Hard Left	Peds NEB	Peds SWB	Int. Total
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4
03:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	5
03:15 PM	0	0	1	0	0	2	1	0	0	0	0	0	2	1	0	0	0	0	0	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	2	0	0	0	0	0	1	15
03:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	1	5
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	0	0	1	0	0	2	2	0	0	1	0	0	2	2	0	0	0	0	0	2	0	0	0	0	0	0	2	2	0	0	0	0	0	1	6	0	0	0	0	0	3	26
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	7
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	4
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	1	8
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4	0	0	0	1	0	0	7	1	0	0	1	0	0	1	0	1	0	1	0	0	1	20
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2	2	0	0	0	0	0	1	10
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	1	9
05:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	1	1	0	0	1	0	0	1	10
Total	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	3	0	0	0	0	0	0	4	2	0	1	1	0	0	4	3	0	0	1	0	0	3	29
Grand Total	0	0	1	0	0	3	2	0	0	1	0	0	7	4	0	0	0	0	0	9	0	0	0	1	0	0	13	5	0	1	2	0	0	6	9	1	0	2	0	0	4	8	79
Apprch %	0	0	16.7	0	0	50	33.3	0	0	8.3	0	0	58.3	33.3	0	0	0	0	0	100	0	0	0	5.3	0	0	68.4	26.3	0	5.6	11.1	0	0	33.3	50	6.7	0	13.3	0	0	26.7	53.3	
Total %	0	0	1.3	0	0	3.8	2.5	0	0	1.3	0	0	8.9	5.1	0	0	0	0	0	11.4	0	0	0	1.3	0	0	16.5	6.3	0	1.3	2.5	0	0	7.6	11.4	1.3	0	2.5	0	0	5.1	10.1	

	West Roxbury Parkway From North								Anawan Avenue From East								Beech Street From Southeast								West Roxbury Parkway From South								Anawan Avenue From West								Beech Street From Northwest								
Start Time	Hard Right	Right	Thru	Bear Left	Left	Peds EB	Peds WB	App. Total	Right	Bear Right	Thru	Left	Hard Left	Peds SB	Peds NB	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	Peds SWB	Peds NEB	App. Total	Hard Right	Right	Thru	Bear Left	Left	Peds WB	Peds EB	App. Total	Right	Bear Right	Thru	Left	Hard Left	Peds NB	Peds SB	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	Peds NEB	Peds SWB	App. Total	Int. Total
Peak Hour Analysis From 02:30 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	2	2	5	0	0	0	0	0	1	3	4	10
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	9
05:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	1	0	0	1	1	3	0	0	1	0	0	1	0	2	10
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	0	3	0	3	0	0	0	0	0	4	2	6	0	1	1	0	0	4	3	9	0	0	1	0	0	3	3	7	29
% App. Total	0	0	0	0	0	100	0		0	0	0	0	0	100	0		0	0	0	0	0	100	0		0	0	0	0	0	66.7	33.3		0	11.1	11.1	0	0	44.4	33.3		0	0	14.3	0	0	42.9	42.9		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.375	.000	.375	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.333	.250	.500	.000	.250	.250	.000	.000	.500	.375	.450	.000	.000	.250	.000	.000	.750	.250	.438	.725

N/S/NW: West Roxbury Pkwy/ Beech Street
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PRECISION DATA INDUSTRIES, LLC
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File Name : 165344 DD
Site Code : 16170.00
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Page No : 1

	West Roxbury Parkway From North							Anawan Avenue From East							Beech Street From Southeast							West Roxbury Parkway From South							Anawan Avenue From West							Beech Street From Northwest							
Start Time	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Thru	Bear Left	Hard Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																																									
Peak Hour for Entire Intersection Begins at 05:00 PM																																									
05:00 PM	0	13	226	10	0	0	249	0	0	4	27	0	0	31	1	8	13	3	5	0	30	0	12	110	12	0	0	134	1	3	6	7	0	0	17	0	31	22	1	4	0	58	519
05:15 PM	0	6	166	12	2	0	186	0	0	5	11	1	0	17	4	16	11	0	1	0	32	0	12	117	5	1	0	135	0	2	6	4	2	0	14	2	18	17	2	0	0	39	423
05:30 PM	0	13	223	15	0	0	251	1	0	12	21	2	0	36	0	8	12	1	1	0	22	0	15	152	17	2	0	186	0	2	3	12	0	0	17	0	27	28	2	0	0	57	569
05:45 PM	0	9	175	11	0	0	195	0	0	9	24	1	0	34	3	8	11	4	1	0	27	0	10	127	10	2	0	149	2	0	4	3	0	0	9	1	33	13	1	3	0	51	465
Total Volume	0	41	790	48	2	0	881	1	0	30	83	4	0	118	8	40	47	8	8	0	111	0	49	506	44	5	0	604	3	7	19	26	2	0	57	3	109	80	6	7	0	205	1976
% App. Total	0	4.7	89.7	5.4	0.2	0		0.8	0	25.4	70.3	3.4	0		7.2	36	42.3	7.2	7.2	0		0	8.1	83.8	7.3	0.8	0		5.3	12.3	33.3	45.6	3.5	0		1.5	53.2	39	2.9	3.4	0		
PHF	.000	.788	.874	.800	.250	.000	.877	.250	.000	.625	.769	.500	.000	.819	.500	.625	.904	.500	.400	.000	.867	.000	.817	.832	.647	.625	.000	.812	.375	.583	.792	.542	.250	.000	.838	.375	.826	.714	.750	.438	.000	.884	.868
Cars	0	36	770	47	2	0	855	1	0	30	83	4	0	118	8	39	46	8	8	0	109	0	49	499	44	5	0	597	3	7	19	23	2	0	54	3	107	78	6	7	0	201	1934
% Cars	0	87.8	97.5	97.9	100	0	97.0	100	0	100	100	100	0	100	100	97.5	97.9	100	100	0	98.2	0	100	98.6	100	100	0	98.8	100	100	100	88.5	100	0	94.7	100	98.2	97.5	100	100	0	98.0	97.9
Heavy Vehicles	0	5	20	1	0	0	26	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	7	0	0	0	7	0	0	0	3	0	0	3	0	2	2	0	0	0	4	42
% Heavy Vehicles	0	12.2	2.5	2.1	0	0	3.0	0	0	0	0	0	0	0	0	2.5	2.1	0	0	0	1.8	0	0	1.4	0	0	0	1.2	0	0	0	11.5	0	0	5.3	0	1.8	2.5	0	0	0	2.0	2.1

N/S/NW: West Roxbury Pkwy/ Beech Street
E/W/SE: Anawan Avenue/ Beech Street
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
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Email: datarequests@pdillc.com

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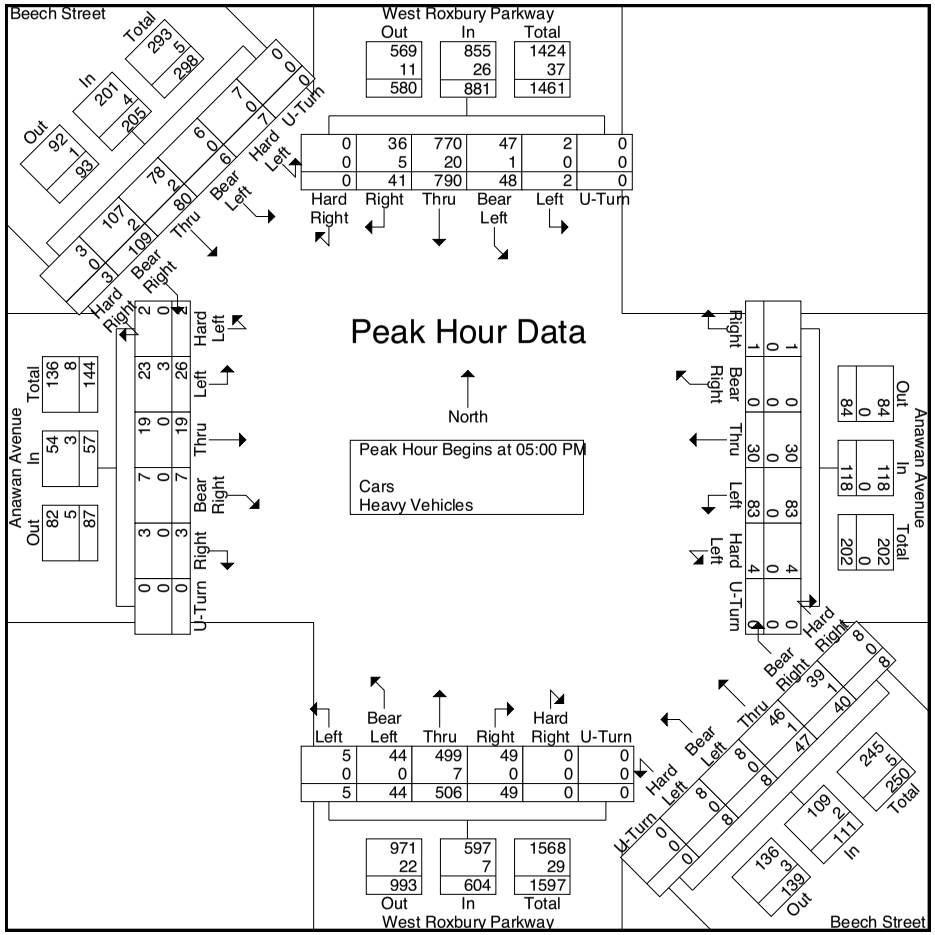

N/S: Belgrade Avenue/ Beech Street
E: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
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File Name : 165344 A
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Belgrade Avenue From North			Belgrade Avenue From East			Beech Street From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
06:30 AM	8	22	0	34	0	0	3	27	0	94
06:45 AM	10	13	0	50	1	0	4	23	0	101
Total	18	35	0	84	1	0	7	50	0	195
07:00 AM	21	24	0	59	1	0	11	29	0	145
07:15 AM	12	34	0	52	0	0	8	43	0	149
07:30 AM	20	26	0	69	2	0	7	44	0	168
07:45 AM	14	29	0	74	3	0	7	51	0	178
Total	67	113	0	254	6	0	33	167	0	640
08:00 AM	28	29	0	54	2	0	8	38	0	159
08:15 AM	28	36	0	46	0	0	5	38	0	153
08:30 AM	18	32	1	52	1	0	4	34	0	142
08:45 AM	32	31	0	38	0	0	6	38	0	145
Total	106	128	1	190	3	0	23	148	0	599
Grand Total	191	276	1	528	10	0	63	365	0	1434
Apprch %	40.8	59	0.2	98.1	1.9	0	14.7	85.3	0	
Total %	13.3	19.2	0.1	36.8	0.7	0	4.4	25.5	0	
Cars	176	223	1	458	10	0	63	346	0	1277
% Cars	92.1	80.8	100	86.7	100	0	100	94.8	0	89.1
Heavy Vehicles	15	53	0	70	0	0	0	19	0	157
% Heavy Vehicles	7.9	19.2	0	13.3	0	0	0	5.2	0	10.9

	Belgrade Avenue From North				Belgrade Avenue From East				Beech Street From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	20	26	0	46	69	2	0	71	7	44	0	51	168
07:45 AM	14	29	0	43	74	3	0	77	7	51	0	58	178
08:00 AM	28	29	0	57	54	2	0	56	8	38	0	46	159
08:15 AM	28	36	0	64	46	0	0	46	5	38	0	43	153
Total Volume	90	120	0	210	243	7	0	250	27	171	0	198	658
% App. Total	42.9	57.1	0		97.2	2.8	0		13.6	86.4	0		
PHF	.804	.833	.000	.820	.821	.583	.000	.812	.844	.838	.000	.853	.924
Cars	85	99	0	184	216	7	0	223	27	162	0	189	596
% Cars	94.4	82.5	0	87.6	88.9	100	0	89.2	100	94.7	0	95.5	90.6
Heavy Vehicles	5	21	0	26	27	0	0	27	0	9	0	9	62
% Heavy Vehicles	5.6	17.5	0	12.4	11.1	0	0	10.8	0	5.3	0	4.5	9.4

N/S: Belgrade Avenue/ Beech Street
E: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
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Email: datarequests@pdillc.com

File Name : 165344 A
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Cars

	Belgrade Avenue From North			Belgrade Avenue From East			Beech Street From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
06:30 AM	5	17	0	28	0	0	3	26	0	79
06:45 AM	9	8	0	38	1	0	4	22	0	82
Total	14	25	0	66	1	0	7	48	0	161
07:00 AM	21	19	0	52	1	0	11	29	0	133
07:15 AM	12	27	0	47	0	0	8	41	0	135
07:30 AM	20	20	0	63	2	0	7	41	0	153
07:45 AM	13	25	0	67	3	0	7	48	0	163
Total	66	91	0	229	6	0	33	159	0	584
08:00 AM	24	23	0	46	2	0	8	37	0	140
08:15 AM	28	31	0	40	0	0	5	36	0	140
08:30 AM	16	25	1	43	1	0	4	31	0	121
08:45 AM	28	28	0	34	0	0	6	35	0	131
Total	96	107	1	163	3	0	23	139	0	532
Grand Total	176	223	1	458	10	0	63	346	0	1277
Apprch %	44	55.8	0.2	97.9	2.1	0	15.4	84.6	0	
Total %	13.8	17.5	0.1	35.9	0.8	0	4.9	27.1	0	

	Belgrade Avenue From North				Belgrade Avenue From East				Beech Street From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	20	20	0	40	63	2	0	65	7	41	0	48	153
07:45 AM	13	25	0	38	67	3	0	70	7	48	0	55	163
08:00 AM	24	23	0	47	46	2	0	48	8	37	0	45	140
08:15 AM	28	31	0	59	40	0	0	40	5	36	0	41	140
Total Volume	85	99	0	184	216	7	0	223	27	162	0	189	596
% App. Total	46.2	53.8	0		96.9	3.1	0		14.3	85.7	0		
PHF	.759	.798	.000	.780	.806	.583	.000	.796	.844	.844	.000	.859	.914

N/S: Belgrade Avenue/ Beech Street
E: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
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Email: datarequests@pdillc.com

File Name : 165344 A
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Belgrade Avenue From North			Belgrade Avenue From East			Beech Street From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
06:30 AM	3	5	0	6	0	0	0	1	0	15
06:45 AM	1	5	0	12	0	0	0	1	0	19
Total	4	10	0	18	0	0	0	2	0	34
07:00 AM	0	5	0	7	0	0	0	0	0	12
07:15 AM	0	7	0	5	0	0	0	2	0	14
07:30 AM	0	6	0	6	0	0	0	3	0	15
07:45 AM	1	4	0	7	0	0	0	3	0	15
Total	1	22	0	25	0	0	0	8	0	56
08:00 AM	4	6	0	8	0	0	0	1	0	19
08:15 AM	0	5	0	6	0	0	0	2	0	13
08:30 AM	2	7	0	9	0	0	0	3	0	21
08:45 AM	4	3	0	4	0	0	0	3	0	14
Total	10	21	0	27	0	0	0	9	0	67
Grand Total	15	53	0	70	0	0	0	19	0	157
Apprch %	22.1	77.9	0	100	0	0	0	100	0	
Total %	9.6	33.8	0	44.6	0	0	0	12.1	0	

	Belgrade Avenue From North				Belgrade Avenue From East				Beech Street From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	1	4	0	5	7	0	0	7	0	3	0	3	15
08:00 AM	4	6	0	10	8	0	0	8	0	1	0	1	19
08:15 AM	0	5	0	5	6	0	0	6	0	2	0	2	13
08:30 AM	2	7	0	9	9	0	0	9	0	3	0	3	21
Total Volume	7	22	0	29	30	0	0	30	0	9	0	9	68
% App. Total	24.1	75.9	0		100	0	0		0	100	0		
PHF	.438	.786	.000	.725	.833	.000	.000	.833	.000	.750	.000	.750	.810

N/S: Belgrade Avenue/ Beech Street
E: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

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File Name : 165344 A
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Peds and Bikes

	Belgrade Avenue From North				Belgrade Avenue From East				Beech Street From South				
Start Time	Thru	Left	Peds EB	Peds WB	Right	Left	Peds SB	Peds NB	Right	Thru	Peds WB	Peds EB	Int. Total
06:30 AM	0	0	1	1	0	0	0	0	0	0	0	0	2
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	1	1	0	0	0	0	0	0	0	1	3
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	1	0	0	0	0	0	0	0	1	0	2
07:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	1
07:45 AM	0	0	1	0	0	0	0	0	0	0	0	1	2
Total	0	0	2	0	0	0	0	0	1	0	1	1	5
08:00 AM	0	0	0	0	1	0	0	0	0	1	0	0	2
08:15 AM	0	0	0	1	1	0	0	0	0	1	1	0	4
08:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
08:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	0	1	0	1	4	0	0	0	0	2	1	0	9
Grand Total	0	1	3	2	4	0	0	0	1	2	2	2	17
Apprch %	0	16.7	50	33.3	100	0	0	0	14.3	28.6	28.6	28.6	
Total %	0	5.9	17.6	11.8	23.5	0	0	0	5.9	11.8	11.8	11.8	

	Belgrade Avenue From North					Belgrade Avenue From East					Beech Street From South					
Start Time	Thru	Left	Peds EB	Peds WB	App. Total	Right	Left	Peds SB	Peds NB	App. Total	Right	Thru	Peds WB	Peds EB	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:45 AM																
07:45 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	1	1	2
08:00 AM	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	2
08:15 AM	0	0	0	1	1	1	0	0	0	1	0	1	1	0	2	4
08:30 AM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
Total Volume	0	1	1	1	3	3	0	0	0	3	0	2	1	1	4	10
% App. Total	0	33.3	33.3	33.3		100	0	0	0		0	50	25	25		
PHF	.000	.250	.250	.250	.750	.750	.000	.000	.000	.750	.000	.500	.250	.250	.500	.625

N/S: Belgrade Avenue/ Beech Street
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Client: HSH/ M. Santos

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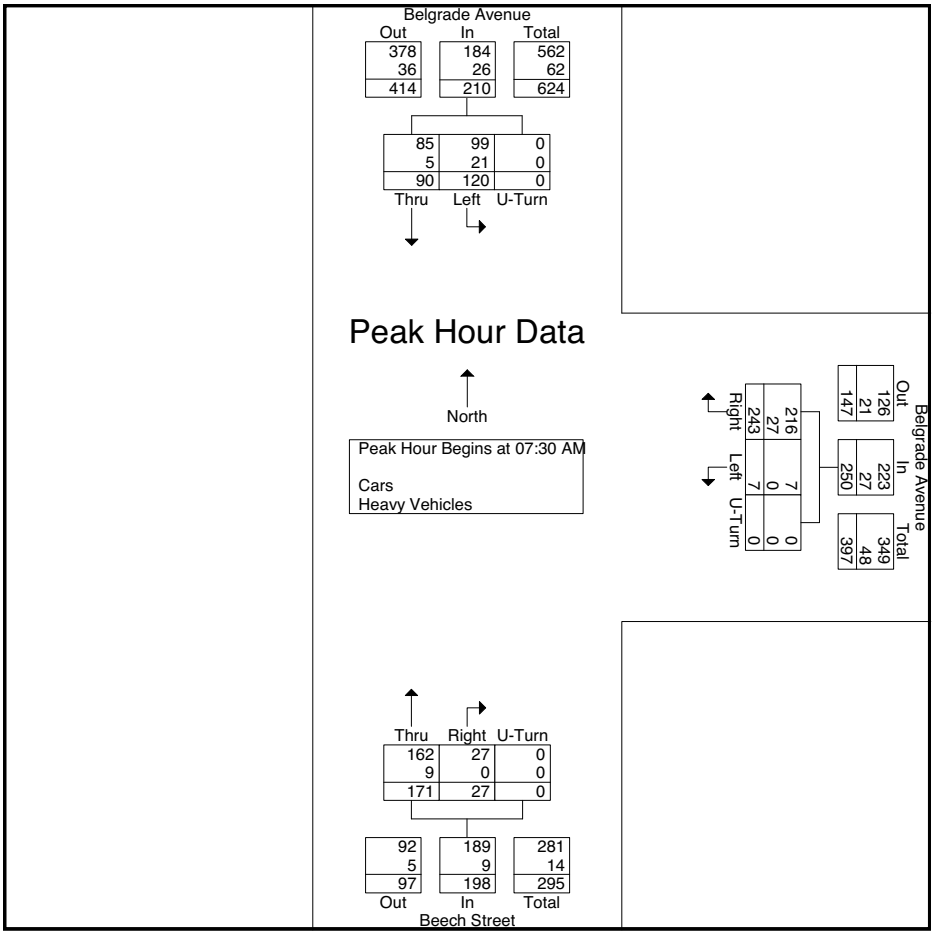
	Belgrade Avenue From North				Belgrade Avenue From East				Beech Street From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	20	26	0	46	69	2	0	71	7	44	0	51	168
07:45 AM	14	29	0	43	74	3	0	77	7	51	0	58	178
08:00 AM	28	29	0	57	54	2	0	56	8	38	0	46	159
08:15 AM	28	36	0	64	46	0	0	46	5	38	0	43	153
Total Volume	90	120	0	210	243	7	0	250	27	171	0	198	658
% App. Total	42.9	57.1	0		97.2	2.8	0		13.6	86.4	0		
PHF	.804	.833	.000	.820	.821	.583	.000	.812	.844	.838	.000	.853	.924
Cars	85	99	0	184	216	7	0	223	27	162	0	189	596
% Cars	94.4	82.5	0	87.6	88.9	100	0	89.2	100	94.7	0	95.5	90.6
Heavy Vehicles	5	21	0	26	27	0	0	27	0	9	0	9	62
% Heavy Vehicles	5.6	17.5	0	12.4	11.1	0	0	10.8	0	5.3	0	4.5	9.4



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Groups Printed- Cars - Heavy Vehicles

	Belgrade Avenue From North			Belgrade Avenue From East			Beech Street From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
02:30 PM	43	43	0	41	3	0	1	23	0	154
02:45 PM	33	46	0	50	1	0	0	33	0	163
Total	76	89	0	91	4	0	1	56	0	317
03:00 PM	50	59	0	48	1	0	3	23	1	185
03:15 PM	50	54	0	45	5	0	1	22	0	177
03:30 PM	43	55	0	37	4	0	1	29	0	169
03:45 PM	49	58	0	42	2	0	3	21	0	175
Total	192	226	0	172	12	0	8	95	1	706
04:00 PM	41	49	0	58	2	0	0	20	0	170
04:15 PM	42	50	0	41	2	0	1	24	0	160
04:30 PM	47	57	0	65	1	0	1	22	0	193
04:45 PM	38	49	0	59	3	0	2	28	0	179
Total	168	205	0	223	8	0	4	94	0	702
05:00 PM	61	58	0	60	4	0	2	31	0	216
05:15 PM	40	66	0	51	4	0	1	18	0	180
05:30 PM	61	55	0	43	1	0	1	31	0	192
05:45 PM	52	71	0	52	2	0	2	23	0	202
Total	214	250	0	206	11	0	6	103	0	790
Grand Total	650	770	0	692	35	0	19	348	1	2515
Apprch %	45.8	54.2	0	95.2	4.8	0	5.2	94.6	0.3	
Total %	25.8	30.6	0	27.5	1.4	0	0.8	13.8	0	
Cars	636	706	0	622	35	0	16	342	1	2358
% Cars	97.8	91.7	0	89.9	100	0	84.2	98.3	100	93.8
Heavy Vehicles	14	64	0	70	0	0	3	6	0	157
% Heavy Vehicles	2.2	8.3	0	10.1	0	0	15.8	1.7	0	6.2

