101-105 WASHINGTON STREET BRIGHTON, MA

Multi-Family, Synagogue, and Mikvah Development

Project Notification Form

Submitted Pursuant to Article 80B of the Boston Zoning Code

Submitted by:
105 Washington LLC
93 Fisher Avenue
Brookline, MA 02445

Submitted to:
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

Prepared by:
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August 25, 2016

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BOSTON, MA 02110

August 25, 2016

Mr. Brian Golden, Director
Boston Redevelopment Authority
Boston City Hall, 9th Floor
Boston, MA 02201
Attn: Mr. Lance Campbell, Senior Project Manager

Re: 101-105 Washington Street, Brighton
Multi-Family Residential, Synagogue and Mikvah Development
Project Notification Form (PNF)

Dear Director Golden:

Our office represents 105 Washington LLC (the "Proponent"), a Massachusetts Limited Liability Company and proposed owner-developer in joint venture with Congregation Kadimah-Toras Moshe and the Daughters of Israel Mikvah (the "Parties"), as it relates to the real property at 101-105 Washington Street, Brighton (the "Project Site"). In accordance with the Article 80B-1 Large Project Review requirements of the Boston Zoning Code, we are happy to submit an Expanded Project Notification Form (the "PNF") to the Boston Redevelopment Authority ("BRA") pursuant to Article 80B, Large Project Review of the Boston Zoning Code (the "Code") for a new Multi-Family Residential, Synagogue and Mikvah development.

The Proponent's project contemplates a collaborative redevelopment and re-use of the Project Site, by replacing and upgrading the existing facilities of two (2) religious institutions and introducing a new residential development with certain accompanying integrated site, landscape, vehicular and pedestrian access measures and improvements. The Parties' shared vision is to replace the existing and inadequate facilities of these two (2) important religious institutions in order to support their long-term stability in the Brighton neighborhood, with the allocation of remaining land area for new residential housing. The scope and scale of the Proponent's residential program is also intended to further the residential policy goals of Boston Mayor Martin J. Walsh's 2030 Housing Plan.

In particular, the Proponent's collective redevelopment program will consist of approximately 99,645 gross square feet of new floor area in three (3) separate but related projects: 1) raze and replace the existing and former three-family structure utilized since the 1960's as a Mikvah on the 101 Washington Street parcel, and construct a new and improved Mikvah facility of approximately 5,030 gross square feet with dedicated on-site parking on the vacant rear parcel at 103 Washington Street (the "New Mikvah"); (2) raze and replace the existing former single-family/boarding house structure on the 105 Washington Street parcel, utilized as a Synagogue facility since the 1940's, and construct a new Synagogue facility of approximately 9,285 gross square-feet at the 101 Washington Street parcel (the "New Synagogue"); (3) construct a new 73-unit multi-family residential building of approximately 85,330 gross square feet, with an underground parking garage for 64 vehicle spaces, 73 bicycle spaces and internal trash storage, in place of the former Synagogue facility at the 105 Washington Street parcel (the "New Residential Building"); and (4) introduce overall site integration of the uses, open space/landscaping, above-grade parking for the new religious facilities, common vehicular access and pedestrian improvements (collectively the "Proposed Project").

The Project Site is comprised of 35,772 square feet of land on three (3) adjacent and contiguous parcels. As referenced above, the adjacent and contiguous lots include a land area of 5,372 square feet for the existing Mikvah facility at 101 Washington Street, to become the New Synagogue site; a vacant rear lot of 4,861 square feet, proposed for the New Synagogue; and, a 25,539 square foot parcel at 105 Washington Street, where the existing Synagogue will be replaced by the New Residential Building. Existing vehicular access is provided by an appropriately located site curb cut and shared driveway to be maintained and upgraded for common access for the Proposed Project. In addition to its market rate units, the Proposed Project will comply with the City's Inclusionary Development Policy for on-site affordable units.

The Proposed Project will exceed the 50,000 square foot total build-out size requirement for a project within a Boston neighborhood and therefore requires the preparation of filing(s) under the Large Project Review regulations, pursuant to the Code. A Letter of Intent to File a Project Notification Form was filed with the BRA for the Proposed Project on May 16, 2016 (attached as **Appendix A** to this PNF).