	Belgrade Avenue From North				Belgrade Avenue From East				Beech Street From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	61	58	0	119	60	4	0	64	2	31	0	33	216
05:15 PM	40	66	0	106	51	4	0	55	1	18	0	19	180
05:30 PM	61	55	0	116	43	1	0	44	1	31	0	32	192
05:45 PM	52	71	0	123	52	2	0	54	2	23	0	25	202
Total Volume	214	250	0	464	206	11	0	217	6	103	0	109	790
% App. Total	46.1	53.9	0		94.9	5.1	0		5.5	94.5	0		
PHF	.877	.880	.000	.943	.858	.688	.000	.848	.750	.831	.000	.826	.914
Cars	210	228	0	438	185	11	0	196	6	102	0	108	742
% Cars	98.1	91.2	0	94.4	89.8	100	0	90.3	100	99.0	0	99.1	93.9
Heavy Vehicles	4	22	0	26	21	0	0	21	0	1	0	1	48
% Heavy Vehicles	1.9	8.8	0	5.6	10.2	0	0	9.7	0	1.0	0	0.9	6.1

N/S: Belgrade Avenue/ Beech Street
E: Belgrade Avenue
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Client: HSH/ M. Santos

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Groups Printed- Cars

	Belgrade Avenue From North			Belgrade Avenue From East			Beech Street From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
02:30 PM	42	41	0	37	3	0	1	23	0	147
02:45 PM	32	41	0	43	1	0	0	33	0	150
Total	74	82	0	80	4	0	1	56	0	297
03:00 PM	50	56	0	43	1	0	2	22	1	175
03:15 PM	49	51	0	40	5	0	1	22	0	168
03:30 PM	43	50	0	36	4	0	1	27	0	161
03:45 PM	49	49	0	38	2	0	2	20	0	160
Total	191	206	0	157	12	0	6	91	1	664
04:00 PM	37	45	0	52	2	0	0	20	0	156
04:15 PM	41	45	0	36	2	0	1	23	0	148
04:30 PM	45	54	0	57	1	0	1	22	0	180
04:45 PM	38	46	0	55	3	0	1	28	0	171
Total	161	190	0	200	8	0	3	93	0	655
05:00 PM	60	53	0	55	4	0	2	30	0	204
05:15 PM	38	60	0	42	4	0	1	18	0	163
05:30 PM	61	51	0	38	1	0	1	31	0	183
05:45 PM	51	64	0	50	2	0	2	23	0	192
Total	210	228	0	185	11	0	6	102	0	742
Grand Total	636	706	0	622	35	0	16	342	1	2358
Apprch %	47.4	52.6	0	94.7	5.3	0	4.5	95.3	0.3	
Total %	27	29.9	0	26.4	1.5	0	0.7	14.5	0	

	Belgrade Avenue From North				Belgrade Avenue From East				Beech Street From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	60	53	0	113	55	4	0	59	2	30	0	32	204
05:15 PM	38	60	0	98	42	4	0	46	1	18	0	19	163
05:30 PM	61	51	0	112	38	1	0	39	1	31	0	32	183
05:45 PM	51	64	0	115	50	2	0	52	2	23	0	25	192
Total Volume	210	228	0	438	185	11	0	196	6	102	0	108	742
% App. Total	47.9	52.1	0		94.4	5.6	0		5.6	94.4	0		
PHF	.861	.891	.000	.952	.841	.688	.000	.831	.750	.823	.000	.844	.909

N/S: Belgrade Avenue/ Beech Street
E: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
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File Name : 165344 AA
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Belgrade Avenue From North			Belgrade Avenue From East			Beech Street From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
02:30 PM	1	2	0	4	0	0	0	0	0	7
02:45 PM	1	5	0	7	0	0	0	0	0	13
Total	2	7	0	11	0	0	0	0	0	20
03:00 PM	0	3	0	5	0	0	1	1	0	10
03:15 PM	1	3	0	5	0	0	0	0	0	9
03:30 PM	0	5	0	1	0	0	0	2	0	8
03:45 PM	0	9	0	4	0	0	1	1	0	15
Total	1	20	0	15	0	0	2	4	0	42
04:00 PM	4	4	0	6	0	0	0	0	0	14
04:15 PM	1	5	0	5	0	0	0	1	0	12
04:30 PM	2	3	0	8	0	0	0	0	0	13
04:45 PM	0	3	0	4	0	0	1	0	0	8
Total	7	15	0	23	0	0	1	1	0	47
05:00 PM	1	5	0	5	0	0	0	1	0	12
05:15 PM	2	6	0	9	0	0	0	0	0	17
05:30 PM	0	4	0	5	0	0	0	0	0	9
05:45 PM	1	7	0	2	0	0	0	0	0	10
Total	4	22	0	21	0	0	0	1	0	48
Grand Total	14	64	0	70	0	0	3	6	0	157
Apprch %	17.9	82.1	0	100	0	0	33.3	66.7	0	
Total %	8.9	40.8	0	44.6	0	0	1.9	3.8	0	

	Belgrade Avenue From North				Belgrade Avenue From East				Beech Street From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:45 PM													
03:45 PM	0	9	0	9	4	0	0	4	1	1	0	2	15
04:00 PM	4	4	0	8	6	0	0	6	0	0	0	0	14
04:15 PM	1	5	0	6	5	0	0	5	0	1	0	1	12
04:30 PM	2	3	0	5	8	0	0	8	0	0	0	0	13
Total Volume	7	21	0	28	23	0	0	23	1	2	0	3	54
% App. Total	25	75	0		100	0	0		33.3	66.7	0		
PHF	.438	.583	.000	.778	.719	.000	.000	.719	.250	.500	.000	.375	.900

N/S: Belgrade Avenue/ Beech Street
E: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
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File Name : 165344 AA
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Peds and Bikes

	Belgrade Avenue From North				Belgrade Avenue From East				Beech Street From South				
Start Time	Thru	Left	Peds EB	Peds WB	Right	Left	Peds SB	Peds NB	Right	Thru	Peds WB	Peds EB	Int. Total
02:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
02:45 PM	0	0	2	1	0	0	0	0	0	0	0	1	4
Total	0	0	2	1	1	0	0	0	0	0	0	1	5
03:00 PM	0	0	1	1	0	0	0	0	0	0	0	0	2
03:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
03:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	1
03:45 PM	0	0	1	1	0	0	0	0	0	0	2	0	4
Total	0	0	2	3	1	0	0	0	0	0	2	0	8
04:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	1
04:15 PM	1	0	1	0	0	0	0	0	0	0	0	0	2
04:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	1	1	0	0	0	1	0	0	0	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
05:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	2
Total	1	0	0	0	3	0	0	0	0	0	0	0	4
Grand Total	2	0	5	5	5	0	0	1	0	0	2	1	21
Apprch %	16.7	0	41.7	41.7	83.3	0	0	16.7	0	0	66.7	33.3	
Total %	9.5	0	23.8	23.8	23.8	0	0	4.8	0	0	9.5	4.8	

	Belgrade Avenue From North					Belgrade Avenue From East					Beech Street From South					
Start Time	Thru	Left	Peds EB	Peds WB	App. Total	Right	Left	Peds SB	Peds NB	App. Total	Right	Thru	Peds WB	Peds EB	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 02:30 PM																
02:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
02:45 PM	0	0	2	1	3	0	0	0	0	0	0	0	0	1	1	4
03:00 PM	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	2
03:15 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total Volume	0	0	3	2	5	2	0	0	0	2	0	0	0	1	1	8
% App. Total	0	0	60	40		100	0	0	0		0	0	0	100		
PHF	.000	.000	.375	.500	.417	.500	.000	.000	.000	.500	.000	.000	.000	.250	.250	.500

N/S: Belgrade Avenue/ Beech Street
E: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
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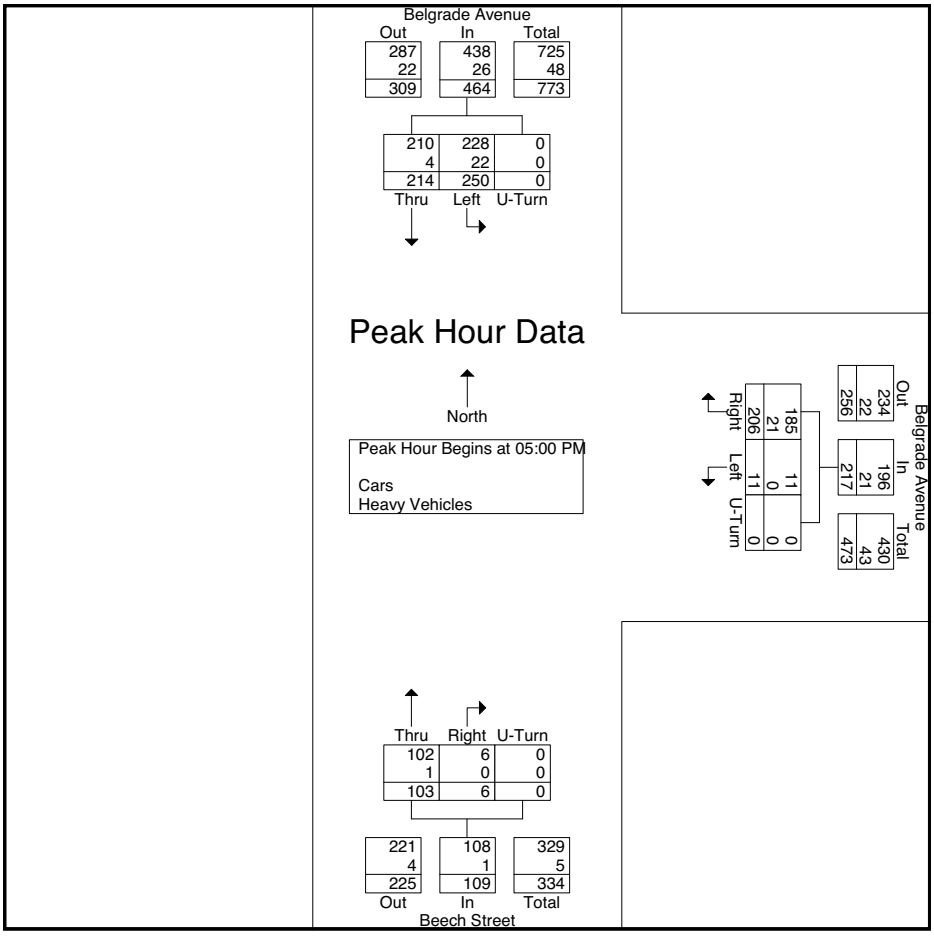
Page No : 1

	Belgrade Avenue From North				Belgrade Avenue From East				Beech Street From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	61	58	0	119	60	4	0	64	2	31	0	33	216
05:15 PM	40	66	0	106	51	4	0	55	1	18	0	19	180
05:30 PM	61	55	0	116	43	1	0	44	1	31	0	32	192
05:45 PM	52	71	0	123	52	2	0	54	2	23	0	25	202
Total Volume	214	250	0	464	206	11	0	217	6	103	0	109	790
% App. Total	46.1	53.9	0		94.9	5.1	0		5.5	94.5	0		
PHF	.877	.880	.000	.943	.858	.688	.000	.848	.750	.831	.000	.826	.914
Cars	210	228	0	438	185	11	0	196	6	102	0	108	742
% Cars	98.1	91.2	0	94.4	89.8	100	0	90.3	100	99.0	0	99.1	93.9
Heavy Vehicles	4	22	0	26	21	0	0	21	0	1	0	1	48
% Heavy Vehicles	1.9	8.8	0	5.6	10.2	0	0	9.7	0	1.0	0	0.9	6.1



N/S: Belgrade Terrace/ Anawan Avenue
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
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File Name : 165344 C
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Belgrade Terrace From North				Belgrade Avenue From East				Anawan Avenue From South				Belgrade Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
06:30 AM	1	0	0	0	0	101	8	0	18	0	1	0	1	26	0	0	156
06:45 AM	2	0	0	0	0	124	6	0	13	3	0	0	0	31	0	0	179
Total	3	0	0	0	0	225	14	0	31	3	1	0	1	57	0	0	335
07:00 AM	0	1	0	0	0	133	13	0	19	1	1	0	0	38	0	0	206
07:15 AM	1	0	0	0	1	109	13	0	19	0	0	0	0	46	1	0	190
07:30 AM	1	1	0	0	0	156	22	0	18	3	0	0	0	50	0	0	251
07:45 AM	2	2	0	0	1	131	12	2	25	3	0	0	1	50	1	0	230
Total	4	4	0	0	2	529	60	2	81	7	1	0	1	184	2	0	877
08:00 AM	3	1	0	0	1	101	28	0	37	1	0	1	0	68	1	0	242
08:15 AM	2	1	1	0	4	109	13	0	23	3	2	0	0	61	0	0	219
08:30 AM	3	0	2	0	2	102	10	1	21	2	0	0	0	49	1	0	193
08:45 AM	1	1	3	0	0	76	11	0	26	0	2	0	2	56	1	0	179
Total	9	3	6	0	7	388	62	1	107	6	4	1	2	234	3	0	833
Grand Total	16	7	6	0	9	1142	136	3	219	16	6	1	4	475	5	0	2045
Apprch %	55.2	24.1	20.7	0	0.7	88.5	10.5	0.2	90.5	6.6	2.5	0.4	0.8	98.1	1	0	
Total %	0.8	0.3	0.3	0	0.4	55.8	6.7	0.1	10.7	0.8	0.3	0	0.2	23.2	0.2	0	
Cars	16	7	6	0	9	1070	132	3	215	16	6	0	4	410	5	0	1899
% Cars	100	100	100	0	100	93.7	97.1	100	98.2	100	100	0	100	86.3	100	0	92.9
Heavy Vehicles	0	0	0	0	0	72	4	0	4	0	0	1	0	65	0	0	146
% Heavy Vehicles	0	0	0	0	0	6.3	2.9	0	1.8	0	0	100	0	13.7	0	0	7.1

	Belgrade Terrace From North					Belgrade Avenue From East					Anawan Avenue From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	1	1	0	0	2	0	156	22	0	178	18	3	0	0	21	0	50	0	0	50	251
07:45 AM	2	2	0	0	4	1	131	12	2	146	25	3	0	0	28	1	50	1	0	52	230
08:00 AM	3	1	0	0	4	1	101	28	0	130	37	1	0	1	39	0	68	1	0	69	242
08:15 AM	2	1	1	0	4	4	109	13	0	126	23	3	2	0	28	0	61	0	0	61	219
Total Volume	8	5	1	0	14	6	497	75	2	580	103	10	2	1	116	1	229	2	0	232	942
% App. Total	57.1	35.7	7.1	0		1	85.7	12.9	0.3		88.8	8.6	1.7	0.9		0.4	98.7	0.9	0		
PHF	.667	.625	.250	.000	.875	.375	.796	.670	.250	.815	.696	.833	.250	.250	.744	.250	.842	.500	.000	.841	.938
Cars	8	5	1	0	14	6	466	72	2	546	100	10	2	0	112	1	201	2	0	204	876
% Cars	100	100	100	0	100	100	93.8	96.0	100	94.1	97.1	100	100	0	96.6	100	87.8	100	0	87.9	93.0
Heavy Vehicles	0	0	0	0	0	0	31	3	0	34	3	0	0	1	4	0	28	0	0	28	66
% Heavy Vehicles	0	0	0	0	0	0	6.2	4.0	0	5.9	2.9	0	0	100	3.4	0	12.2	0	0	12.1	7.0

N/S: Belgrade Terrace/ Anawan Avenue
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
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Page No : 1

Groups Printed- Cars

	Belgrade Terrace From North				Belgrade Avenue From East				Anawan Avenue From South				Belgrade Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
06:30 AM	1	0	0	0	0	93	7	0	18	0	1	0	1	23	0	0	144
06:45 AM	2	0	0	0	0	115	6	0	13	3	0	0	0	24	0	0	163
Total	3	0	0	0	0	208	13	0	31	3	1	0	1	47	0	0	307
07:00 AM	0	1	0	0	0	126	13	0	19	1	1	0	0	33	0	0	194
07:15 AM	1	0	0	0	1	104	13	0	19	0	0	0	0	39	1	0	178
07:30 AM	1	1	0	0	0	149	20	0	18	3	0	0	0	43	0	0	235
07:45 AM	2	2	0	0	1	124	11	2	24	3	0	0	1	44	1	0	215
Total	4	4	0	0	2	503	57	2	80	7	1	0	1	159	2	0	822
08:00 AM	3	1	0	0	1	92	28	0	35	1	0	0	0	60	1	0	222
08:15 AM	2	1	1	0	4	101	13	0	23	3	2	0	0	54	0	0	204
08:30 AM	3	0	2	0	2	95	10	1	21	2	0	0	0	43	1	0	180
08:45 AM	1	1	3	0	0	71	11	0	25	0	2	0	2	47	1	0	164
Total	9	3	6	0	7	359	62	1	104	6	4	0	2	204	3	0	770
Grand Total	16	7	6	0	9	1070	132	3	215	16	6	0	4	410	5	0	1899
Apprch %	55.2	24.1	20.7	0	0.7	88.1	10.9	0.2	90.7	6.8	2.5	0	1	97.9	1.2	0	
Total %	0.8	0.4	0.3	0	0.5	56.3	7	0.2	11.3	0.8	0.3	0	0.2	21.6	0.3	0	

	Belgrade Terrace From North					Belgrade Avenue From East					Anawan Avenue From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	1	1	0	0	2	0	149	20	0	169	18	3	0	0	21	0	43	0	0	43	235
07:45 AM	2	2	0	0	4	1	124	11	2	138	24	3	0	0	27	1	44	1	0	46	215
08:00 AM	3	1	0	0	4	1	92	28	0	121	35	1	0	0	36	0	60	1	0	61	222
08:15 AM	2	1	1	0	4	4	101	13	0	118	23	3	2	0	28	0	54	0	0	54	204
Total Volume	8	5	1	0	14	6	466	72	2	546	100	10	2	0	112	1	201	2	0	204	876
% App. Total	57.1	35.7	7.1	0		1.1	85.3	13.2	0.4		89.3	8.9	1.8	0		0.5	98.5	1	0		
PHF	.667	.625	.250	.000	.875	.375	.782	.643	.250	.808	.714	.833	.250	.000	.778	.250	.838	.500	.000	.836	.932

N/S: Belgrade Terrace/ Anawan Avenue
E/W: Belgrade Avenue
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Page No : 1

Groups Printed- Heavy Vehicles

	Belgrade Terrace From North				Belgrade Avenue From East				Anawan Avenue From South				Belgrade Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
06:30 AM	0	0	0	0	0	8	1	0	0	0	0	0	0	3	0	0	12
06:45 AM	0	0	0	0	0	9	0	0	0	0	0	0	0	7	0	0	16
Total	0	0	0	0	0	17	1	0	0	0	0	0	0	10	0	0	28
07:00 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	5	0	0	12
07:15 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	7	0	0	12
07:30 AM	0	0	0	0	0	7	2	0	0	0	0	0	0	7	0	0	16
07:45 AM	0	0	0	0	0	7	1	0	1	0	0	0	0	6	0	0	15
Total	0	0	0	0	0	26	3	0	1	0	0	0	0	25	0	0	55
08:00 AM	0	0	0	0	0	9	0	0	2	0	0	1	0	8	0	0	20
08:15 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	7	0	0	15
08:30 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	6	0	0	13
08:45 AM	0	0	0	0	0	5	0	0	1	0	0	0	0	9	0	0	15
Total	0	0	0	0	0	29	0	0	3	0	0	1	0	30	0	0	63
Grand Total	0	0	0	0	0	72	4	0	4	0	0	1	0	65	0	0	146
Apprch %	0	0	0	0	0	94.7	5.3	0	80	0	0	20	0	100	0	0	
Total %	0	0	0	0	0	49.3	2.7	0	2.7	0	0	0.7	0	44.5	0	0	

	Belgrade Terrace From North					Belgrade Avenue From East					Anawan Avenue From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 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	7	2	0	9	0	0	0	0	0	0	7	0	0	7	16
07:45 AM	0	0	0	0	0	0	7	1	0	8	1	0	0	0	1	0	6	0	0	6	15
08:00 AM	0	0	0	0	0	0	9	0	0	9	2	0	0	1	3	0	8	0	0	8	20
08:15 AM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	7	0	0	7	15
Total Volume	0	0	0	0	0	0	31	3	0	34	3	0	0	1	4	0	28	0	0	28	66
% App. Total	0	0	0	0		0	91.2	8.8	0		75	0	0	25		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.861	.375	.000	.944	.375	.000	.000	.250	.333	.000	.875	.000	.000	.875	.825

N/S: Belgrade Terrace/ Anawan Avenue
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

File Name : 165344 C
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Peds and Bikes

	Belgrade Terrace From North					Belgrade Avenue From East					Anawan Avenue From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
06:30 AM	0	0	0	1	2	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	5
06:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	3
Total	0	0	0	1	2	0	0	0	1	1	0	0	0	0	2	0	0	0	1	0	8
07:00 AM	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	3
07:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
07:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	4
Total	0	1	0	0	0	0	0	0	0	2	2	0	0	1	1	0	2	0	1	0	10
08:00 AM	0	0	0	0	2	0	1	0	1	0	0	0	0	1	0	0	0	0	2	0	7
08:15 AM	0	0	0	2	4	0	1	0	0	0	2	0	0	1	0	0	0	0	0	0	10
08:30 AM	0	0	0	1	0	0	2	0	0	0	1	0	0	1	0	0	1	0	0	0	6
08:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
Total	0	0	0	4	6	0	4	0	1	0	3	0	0	3	1	0	1	0	2	0	25
Grand Total	0	1	0	5	8	0	4	0	2	3	5	0	0	4	4	0	3	0	4	0	43
Apprch %	0	7.1	0	35.7	57.1	0	44.4	0	22.2	33.3	38.5	0	0	30.8	30.8	0	42.9	0	57.1	0	
Total %	0	2.3	0	11.6	18.6	0	9.3	0	4.7	7	11.6	0	0	9.3	9.3	0	7	0	9.3	0	

	Belgrade Terrace From North						Belgrade Avenue From East						Anawan Avenue From South						Belgrade Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:45 AM																									
07:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	2	4
08:00 AM	0	0	0	0	2	2	0	1	0	1	0	2	0	0	0	1	0	1	0	0	0	2	0	2	7
08:15 AM	0	0	0	2	4	6	0	1	0	0	0	1	2	0	0	1	0	3	0	0	0	0	0	0	10
08:30 AM	0	0	0	1	0	1	0	2	0	0	0	2	1	0	0	1	0	2	0	1	0	0	0	1	6
Total Volume	0	1	0	3	6	10	0	4	0	1	0	5	3	0	0	3	1	7	0	2	0	3	0	5	27
% App. Total	0	10	0	30	60		0	80	0	20	0		42.9	0	0	42.9	14.3		0	40	0	60	0		
PHF	.000	.250	.000	.375	.375	.417	.000	.500	.000	.250	.000	.625	.375	.000	.000	.750	.250	.583	.000	.500	.000	.375	.000	.625	.675

N/S: Belgrade Terrace/ Anawan Avenue
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

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46 Morton Street, Framingham, MA 01702
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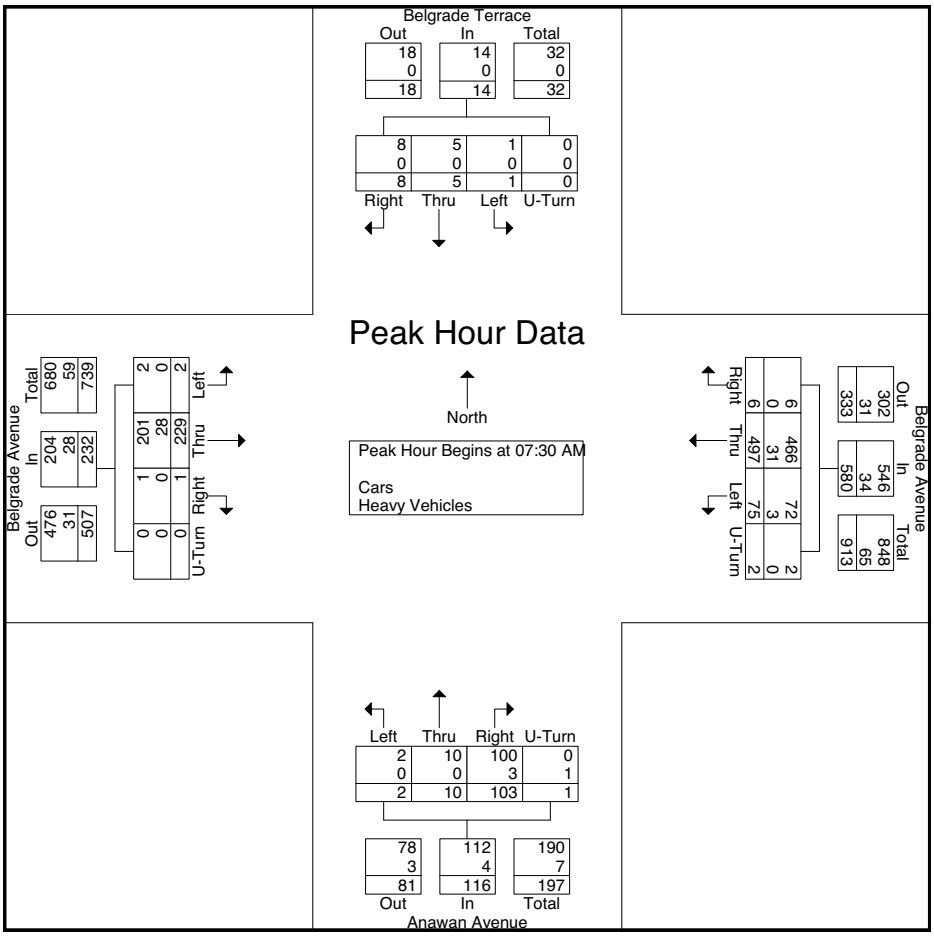
	Belgrade Terrace From North					Belgrade Avenue From East					Anawan Avenue From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	1	1	0	0	2	0	156	22	0	178	18	3	0	0	21	0	50	0	0	50	251
07:45 AM	2	2	0	0	4	1	131	12	2	146	25	3	0	0	28	1	50	1	0	52	230
08:00 AM	3	1	0	0	4	1	101	28	0	130	37	1	0	1	39	0	68	1	0	69	242
08:15 AM	2	1	1	0	4	4	109	13	0	126	23	3	2	0	28	0	61	0	0	61	219
Total Volume	8	5	1	0	14	6	497	75	2	580	103	10	2	1	116	1	229	2	0	232	942
% App. Total	57.1	35.7	7.1	0		1	85.7	12.9	0.3		88.8	8.6	1.7	0.9		0.4	98.7	0.9	0		
PHF	.667	.625	.250	.000	.875	.375	.796	.670	.250	.815	.696	.833	.250	.250	.744	.250	.842	.500	.000	.841	.938
Cars	8	5	1	0	14	6	466	72	2	546	100	10	2	0	112	1	201	2	0	204	876
% Cars	100	100	100	0	100	100	93.8	96.0	100	94.1	97.1	100	100	0	96.6	100	87.8	100	0	87.9	93.0
Heavy Vehicles	0	0	0	0	0	0	31	3	0	34	3	0	0	1	4	0	28	0	0	28	66
% Heavy Vehicles	0	0	0	0	0	0	6.2	4.0	0	5.9	2.9	0	0	100	3.4	0	12.2	0	0	12.1	7.0



N/S: Belgrade Terrace/ Anawan Avenue
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

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Start Date : 10/26/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Belgrade Terrace From North				Belgrade Avenue From East				Anawan Avenue From South				Belgrade Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
02:30 PM	2	0	0	0	1	65	10	0	22	0	0	0	0	78	1	0	179
02:45 PM	1	0	0	1	1	72	10	0	20	0	0	0	0	91	3	0	199
Total	3	0	0	1	2	137	20	0	42	0	0	0	0	169	4	0	378
03:00 PM	0	0	1	0	0	75	27	0	19	0	1	0	0	97	0	0	220
03:15 PM	3	1	0	0	1	73	25	0	15	0	1	0	0	106	0	0	225
03:30 PM	1	0	0	0	1	72	30	0	15	2	0	0	0	102	0	0	223
03:45 PM	2	2	2	0	1	68	18	0	16	0	0	0	1	119	0	0	229
Total	6	3	3	0	3	288	100	0	65	2	2	0	1	424	0	0	897
04:00 PM	0	1	1	0	0	85	26	1	24	2	0	0	1	111	0	0	252
04:15 PM	1	0	1	0	0	66	28	0	17	0	0	0	0	113	1	0	227
04:30 PM	1	1	0	0	1	90	33	0	17	0	0	0	1	123	0	0	267
04:45 PM	0	0	0	0	2	88	24	0	23	0	0	0	0	113	2	0	252
Total	2	2	2	0	3	329	111	1	81	2	0	0	2	460	3	0	998
05:00 PM	1	1	0	0	0	99	31	0	22	0	0	0	0	110	0	0	264
05:15 PM	0	2	0	0	1	76	16	0	24	0	0	0	1	115	0	0	235
05:30 PM	1	0	0	0	1	60	32	0	16	0	2	0	1	107	0	0	220
05:45 PM	0	3	0	0	1	74	29	0	19	0	0	0	1	126	5	0	258
Total	2	6	0	0	3	309	108	0	81	0	2	0	3	458	5	0	977
Grand Total	13	11	5	1	11	1063	339	1	269	4	4	0	6	1511	12	0	3250
Apprch %	43.3	36.7	16.7	3.3	0.8	75.2	24	0.1	97.1	1.4	1.4	0	0.4	98.8	0.8	0	
Total %	0.4	0.3	0.2	0	0.3	32.7	10.4	0	8.3	0.1	0.1	0	0.2	46.5	0.4	0	
Cars	13	11	5	1	11	993	336	1	264	4	4	0	6	1436	12	0	3097
% Cars	100	100	100	100	100	93.4	99.1	100	98.1	100	100	0	100	95	100	0	95.3
Heavy Vehicles	0	0	0	0	0	70	3	0	5	0	0	0	0	75	0	0	153
% Heavy Vehicles	0	0	0	0	0	6.6	0.9	0	1.9	0	0	0	0	5	0	0	4.7

	Belgrade Terrace From North					Belgrade Avenue From East					Anawan Avenue From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	1	1	0	0	2	1	90	33	0	124	17	0	0	0	17	1	123	0	0	124	267
04:45 PM	0	0	0	0	0	2	88	24	0	114	23	0	0	0	23	0	113	2	0	115	252
05:00 PM	1	1	0	0	2	0	99	31	0	130	22	0	0	0	22	0	110	0	0	110	264
05:15 PM	0	2	0	0	2	1	76	16	0	93	24	0	0	0	24	1	115	0	0	116	235
Total Volume	2	4	0	0	6	4	353	104	0	461	86	0	0	0	86	2	461	2	0	465	1018
% App. Total	33.3	66.7	0	0		0.9	76.6	22.6	0		100	0	0	0		0.4	99.1	0.4	0		
PHF	.500	.500	.000	.000	.750	.500	.891	.788	.000	.887	.896	.000	.000	.000	.896	.500	.937	.250	.000	.938	.953
Cars	2	4	0	0	6	4	328	104	0	436	85	0	0	0	85	2	440	2	0	444	971
% Cars	100	100	0	0	100	100	92.9	100	0	94.6	98.8	0	0	0	98.8	100	95.4	100	0	95.5	95.4
Heavy Vehicles	0	0	0	0	0	0	25	0	0	25	1	0	0	0	1	0	21	0	0	21	47
% Heavy Vehicles	0	0	0	0	0	0	7.1	0	0	5.4	1.2	0	0	0	1.2	0	4.6	0	0	4.5	4.6

N/S: Belgrade Terrace/ Anawan Avenue
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

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File Name : 165344 CC
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Cars

	Belgrade Terrace From North				Belgrade Avenue From East				Anawan Avenue From South				Belgrade Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
02:30 PM	2	0	0	0	1	61	10	0	21	0	0	0	0	75	1	0	171
02:45 PM	1	0	0	1	1	63	8	0	19	0	0	0	0	85	3	0	181
Total	3	0	0	1	2	124	18	0	40	0	0	0	0	160	4	0	352
03:00 PM	0	0	1	0	0	72	27	0	18	0	1	0	0	91	0	0	210
03:15 PM	3	1	0	0	1	67	24	0	14	0	1	0	0	102	0	0	213
03:30 PM	1	0	0	0	1	68	30	0	15	2	0	0	0	97	0	0	214
03:45 PM	2	2	2	0	1	65	18	0	16	0	0	0	1	109	0	0	216
Total	6	3	3	0	3	272	99	0	63	2	2	0	1	399	0	0	853
04:00 PM	0	1	1	0	0	77	26	1	24	2	0	0	1	104	0	0	237
04:15 PM	1	0	1	0	0	62	28	0	17	0	0	0	0	107	1	0	217
04:30 PM	1	1	0	0	1	83	33	0	17	0	0	0	1	116	0	0	253
04:45 PM	0	0	0	0	2	85	24	0	22	0	0	0	0	108	2	0	243
Total	2	2	2	0	3	307	111	1	80	2	0	0	2	435	3	0	950
05:00 PM	1	1	0	0	0	96	31	0	22	0	0	0	0	107	0	0	258
05:15 PM	0	2	0	0	1	64	16	0	24	0	0	0	1	109	0	0	217
05:30 PM	1	0	0	0	1	57	32	0	16	0	2	0	1	105	0	0	215
05:45 PM	0	3	0	0	1	73	29	0	19	0	0	0	1	121	5	0	252
Total	2	6	0	0	3	290	108	0	81	0	2	0	3	442	5	0	942
Grand Total	13	11	5	1	11	993	336	1	264	4	4	0	6	1436	12	0	3097
Apprch %	43.3	36.7	16.7	3.3	0.8	74	25.1	0.1	97.1	1.5	1.5	0	0.4	98.8	0.8	0	
Total %	0.4	0.4	0.2	0	0.4	32.1	10.8	0	8.5	0.1	0.1	0	0.2	46.4	0.4	0	

	Belgrade Terrace From North					Belgrade Avenue From East					Anawan Avenue From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	1	0	1	0	2	0	62	28	0	90	17	0	0	0	17	0	107	1	0	108	217
04:30 PM	1	1	0	0	2	1	83	33	0	117	17	0	0	0	17	1	116	0	0	117	253
04:45 PM	0	0	0	0	0	2	85	24	0	111	22	0	0	0	22	0	108	2	0	110	243
05:00 PM	1	1	0	0	2	0	96	31	0	127	22	0	0	0	22	0	107	0	0	107	258
Total Volume	3	2	1	0	6	3	326	116	0	445	78	0	0	0	78	1	438	3	0	442	971
% App. Total	50	33.3	16.7	0		0.7	73.3	26.1	0		100	0	0	0		0.2	99.1	0.7	0		
PHF	.750	.500	.250	.000	.750	.375	.849	.879	.000	.876	.886	.000	.000	.000	.886	.250	.944	.375	.000	.944	.941

N/S: Belgrade Terrace/ Anawan Avenue
E/W: Belgrade Avenue
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Start Date : 10/26/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Belgrade Terrace From North				Belgrade Avenue From East				Anawan Avenue From South				Belgrade Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
02:30 PM	0	0	0	0	0	4	0	0	1	0	0	0	0	3	0	0	8
02:45 PM	0	0	0	0	0	9	2	0	1	0	0	0	0	6	0	0	18
Total	0	0	0	0	0	13	2	0	2	0	0	0	0	9	0	0	26
03:00 PM	0	0	0	0	0	3	0	0	1	0	0	0	0	6	0	0	10
03:15 PM	0	0	0	0	0	6	1	0	1	0	0	0	0	4	0	0	12
03:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0	0	9
03:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	10	0	0	13
Total	0	0	0	0	0	16	1	0	2	0	0	0	0	25	0	0	44
04:00 PM	0	0	0	0	0	8	0	0	0	0	0	0	0	7	0	0	15
04:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	6	0	0	10
04:30 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	7	0	0	14
04:45 PM	0	0	0	0	0	3	0	0	1	0	0	0	0	5	0	0	9
Total	0	0	0	0	0	22	0	0	1	0	0	0	0	25	0	0	48
05:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0	6
05:15 PM	0	0	0	0	0	12	0	0	0	0	0	0	0	6	0	0	18
05:30 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0	5
05:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0	6
Total	0	0	0	0	0	19	0	0	0	0	0	0	0	16	0	0	35
Grand Total	0	0	0	0	0	70	3	0	5	0	0	0	0	75	0	0	153
Apprch %	0	0	0	0	0	95.9	4.1	0	100	0	0	0	0	100	0	0	
Total %	0	0	0	0	0	45.8	2	0	3.3	0	0	0	0	49	0	0	

	Belgrade Terrace From North					Belgrade Avenue From East					Anawan Avenue From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	10	0	0	10	13
04:00 PM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	7	0	0	7	15
04:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	6	0	0	6	10
04:30 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	7	0	0	7	14
Total Volume	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	0	30	0	0	30	52
% App. Total	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.688	.000	.000	.688	.000	.000	.000	.000	.000	.000	.750	.000	.000	.750	.867

N/S: Belgrade Terrace/ Anawan Avenue
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

File Name : 165344 CC
Site Code : 16170.00
Start Date : 10/26/2016
Page No : 1

Groups Printed- Peds and Bikes

	Belgrade Terrace From North					Belgrade Avenue From East					Anawan Avenue From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
02:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	3
02:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
Total	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	1	0	0	0	5
03:00 PM	0	1	0	3	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	8
03:15 PM	0	0	0	2	0	0	1	0	4	0	0	0	0	1	2	0	0	0	0	2	12
03:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
03:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
Total	0	1	0	7	2	0	1	0	4	0	0	0	0	3	3	0	0	0	0	3	24
04:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	4	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	6
04:30 PM	0	0	0	0	1	0	0	0	1	0	1	0	0	0	2	0	0	0	1	0	6
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	4	2	0	0	0	1	0	2	0	0	1	2	0	0	0	1	0	13
05:00 PM	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	6
05:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2
05:30 PM	0	0	0	1	5	0	1	0	0	0	0	0	0	0	2	0	0	0	1	0	10
05:45 PM	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	4
Total	0	0	0	6	5	0	3	0	1	0	1	0	0	0	2	0	2	0	1	1	22
Grand Total	0	1	0	18	9	0	5	0	6	0	3	0	0	5	8	0	3	0	2	4	64
Apprch %	0	3.6	0	64.3	32.1	0	45.5	0	54.5	0	18.8	0	0	31.2	50	0	33.3	0	22.2	44.4	
Total %	0	1.6	0	28.1	14.1	0	7.8	0	9.4	0	4.7	0	0	7.8	12.5	0	4.7	0	3.1	6.2	

	Belgrade Terrace From North						Belgrade Avenue From East						Anawan Avenue From South						Belgrade Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 02:30 PM																									
02:30 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	1	0	1	0	0	0	1	3
02:45 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
03:00 PM	0	1	0	3	2	6	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	8
03:15 PM	0	0	0	2	0	2	0	1	0	4	0	5	0	0	0	1	2	3	0	0	0	0	2	2	12
Total Volume	0	1	0	6	2	9	0	2	0	4	0	6	0	0	0	3	3	6	0	1	0	0	3	4	25
% App. Total	0	11.1	0	66.7	22.2		0	33.3	0	66.7	0		0	0	0	50	50		0	25	0	0	75		
PHF	.000	.250	.000	.500	.250	.375	.000	.500	.000	.250	.000	.300	.000	.000	.000	.750	.375	.500	.000	.250	.000	.000	.375	.500	.521

N/S: Belgrade Terrace/ Anawan Avenue
E/W: Belgrade Avenue
City, State: West Roxbury, MA
Client: HSH/ M. Santos

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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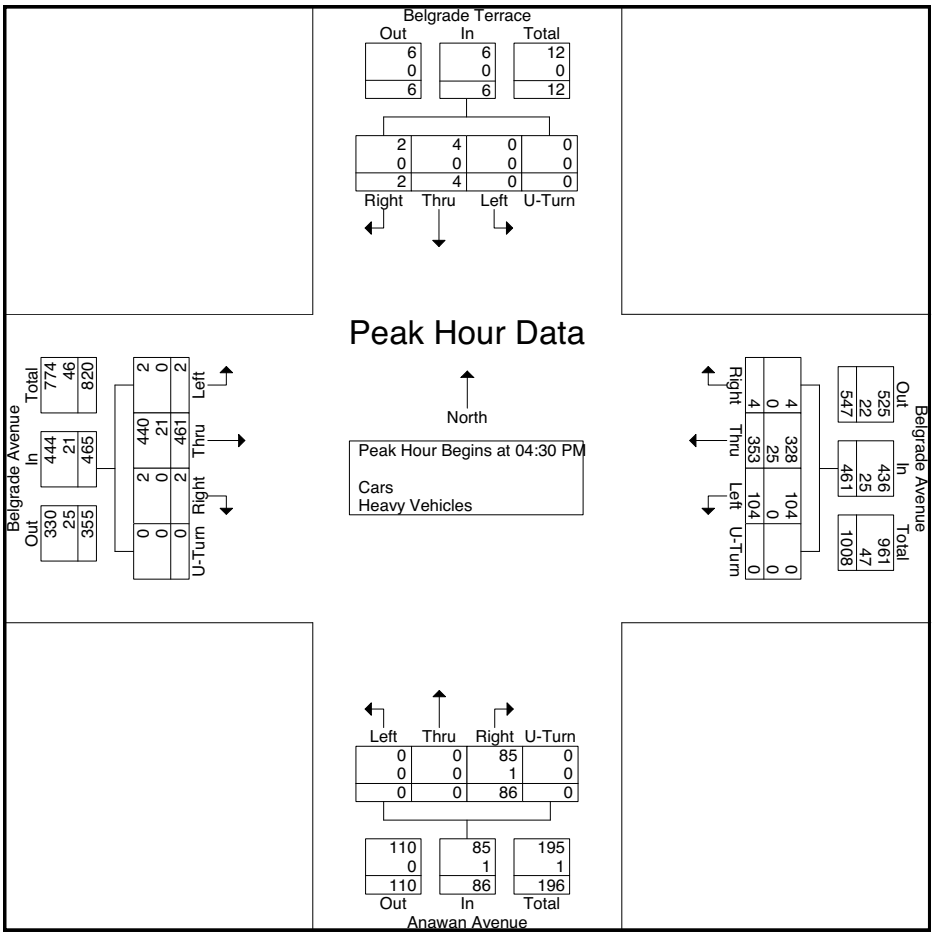
	Belgrade Terrace From North					Belgrade Avenue From East					Anawan Avenue From South					Belgrade Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	1	1	0	0	2	1	90	33	0	124	17	0	0	0	17	1	123	0	0	124	267
04:45 PM	0	0	0	0	0	2	88	24	0	114	23	0	0	0	23	0	113	2	0	115	252
05:00 PM	1	1	0	0	2	0	99	31	0	130	22	0	0	0	22	0	110	0	0	110	264
05:15 PM	0	2	0	0	2	1	76	16	0	93	24	0	0	0	24	1	115	0	0	116	235
Total Volume	2	4	0	0	6	4	353	104	0	461	86	0	0	0	86	2	461	2	0	465	1018
% App. Total	33.3	66.7	0	0		0.9	76.6	22.6	0		100	0	0	0		0.4	99.1	0.4	0		
PHF	.500	.500	.000	.000	.750	.500	.891	.788	.000	.887	.896	.000	.000	.000	.896	.500	.937	.250	.000	.938	.953
Cars	2	4	0	0	6	4	328	104	0	436	85	0	0	0	85	2	440	2	0	444	971
% Cars	100	100	0	0	100	100	92.9	100	0	94.6	98.8	0	0	0	98.8	100	95.4	100	0	95.5	95.4
Heavy Vehicles	0	0	0	0	0	0	25	0	0	25	1	0	0	0	1	0	21	0	0	21	47
% Heavy Vehicles	0	0	0	0	0	0	7.1	0	0	5.4	1.2	0	0	0	1.2	0	4.6	0	0	4.5	4.6



MASSACHUSETTS HIGHWAY DEPARTMENT - STATEWIDE TRAFFIC DATA COLLECTION

2011 WEEKDAY SEASONAL FACTORS *

* Note: These are weekday factors. The average of the factors for the year will not equal 1, as weekend data are not considered.