In support of the required Article 80 Large Project Review process, the Proponent has already conducted extensive preliminary community outreach with abutters, nearby residents, the Brighton Allston Improvement Association (the "BAIA"), local elected and appointed officials and other interested parties. To date, this process included the Proponent organizing and hosting its own on-site abutters meeting and an initial presentation to the BAIA. The Proponent is committed to continuing a thorough public review process as part of the BRA's formal review.

We believe that the Proposed Project will be a significant positive addition to the Brighton neighborhood, by revitalizing this under-utilized site with much-needed new multi-family housing, Synagogue and Mikvah space, with a thoughtful and integrated designed development; and we look forward to processing this PNF with the BRA, City officials, members of the Impact Advisory Committee and the overall Brighton community.

The public notice for the PNF will appear no later than in the August 27, 2016, edition of the *Boston Herald*. In accordance with BRA requirements, please find attached ten (10) copies of the PNF plus a CD disk for placing the PNF filing on the BRA website for public review.

Sincerely,
105 Washington LLC

Joseph Hanley, Esq. - Partner
As Counsel to 105 Washington LLC

Attachment: 101-105 Washington Street Project Notification Form
(10 Copies Plus CD Disk)

Cc: Jonathan Greeley, BRA Director of Development Review and Policy
Lance Campbell, BRA Senior Project Manager
District City Councilor Ciommo
Tomas Gonzalez and Warren O'Reilly, Mayor's Office of Neighborhood Services
State Representative Honan
State Senator Brownsberger
Jeff Feuerman, 105 Washington LLC
Edward Bayone, Congregation Kadimah Toras-Moshe
Daughters of Israel Mikvah of Boston
Mitchell L. Fischman, MLF Consulting LLC

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

105 Washington Street LLC (the “Proponent”), as represented by Brookline Development Corporation, is submitting this Project Notification Form (“PNF”), in accordance with the Article 80B-1 Large Project Review requirements of the Boston Zoning Code (“Code”). 105 Washington LLC, a Massachusetts Limited Liability Company, and proposed owner-developer, is in a joint venture with Congregation Kadimah-Toras Moshe and the Daughters of Israel Mikvah (the “Parties”), as it relates to the real estate property at 101-105 Washington Street, Brighton (the “Project Site”).

The Proponent’s project contemplates a collaborative redevelopment and re-use of the Project Site, by replacing and upgrading the existing facilities of two religious institutions and introducing a new residential development with certain accompanying integrated site, landscape, vehicular and pedestrian access measures and improvements. The Parties’ shared vision is to replace the existing and inadequate facilities of these two important religious institutions in order to support their long-term stability in the Brighton neighborhood, with the allocation of remaining land area for new residential housing. The scope and scale of the Proponent’s residential program is also intended to further the residential policy goals of Boston Mayor Martin J. Walsh’s 2030 Housing Plan.

In particular, the Proponent’s collective redevelopment program will consist of approximately 99,645 gross square feet of new floor area in three (3) separate but related projects: 1) raze and replace the existing and former three-family structure utilized since the 1960’s as a Mikvah on the 101 Washington Street parcel, and construct a new and improved Mikvah facility of approximately 5,030 gross square feet with dedicated on-site parking on the vacant rear parcel at 103 Washington Street (the “New Mikvah”); (2) raze and replace the existing former single-family/boarding house structure on the 105 Washington Street parcel, utilized as a Synagogue facility since the 1940’s, and construct a new Synagogue facility of approximately 9,285 gross square-feet with dedicated above-grade surface parking on the adjacent 101 Washington Street parcel to be vacated by razing the existing Mikvah facility (the “New Synagogue”); (3) construct a new 73-unit residential building of approximately 85,330 gross square feet, with an underground parking garage for 64 vehicle spaces, 73 bicycle spaces and internal trash storage, in place of the former Synagogue facility at the 105 Washington Street parcel (the “New Residential Building”); and (4) introduce overall site integration of the uses, open space/landscaping, 12 above-grade parking spaces for the new religious facilities, common vehicular access and pedestrian improvements (collectively the “Proposed Project”).

The Project Site is comprised of 35,772 square feet of land on three (3) adjacent and contiguous parcels. As referenced above, the adjacent and contiguous lots include a land area of 5,372 square feet for the existing Mikvah facility at 101 Washington Street, to become the New Synagogue site; a vacant rear lot of 4,861 square feet, proposed for the New Mikvah; and, a 25,539 square foot parcel at 105 Washington Street, where the existing Synagogue will be replaced by the New Residential Building. Existing vehicular access is provided by an appropriately located site curb cut and shared driveway to be maintained and upgraded for common access for the Proposed Project.