FACTOR GROUP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
GROUP **1** - WEST INTERSTATE	0.98	0.93	0.90	0.89	0.90	0.88	0.91	0.90	0.89	0.89	0.93	0.95
Use group 2 for R5, R6, & R0 GROUP **2** - **RURAL MAJOR COLLECTOR (R-5)**	1.12	1.12	1.07	0.99	0.91	0.90	0.86	0.86	0.92	0.93	1.01	1.05
GROUP **3A** - RECREATIONAL **(1-4) See below	1.26	1.25	1.20	1.06	0.96	0.89	0.76	0.76	0.92	0.99	1.08	1.14
GROUP **3B** - RECREATIONAL ***(5) See below	1.22	1.26	1.22	1.06	0.96	0.90	0.72	0.74	0.97	1.02	1.14	1.15
GROUP **4** - I-495 INTERSTATE	1.02	1.00	1.00	0.96	0.92	0.89	0.85	0.83	0.93	0.96	1.01	1.03
GROUP **5** - EAST INTERSTATE	1.04	1.00	0.96	0.93	0.92	0.91	0.91	0.89	0.93	0.93	0.96	1.01
GROUP **6**: Use group 6 for U2, U3, U5, U6, U0, R2, & R3 **URBAN ARTERIALS, COLLECTORS & RURAL ARTERIALS (R-2, R-3)**	1.03	1.01	0.96	0.92	0.91	0.90	0.92	0.92	0.93	0.92	0.97	0.97
GROUP **7** - I-84 PROXIMITY (STA. 17, 3921)	1.24	1.24	1.15	1.04	0.99	1.00	0.93	0.89	1.05	1.05	1.05	1.12
GROUP **8** - I-295 PROXIMITY (STA. 6590)	1.00	0.99	0.95	0.92	0.94	0.91	0.93	0.92	0.95	0.94	0.97	0.95
GROUP **9** - I-195 PROXIMITY (STA. 7)	1.13	1.05	1.03	0.95	0.89	0.87	0.86	0.79	0.88	0.91	0.99	1.03

RECREATIONAL: (ALL YEARS)

****GROUP 3A:**

1. CAPE COD (ALL TOWNS)

2.PLYMOUTH(SOUTH OF RTE.3A)

7014, 7079,7080,7090,7091,7092,7093,7094,7095,7096,7097,7108,7178

3.MARTHA'S VINEYARD

4.NANTUCKET

*****GROUP 3B:**

5.PERMANENTS 2 & 189

1066,1067,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,

1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,

1105,1106,1107,1108,1113,1114,1116,2196,2197,2198

2011 AXLE CORRECTION FACTORS

ROAD INVENTORY FUNCTIONAL CLASSIFICATION	AXLE CORRECTION FACTOR
RURAL	
1	0.95
2	0.97
3	0.98
0,5,6	0.98
URBAN	
1	0.96
2,3	0.98
5	0.98
0,6	0.99
I-84	0.90

ROUND OFF

0 - 999.....10

> 1,000.....100

Apply I-84 factor to stations:

3290, 3921, 3929

Massachusetts Bay Transportation Authority
Route 35
Weekday - Inbound

(Urban Transportation Associates)

	Trip (RouteVar)(Block) [Observations]																
	14:36 (35.1)(B207) [53] {FA17}	14:57 (35.1)(B153) [66] {FA17}	15:09 (35.1)(B238) [65] {FA17}	15:21 (35.1)(B154) [49] {FA17}	15:26 (35.1)(B152) [64] {FA17}	15:38 (35.1)(B228) [57] {FA17}	15:57 (35.1)(B135) [56] {FA17}	16:09 (35.1)(B144) [59] {FA17}	16:25 (35.1)(B202) [54] {FA17}	16:41 (35.1)(B235) [46] {FA17}	16:54 (35.1)(B147) [54] {FA17}	17:09 (35.1)(B232) [44] {FA17}	17:25 (35.1)(B144) [56] {FA17}	17:40 (35.1)(B145) [57] {FA17}	17:53 (35.1)(B146) [52] {FA17}	18:10 (35.1)(B148) [64] {FA17}	18:23 (35.1)(B099) [61] {FA17}
Seq - StopID - Stop Name	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load
61 - 788 - BELGRADE AVE @ IONA ST	13.4	13.2	18.3	14.3	12.6	11.8	17	10.5	10.6	11.3	8.2	8.3	8.7	6.2	7.3	7.2	4.8
62 - 789 - BELGRADE AVE @ REXHAME ST	13.4	12.9	18.1	14.4	12.6	11.7	17	10.6	10.8	11.3	8.3	8.1	8.6	6.2	7.4	7.2	4.9
63 - 790 - BELGRADE AVE @ ALDRICH ST	13.6	13.2	18.1	14.5	12.5	11.8	17.3	10.7	10.9	11.5	8.4	8.2	8.8	6.5	7.5	7.2	4.8
64 - 791 - BELGRADE AVE @ WALWORTH ST	14	13	18.2	14.6	12.6	11.7	17.1	10.7	11	11.1	8.2	8.2	8.6	6.6	7.5	7	4.7
65 - 792 - BELGRADE AVE @ PENFIELD ST	14.2	13	18.2	14.7	12.6	11.6	17.3	10.9	10.9	11.2	8.2	8.3	8.6	6.5	7.6	7	4.7
66 - 793 - BELGRADE AVE @ PINEHURST ST	14.1	13	18.2	14.6	12.6	11.6	17.1	10.9	10.8	11	8.2	8.2	8.5	6.4	7.5	7	4.7
67 - 794 - BELGRADE AVE @ CORINTH ST	13.6	12.4	17.4	14	12.3	11.5	16.8	10.6	10.5	10.8	8.1	8.3	8.2	6.1	7.3	6.7	4.3
68 - 795 - CORINTH ST @ WASHINGTON ST	13.5	12.6	17	12.8	11.1	11.6	17.1	10.8	10.3	10.2	8.3	8.4	8.1	6	7.4	6.7	4.3
69 - 636 - WASHINGTON ST @ CUMMINS HWY	14.8	15.1	18.7	13.9	11.5	14.2	20.5	12.5	12.4	11	8.9	9.8	8.9	6.7	8.5	7.2	4.7
70 - 637 - WASHINGTON ST @ FIRTH RD	14.8	15.3	19	13.8	11.4	14.5	20.6	12.6	12.6	10.9	9	9.9	9	6.9	8.4	7.3	4.6
71 - 638 - WASHINGTON ST @ GRANFIELD AVE	14.8	15.6	19.2	13.8	11.7	14.9	20.6	13.1	13.1	11.1	9.1	10	8.8	7	8.4	7.3	4.5
72 - 639 - WASHINGTON ST @ WHIPPLE AVE	14.9	15.5	19.2	13.2	11.4	14.9	20.5	13.1	13.2	11.1	9.1	10.1	8.7	6.9	8.4	7.3	4.5
73 - 640 - WASHINGTON ST @ ARCHDALE RD	15	15.7	19.3	12.7	11.5	15	20.7	13.4	13.3	10.9	9.2	9.6	8.6	6.7	8.2	6.8	4.5
74 - 641 - WASHINGTON ST @ ALDWIN RD	15	16	19.7	12.9	11.5	15	20.4	13.8	13.2	10.9	9.2	9.6	8.7	6.8	8.2	6.8	4.5
75 - 642 - WASHINGTON ST @ TOLLGATE WAY	15	15.9	19.7	13	11.4	15.1	20.3	13.8	13.1	11	9.2	9.5	8.6	6.8	8.2	6.8	4.5
76 - 10642 - FOREST HILLS STATION UPPER BU	0	0.2	0	0	0	0	0.8	0.8	0	0.2	0.3	0.7	0.4	0.3	0.1	0.2	0
Maximum	15	16	19.7	14.7	12.6	15.1	20.7	13.8	13.3	11.5	9.2	10.1	9	7	8.5	7.3	4.9
Average Load	12.3																
Maximum Load	20.7																
Average Capacity	42.7																
Minimum Capacity	34.3																
p.m. headway	5-15																

Massachusetts Bay Transportation Authority

Route 35

Weekday - Outbound

(Urban Transportation Associates)

	Trip (RouteVar)(Block) [Observations]					
	06:50 (35.0)(B184) [53] {FA17}	07:15 (35.0)(B143) [59] {FA17}	07:27 (35.0)(B142) [60] {FA17}	07:48 (35.0)(B055) [54] {FA17}	08:18 (35.0)(B143) [51] {FA17}	08:44 (35.1)(B142) [59] {FA17}
Seq - StopID - Stop Name	Load	Load	Load	Load	Load	Load
35 - 10642 - FOREST HILLS STATION UPPER BU	5.9	7	8.6	8.6	8.5	15.5
36 - 596 - 3867 WASHINGTON ST OPP TOLLGA	5.8	6.9	9.2	8.7	8.5	15.5
37 - 597 - WASHINGTON ST @ LOCHDALE RD	5.7	7	9.1	8.7	8.6	15.5
38 - 598 - WASHINGTON ST @ ARCHDALE RD	5.7	7.1	9.5	8.8	8.6	16.1
39 - 599 - WASHINGTON ST @ MOSGROVE AVE	5.8	7.1	9.4	8.9	8.6	16.3
40 - 600 - WASHINGTON ST OPP GRANFIELD A	5.9	7.1	9.5	8.9	8.8	16.4
41 - 601 - WASHINGTON ST @ SOUTH ST	5.8	7.2	9.3	8.7	8.6	15.9
42 - 602 - SOUTH ST @ TAFT HILL TERR	5.5	7.2	8.5	7	6.6	12.7
43 - 797 - BELGRADE AVE @ ROBERT ST	5.3	7.1	8.6	7.1	6.5	13.7
44 - 798 - BELGRADE AVE OPP PINEHURST ST	5.3	7.2	8.7	7.1	6.6	13.7
45 - 799 - BELGRADE AVE OPP PENFIELD ST	5.4	7.2	8.7	7.2	6.5	13.7
46 - 800 - BELGRADE AVE @ WALWORTH ST	5.6	8.4	8.5	7.3	6.7	14.4
47 - 801 - BELGRADE AVE OPP ALDRICH ST	5.9	8.3	8.6	7.1	6.9	14.2
48 - 802 - 277 BELGRADE AVE OPP REXHAME	5.9	8.3	8.6	7.1	7	14.2
49 - 803 - BELGRADE AVE @ MCGRAW ST	5.9	8.3	8.5	7	6.9	13.9
Maximum	5.9	8.4	9.5	8.9	8.8	16.4
Average Load	9.7					
Maximum Load	16.4					
Average Capacity	45.4					
Minimum Capacity	38.6					
a.m. headway	12-30					

Massachusetts Bay Transportation Authority
Route 36
Weekday - Inbound

(Urban Transportation Associates)

	Trip (RouteVar)(Block) [Observations]											
	14:40 (36.7)(B141) [38] {FA17}	14:41 (36.1)(B175) [64] {FA17}	15:25 (36.1)(B034) [49] {FA17}	15:35 (36.1)(B174) [57] {FA17}	16:06 (36.1)(B175) [61] {FA17}	16:30 (36.0)(B174) [39] {FA17}	16:45 (36.1)(B165) [59] {FA17}	17:01 (36.1)(B161) [62] {FA17}	17:16 (36.8)(B162) [58] {FA17}	17:30 (36.0)(B163) [54] {FA17}	17:48 (36.8)(B265) [61] {FA17}	18:00 (36.0)(B165) [59] {FA17}
Seq - StopID - Stop Name	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load
23 - 788 - BELGRADE AVE @ IONA ST	9.7	17.2	39	27.9	26.3	14.1	18.2	11.6	9.8	10	10.3	8.7
24 - 789 - BELGRADE AVE @ REXHAME ST	9.7	17.3	39.1	28	26.5	14.1	18.1	11.6	9.8	9.9	10.5	8.8
25 - 790 - BELGRADE AVE @ ALDRICH ST	9.7	17.9	38.6	28	26.6	14.7	18.2	11.8	9.8	10.2	10.6	9
26 - 791 - BELGRADE AVE @ WALWORTH ST	5.1	18.1	38.5	28	26.7	14.8	18.1	11.6	9.9	10.1	10.5	9
27 - 792 - BELGRADE AVE @ PENFIELD ST	4.3	18.1	38.4	28	26.7	14.5	17.9	11.6	9.8	10.1	10.4	8.9
28 - 793 - BELGRADE AVE @ PINEHURST ST	4.3	18.1	38.5	28	26.7	14.4	17.8	11.5	9.6	10	10.4	9
29 - 794 - BELGRADE AVE @ CORINTH ST	2.7	17.8	38.1	27.5	26	14.4	17.5	11	9.7	10.1	10.2	8.9
30 - 795 - CORINTH ST @ WASHINGTON ST	.	17.8	36	26.2	24.9	14.3	17.3	10.9	9.9	10.1	10.1	8.7
31 - 636 - WASHINGTON ST @ CUMMINS HWY	.	18.9	36.4	27	26.9	16.7	17.8	11.7	11.7	11.9	10.8	9.4
32 - 637 - WASHINGTON ST @ FIRTH RD	.	18.9	36.5	27.1	26.9	16.9	17.9	11.8	11.9	11.8	10.9	9.4
33 - 638 - WASHINGTON ST @ GRANFIELD AVE	.	19.2	36.6	27.4	27.2	16.9	18.3	12	12.1	11.9	11	9.2
34 - 639 - WASHINGTON ST @ WHIPPLE AVE	.	19.1	36.7	26.9	27.1	17	18.4	12.1	12.1	11.9	11	8.9
35 - 640 - WASHINGTON ST @ ARCHDALE RD	.	19.3	36.6	26.8	27.5	17	18.6	12	11.8	11.7	10.7	8.5
36 - 641 - WASHINGTON ST @ ALDWIN RD	.	19.4	36.7	26.8	27.7	17.1	18.4	12.1	11.7	11.6	10.7	8.4
37 - 642 - WASHINGTON ST @ TOLLGATE WAY	.	19.4	36.7	26.9	27.8	17.1	18.4	12.1	11.7	11.7	10.7	8.4
38 - 10642 - FOREST HILLS STATION UPPER BU	.	0.3	0.3	0.1	0	0.1	0.1	0.4	0.2	0.2	0.3	0.1
Maximum	9.7	19.4	39.1	28	27.8	17.1	18.6	12.1	12.1	11.9	11	9.4
Average Load	18.0											
Maximum Load	39.1											
Average Capacity	37.0											
Minimum Capacity	15.9											
p.m. headway	15-30											

Massachusetts Bay Transportation Authority
Route 36
Weekday - Outbound

(Urban Transportation Associates)

	Trip (RouteVar)(Block) [Observations]												
	06:30 (36.1)(B157) [61] {FA17}	06:40 (36.1)(B198) [58] {FA17}	06:48 (36.1)(B160) [57] {FA17}	06:58 (36.1)(B155) [54] {FA17}	07:10 (36.1)(B003) [56] {FA17}	07:27 (36.8)(B157) [63] {FA17}	07:32 (36.6)(B159) [61] {FA17}	07:38 (36.0)(B156) [58] {FA17}	07:48 (36.0)(B197) [65] {FA17}	07:59 (36.1)(B160) [55] {FA17}	08:15 (36.1)(B155) [54] {FA17}	08:30 (36.8)(B200) [68] {FA17}	09:00 (36.1)(B133) [36] {FA17}
Seq - StopID - Stop Name	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load
14 - 10642 - FOREST HILLS STATION UPPER BU	24.3	24.8	16.7	34.7	30.6	28.6	.	15.2	19	28.9	16	22.1	22
15 - 596 - 3867 WASHINGTON ST OPP TOLLGA	24.2	24.6	16.4	34.7	30.6	28.6	.	15.1	18.8	28.9	15.9	22.1	21.9
16 - 597 - WASHINGTON ST @ LOCHDALE RD	24.2	24.8	16.6	34.9	30.7	28.6	.	15.2	18.8	29	16	22.1	22.2
17 - 598 - WASHINGTON ST @ ARCHDALE RD	24.2	25.6	17.5	35.1	31.1	29	.	15.1	18.8	29.2	16.3	22.4	23
18 - 599 - WASHINGTON ST @ MOSGROVE AVE	24.3	25.9	18	35.5	30.9	29	.	15.2	18.7	29.2	16.4	22.4	23.1
19 - 600 - WASHINGTON ST OPP GRANFIELD A	24.4	26	18.7	35.7	30.9	29	.	15.1	18.7	29.5	16.5	22.8	23.7
20 - 601 - WASHINGTON ST @ SOUTH ST	24.6	26.5	20.1	35.9	31.5	29.5	.	15.2	18.5	30	16.9	22.9	23.3
21 - 602 - SOUTH ST @ TAFT HILL TERR	28.8	27.9	22.2	36.8	33.2	29.9	.	15	17.4	31	15.6	20.3	22.4
22 - 797 - BELGRADE AVE @ ROBERT ST	29.1	28.3	22.9	37.1	33.5	29.9	1.4	15.2	18.6	31.3	15.9	20.1	23
23 - 798 - BELGRADE AVE OPP PINEHURST ST	29.1	28.4	22.9	37.4	33.7	30.1	2.5	15.2	18.6	31.4	15.8	20.1	23
24 - 799 - BELGRADE AVE OPP PENFIELD ST	29.3	29.7	23.6	37.7	34.1	30.2	2.9	15.3	18.5	31.5	15.8	19.8	23
25 - 800 - BELGRADE AVE @ WALWORTH ST	29.5	30.8	24.4	37.8	34.4	30.3	4.1	15.4	18.7	31.6	15.9	20	22.8
26 - 801 - BELGRADE AVE OPP ALDRICH ST	29	30	24.7	37.8	34.4	30.4	4.4	15.6	18.6	31.4	15.9	20	22.7
27 - 802 - 277 BELGRADE AVE OPP REXHAME	29	30	24.7	37.8	34.3	30.4	4.3	15.6	18.5	31.4	15.8	20	22.8
28 - 803 - BELGRADE AVE @ MCGRAW ST	29	30	24.6	37.8	34.4	30.3	4.6	15.5	18.4	31.3	15.8	19.8	22.7
Maximum	29.5	30.8	24.7	37.8	34.4	30.4	4.6	15.6	19	31.6	16.9	22.9	23.7
Average Load	24.8												
Maximum Load	37.8												
Average Capacity	30.2												
Minimum Capacity	17.2												
a.m. headway	10-15												

Massachusetts Bay Transportation Authority
Route 37
Weekday - Inbound

(Urban Transportation Associates)

	Trip (RouteVar)(Block) [Observations]										
	14:25 (37.0)(B138) [49] {FA17}	15:05 (37.0)(B181) [62] {FA17}	15:27 (37.3)(B182) [53] {FA17}	15:53 (37.0)(B038) [59] {FA17}	16:10 (37.0)(B046) [54] {FA17}	16:28 (37.0)(B183) [44] {FA17}	16:41 (37.3)(B179) [59] {FA17}	16:58 (37.0)(B266) [59] {FA17}	17:19 (37.0)(B046) [61] {FA17}	17:35 (37.0)(B179) [57] {FA17}	17:59 (37.3)(B266) [59] {FA17}
Seq - StopID - Stop Name	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load	Load
32 - 788 - BELGRADE AVE @ IONA ST	6.9	7.1	6.7	8.2	6.6	5.8	7.8	6.7	5.5	6	5.1
33 - 789 - BELGRADE AVE @ REXHAME ST	6.9	7.3	6.8	8.4	6.7	6	7.8	6.8	5.6	6.2	5.2
34 - 790 - BELGRADE AVE @ ALDRICH ST	7.1	7.5	6.8	8.7	6.8	6.7	8.2	7	5.9	6.2	5.2
35 - 791 - BELGRADE AVE @ WALWORTH ST	7.1	7.7	6.9	9	7	6.8	8.3	7.1	5.9	6.3	5.2
36 - 792 - BELGRADE AVE @ PENFIELD ST	7.3	7.8	7.1	9.2	7.1	6.8	8.4	7.1	6.2	6.2	5.3
37 - 793 - BELGRADE AVE @ PINEHURST ST	7.3	7.9	7.1	9.2	6.9	6.8	8.4	7.1	6.1	6.1	5.4
38 - 794 - BELGRADE AVE @ CORINTH ST	7.4	7.5	7.1	9.3	6.8	6.8	8.3	7.2	6.2	6	5.4
39 - 795 - CORINTH ST @ WASHINGTON ST	8	8.2	6.4	10	8	7.3	9.1	7.2	7	6.4	5.7
40 - 636 - WASHINGTON ST @ CUMMINS HWY	12.1	9.5	7.1	12.6	10.1	9.3	10.5	8.6	8.1	7.1	6.6
41 - 637 - WASHINGTON ST @ FIRTH RD	12.9	9.6	7	13.1	10.2	9.8	10.9	9.1	8.2	7.5	6.8
42 - 638 - WASHINGTON ST @ GRANFIELD AVE	13.2	10	7.3	13.5	10.5	9.8	11.4	9.3	8.2	7.8	6.9
43 - 639 - WASHINGTON ST @ WHIPPLE AVE	13.3	10.1	7.1	13.5	10.6	9.9	11.3	9.3	8.2	7.7	7
44 - 640 - WASHINGTON ST @ ARCHDALE RD	14.1	10.2	7.3	13.4	10.8	10.5	11.2	9.5	8.3	7.7	6.9
45 - 641 - WASHINGTON ST @ ALDWIN RD	14.5	10.3	7.5	13.6	10.9	11	11.3	9.8	8.3	7.8	7
46 - 642 - WASHINGTON ST @ TOLLGATE WAY	14.5	10.3	7.4	13.7	10.9	11	11.3	9.8	8.3	7.8	7
47 - 10642 - FOREST HILLS STATION UPPER BU	1.2	0.2	0.2	0	0.3	0.2	0.8	0.1	0	0	0.1
Maximum	14.5	10.3	7.5	13.7	10.9	11	11.4	9.8	8.3	7.8	7
Average Load	10.2										
Maximum Load	14.5										
Average Capacity	44.8										
Minimum Capacity	40.5										
p.m. headway	15-20										

Massachusetts Bay Transportation Authority

Route 37

Weekday - Outbound

(Urban Transportation Associates)

	Trip (RouteVar)(Block) [Observations]						
	06:35 (37.0)(B130) [51] {FA17}	06:52 (37.0)(B045) [59] {FA17}	07:10 (37.0)(B177) [53] {FA17}	07:37 (37.3)(B176) [59] {FA17}	08:00 (37.0)(B177) [51] {FA17}	08:35 (37.0)(B176) [59] {FA17}	08:53 (37.0)(B055) [61] {FA17}
Seq - StopID - Stop Name	Load	Load	Load	Load	Load	Load	Load
1 - 10642 - FOREST HILLS STATION UPPER BU	2.6	2.7	4.9	7.9	6.8	10.5	10.9
2 - 596 - 3867 WASHINGTON ST OPP TOLLGA	2.5	2.5	4.9	7.9	6.7	10.4	10.8
3 - 597 - WASHINGTON ST @ LOCHDALE RD	2.5	2.5	5	8.1	6.8	10.5	10.8
4 - 598 - WASHINGTON ST @ ARCHDALE RD	2.5	2.6	4.9	8.1	6.9	11	12.7
5 - 599 - WASHINGTON ST @ MOSGROVE AVE	2.5	2.7	4.9	7.8	6.9	11.1	12.8
6 - 600 - WASHINGTON ST OPP GRANFIELD A	2.6	2.6	4.8	7.7	6.7	11.1	12.8
7 - 601 - WASHINGTON ST @ SOUTH ST	2.8	2.6	5.2	7.7	6.6	10.9	12.3
8 - 602 - SOUTH ST @ TAFT HILL TERR	2.6	2.5	5.2	6.5	5.7	9.4	8.9
9 - 797 - BELGRADE AVE @ ROBERT ST	3	2.6	4.5	7.1	5.6	9.1	8.6
10 - 798 - BELGRADE AVE OPP PINEHURST ST	3	2.5	4.5	7.1	5.8	9.1	8.6
11 - 799 - BELGRADE AVE OPP PENFIELD ST	3.1	2.6	4.5	7.1	5.7	9.1	8.6
12 - 800 - BELGRADE AVE @ WALWORTH ST	3	2.6	4.5	7.1	5.7	9.4	8.9
13 - 801 - BELGRADE AVE OPP ALDRICH ST	3	2.7	4.5	7.3	5.7	9.2	8.4
14 - 802 - 277 BELGRADE AVE OPP REXHAME	3	2.7	4.5	7.3	5.6	9.2	8.3
15 - 803 - BELGRADE AVE @ MCGRAW ST	2.9	2.7	4.6	7.2	5.5	8.8	8
Maximum	3.1	2.7	5.2	8.1	6.9	11.1	12.8
Average Load	7.1						
Maximum Load	12.8						
Average Capacity	47.9						
Minimum Capacity	42.2						
a.m. headway	15-30						

Massachusetts Bay Transportation Authority

Route 38

Weekday - Inbound

(Urban Transportation Associates)

	Trip (RouteVar)(Block) [Observations]								
	14:08 (38.0)(B188) [52] {FA17}	14:30 (38.0)(B187) [60] {FA17}	15:08 (38.0)(B042) [62] {FA17}	15:45 (38.0)(B145) [52] {FA17}	16:10 (38.0)(B186) [53] {FA17}	16:35 (38.0)(B145) [61] {FA17}	17:00 (38.0)(B186) [52] {FA17}	17:25 (38.0)(B065) [33] {FA17}	17:50 (38.0)(B186) [51] {FA17}
Seq - StopID - Stop Name	Load	Load	Load	Load	Load	Load	Load	Load	Load
7 - 804 - BELGRADE AVE @ WEST ROXBURY P	1.7	0.7	0.9	1.1	0.7	1	1.1	0.9	0.8
8 - 805 - BELGRADE AVE @ CENTRE ST	3.6	1.8	1.4	1.8	1.3	1.5	1.8	1.2	1.4
26 - 15216 - CENTRE @ COLBERT ST	3.8	1.9	1.4	2	1.4	1.5	1.8	1.3	1.4
27 - 5217 - CENTRE ST @ SOUTH ST	4.5	1.7	1.5	2	1.4	1.4	1.7	1.3	1.4
28 - 5218 - CENTRE ST @ GUERNEY ST	4.6	1.7	1.5	2.1	1.4	1.5	1.8	1.4	1.4
29 - 5219 - CENTRE ST @ BRADFIELD AVE	4.8	1.8	1.6	2.2	1.5	1.5	1.9	1.4	1.5
30 - 5220 - CENTRE ST @ FLETCHER ST	5	1.9	1.6	2.2	1.6	1.5	1.9	1.4	1.5
31 - 5221 - CENTRE ST @ HEWLETT ST	5	1.9	1.6	2.3	1.7	1.6	2	1.5	1.5
32 - 5222 - CENTRE ST @ ARDALE ST	4.7	2.6	2.6	2.3	2.2	1.7	2.2	1.5	1.7
33 - 5223 - CENTRE ST @ WELD ST	4.7	2.7	2.9	2.4	2.2	1.8	2.3	1.8	1.8
34 - 5224 - CENTRE ST OPP BUCHANAN RD	4.7	2.3	2.8	2.4	2.2	1.8	2.4	1.8	1.8
35 - 5225 - 1200 CENTRE ST OPP VFW PKWY	5.6	4.8	6.8	5.5	4.6	4.7	5.1	3.1	2.9
36 - 5226 - CENTRE ST @ WALTER ST	5.7	4.8	6.8	5.5	5.4	4.8	5.4	3.2	3
37 - 5227 - CENTRE ST OPP FAULKNER HOSPIT	9	5.6	10.8	7.1	7.9	6.6	7.3	4	4.8
38 - 5228 - CENTRE ST @ WESTCHESTER RD	9.3	5.7	11	7.4	8.2	6.8	7.4	4.1	4.9
39 - 5229 - CENTRE ST OPP RAMBLER RD	9.4	5.7	11	7.4	8.2	6.8	7.4	4.2	4.9
40 - 5230 - CENTRE ST OPP LOUDERS LN	9.8	5.7	11.1	7.5	8.5	6.8	7.5	4.3	5
41 - 5231 - CENTRE ST @ ARBORWAY ROTARY	10	5.7	11.2	7.5	8.6	6.9	7.9	4.5	5
42 - 2002 - CENTRE ST @ ARBORWAY	9.8	5.7	11.3	7.4	8.8	7	7.9	4.5	5.1
43 - 2003 - CENTRE ST @ BALLARD ST	9.8	5.7	11.1	7.2	8.8	6.9	7.8	4.5	5.1
59 - 99991 - SOUTH ST @ BARDWELL ST	7.8	5.3	10.4	7	8.4	6.8	6.9	4.9	4.8
60 - 2006 - SOUTH ST @ JAMAICA ST	8.2	5.9	11	7.3	8.8	7.1	7.3	5.3	5.1
61 - 2007 - SOUTH ST @ ST ROSE ST	8.1	6	11	7.3	8.8	7	7.3	5.5	5.1
62 - 10642 - FOREST HILLS STATION UPPER BU	0	0	0	0	0	0	0	0.1	0.4
Maximum	10	6	11.3	7.5	8.8	7.1	7.9	5.5	5.1
Average Load	7.7								
Maximum Load	11.3								
Average Capacity	47.3								
Minimum Capacity	43.7								
p.m. headway	25								

Massachusetts Bay Transportation Authority

Route 38

Weekday - Outbound

(Urban Transportation Associates)

	Trip (RouteVar)(Block) [Observations]					
	06:54 (38.0)(B185) [59] {FA17}	07:16 (38.0)(B259) [44] {FA17}	07:38 (38.0)(B185) [60] {FA17}	08:00 (38.0)(B259) [63] {FA17}	08:22 (38.0)(B196) [50] {FA17}	08:44 (38.0)(B227) [57] {FA17}
Seq - StopID - Stop Name	Load	Load	Load	Load	Load	Load
14 - 10642 - FOREST HILLS STATION UPPER BU	7.5	6.6	9	9.6	8.4	7.4
15 - 1936 - SOUTH ST @ SPALDING ST	7.5	6.5	8.9	9.8	8.4	7.4
16 - 1937 - SOUTH ST @ CHILD ST	7.5	6.6	8.9	8.3	7.2	7.1
17 - 1938 - SOUTH ST @ CAROLINA AVE	7.5	6.5	8.8	7.9	6.7	7
18 - 11939 - CENTRE ST @ ELIOT ST	7.7	6.6	10	8.7	7.5	7.8
19 - 1940 - CENTRE ST @ ALDWORTH ST	7.8	6.6	10.1	8.7	7.4	7.8
20 - 1941 - CENTRE ST @ ORCHARD ST	7.3	6.5	10	8.5	7.2	7.8
21 - 5241 - CENTRE ST @ HILLCROFT RD	6.8	6.5	9.3	7.4	6.5	7.6
22 - 15241 - CENTRE ST @ LOUDERS LN	6.3	6	9.3	7.4	6.4	7.4
23 - 5243 - CENTRE ST @ RAMBLER RD	6.3	6	9.3	7.3	6.4	7.4
24 - 5244 - CENTRE ST @ WESTCHESTER RD	6.1	5.7	9.1	7.1	6	7.1
25 - 5245 - CENTRE ST @ FAULKNER HOSPITAL	3.4	3.6	5.8	4.7	4	5.3
26 - 5246 - CENTRE ST OPP WALTER ST	1.6	3.4	5.6	4.4	3.6	4.8
27 - 5247 - CENTRE ST @ VFW PKWY	0.7	1.2	1.4	1.5	1.6	3.4
28 - 5248 - CENTRE ST @ BUCHANAN RD	0.7	1.3	1.4	1.5	1.6	3.4
29 - 5249 - CENTRE ST @ WELD ST	0.6	0.7	1.3	1.5	1.5	2.8
30 - 5250 - 1437 CENTRE ST OPP ARDALE ST	0.6	0.7	1.3	1.5	1.5	2.8
31 - 5251 - 1467 CENTRE ST OPP HEWLETT ST	0.5	0.7	1.1	1.3	1.5	2.8
32 - 5252 - CENTRE ST @ FLETCHER ST	0.5	0.8	1.1	1.4	1.5	2.7
33 - 5253 - 1539 CENTRE ST OPP BRADFIELD	0.5	0.7	0.9	1.3	1.5	2.7
34 - 5254 - CENTRE ST @ MONTCLAIR AVE	0.5	0.7	0.9	1.3	1.4	2.7
35 - 5255 - CENTRE ST @ CHURCH ST	0.5	0.6	1	1.3	1.3	2.6
36 - 5256 - CENTRE ST @ W ROXBURY PKWY	0.5	0.6	0.9	1.3	1.2	2.4
37 - 5257 - W ROXBURY PKWY @ BELGRADE AVE	0.2	0.5	0.8	1.1	1.1	2
Maximum	7.8	6.6	10.1	9.8	8.4	7.8
Average Load	8.4					
Maximum Load	10.1					
Average Capacity	46.6					
Minimum Capacity	44.9					
a.m. headway	20					

MBTA NEEDHAM LINE – INBOUND
WEEKDAY BOARDINGS, ALIGHTINGS, AND LOADS BY TRAIN AND STATION
Winter/Spring 2012 CTPS Commuter Rail Passenger Counts

	Train 600				Train 602				Train 604				Train 606				Train 608			
Station	Scheduled Time (AM)	Ons	Offs	Load	Scheduled Time (AM)	Ons	Offs	Load	Scheduled Time (AM)	Ons	Offs	Load	Scheduled Time (AM)	Ons	Offs	Load	Scheduled Time (AM)	Ons	Offs	Load
Needham Heights	6:10	23		23	6:45	36		36	7:30	63		63	8:02	49		49	8:30	36		36
Needham Center	6:14	15	0	38	6:49	25	0	61	7:34	45	0	108	8:06	38	0	87	8:34	15	0	51
Needham Junction	6:18	55	0	93	6:53	99	0	160	7:38	107	0	215	8:10	61	0	148	8:38	33	0	84
Hersey	6:21	38	0	131	6:56	97	1	256	7:42	158	0	373	8:13	125	0	273	8:41	56	0	140
West Roxbury	6:25	28	0	159	7:01	62	4	314	7:47	79	4	448	8:18	87	0	360	8:46	39	0	179
Highland	6:28	46	0	205	7:05	42	0	356	7:50	69	0	517	8:20	53	0	413	8:49	49	0	228
Bellevue	6:31	26	1	230	7:08	69	0	425	7:53	53	0	570	8:22	48	0	461	8:52	33	0	261
Roslindale Village	6:34	12	0	242	7:12	56	0	481	7:57	93	0	663	8:25	102	0	563	8:55	65	0	326
Forest Hills	6:37	6	0	248	7:15	5	2	484	8:00	16	1	678	8:28	29	1	591	8:58	3	5	324
Ruggles	6:41	0	51	197	7:20	4	55	433	8:05	1	54	625	8:33	0	45	546	9:04	1	37	288
Back Bay	6:45	1	59	139	7:24	7	122	318	8:09	5	207	423	8:37	10	173	383	9:08	11	123	176
South Station	6:50		139		7:29		318		8:14		423		8:42		383		9:13		176	
Total Riders		**250**	**250**			**502**	**502**			**689**	**689**			**602**	**602**			**341**	**341**	
Maximum Load				248				484				678				591				326
Max. Load Point				Forest Hills				Forest Hills				Forest Hills				Forest Hills				Roslindale
S. Sta. Offs/Max. Load				56.0%				65.7%				62.4%				64.8%				54.0%
Interzone Pct.				0.4%				1.0%				0.6%				0.0%				0.0%

Notes: Times are based on schedule effective 9/12/11
" f " before time indicates train stops only on request
" -- " indicates train does not serve this station
"S. Sta. Offs/Max. Load" = South Station alightings/maximum load on train
Interzone Pct. = Percent of offs before Forest Hills

MBTA NEEDHAM LINE – INBOUND
WEEKDAY BOARDINGS, ALIGHTINGS, AND LOADS BY TRAIN AND STATION
Winter/Spring 2012 CTPS Commuter Rail Passenger Counts

	Train 610				Train 612				Train 614				Train 616				Train 618			
Station	Scheduled Time (AM)	Ons	Offs	Load	Scheduled Time (AM)	Ons	Offs	Load	Scheduled Time (PM)	Ons	Offs	Load	Scheduled Time (PM)	Ons	Offs	Load	Scheduled Time (PM)	Ons	Offs	Load
Needham Heights	9:35	7		7	10:55	7		7	12:55	8		8	3:05	3		3	3:50	3		3
Needham Center	9:39	11	0	18	10:59	5	0	12	12:59	2	0	10	3:09	3	0	6	3:54	6	0	9
Needham Junction	9:43	10	0	28	11:03	1	0	13	1:03	1	0	11	3:13	2	0	8	3:58	2	0	11
Hersey	9:46	15	0	43	11:06	10	1	22	1:06	2	0	13	3:16	2	0	10	4:01	1	0	12
West Roxbury	9:51	10	0	53	11:11	7	0	29	1:11	8	0	21	3:28	19	1	28	4:06	4	0	16
Highland	9:53	10	0	63	11:13	5	0	34	1:13	4	0	25	3:30	1	0	29	4:08	3	1	18
Bellevue	9:56	4	0	67	11:15	3	0	37	1:15	3	0	28	3:32	1	1	29	4:10	3	2	19
Roslindale Village	9:59	6	1	72	11:17	10	2	45	1:17	1	0	29	3:34	2	2	29	4:13	2	4	17
Forest Hills	10:02	5	1	76	11:20	0	0	45	1:20	2	1	30	3:37	0	4	25	4:15	0	2	15
Ruggles	10:07	0	8	68	11:24	0	5	40	1:24	0	6	24	--	--	--	25	--	--	--	15
Back Bay	10:11	0	20	48	11:28	1	11	30	1:28	3	8	19	3:45	3	9	19	4:22	24	10	29
South Station	10:16		48		11:33		30		1:33		19		3:50		19		4:27		29	
Total Riders		**78**	**78**			**49**	**49**			**34**	**34**			**36**	**36**			**48**	**48**	
Maximum Load				76				45				30				29				29
Max. Load Point				Forest Hills				Forest Hills				Forest Hills				Roslindale				Back Bay
S. Sta. Offs/Max. Load				63.2%				66.7%				63.3%				65.5%				100%
Interzone Pct.				1.3%				6.1%				0.0%				11.1%				14.6%

MBTA NEEDHAM LINE – INBOUND
WEEKDAY BOARDINGS, ALIGHTINGS, AND LOADS BY TRAIN AND STATION
Winter/Spring 2012 CTPS Commuter Rail Passenger Counts

	Train 620				Train 622				Train 626				Train 628				Train 630			
Station	Scheduled Time (PM)	Ons	Offs	Load	Scheduled Time (PM)	Ons	Offs	Load	Scheduled Time (PM)	Ons	Offs	Load	Scheduled Time (PM)	Ons	Offs	Load	Scheduled Time (PM)	Ons	Offs	Load
Needham Heights	5:00	3		3	5:35	5		5	7:18	4		4	8:00	5		5	9:00	1		1
Needham Center	5:04	8	0	11	5:39	2	0	7	7:22	1	0	5	8:04	1	0	6	9:04	3	0	4
Needham Junction	5:08	8	0	19	5:43	1	0	8	7:26	3	0	8	8:08	1	0	7	9:08	0	0	4
Hersey	5:15	4	0	23	5:46	3	0	11	7:29	2	0	10	8:11	0	0	7	9:11	0	0	4
West Roxbury	5:20	2	1	24	5:57	2	1	12	7:39	0	0	10	8:16	0	0	7	9:16	0	0	4
Highland	5:22	4	0	28	--	--	--	12	7:41	1	1	10	--	--	--	7	9:18	0	0	4
Bellevue	5:24	3	0	31	--	--	--	12	7:43	2	0	12	--	--	--	7	9:20	0	0	4
Roslindale Village	5:26	1	4	28	--	--	--	12	7:45	0	3	9	--	--	--	7	9:22	0	0	4
Forest Hills	5:29	0	9	19	6:04	0	5	7	7:48	0	1	8	8:23	0	3	4	9:25	0	0	4
Ruggles	--	--	--	19	--	--	--	7	7:52	0	0	8	8:27	0	0	4	9:29	0	2	2
Back Bay	5:37	9	12	16	6:12	4	3	8	7:56	3	2	9	8:31	1	3	2	9:33	0	1	1
South Station	5:50		16		6:17		8		8:01		9		8:36		2		9:38		1	
Total Riders		**42**	**42**			**17**	**17**			**16**	**16**			**8**	**8**			**4**	**4**	
Maximum Load				31				12				12				7				4
Max. Load Point				Bellevue				Roslindale				Bellevue				Roslindale				Forest Hills
S. Sta. Offs/Max. Load				51.6%				66.7%				75.0%				28.6%				25.0%
Interzone Pct.				11.9%				5.9%				25.0%				0.0%				0.0%

MBTA NEEDHAM LINE – INBOUND
WEEKDAY BOARDINGS, ALIGHTINGS, AND LOADS BY TRAIN AND STATION
Winter/Spring 2012 CTPS Commuter Rail Passenger Counts

	Train 632				SUMMARY BY TIME PERIOD									
					AM Peak		Midday		PM Peak		Evening		All Day	
	Scheduled				Trains 600–608		Trains 610–616		Trains 618–622		Trains 626–632		Trains 600–632	
Station	Time (PM)	Ons	Offs	Load	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs	Ons	Offs
Needham Heights	10:10	1		1	207		25		11		11		254	
Needham Center	10:14	0	0	1	138	0	21	0	16	0	5	0	180	0
Needham Junction	10:18	2	0	3	355	0	14	0	11	0	6	0	386	0
Hersey	10:21	0	0	3	474	1	29	1	8	0	2	0	513	2
West Roxbury	10:26	0	0	3	295	8	44	1	8	2	0	0	347	11
Highland	10:28	2	0	5	259	0	20	0	7	1	3	1	289	2
Bellevue	10:30	0	0	5	229	1	11	1	6	2	2	0	248	4
Roslindale Village	10:32	3	0	8	328	0	19	5	3	8	3	3	353	16
Forest Hills	10:35	0	2	6	59	9	7	6	0	16	0	6	66	37
Ruggles	10:39	0	0	6	6	242	0	19	0	0	0	2	6	263
Back Bay	10:42	0	3	3	34	684	7	48	37	25	4	9	82	766
South Station	10:47		3			1,439		116		53		15		1,623
Total Riders		**8**	**8**		**2,384**	**2,384**	**197**	**197**	**107**	**107**	**36**	**36**	**2,724**	**2,724**

Maximum Load	8
Max. Load Point	Roslindale
S. Sta. Offs/Max. Load	37.5%
Interzone Pct.	0.0%

INTERZONE PERCENT (Percent of Offs before Forest Hills)

AM Peak	Midday	PM Peak	Evening	All Day
0.4%	4.1%	12.1%	11.1%	1.3%

MBTA NEEDHAM LINE – OUTBOUND
WEEKDAY BOARDINGS, ALIGHTINGS, AND LOADS BY TRAIN AND STATION
Winter/Spring 2012 CTPS Commuter Rail Passenger Counts

	Train 605				Train 607				Train 609				Train 611				Train 613			
Station	Scheduled Time (AM)	Ons	Offs	Load	Scheduled Time (AM)	Ons	Offs	Load	Scheduled Time (AM)	Ons	Offs	Load	Scheduled Time (AM)	Ons	Offs	Load	Scheduled Time (PM)	Ons	Offs	Load
South Station	7:05	14		14	7:25	49		49	8:40	84		84	10:00	10		10	12:00	20		20
Back Bay	7:10	11	2	23	7:30	8	45	12	8:45	5	64	25	10:05	5	3	12	12:05	10	3	27
Ruggles	--	--	--	23	--	--	--	12	--	--	--	25	--	--	--	12	12:08	3	0	30
Forest Hills	7:16	14	0	37	7:36	5	0	17	--	--	--	25	10:12	2	0	14	12:13	0	0	30
Roslindale Village	7:20	6	0	43	--	--	--	17	8:59	5	2	28	10:15	2	0	16	12:16	4	4	30
Bellevue	7:22	0	0	43	--	--	--	17	9:01	0	0	28	10:17	0	1	15	12:18	0	3	27
Highland	7:24	2	1	44	--	--	--	17	9:03	0	1	27	10:19	0	0	15	12:20	0	3	24
West Roxbury	7:26	0	20	24	7:42	0	4	13	9:05	0	11	16	10:21	0	0	15	12:22	0	2	22
Hersey	7:32	0	4	20	7:54	0	2	11	9:10	0	0	16	10:27	0	2	13	12:27	2	7	17
Needham Junction	7:42	0	2	18	8:12	0	4	7	9:13	0	2	14	10:30	0	4	9	12:30	0	7	10
Needham Center	7:46	0	5	13	8:16	1	0	8	9:17	0	5	9	10:34	0	5	4	12:34	0	3	7
Needham Heights	7:50		13		8:20		8		9:21		9		10:38		4		12:38		7	
Total Riders		**47**	**47**			**63**	**63**			**94**	**94**			**19**	**19**			**39**	**39**	
Maximum Load				44				49				84				16				30
Max. Load Point				Highland				South Station				South Station				Roslindale				Ruggles
S. Sta. Ons/Max. Load				31.8%				100%				100%				62.5%				66.7%
Interzone Pct.				17.0%				1.6%				5.3%				10.5%				15.4%

Notes: Times are based on schedule effective 9/12/11
" f " before time indicates train stops only on request
" -- " indicates train does not serve this station
"S. Sta. Ons/Max. Load" = South Station boardings/maximum load on train
Interzone Pct. = Percent of ons after Forest Hills

MBTA NEEDHAM LINE – OUTBOUND
WEEKDAY BOARDINGS, ALIGHTINGS, AND LOADS BY TRAIN AND STATION
Winter/Spring 2012 CTPS Commuter Rail Passenger Counts