Surrounded by several abutting and nearby structures of five (5) to seven (7) stories in height, including that of multi-story apartment buildings on each side of the Property Site along Washington Street, the context of the immediate area is supportive and well-suited for the proposed scale and scope of the New Residential Building and the Proposed Project. See **Figures 1-1** and **1-2** for site locus.

The Proposed Project is located within the Multi-Family Residential Sub-district (MFR-1) of the Allston-Brighton Neighborhood District (Article 51), which allows the new multi-family residential uses and exempts the existing religious uses pursuant to the provisions of the Code, but restricts and limits certain dimensional, density, lot, floor area, off-street parking/loading and other requirements for the Proposed Project. Thus, the Proponent will seek the relief required for the Proposed Project by Variance and/or Conditional Use(s) with the City of Boston Board of Appeal.

The Proposed Project will exceed the 50,000 square foot total build-out size requirement for a project in a Boston neighborhood, and therefore will require preparation of filing(s) under the Large Project Review regulations, pursuant to Article 80 of the Boston Zoning Code. In parallel with this filing, the Proponent will seek zoning dimensional relief from the Code from the Boston Zoning Board of Appeal related to the size for the Proposed Project.

A Letter of Intent to File a Project Notification Form was filed with the Boston Redevelopment Authority for the Proposed Project on May 16, 2016 (See **Appendix A**).

The Proposed Project will be constructed with up to seven multi-family stories (with affordable units provided in accordance with Boston's affordable unit policy) with parking spaces in a basement garage. The proposed replacement Synagogue and Mikvah developments are proposed as self-standing structures with separate associated parking in the basement garage and at grade (See **Table 1-1** that follows with Approximate Project Dimensions.) The Proposed Project is ideally situated within close proximity to the MBTA "B" Green Line along Commonwealth Avenue and Washington Street cross-town bus service making it convenient for future resident commuters. The Proposed Project is within a mile of the Chestnut Hill Reservoir and other local parks, providing residents with significant open and green spaces to utilize. The proposed Site is also within walking distance to both Commonwealth Avenue and Washington Street's commercial services in Brighton Square, offering many neighborhood shops and restaurants to service the residents of the new development.

The proposed multi-family residences will have a mixture of unit types and sizes, which will accommodate Brighton's diverse and growing population, including 24 one bedroom units and 49 two bedroom units, of which 9 units will be affordable. The Proponent understands that parking is always a concern to neighborhood residents, and is proposing a basement parking facility that will house 64 parking spaces (including 60 spaces dedicated to the residential component, or roughly 0.8 spaces per unit), and bike racks for 73 bikes as required by the Boston Transportation Department guidelines.