	Train 615				Train 617				Train 619				Train 621				Train 623			
Station	**Scheduled Time (PM)**	**Ons**	**Offs**	**Load**	**Scheduled Time (PM)**	**Ons**	**Offs**	**Load**	**Scheduled Time (PM)**	**Ons**	**Offs**	**Load**	**Scheduled Time (PM)**	**Ons**	**Offs**	**Load**	**Scheduled Time (PM)**	**Ons**	**Offs**	**Load**
South Station	2:00	27		27	3:00	51		51	4:00	105		105	4:40	250		250	5:20	448		448
Back Bay	2:05	18	0	45	3:05	39	1	89	4:05	*92*	1	196	4:45	151	6	395	5:25	206	1	653
Ruggles	2:08	8	1	52	3:08	65	1	153	4:08	12	0	208	4:49	57	1	451	5:29	47	2	698
Forest Hills	2:14	0	2	50	3:13	1	8	146	4:13	1	12	197	4:54	5	20	436	5:34	0	33	665
Roslindale Village	2:18	2	2	50	3:16	0	17	129	4:16	0	34	163	4:57	0	52	384	5:37	0	102	563
Bellevue	2:21	0	8	42	3:18	0	15	114	4:19	0	16	147	5:00	0	31	353	5:40	0	59	504
Highland	2:23	1	9	34	3:20	0	41	73	4:21	0	33	114	5:03	0	39	314	5:43	0	88	416
West Roxbury	2:27	1	3	32	3:22	4	28	49	4:23	2	34	82	5:06	3	121	196	5:49	3	97	322
Hersey	2:32	0	9	23	3:27	0	16	33	4:28	0	29	53	5:11	0	82	114	5:54	0	126	196
Needham Junction	2:35	0	7	16	3:30	0	14	19	4:31	0	25	28	5:14	0	44	70	5:58	0	75	121
Needham Center	2:39	0	4	12	3:34	0	12	7	4:35	0	8	20	5:18	0	26	44	6:02	0	61	60
Needham Heights	2:43		12		3:38		7		4:40		20		5:22		44		6:06		60	
Total Riders		**57**	**57**			**160**	**160**			**212**	**212**			**466**	**466**			**704**	**704**	
Maximum Load				52				153				208				451				698
Max. Load Point				Ruggles				Ruggles				Ruggles				Ruggles				Ruggles
S. Sta. Ons/Max. Load				51.9%				33.3%				50.5%				55.4%				64.2%
Interzone Pct.				7.0%				2.5%				0.9%				0.6%				0.4%

MBTA NEEDHAM LINE – OUTBOUND
WEEKDAY BOARDINGS, ALIGHTINGS, AND LOADS BY TRAIN AND STATION
Winter/Spring 2012 CTPS Commuter Rail Passenger Counts

	Train 625				Train 627				Train 629				Train 631				Train 633			
Station	**Scheduled Time (PM)**	**Ons**	**Offs**	**Load**	**Scheduled Time (PM)**	**Ons**	**Offs**	**Load**	**Scheduled Time (PM)**	**Ons**	**Offs**	**Load**	**Scheduled Time (PM)**	**Ons**	**Offs**	**Load**	**Scheduled Time (PM)**	**Ons**	**Offs**	**Load**
South Station	5:55	403		403	6:25	183		183	7:10	128		128	8:10	63		63	9:15	35		35
Back Bay	6:00	137	0	540	6:30	68	4	247	7:15	35	3	160	8:15	32	1	94	9:20	18	0	53
Ruggles	6:04	30	2	568	6:34	20	0	267	7:19	17	3	174	8:18	12	0	106	9:23	3	0	56
Forest Hills	6:09	2	22	548	6:39	1	4	264	7:24	0	4	170	8:23	0	3	103	9:28	0	0	56
Roslindale Village	6:12	0	147	401	6:42	1	37	228	7:27	0	19	151	8:26	0	10	93	9:31	0	11	45
Bellevue	6:15	0	38	363	6:45	0	21	207	7:30	0	23	128	8:29	0	10	83	9:34	0	4	41
Highland	6:18	0	52	311	6:47	0	33	174	7:32	0	25	103	8:31	0	16	67	9:36	0	3	38
West Roxbury	6:21	0	48	263	6:49	0	37	137	7:34	0	19	84	8:33	1	12	56	9:38	0	7	31
Hersey	6:26	0	119	144	6:54	0	56	81	7:39	0	16	68	8:38	0	22	34	9:43	0	8	23
Needham Junction	6:29	0	57	87	6:57	0	33	48	7:42	0	28	40	8:41	0	14	20	9:46	0	6	17
Needham Center	6:33	0	44	43	7:01	0	17	31	7:46	0	18	22	8:45	0	6	14	9:50	0	8	9
Needham Heights	6:37		43		7:05		31		7:50		22		8:49		14		9:54		9	
Total Riders		**572**	**572**			**273**	**273**			**180**	**180**			**108**	**108**			**56**	**56**	
Maximum Load				568				267				174				106				56
Max. Load Point				Ruggles				Ruggles				Ruggles				Ruggles				Ruggles
S. Sta. Ons/Max. Load				71.0%				68.5%				73.6%				59.4%				62.5%
Interzone Pct.				0.0%				0.4%				0.0%				0.9%				0.0%

MBTA NEEDHAM LINE – OUTBOUND
WEEKDAY BOARDINGS, ALIGHTINGS, AND LOADS BY TRAIN AND STATION
Winter/Spring 2012 CTPS Commuter Rail Passenger Counts

Station	Train 635 Scheduled Time (PM)	Ons	Offs	Load
South Station	10:30	24		24
Back Bay	10:35	15	0	39
Ruggles	10:38	1	1	39
Forest Hills	10:43	0	1	38
Roslindale Village	10:46	0	5	33
Bellevue	10:49	0	5	28
Highland	10:51	0	4	24
West Roxbury	10:53	0	6	18
Hersey	10:58	0	2	16
Needham Junction	11:01	0	6	10
Needham Center	11:05	0	7	3
Needham Heights	11:09		3	
Total Riders		**40**	**40**	
Maximum Load				39
Max. Load Point				Back Bay
S. Sta. Ons/Max. Load				61.5%
Interzone Pct.				0.0%

SUMMARY BY TIME PERIOD

Station	AM Peak Trains 605–609 Ons	AM Peak Trains 605–609 Offs	Midday Trains 611–617 Ons	Midday Trains 611–617 Offs	PM Peak Trains 619–627 Ons	PM Peak Trains 619–627 Offs	Evening Trains 629–635 Ons	Evening Trains 629–635 Offs	All Day Trains 605–635 Ons	All Day Trains 605–635 Offs
South Station	147		108		1,389		250		1,894	
Back Bay	24	111	72	7	654	12	100	4	850	134
Ruggles	0	0	76	2	166	5	33	4	275	11
Forest Hills	19	0	3	10	9	91	0	8	31	109
Roslindale Village	11	2	8	23	1	372	0	45	20	442
Bellevue	0	0	0	27	0	165	0	42	0	234
Highland	2	2	1	53	0	245	0	48	3	348
West Roxbury	0	35	5	33	8	337	1	44	14	449
Hersey	0	6	2	34	0	412	0	48	2	500
Needham Junction	0	8	0	32	0	234	0	54	0	328
Needham Center	1	10	0	24	0	156	0	39	1	229
Needham Heights	0	30	0	30	0	198	0	48	0	306
Total Riders	**204**	**204**	**275**	**275**	**2,227**	**2,227**	**384**	**384**	**3,090**	**3,090**

INTERZONE PERCENT (Percent of Ons after Forest Hills)

AM Peak	Midday	PM Peak	Evening	All Day
6.9%	5.8%	0.4%	0.3%	1.3%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	31	116	0	2	235	274	4	1209	2	86	452	11	
Future Volume (vph)	31	116	0	2	235	274	4	1209	2	86	452	11	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		100	0		75	0		0	0		0	
Storage Lanes	0		1	0		1	0		0	0		0	
Taper Length (ft)	25			25			25			25			
Satd. Flow (prot)	0	1623	1900	0	1723	1599	0	3568	0	0	3491	0	
Flt Permitted		0.784			0.998			0.953			0.539		
Satd. Flow (perm)	0	1287	1900	0	1719	1599	0	3400	0	0	1897	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)						257					3		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		336			331			338			377		
Travel Time (s)		7.6			7.5			7.7			8.6		
Peak Hour Factor	0.92	0.92	0.92	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	
Heavy Vehicles (%)	0%	20%	0%	50%	10%	1%	50%	1%	0%	4%	2%	0%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	160	0	0	272	315	0	1397	0	0	632	0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA		
Protected Phases		3			3			1			1		2
Permitted Phases	3		3	3		3	1			1			
Detector Phase	3	3	3	3	3	3	1	1		1	1		
Switch Phase													
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0		1.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0		13.0	13.0		20.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	40.0	40.0		40.0	40.0		20.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	44.4%	44.4%		44.4%	44.4%		22%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0		0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)		5.0	5.0		5.0	5.0		5.0			5.0		
Lead/Lag							Lead	Lead		Lead	Lead		Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes		Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min		C-Min	C-Min		None
Act Effct Green (s)		21.2			21.2	21.2		46.8			46.8		
Actuated g/C Ratio		0.24			0.24	0.24		0.52			0.52		
v/c Ratio		0.53			0.67	0.55		0.79			1.18dl		
Control Delay		35.7			39.3	10.2		26.6			23.9		
Queue Delay		0.0			0.0	0.0		5.6			0.0		
Total Delay		35.7			39.3	10.2		32.1			23.9		
LOS		D			D	B		C			C		
Approach Delay		35.7			23.6			32.1			23.9		
Approach LOS		D			C			C			C		
Queue Length 50th (ft)		77			136	25		~421			163		
Queue Length 95th (ft)		135			204	86		#561			#256		
Internal Link Dist (ft)		256			251			258			297		
Turn Bay Length (ft)						75							
Base Capacity (vph)		357			477	629		1767			987		
Starvation Cap Reductn		0			0	0		314			0		
Spillback Cap Reductn		0			0	0		0			0		
Storage Cap Reductn		0			0	0		0			0		
Reduced v/c Ratio		0.45			0.57	0.50		0.96			0.64		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Yellow, Master Intersection
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 28.7 Intersection LOS: C
Intersection Capacity Utilization 85.9% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 1: West Roxbury Parkway & Belgrade Avenue

Lane Group	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SET	SER	NWL2	NWL	NWT	NWR	NWR2	NEL2	NEL	NET	NER	NER2	SWL	SWT	SWR	Ø2
Lane Configurations																									
Traffic Volume (vph)	2	44	771	31	10	419	25	9	1	26	53	8	6	106	201	11	1	234	69	6	7	58	24	1	
Future Volume (vph)	2	44	771	31	10	419	25	9	1	26	53	8	6	106	201	11	1	234	69	6	7	58	24	1	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Satd. Flow (prot)	0	0	3466	0	0	3483	0	0	0	1660	0	0	0	1712	0	0	0	0	1777	0	0	0	1752	0	
Flt Permitted			0.866			0.927				0.778				0.985					0.727				0.803		
Satd. Flow (perm)	0	0	3010	0	0	3232	0	0	0	1298	0	0	0	1690	0	0	0	0	1340	0	0	0	1456	0	
Right Turn on Red																Yes					Yes				
Satd. Flow (RTOR)														1					1						
Link Speed (mph)			30			30				30				30					30				30		
Link Distance (ft)			476			338				463				374					449				464		
Travel Time (s)			10.8			7.7				10.5				8.5					10.2				10.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.82	0.82	0.82	0.69	0.69	0.69	0.69	0.71	0.71	0.71	0.71	0.71	0.80	0.80	0.80	0.80	0.80	0.68	0.68	0.68	
Heavy Vehicles (%)	50%	20%	2%	7%	10%	2%	12%	11%	0%	4%	4%	0%	0%	1%	1%	9%	0%	2%	3%	0%	14%	5%	4%	0%	
Shared Lane Traffic (%)																									
Lane Group Flow (vph)	0	0	922	0	0	553	0	0	0	129	0	0	0	466	0	0	0	0	397	0	0	0	121	0	
Turn Type	Perm	Perm	NA		Perm	NA		Perm	Perm	NA		Perm	Perm	NA			Perm	Perm	NA			Perm	NA		
Protected Phases			1			1				4				4					3				3		2
Permitted Phases	1	1			1			4	4			4	4				3	3				3			
Detector Phase	1	1	1		1	1		4	4	4		4	4	4			3	3	3			3	3		
Switch Phase																									
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0		8.0	8.0	8.0			8.0	8.0	8.0			8.0	8.0		1.0
Minimum Split (s)	13.0	13.0	13.0		13.0	13.0		13.0	13.0	13.0		13.0	13.0	13.0			13.0	13.0	13.0			13.0	13.0		25.0
Total Split (s)	45.0	45.0	45.0		45.0	45.0		25.0	25.0	25.0		25.0	25.0	25.0			25.0	25.0	25.0			25.0	25.0		25.0
Total Split (%)	37.5%	37.5%	37.5%		37.5%	37.5%		20.8%	20.8%	20.8%		20.8%	20.8%	20.8%			20.8%	20.8%	20.8%			20.8%	20.8%		21%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0			4.0	4.0	4.0			4.0	4.0		2.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0			1.0	1.0	1.0			1.0	1.0		1.0
Lost Time Adjust (s)			0.0			0.0				0.0				0.0					0.0				0.0		
Total Lost Time (s)			5.0			5.0				5.0				5.0					5.0				5.0		
Lead/Lag	Lead	Lead	Lead		Lead	Lead		Lag	Lag	Lag		Lag	Lag	Lag			Lead	Lead	Lead			Lead	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes			Yes	Yes	Yes			Yes	Yes		Yes
Recall Mode	Min	Min	Min		Min	Min		None	None	None		None	None	None			None	None	None			None	None		None
Act Effct Green (s)			40.2			40.2				20.3				20.3					20.3				20.3		
Actuated g/C Ratio			0.37			0.37				0.19				0.19					0.19				0.19		
v/c Ratio			0.84			0.47				0.54				1.49					1.60				0.45		
Control Delay			41.7			30.0				53.0				270.3					319.8				49.1		
Queue Delay			0.0			1.1				0.0				0.0					0.0				0.0		
Total Delay			41.7			31.1				53.0				270.3					319.8				49.1		
LOS			D			C				D				F					F				D		
Approach Delay			41.7			31.1				53.0				270.3					319.8				49.1		
Approach LOS			D			C				D				F					F				D		
Queue Length 50th (ft)			360			180				94				~528					~463				86		
Queue Length 95th (ft)			#487			210				118				#533					#570				109		
Internal Link Dist (ft)			396			258				383				294					369				384		
Turn Bay Length (ft)																									
Base Capacity (vph)			1112			1194				240				313					248				268		
Starvation Cap Reductn			0			387				0				0					0				0		
Spillback Cap Reductn			0			0				0				0					0				0		
Storage Cap Reductn			0			0				0				0					0				0		
Reduced v/c Ratio			0.83			0.69				0.54				1.49					1.60				0.45		

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 109.7
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.60
Intersection Signal Delay: 124.2 Intersection LOS: F
Intersection Capacity Utilization 94.8% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Anawan Avenue & West Roxbury Parkway & Beech Street

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	120	82	7	243	125	27
Future Volume (Veh/h)	120	82	7	243	125	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.81	0.81	0.85	0.85
Hourly flow rate (vph)	146	100	9	300	147	32
Pedestrians	2				2	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	3.5				3.5	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				336		
pX, platoon unblocked					0.86	
vC, conflicting volume			248		518	198
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			248		362	198
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		73	96
cM capacity (veh/h)			1327		539	847

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	246	309	179
Volume Left	0	9	147
Volume Right	100	0	32
cSH	1700	1327	576
Volume to Capacity	0.14	0.01	0.31
Queue Length 95th (ft)	0	1	33
Control Delay (s)	0.0	0.3	14.0
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	14.0
Approach LOS			B

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	201	1	77	501	6	2	10	100	1	5	8
Future Volume (Veh/h)	2	201	1	77	501	6	2	10	100	1	5	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.82	0.82	0.82	0.74	0.74	0.74	0.88	0.88	0.88
Hourly flow rate (vph)	2	239	1	94	611	7	3	14	135	1	6	9
Pedestrians		3			1			4			9	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		331										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	627			244			1065	1062	244	1198	1060	626
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	627			184			1044	1042	185	1184	1038	626
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			98	93	84	99	97	98
cM capacity (veh/h)	956			1311			175	202	820	117	203	482

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	242	712	152	16
Volume Left	2	94	3	1
Volume Right	1	7	135	9
cSH	956	1311	605	282
Volume to Capacity	0.00	0.07	0.25	0.06
Queue Length 95th (ft)	0	6	25	4
Control Delay (s)	0.1	1.8	12.9	18.5
Lane LOS	A	A	B	C
Approach Delay (s)	0.1	1.8	12.9	18.5
Approach LOS			B	C

Intersection Summary					
Average Delay	3.2				
Intersection Capacity Utilization	59.7%	ICU Level of Service		B	
Analysis Period (min)	15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	10	231	7	13	194	112	8	565	7	227	861	15	
Future Volume (vph)	10	231	7	13	194	112	8	565	7	227	861	15	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		100	0		75	0		0	0		0	
Storage Lanes	0		1	0		1	0		0	0		0	
Taper Length (ft)	25			25			25			25			
Satd. Flow (prot)	0	1770	1252	0	1739	1599	0	3547	0	0	3485	0	
Flt Permitted		0.981			0.969			0.936			0.644		
Satd. Flow (perm)	0	1740	1252	0	1690	1599	0	3323	0	0	2267	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			48			120		2			2		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		336			331			338			377		
Travel Time (s)		7.6			7.5			7.7			8.6		
Peak Hour Factor	0.86	0.86	0.86	0.80	0.80	0.80	0.86	0.86	0.86	0.90	0.90	0.90	
Heavy Vehicles (%)	10%	7%	29%	8%	9%	1%	38%	1%	0%	0%	3%	0%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	281	8	0	259	140	0	674	0	0	1226	0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA		
Protected Phases		3			3			1			1		2
Permitted Phases	3		3	3		3	1			1			
Detector Phase	3	3	3	3	3	3	1	1		1	1		
Switch Phase													
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0		1.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0		13.0	13.0		20.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	40.0	40.0		40.0	40.0		20.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	44.4%	44.4%		44.4%	44.4%		22%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0		0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)		5.0	5.0		5.0	5.0		5.0			5.0		
Lead/Lag							Lead	Lead		Lead	Lead		Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes		Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min		C-Min	C-Min		None
Act Effct Green (s)		21.2	21.2		21.2	21.2		46.8			46.8		
Actuated g/C Ratio		0.24	0.24		0.24	0.24		0.52			0.52		
v/c Ratio		0.69	0.02		0.65	0.30		0.39			1.04		
Control Delay		39.9	0.1		38.5	8.6		16.9			64.0		
Queue Delay		0.0	0.0		0.0	0.0		0.2			0.0		
Total Delay		39.9	0.1		38.5	8.6		17.2			64.0		
LOS		D	A		D	A		B			E		
Approach Delay		38.8			28.0			17.2			64.0		
Approach LOS		D			C			B			E		
Queue Length 50th (ft)		142	0		130	9		144			~480		
Queue Length 95th (ft)		207	0		175	39		192			#630		
Internal Link Dist (ft)		256			251			258			297		
Turn Bay Length (ft)			100			75							
Base Capacity (vph)		483	382		469	530		1728			1179		
Starvation Cap Reductn		0	0		0	0		422			0		
Spillback Cap Reductn		0	0		0	0		0			0		
Storage Cap Reductn		0	0		0	0		0			0		
Reduced v/c Ratio		0.58	0.02		0.55	0.26		0.52			1.04		

Intersection Summary

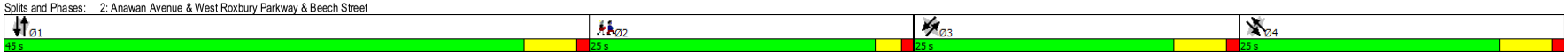
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 43.4 Intersection LOS: D
Intersection Capacity Utilization 80.3% ICU Level of Service D
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: West Roxbury Parkway & Belgrade Avenue

Lane Group	NBL2	NBL	NBT	NBR	SBL2	SBL	SBT	SBR	SEL2	SEL	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2	NEL2	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR2	Ø2
Lane Configurations																												
Traffic Volume (vph)	5	48	506	50	2	48	790	41	7	6	84	114	3	8	8	51	40	8	2	26	19	7	3	4	80	29	1	
Future Volume (vph)	5	48	506	50	2	48	790	41	7	6	84	114	3	8	8	51	40	8	2	26	19	7	3	4	80	29	1	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Satd. Flow (prot)	0	0	3523	0	0	0	3458	0	0	0	1716	0	0	0	0	1747	0	0	0	0	1716	0	0	0	0	1830	0	
Flt Permitted			0.658				0.805				0.977					0.888					0.829					0.781		
Satd. Flow (perm)	0	0	2328	0	0	0	2792	0	0	0	1681	0	0	0	0	1562	0	0	0	0	1458	0	0	0	0	1482	0	
Right Turn on Red													Yes					Yes					Yes				Yes	
Satd. Flow (RTOR)																3					2					91		
Link Speed (mph)			30				30				30					30					30					30		
Link Distance (ft)			476				338				463					374					449					464		
Travel Time (s)			10.8				7.7				10.5					8.5					10.2					10.5		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.87	0.87	0.87	0.87	0.87	0.84	0.84	0.84	0.84	0.84	0.82	0.82	0.82	0.82	
Heavy Vehicles (%)	0%	0%	1%	0%	0%	2%	3%	12%	0%	0%	3%	2%	0%	0%	0%	2%	3%	0%	0%	12%	0%	0%	0%	0%	0%	0%	0%	
Shared Lane Traffic (%)																												
Lane Group Flow (vph)	0	0	752	0	0	0	1002	0	0	0	243	0	0	0	0	132	0	0	0	0	68	0	0	0	0	139	0	
Turn Type	Perm	Perm	NA		Perm	Perm	NA		Perm	Perm	NA			Perm	Perm	NA			Perm	Perm	NA			Perm	Perm	NA		
Protected Phases			1				1				4					4					3					3		2
Permitted Phases	1	1			1	1			4	4				4	4				3	3				3	3			
Detector Phase	1	1	1		1	1	1		4	4	4			4	4	4			3	3	3			3	3	3		
Switch Phase																												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0	8.0		8.0	8.0	8.0			8.0	8.0	8.0			8.0	8.0	8.0			8.0	8.0	8.0		1.0
Minimum Split (s)	13.0	13.0	13.0		13.0	13.0	13.0		13.0	13.0	13.0			13.0	13.0	13.0			13.0	13.0	13.0			13.0	13.0	13.0		25.0
Total Split (s)	45.0	45.0	45.0		45.0	45.0	45.0		25.0	25.0	25.0			25.0	25.0	25.0			25.0	25.0	25.0			25.0	25.0	25.0		25.0
Total Split (%)	37.5%	37.5%	37.5%		37.5%	37.5%	37.5%		20.8%	20.8%	20.8%			20.8%	20.8%	20.8%			20.8%	20.8%	20.8%			20.8%	20.8%	20.8%		21%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0			4.0	4.0	4.0			4.0	4.0	4.0			4.0	4.0	4.0		2.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0			1.0	1.0	1.0			1.0	1.0	1.0			1.0	1.0	1.0		1.0
Lost Time Adjust (s)			0.0				0.0				0.0					0.0					0.0					0.0		
Total Lost Time (s)			5.0				5.0				5.0					5.0					5.0					5.0		
Lead/Lag	Lead	Lead	Lead		Lead	Lead	Lead		Lag	Lag	Lag			Lag	Lag	Lag			Lead	Lead	Lead			Lead	Lead	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes			Yes	Yes	Yes			Yes	Yes	Yes			Yes	Yes	Yes		Yes
Recall Mode	Min	Min	Min		Min	Min	Min		None	None	None			None	None	None			None	None	None			None	None	None		None
Act Effct Green (s)			41.3				41.3				18.5					18.5					11.6					11.6		
Actuated g/C Ratio			0.41				0.41				0.18					0.18					0.12					0.12		
v/c Ratio			0.78				0.87				0.78					0.45					0.40					0.55		
Control Delay			36.5				40.2				60.2					44.7					51.0					27.2		
Queue Delay			0.0				35.5				0.0					0.0					0.0					0.0		
Total Delay			36.5				75.7				60.2					44.7					51.0					27.2		
LOS			D				E				E					D					D					C		
Approach Delay			36.5				75.7				60.2					44.7					51.0					27.2		
Approach LOS			D				E				E					D					D					C		
Queue Length 50th (ft)			265				373				168					83					45					32		
Queue Length 95th (ft)			#345				#547				#309					148					84					80		
Internal Link Dist (ft)			396				258				383					294					369					384		
Turn Bay Length (ft)																												
Base Capacity (vph)			961				1152				347					324					302					377		
Starvation Cap Reductn			0				215				0					0					0					0		
Spillback Cap Reductn			0				0				0					0					0					0		
Storage Cap Reductn			0				0				0					0					0					0		
Reduced v/c Ratio			0.78				1.07				0.70					0.41					0.23					0.37		

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 100.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 56.1		Intersection LOS: E	
Intersection Capacity Utilization 81.7%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 2: Anawan Avenue & West Roxbury Parkway & Beech Street



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	242	203	11	206	95	6
Future Volume (Veh/h)	242	203	11	206	95	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.85	0.85	0.83	0.83
Hourly flow rate (vph)	257	216	13	242	114	7
Pedestrians	5				1	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	3.5				3.5	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				336		
pX, platoon unblocked					0.88	
vC, conflicting volume			474		639	366
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			474		523	366
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		74	99
cM capacity (veh/h)			1097		447	683

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	473	255	121
Volume Left	0	13	114
Volume Right	216	0	7
cSH	1700	1097	456
Volume to Capacity	0.28	0.01	0.27
Queue Length 95th (ft)	0	1	26
Control Delay (s)	0.0	0.5	15.7
Lane LOS		A	C
Approach Delay (s)	0.0	0.5	15.7
Approach LOS			C

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	461	2	108	317	4	0	0	85	0	4	2
Future Volume (Veh/h)	2	461	2	108	317	4	0	0	85	0	4	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.90	0.90	0.90	0.75	0.75	0.75
Hourly flow rate (vph)	2	490	2	121	356	4	0	0	94	0	5	3
Pedestrians		7			4			6			8	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		1			0			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		331										
pX, platoon unblocked				0.87			0.87	0.87	0.87	0.87	0.87	
vC, conflicting volume	368			498			1114	1111	501	1201	1110	373
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	368			346			1055	1052	349	1156	1051	373
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			89			100	100	84	100	97	100
cM capacity (veh/h)	1193			1057			155	173	599	114	173	668

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	494	481	94	8
Volume Left	2	121	0	0
Volume Right	2	4	94	3
cSH	1193	1057	599	240
Volume to Capacity	0.00	0.11	0.16	0.03
Queue Length 95th (ft)	0	10	14	3
Control Delay (s)	0.1	3.2	12.1	20.5
Lane LOS	A	A	B	C
Approach Delay (s)	0.1	3.2	12.1	20.5
Approach LOS			B	C

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	64.1%	ICU Level of Service		C
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	32	120	0	2	243	284	4	1252	2	89	468	11	
Future Volume (vph)	32	120	0	2	243	284	4	1252	2	89	468	11	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		100	0		75	0		0	0		0	
Storage Lanes	0		1	0		1	0		0	0		0	
Taper Length (ft)	25			25			25			25			
Satd. Flow (prot)	0	1625	1900	0	1723	1599	0	3568	0	0	3491	0	
Flt Permitted		0.766			0.998			0.953			0.527		
Satd. Flow (perm)	0	1257	1900	0	1719	1599	0	3401	0	0	1855	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)						257					3		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		336			331			338			377		
Travel Time (s)		7.6			7.5			7.7			8.6		
Peak Hour Factor	0.92	0.92	0.92	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	
Heavy Vehicles (%)	0%	20%	0%	50%	10%	1%	50%	1%	0%	4%	2%	0%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	165	0	0	281	326	0	1446	0	0	653	0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA		
Protected Phases		3			3			1			1		2
Permitted Phases	3		3	3		3	1			1			
Detector Phase	3	3	3	3	3	3	1	1		1	1		
Switch Phase													
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0		1.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0		13.0	13.0		20.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	40.0	40.0		40.0	40.0		20.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	44.4%	44.4%		44.4%	44.4%		22%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0		0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)		5.0	5.0		5.0	5.0		5.0			5.0		
Lead/Lag							Lead	Lead		Lead	Lead		Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes		Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min		C-Min	C-Min		None
Act Effct Green (s)		21.5			21.5	21.5		46.5			46.5		
Actuated g/C Ratio		0.24			0.24	0.24		0.52			0.52		
v/c Ratio		0.55			0.69	0.57		0.82			1.21dl		
Control Delay		36.5			39.7	11.0		28.1			25.5		
Queue Delay		0.0			0.0	0.0		9.7			0.0		
Total Delay		36.5			39.7	11.0		37.9			25.5		
LOS		D			D	B		D			C		
Approach Delay		36.5			24.3			37.9			25.5		
Approach LOS		D			C			D			C		
Queue Length 50th (ft)		79			140	30		~480			175		
Queue Length 95th (ft)		140			211	93		#592			#276		
Internal Link Dist (ft)		256			251			258			297		
Turn Bay Length (ft)						75							
Base Capacity (vph)		349			477	629		1758			960		
Starvation Cap Reductn		0			0	0		300			0		
Spillback Cap Reductn		0			0	0		0			0		
Storage Cap Reductn		0			0	0		0			0		
Reduced v/c Ratio		0.47			0.59	0.52		0.99			0.68		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Yellow, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 32.1 Intersection LOS: C
Intersection Capacity Utilization 88.3% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 1: West Roxbury Parkway & Belgrade Avenue

Lane Group	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SET	SER	NWL2	NWL	NWT	NWR	NWR2	NEL2	NEL	NET	NER	NER2	SWL	SWT	SWR	Ø2
Lane Configurations																									
Traffic Volume (vph)	2	46	798	32	10	434	26	9	1	27	55	8	6	110	208	11	1	242	71	6	7	60	25	1	
Future Volume (vph)	2	46	798	32	10	434	26	9	1	27	55	8	6	110	208	11	1	242	71	6	7	60	25	1	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Satd. Flow (prot)	0	0	3466	0	0	3483	0	0	0	1660	0	0	0	1712	0	0	0	0	1777	0	0	0	1752	0	
Flt Permitted			0.852			0.915				0.782				0.986					0.724				0.804		
Satd. Flow (perm)	0	0	2962	0	0	3190	0	0	0	1305	0	0	0	1692	0	0	0	0	1335	0	0	0	1458	0	
Right Turn on Red																Yes					Yes				
Satd. Flow (RTOR)														1					1						
Link Speed (mph)			30			30				30				30					30				30		
Link Distance (ft)			476			338				463				374					449				464		
Travel Time (s)			10.8			7.7				10.5				8.5					10.2				10.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.82	0.82	0.82	0.69	0.69	0.69	0.69	0.71	0.71	0.71	0.71	0.71	0.80	0.80	0.80	0.80	0.80	0.68	0.68	0.68	
Heavy Vehicles (%)	50%	20%	2%	7%	10%	2%	12%	11%	0%	4%	4%	0%	0%	1%	1%	9%	0%	2%	3%	0%	14%	5%	4%	0%	
Shared Lane Traffic (%)																									
Lane Group Flow (vph)	0	0	954	0	0	573	0	0	0	133	0	0	0	482	0	0	0	0	410	0	0	0	126	0	
Turn Type	Perm	Perm	NA		Perm	NA		Perm	Perm	NA		Perm	Perm	NA			Perm	Perm	NA			Perm	NA		
Protected Phases			1			1				4				4					3				3		2
Permitted Phases	1	1			1			4	4			4	4				3	3				3			
Detector Phase	1	1	1		1	1		4	4	4		4	4	4			3	3	3			3	3		
Switch Phase																									
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0		8.0	8.0	8.0			8.0	8.0	8.0			8.0	8.0		1.0
Minimum Split (s)	13.0	13.0	13.0		13.0	13.0		13.0	13.0	13.0		13.0	13.0	13.0			13.0	13.0	13.0			13.0	13.0		25.0
Total Split (s)	45.0	45.0	45.0		45.0	45.0		25.0	25.0	25.0		25.0	25.0	25.0			25.0	25.0	25.0			25.0	25.0		25.0
Total Split (%)	37.5%	37.5%	37.5%		37.5%	37.5%		20.8%	20.8%	20.8%		20.8%	20.8%	20.8%			20.8%	20.8%	20.8%			20.8%	20.8%		21%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0			4.0	4.0	4.0			4.0	4.0		2.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0			1.0	1.0	1.0			1.0	1.0		1.0
Lost Time Adjust (s)			0.0			0.0				0.0				0.0					0.0				0.0		
Total Lost Time (s)			5.0			5.0				5.0				5.0					5.0				5.0		
Lead/Lag	Lead	Lead	Lead		Lead	Lead		Lag	Lag	Lag		Lag	Lag	Lag			Lead	Lead	Lead			Lead	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes			Yes	Yes	Yes			Yes	Yes		Yes
Recall Mode	Min	Min	Min		Min	Min		None	None	None		None	None	None			None	None	None			None	None		None
Act Effct Green (s)			40.5			40.5				20.3				20.3					20.3				20.3		
Actuated g/C Ratio			0.37			0.37				0.18				0.18					0.18				0.18		
v/c Ratio			0.87			0.49				0.55				1.54					1.67				0.47		
Control Delay			44.6			30.4				53.7				292.9					347.0				49.7		
Queue Delay			0.0			1.2				0.0				0.0					0.0				0.0		
Total Delay			44.6			31.6				53.7				292.9					347.0				49.7		
LOS			D			C				D				F					F				D		
Approach Delay			44.6			31.6				53.7				292.9					347.0				49.7		
Approach LOS			D			C				D				F					F				D		
Queue Length 50th (ft)			381			188				97				~554					~485				90		
Queue Length 95th (ft)			#522			219				123				#555					#590				112		
Internal Link Dist (ft)			396			258				383				294					369				384		
Turn Bay Length (ft)																									
Base Capacity (vph)			1091			1175				240				312					246				268		
Starvation Cap Reductn			0			371				0				0					0				0		
Spillback Cap Reductn			0			0				0				0					0				0		
Storage Cap Reductn			0			0				0				0					0				0		
Reduced v/c Ratio			0.87			0.71				0.55				1.54					1.67				0.47		

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 110			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.67			
Intersection Signal Delay: 133.5		Intersection LOS: F	
Intersection Capacity Utilization 97.5%		ICU Level of Service F	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 2: Anawan Avenue & West Roxbury Parkway & Beech Street

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	124	85	7	252	129	28
Future Volume (Veh/h)	124	85	7	252	129	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.81	0.81	0.85	0.85
Hourly flow rate (vph)	151	104	9	311	152	33
Pedestrians	2				2	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	3.5				3.5	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				336		
pX, platoon unblocked					0.86	
vC, conflicting volume			257		536	205
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			257		376	205
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		71	96
cM capacity (veh/h)			1317		526	839

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	255	320	185
Volume Left	0	9	152
Volume Right	104	0	33
cSH	1700	1317	563
Volume to Capacity	0.15	0.01	0.33
Queue Length 95th (ft)	0	1	36
Control Delay (s)	0.0	0.3	14.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	14.5
Approach LOS			B

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	208	1	80	519	6	2	10	104	1	5	8
Future Volume (Veh/h)	2	208	1	80	519	6	2	10	104	1	5	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.82	0.82	0.82	0.74	0.74	0.74	0.88	0.88	0.88
Hourly flow rate (vph)	2	248	1	98	633	7	3	14	141	1	6	9
Pedestrians		3			1			4			9	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		331										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	649			253			1104	1102	254	1243	1098	648
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	649			190			1084	1081	190	1230	1078	648
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			92			98	93	83	99	97	98
cM capacity (veh/h)	938			1301			163	190	811	107	191	468

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	251	738	158	16
Volume Left	2	98	3	1
Volume Right	1	7	141	9
cSH	938	1301	595	267
Volume to Capacity	0.00	0.08	0.27	0.06
Queue Length 95th (ft)	0	6	27	5
Control Delay (s)	0.1	1.9	13.2	19.3
Lane LOS	A	A	B	C
Approach Delay (s)	0.1	1.9	13.2	19.3
Approach LOS			B	C

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	61.3%	ICU Level of Service		B
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	10	239	7	13	201	116	8	585	7	235	892	16	
Future Volume (vph)	10	239	7	13	201	116	8	585	7	235	892	16	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		100	0		75	0		0	0		0	
Storage Lanes	0		1	0		1	0		0	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	
Frt			0.850			0.850		0.998			0.998		
Flt Protected		0.998			0.997			0.999			0.990		
Satd. Flow (prot)	0	1770	1252	0	1739	1599	0	3547	0	0	3485	0	
Flt Permitted		0.981			0.970			0.935			0.636		
Satd. Flow (perm)	0	1740	1252	0	1692	1599	0	3320	0	0	2239	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			48			120		1			2		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		336			331			338			377		
Travel Time (s)		7.6			7.5			7.7			8.6		
Adj. Flow (vph)	12	278	8	16	251	145	9	680	8	261	991	18	
Lane Group Flow (vph)	0	290	8	0	267	145	0	697	0	0	1270	0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA		
Protected Phases		3			3			1			1		2
Permitted Phases	3		3	3		3	1			1			
Detector Phase	3	3	3	3	3	3	1	1		1	1		
Switch Phase													
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0		1.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0		13.0	13.0		20.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	40.0	40.0		40.0	40.0		20.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	44.4%	44.4%		44.4%	44.4%		22%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0		0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)		5.0	5.0		5.0	5.0		5.0			5.0		
Lead/Lag							Lead	Lead		Lead	Lead		Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes		Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min		C-Min	C-Min		None
Act Effct Green (s)		21.4	21.4		21.4	21.4		46.6			46.6		
Actuated g/C Ratio		0.24	0.24		0.24	0.24		0.52			0.52		
v/c Ratio		0.70	0.02		0.66	0.31		0.41			1.10		
Control Delay		40.4	0.1		38.8	9.1		17.3			83.1		
Queue Delay		0.0	0.0		0.0	0.0		0.3			0.0		
Total Delay		40.4	0.1		38.8	9.1		17.5			83.1		
LOS		D	A		D	A		B			F		
Approach Delay		39.3			28.4			17.5			83.1		
Approach LOS		D			C			B			F		
Queue Length 50th (ft)		147	0		134	11		152			~516		
Queue Length 95th (ft)		214	0		181	42		200			#663		
Internal Link Dist (ft)		256			251			258			297		
Turn Bay Length (ft)			100			75							
Base Capacity (vph)		483	382		470	530		1718			1159		
Starvation Cap Reductn		0	0		0	0		410			0		
Spillback Cap Reductn		0	0		0	0		0			0		
Storage Cap Reductn		0	0		0	0		0			0		
Reduced v/c Ratio		0.60	0.02		0.57	0.27		0.53			1.10		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 52.7 Intersection LOS: D
Intersection Capacity Utilization 82.4% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: West Roxbury Parkway & Belgrade Avenue

Lane Group	NBL2	NBL	NBT	NBR	SBL2	SBL	SBT	SBR	SEL2	SEL	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2	NEL2	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR2	Ø2
Lane Configurations																												
Traffic Volume (vph)	5	50	524	52	2	50	818	42	7	6	87	118	3	8	8	53	41	8	2	27	20	7	3	4	83	30	1	
Future Volume (vph)	5	50	524	52	2	50	818	42	7	6	87	118	3	8	8	53	41	8	2	27	20	7	3	4	83	30	1	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt			0.988				0.993				0.926					0.944					0.977					0.999		
Flt Protected			0.996				0.997				0.997					0.993					0.976					0.965		
Satd. Flow (prot)	0	0	3523	0	0	0	3458	0	0	0	1716	0	0	0	0	1747	0	0	0	0	1718	0	0	0	0	1832	0	
Flt Permitted			0.636				0.786				0.978					0.886					0.827					0.776		
Satd. Flow (perm)	0	0	2250	0	0	0	2726	0	0	0	1683	0	0	0	0	1559	0	0	0	0	1455	0	0	0	0	1473	0	
Right Turn on Red													Yes					Yes					Yes				Yes	
Satd. Flow (RTOR)																3					2					91		
Link Speed (mph)			30				30				30					30					30					30		
Link Distance (ft)			476				338				463					374					449					464		
Travel Time (s)			10.8				7.7				10.5					8.5					10.2					10.5		
Adj. Flow (vph)	6	62	647	64	2	57	930	48	8	7	99	134	3	9	9	61	47	9	2	32	24	8	4	5	101	37	1	
Lane Group Flow (vph)	0	0	779	0	0	0	1037	0	0	0	251	0	0	0	0	135	0	0	0	0	70	0	0	0	0	144	0	
Turn Type	Perm	Perm	NA		Perm	Perm	NA		Perm	Perm	NA			Perm	Perm	NA			Perm	Perm	NA			Perm	Perm	NA		
Protected Phases			1				1				4					4					3					3		2
Permitted Phases	1	1			1	1			4	4				4	4				3	3				3	3			
Detector Phase	1	1	1		1	1	1		4	4	4			4	4	4			3	3	3			3	3	3		
Switch Phase																												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0	8.0		8.0	8.0	8.0			8.0	8.0	8.0			8.0	8.0	8.0			8.0	8.0	8.0		1.0
Minimum Split (s)	13.0	13.0	13.0		13.0	13.0	13.0		13.0	13.0	13.0			13.0	13.0	13.0			13.0	13.0	13.0			13.0	13.0	13.0		25.0
Total Split (s)	45.0	45.0	45.0		45.0	45.0	45.0		25.0	25.0	25.0			25.0	25.0	25.0			25.0	25.0	25.0			25.0	25.0	25.0		25.0
Total Split (%)	37.5%	37.5%	37.5%		37.5%	37.5%	37.5%		20.8%	20.8%	20.8%			20.8%	20.8%	20.8%			20.8%	20.8%	20.8%			20.8%	20.8%	20.8%		21%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0			4.0	4.0	4.0			4.0	4.0	4.0			4.0	4.0	4.0		2.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0			1.0	1.0	1.0			1.0	1.0	1.0			1.0	1.0	1.0		1.0
Lost Time Adjust (s)			0.0				0.0				0.0					0.0					0.0					0.0		
Total Lost Time (s)			5.0				5.0				5.0					5.0					5.0					5.0		
Lead/Lag	Lead	Lead	Lead		Lead	Lead	Lead		Lag	Lag	Lag			Lag	Lag	Lag			Lead	Lead	Lead			Lead	Lead	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes			Yes	Yes	Yes			Yes	Yes	Yes			Yes	Yes	Yes		Yes
Recall Mode	Min	Min	Min		Min	Min	Min		None	None	None			None	None	None			None	None	None			None	None	None		None
Act Effct Green (s)			41.2				41.2				18.9					18.9					11.8					11.8		
Actuated g/C Ratio			0.41				0.41				0.19					0.19					0.12					0.12		
v/c Ratio			0.85				0.93				0.79					0.46					0.41					0.57		
Control Delay			40.8				46.9				61.1					44.9					51.0					28.4		
Queue Delay			0.0				45.3				0.0					0.0					0.0					0.0		
Total Delay			40.8				92.2				61.1					44.9					51.0					28.4		
LOS			D				F				E					D					D					C		
Approach Delay			40.8				92.2				61.1					44.9					51.0					28.4		
Approach LOS			D				F				E					D					D					C		
Queue Length 50th (ft)			285				~431				175					86					47					36		
Queue Length 95th (ft)			#379				#591				#326					153					86					84		
Internal Link Dist (ft)			396				258				383					294					369					384		
Turn Bay Length (ft)																												
Base Capacity (vph)			921				1116				344					321					299					374		
Starvation Cap Reductn			0				193				0					0					0					0		
Spillback Cap Reductn			0				0				0					0					0					0		
Storage Cap Reductn			0				0				0					0					0					0		
Reduced v/c Ratio			0.85				1.12				0.73					0.42					0.23					0.39		

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 100.7
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 64.8 — Intersection LOS: E
Intersection Capacity Utilization 83.9% — ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Anawan Avenue & West Roxbury Parkway & Beech Street

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	251	210	11	213	98	6
Future Volume (Veh/h)	251	210	11	213	98	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.85	0.85	0.83	0.83
Hourly flow rate (vph)	267	223	13	251	118	7
Pedestrians	5				1	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	3.5				3.5	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				336		
pX, platoon unblocked					0.88	
vC, conflicting volume			491		662	380
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			491		543	380
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		73	99
cM capacity (veh/h)			1082		432	671

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	490	264	125
Volume Left	0	13	118
Volume Right	223	0	7
cSH	1700	1082	441
Volume to Capacity	0.29	0.01	0.28
Queue Length 95th (ft)	0	1	29
Control Delay (s)	0.0	0.5	16.4
Lane LOS		A	C
Approach Delay (s)	0.0	0.5	16.4
Approach LOS			C

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	38.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	2	477	2	112	328	4	0	0	88	0	4	2
Future Volume (Veh/h)	2	477	2	112	328	4	0	0	88	0	4	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.90	0.90	0.90	0.75	0.75	0.75
Hourly flow rate (vph)	2	507	2	126	369	4	0	0	98	0	5	3
Pedestrians		7			4			6			8	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		1			0			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		331										
pX, platoon unblocked				0.86			0.86	0.86	0.86	0.86	0.86	
vC, conflicting volume	381			515			1154	1151	518	1245	1150	386
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	381			358			1098	1096	362	1204	1094	386
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			88			100	100	83	100	97	100
cM capacity (veh/h)	1179			1039			143	161	585	103	161	657

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	511	499	98	8
Volume Left	2	126	0	0
Volume Right	2	4	98	3
cSH	1179	1039	585	225
Volume to Capacity	0.00	0.12	0.17	0.04
Queue Length 95th (ft)	0	10	15	3
Control Delay (s)	0.1	3.3	12.4	21.6
Lane LOS	A	A	B	C
Approach Delay (s)	0.1	3.3	12.4	21.6
Approach LOS			B	C

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	65.9%	ICU Level of Service		C
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	32	121	0	2	243	297	4	1252	2	120	468	11	
Future Volume (vph)	32	121	0	2	243	297	4	1252	2	120	468	11	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		100	0		75	0		0	0		0	
Storage Lanes	0		1	0		1	0		0	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	
Frt						0.850					0.997		
Flt Protected		0.990									0.990		
Satd. Flow (prot)	0	1624	1900	0	1723	1599	0	3568	0	0	3481	0	
Flt Permitted		0.771			0.998			0.953			0.508		
Satd. Flow (perm)	0	1265	1900	0	1719	1599	0	3401	0	0	1786	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)						269					2		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		336			331			338			377		
Travel Time (s)		7.6			7.5			7.7			8.6		
Peak Hour Factor	0.92	0.92	0.92	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	
Heavy Vehicles (%)	0%	20%	0%	50%	10%	1%	50%	1%	0%	4%	2%	0%	
Adj. Flow (vph)	35	132	0	2	279	341	5	1439	2	138	538	13	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	167	0	0	281	341	0	1446	0	0	689	0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA		
Protected Phases		3			3			1			1		2
Permitted Phases	3		3	3		3	1			1			
Detector Phase	3	3	3	3	3	3	1	1		1	1		
Switch Phase													
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0		1.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0		13.0	13.0		20.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	40.0	40.0		40.0	40.0		20.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	44.4%	44.4%		44.4%	44.4%		22%
Maximum Green (s)	25.0	25.0	25.0	25.0	25.0	25.0	35.0	35.0		35.0	35.0		18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0		0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)		5.0	5.0		5.0	5.0		5.0			5.0		
Lead/Lag							Lead	Lead		Lead	Lead		Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes		Yes
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		0.2
Recall Mode	None	None	None	None	None	None	C-Min	C-Min		C-Min	C-Min		None
Walk Time (s)													7.0
Flash Dont Walk (s)													11.0
Pedestrian Calls (#/hr)													27
Act Effct Green (s)		21.6			21.6	21.6		46.4			46.4		
Actuated g/C Ratio		0.24			0.24	0.24		0.52			0.52		
v/c Ratio		0.55			0.68	0.58		0.83			1.66dl		
Control Delay		36.4			39.4	11.1		28.3			28.8		
Queue Delay		0.0			0.0	0.0		10.7			0.0		
Total Delay		36.4			39.4	11.1		39.0			28.8		
LOS		D			D	B		D			C		
Approach Delay		36.4			23.9			39.0			28.8		
Approach LOS		D			C			D			C		
Queue Length 50th (ft)		80			140	32		~480			195		
Queue Length 95th (ft)		141			211	97		#592			#309		
Internal Link Dist (ft)		256			251			258			297		
Turn Bay Length (ft)						75							
Base Capacity (vph)		351			477	638		1751			920		
Starvation Cap Reductn		0			0	0		300			0		
Spillback Cap Reductn		0			0	0		0			0		
Storage Cap Reductn		0			0	0		0			0		
Reduced v/c Ratio		0.48			0.59	0.53		1.00			0.75		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Yellow, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 33.2 Intersection LOS: C
Intersection Capacity Utilization 89.3% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 1: West Roxbury Parkway & Belgrade Avenue

Lane Group	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SET	SER	NWL2	NWL	NWT	NWR	NWR2	NEL2	NEL	NET	NER	NER2	SWL	SWT	SWR	Ø2
Lane Configurations																									
Traffic Volume (vph)	2	46	798	46	10	434	26	9	1	27	55	8	6	110	208	11	1	242	71	6	7	66	25	1	
Future Volume (vph)	2	46	798	46	10	434	26	9	1	27	55	8	6	110	208	11	1	242	71	6	7	66	25	1	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt			0.992			0.992				0.919				0.914					0.994				0.999		
Flt Protected			0.997			0.999				0.995				0.998					0.964				0.965		
Satd. Flow (prot)	0	0	3457	0	0	3483	0	0	0	1660	0	0	0	1712	0	0	0	0	1777	0	0	0	1750	0	
Flt Permitted			0.853			0.908				0.782				0.986					0.726				0.800		
Satd. Flow (perm)	0	0	2958	0	0	3165	0	0	0	1305	0	0	0	1692	0	0	0	0	1339	0	0	0	1450	0	
Right Turn on Red																Yes					Yes				
Satd. Flow (RTOR)														1					1						
Link Speed (mph)			30			30				30				30					30				30		
Link Distance (ft)			476			338				463				374					449				464		
Travel Time (s)			10.8			7.7				10.5				8.5					10.2				10.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.82	0.82	0.82	0.69	0.69	0.69	0.69	0.71	0.71	0.71	0.71	0.71	0.80	0.80	0.80	0.80	0.80	0.68	0.68	0.68	
Heavy Vehicles (%)	50%	20%	2%	7%	10%	2%	12%	11%	0%	4%	4%	0%	0%	1%	1%	9%	0%	2%	3%	0%	14%	5%	4%	0%	
Adj. Flow (vph)	2	50	867	50	12	529	32	13	1	39	80	11	8	155	293	15	1	303	89	8	9	97	37	1	
Shared Lane Traffic (%)																									
Lane Group Flow (vph)	0	0	969	0	0	573	0	0	0	133	0	0	0	482	0	0	0	0	410	0	0	0	135	0	
Turn Type	Perm	Perm	NA		Perm	NA		Perm	Perm	NA		Perm	Perm	NA			Perm	Perm	NA			Perm	NA		
Protected Phases			1			1				4				4					3				3		2
Permitted Phases	1	1			1			4	4			4	4				3	3				3			
Detector Phase	1	1	1		1	1		4	4	4		4	4	4			3	3	3			3	3		
Switch Phase																									
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0		8.0	8.0	8.0			8.0	8.0	8.0			8.0	8.0		1.0
Minimum Split (s)	13.0	13.0	13.0		13.0	13.0		13.0	13.0	13.0		13.0	13.0	13.0			13.0	13.0	13.0			13.0	13.0		25.0
Total Split (s)	45.0	45.0	45.0		45.0	45.0		25.0	25.0	25.0		25.0	25.0	25.0			25.0	25.0	25.0			25.0	25.0		25.0
Total Split (%)	37.5%	37.5%	37.5%		37.5%	37.5%		20.8%	20.8%	20.8%		20.8%	20.8%	20.8%			20.8%	20.8%	20.8%			20.8%	20.8%		21%
Maximum Green (s)	40.0	40.0	40.0		40.0	40.0		20.0	20.0	20.0		20.0	20.0	20.0			20.0	20.0	20.0			20.0	20.0		22.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0			4.0	4.0	4.0			4.0	4.0		2.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0			1.0	1.0	1.0			1.0	1.0		1.0
Lost Time Adjust (s)			0.0			0.0				0.0				0.0					0.0				0.0		
Total Lost Time (s)			5.0			5.0				5.0				5.0					5.0				5.0		
Lead/Lag	Lead	Lead	Lead		Lead	Lead		Lag	Lag	Lag		Lag	Lag	Lag			Lead	Lead	Lead			Lead	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes			Yes	Yes	Yes			Yes	Yes		Yes
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0			4.0	4.0	4.0			4.0	4.0		0.2
Recall Mode	Min	Min	Min		Min	Min		None	None	None		None	None	None			None	None	None			None	None		None
Walk Time (s)																									7.0
Flash Dont Walk (s)																									15.0
Pedestrian Calls (#/hr)																									23
Act Effct Green (s)			40.5			40.5				20.3				20.3					20.3				20.3		
Actuated g/C Ratio			0.37			0.37				0.18				0.18					0.18				0.18		
v/c Ratio			0.89			0.49				0.55				1.54					1.66				0.51		
Control Delay			46.0			30.5				53.7				292.9					344.1				50.8		
Queue Delay			0.0			1.2				0.0				0.0					0.0				0.0		
Total Delay			46.0			31.7				53.7				292.9					344.1				50.8		
LOS			D			C				D				F					F				D		
Approach Delay			46.0			31.7				53.7				292.9					344.1				50.8		
Approach LOS			D			C				D				F					F				D		
Queue Length 50th (ft)			390			189				97				~554					~485				97		
Queue Length 95th (ft)			#535			220				123				#555					#590				120		
Internal Link Dist (ft)			396			258				383				294					369				384		
Turn Bay Length (ft)																									
Base Capacity (vph)			1090			1166				240				312					247				267		
Starvation Cap Reductn			0			366				0				0					0				0		
Spillback Cap Reductn			0			0				0				0					0				0		
Storage Cap Reductn			0			0				0				0					0				0		
Reduced v/c Ratio			0.89			0.72				0.55				1.54					1.66				0.51		

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 110
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.66
Intersection Signal Delay: 132.8 Intersection LOS: F
Intersection Capacity Utilization 97.5% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Anawan Avenue & West Roxbury Parkway & Beech Street

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	125	85	7	252	129	28
Future Volume (Veh/h)	125	85	7	252	129	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.82	0.81	0.81	0.85	0.85
Hourly flow rate (vph)	152	104	9	311	152	33
Pedestrians	2				2	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	3.5				3.5	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				336		
pX, platoon unblocked					0.86	
vC, conflicting volume			258		537	206
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			258		377	206
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		71	96
cM capacity (veh/h)			1316		525	838

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	256	320	185
Volume Left	0	9	152
Volume Right	104	0	33
cSH	1700	1316	562
Volume to Capacity	0.15	0.01	0.33
Queue Length 95th (ft)	0	1	36
Control Delay (s)	0.0	0.3	14.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	14.5
Approach LOS			B

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	34.4%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	34	208	1	80	519	52	2	24	104	21	11	21
Future Volume (Veh/h)	34	208	1	80	519	52	2	24	104	21	11	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.82	0.82	0.82	0.74	0.74	0.74	0.88	0.88	0.88
Hourly flow rate (vph)	40	248	1	98	633	63	3	32	141	24	13	24
Pedestrians		3			1			4			9	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		331										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	705			253			1226	1234	254	1356	1202	676
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	705			188			1212	1220	188	1348	1187	676
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			92			97	79	83	68	92	95
cM capacity (veh/h)	895			1301			120	151	812	76	158	451

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	289	794	176	61
Volume Left	40	98	3	24
Volume Right	1	63	141	24
cSH	895	1301	428	135
Volume to Capacity	0.04	0.08	0.41	0.45
Queue Length 95th (ft)	4	6	49	51
Control Delay (s)	1.7	1.9	19.2	51.8
Lane LOS	A	A	C	F
Approach Delay (s)	1.7	1.9	19.2	51.8
Approach LOS			C	F

Intersection Summary				
Average Delay	6.4			
Intersection Capacity Utilization	67.4%	ICU Level of Service	C	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	10	239	7	13	202	147	8	585	7	248	892	16	
Future Volume (vph)	10	239	7	13	202	147	8	585	7	248	892	16	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		100	0		75	0		0	0		0	
Storage Lanes	0		1	0		1	0		0	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	
Frt			0.850			0.850		0.998			0.998		
Flt Protected		0.998			0.997			0.999			0.989		
Satd. Flow (prot)	0	1770	1252	0	1739	1599	0	3547	0	0	3483	0	
Flt Permitted		0.981			0.970			0.935			0.631		
Satd. Flow (perm)	0	1740	1252	0	1692	1599	0	3320	0	0	2222	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			48			152		1			2		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		336			331			338			377		
Travel Time (s)		7.6			7.5			7.7			8.6		
Peak Hour Factor	0.86	0.86	0.86	0.80	0.80	0.80	0.86	0.86	0.86	0.90	0.90	0.90	
Heavy Vehicles (%)	10%	7%	29%	8%	9%	1%	38%	1%	0%	0%	3%	0%	
Adj. Flow (vph)	12	278	8	16	253	184	9	680	8	276	991	18	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	290	8	0	269	184	0	697	0	0	1285	0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA		
Protected Phases		3			3			1			1		2
Permitted Phases	3		3	3		3	1			1			
Detector Phase	3	3	3	3	3	3	1	1		1	1		
Switch Phase													
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0		1.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0		13.0	13.0		20.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	40.0	40.0		40.0	40.0		20.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	44.4%	44.4%		44.4%	44.4%		22%
Maximum Green (s)	25.0	25.0	25.0	25.0	25.0	25.0	35.0	35.0		35.0	35.0		18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0		0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0		
Total Lost Time (s)		5.0	5.0		5.0	5.0		5.0			5.0		
Lead/Lag							Lead	Lead		Lead	Lead		Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes		Yes
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		0.2
Recall Mode	None	None	None	None	None	None	C-Min	C-Min		C-Min	C-Min		None
Walk Time (s)													7.0
Flash Dont Walk (s)													11.0
Pedestrian Calls (#/hr)													26
Act Effct Green (s)		21.6	21.6		21.6	21.6		46.4			46.4		
Actuated g/C Ratio		0.24	0.24		0.24	0.24		0.52			0.52		
v/c Ratio		0.70	0.02		0.66	0.37		0.41			1.12		
Control Delay		39.9	0.1		38.6	9.0		17.4			92.8		
Queue Delay		0.0	0.0		0.0	0.0		0.2			0.0		
Total Delay		39.9	0.1		38.6	9.0		17.6			92.8		
LOS		D	A		D	A		B			F		
Approach Delay		38.8			26.6			17.6			92.8		
Approach LOS		D			C			B			F		
Queue Length 50th (ft)		145	0		133	14		155			~535		
Queue Length 95th (ft)		214	0		182	47		200			#674		
Internal Link Dist (ft)		256			251			258			297		
Turn Bay Length (ft)			100			75							
Base Capacity (vph)		483	382		470	553		1711			1146		
Starvation Cap Reductn		0	0		0	0		392			0		
Spillback Cap Reductn		0	0		0	0		0			0		
Storage Cap Reductn		0	0		0	0		0			0		
Reduced v/c Ratio		0.60	0.02		0.57	0.33		0.53			1.12		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 56.8 Intersection LOS: E
Intersection Capacity Utilization 82.8% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: West Roxbury Parkway & Belgrade Avenue

Lane Group	NBL2	NBL	NBT	NBR	SBL2	SBL	SBT	SBR	SEL2	SEL	SET	SER	SER2	NWL2	NWL	NWT	NWR	NWR2	NEL2	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR2	Ø2
Lane Configurations																											
Traffic Volume (vph)	5	50	524	58	2	50	818	42	7	6	87	118	3	8	8	53	41	8	2	27	20	7	3	4	97	30	1	
Future Volume (vph)	5	50	524	58	2	50	818	42	7	6	87	118	3	8	8	53	41	8	2	27	20	7	3	4	97	30	1	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt			0.986				0.993				0.926					0.944					0.977					0.999		
Flt Protected			0.996				0.997				0.997					0.993					0.976					0.963		
Satd. Flow (prot)	0	0	3516	0	0	0	3458	0	0	0	1716	0	0	0	0	1747	0	0	0	0	1718	0	0	0	0	1828	0	
Flt Permitted			0.632				0.779				0.978					0.884					0.843					0.768		
Satd. Flow (perm)	0	0	2231	0	0	0	2702	0	0	0	1683	0	0	0	0	1555	0	0	0	0	1483	0	0	0	0	1458	0	
Right Turn on Red													Yes					Yes					Yes				Yes	
Satd. Flow (RTOR)																3					2					91		
Link Speed (mph)			30				30				30					30					30					30		
Link Distance (ft)			476				338				463					374					449					464		
Travel Time (s)			10.8				7.7				10.5					8.5					10.2					10.5		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.87	0.87	0.87	0.87	0.87	0.84	0.84	0.84	0.84	0.84	0.82	0.82	0.82	0.82	
Heavy Vehicles (%)	0%	0%	1%	0%	0%	2%	3%	12%	0%	0%	3%	2%	0%	0%	0%	2%	3%	0%	0%	12%	0%	0%	0%	0%	0%	0%	0%	
Adj. Flow (vph)	6	62	647	72	2	57	930	48	8	7	99	134	3	9	9	61	47	9	2	32	24	8	4	5	118	37	1	
Shared Lane Traffic (%)																												
Lane Group Flow (vph)	0	0	787	0	0	0	1037	0	0	0	251	0	0	0	0	135	0	0	0	0	70	0	0	0	0	161	0	
Turn Type	Perm	Perm	NA		Perm	Perm	NA		Perm	Perm	NA			Perm	Perm	NA			Perm	Perm	NA			Perm	Perm	NA		
Protected Phases			1				1				4					4					3					3		2
Permitted Phases	1	1			1	1			4	4				4	4				3	3				3	3			
Detector Phase	1	1	1		1	1	1		4	4	4			4	4	4			3	3	3			3	3	3		
Switch Phase																												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0	8.0		8.0	8.0	8.0			8.0	8.0	8.0			8.0	8.0	8.0			8.0	8.0	8.0		1.0
Minimum Split (s)	13.0	13.0	13.0		13.0	13.0	13.0		13.0	13.0	13.0			13.0	13.0	13.0			13.0	13.0	13.0			13.0	13.0	13.0		25.0
Total Split (s)	45.0	45.0	45.0		45.0	45.0	45.0		25.0	25.0	25.0			25.0	25.0	25.0			25.0	25.0	25.0			25.0	25.0	25.0		25.0
Total Split (%)	37.5%	37.5%	37.5%		37.5%	37.5%	37.5%		20.8%	20.8%	20.8%			20.8%	20.8%	20.8%			20.8%	20.8%	20.8%			20.8%	20.8%	20.8%		21%
Maximum Green (s)	40.0	40.0	40.0		40.0	40.0	40.0		20.0	20.0	20.0			20.0	20.0	20.0			20.0	20.0	20.0			20.0	20.0	20.0		22.0
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0			4.0	4.0	4.0			4.0	4.0	4.0			4.0	4.0	4.0		2.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0			1.0	1.0	1.0			1.0	1.0	1.0			1.0	1.0	1.0		1.0
Lost Time Adjust (s)			0.0				0.0				0.0					0.0					0.0					0.0		
Total Lost Time (s)			5.0				5.0				5.0					5.0					5.0					5.0		
Lead/Lag	Lead	Lead	Lead		Lead	Lead	Lead		Lag	Lag	Lag			Lag	Lag	Lag			Lead	Lead	Lead			Lead	Lead	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes		Yes	Yes	Yes			Yes	Yes	Yes			Yes	Yes	Yes			Yes	Yes	Yes		Yes
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0			4.0	4.0	4.0			4.0	4.0	4.0			4.0	4.0	4.0		0.2
Recall Mode	Min	Min	Min		Min	Min	Min		None	None	None			None	None	None			None	None	None			None	None	None		None
Walk Time (s)																												7.0
Flash Dont Walk (s)																												15.0
Pedestrian Calls (#/hr)																												26
Act Effct Green (s)			41.4				41.4				19.0					19.0					12.6					12.6		
Actuated g/C Ratio			0.41				0.41				0.19					0.19					0.12					0.12		
v/c Ratio			0.87				0.94				0.80					0.46					0.38					0.62		
Control Delay			43.1				49.5				62.3					45.7					49.3					32.1		
Queue Delay			0.0				44.3				0.0					0.0					0.0					0.0		
Total Delay			43.1				93.8				62.3					45.7					49.3					32.1		
LOS			D				F				E					D					D					C		
Approach Delay			43.1				93.8				62.3					45.7					49.3					32.1		
Approach LOS			D				F				E					D					D					C		
Queue Length 50th (ft)			294				~439				177					86					47					48		
Queue Length 95th (ft)			#398				#608				#333					155					85					100		
Internal Link Dist (ft)			396				258				383					294					369					384		
Turn Bay Length (ft)																												
Base Capacity (vph)			908				1100				342					318					303					369		
Starvation Cap Reductn			0				186				0					0					0					0		
Spillback Cap Reductn			0				0				0					0					0					0		
Storage Cap Reductn			0				0				0					0					0					0		
Reduced v/c Ratio			0.87				1.13				0.73					0.42					0.23					0.44		

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 101.6
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 66.2 Intersection LOS: E
Intersection Capacity Utilization 85.5% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Anawan Avenue & West Roxbury Parkway & Beech Street

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	251	210	11	213	98	6
Future Volume (Veh/h)	251	210	11	213	98	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.85	0.85	0.83	0.83
Hourly flow rate (vph)	267	223	13	251	118	7
Pedestrians	5				1	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	3.5				3.5	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				336		
pX, platoon unblocked					0.88	
vC, conflicting volume			491		662	380
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			491		543	380
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		73	99
cM capacity (veh/h)			1082		433	671

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	490	264	125
Volume Left	0	13	118
Volume Right	223	0	7
cSH	1700	1082	441
Volume to Capacity	0.29	0.01	0.28
Queue Length 95th (ft)	0	1	29
Control Delay (s)	0.0	0.5	16.3
Lane LOS		A	C
Approach Delay (s)	0.0	0.5	16.3
Approach LOS			C

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	38.6%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	491	2	112	328	23	0	6	88	19	10	16
Future Volume (Veh/h)	16	491	2	112	328	23	0	6	88	19	10	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.90	0.90	0.90	0.75	0.75	0.75
Hourly flow rate (vph)	17	522	2	126	369	26	0	7	98	25	13	21
Pedestrians		7			4			6			8	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		1			0			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		331										
pX, platoon unblocked				0.86			0.86	0.86	0.86	0.86	0.86	
vC, conflicting volume	403			530			1232	1218	533	1304	1206	397
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	403			373			1188	1172	376	1273	1158	397
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			88			100	95	83	72	91	97
cM capacity (veh/h)	1158			1024			113	142	573	88	145	648

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	541	521	105	59
Volume Left	17	126	0	25
Volume Right	2	26	98	21
cSH	1158	1024	477	145
Volume to Capacity	0.01	0.12	0.22	0.41
Queue Length 95th (ft)	1	10	21	44
Control Delay (s)	0.4	3.3	14.7	45.9
Lane LOS	A	A	B	E
Approach Delay (s)	0.4	3.3	14.7	45.9
Approach LOS			B	E

Intersection Summary				
Average Delay	5.0			
Intersection Capacity Utilization	72.0%	ICU Level of Service	C	
Analysis Period (min)	15			

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