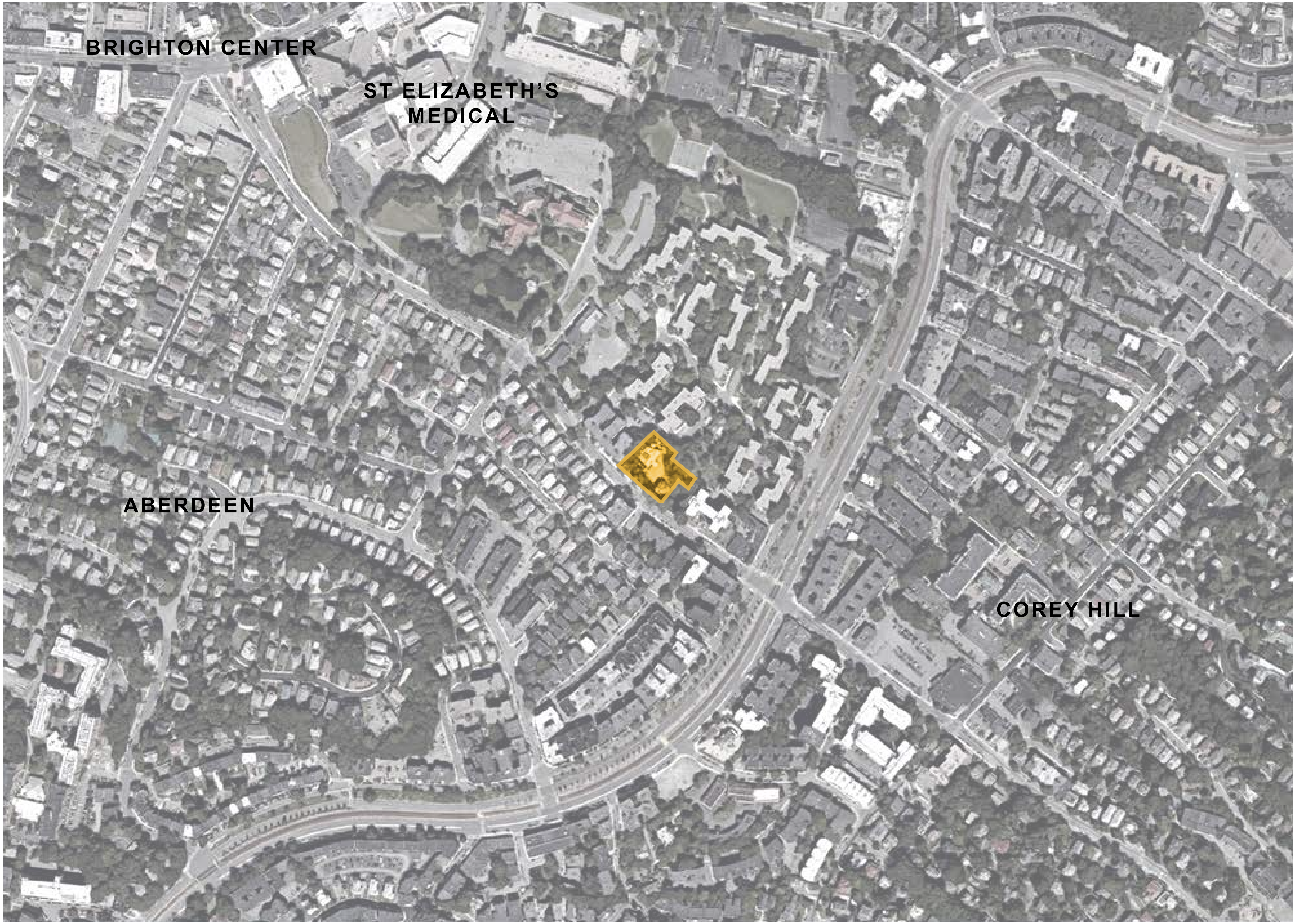
1.2 Proposed Project

1.2.1 Project Site and Surroundings

The Project Site fronts onto Washington Street in Brighton, one block north of Commonwealth Avenue and less than one half mile south from Brighton Center. The property is located on the outskirts of the Aberdeen neighborhood, in a zone of transition between several different scales of the urban fabric. The St. Elizabeth's and Franciscan Children's Hospitals, along with significant property holdings by the Boston Housing Authority, dominate the heavily institutional blocks to the north and east, while one- and two-family structures of the Aberdeen neighborhood abut Washington Street to the west. At this stretch of Washington Street, however, multi-family and multi-story masonry residential apartment buildings abut the Site in all directions.

The Site is comprised of three parcels, including one incorporated easement, and is currently occupied by a 2-1/2 story wood framed Synagogue building at 105 Washington Street ("Congregation Kadimah-Toras Moshe") and a Mikvah at 101 Washington Street. In addition, there is vacant land (at 103 Washington Street) running to the rear of the Mikvah building which is unimproved. There is an easement that runs northeast from and perpendicular to Washington Street which transects the Site in the middle. The MBTA "B" Greenline runs within ¼ mile of the Site along Commonwealth Avenue.

A review of the Site history by FSL Associates, Inc. during the Phase I Environmental Site Assessment investigation in 2016 referenced that occupancy of the 105 Washington Street building changed circa December 1941 from a dwelling to use for religious purposes. The Site Assessment reported that an accessory barn, formerly on the 105 Washington Street property, was demolished circa 1964. Prior to 1941, the Site building at 105 Washington Street was identified as a residential building, which was also depicted on the 1925 and 1898 Sanborn maps. There is no record currently available on 101 Washington Street, the current Mikvah building.


BRIGHTON CENTER
ST ELIZABETH'S
MEDICAL
ABERDEEN
COREY HILL

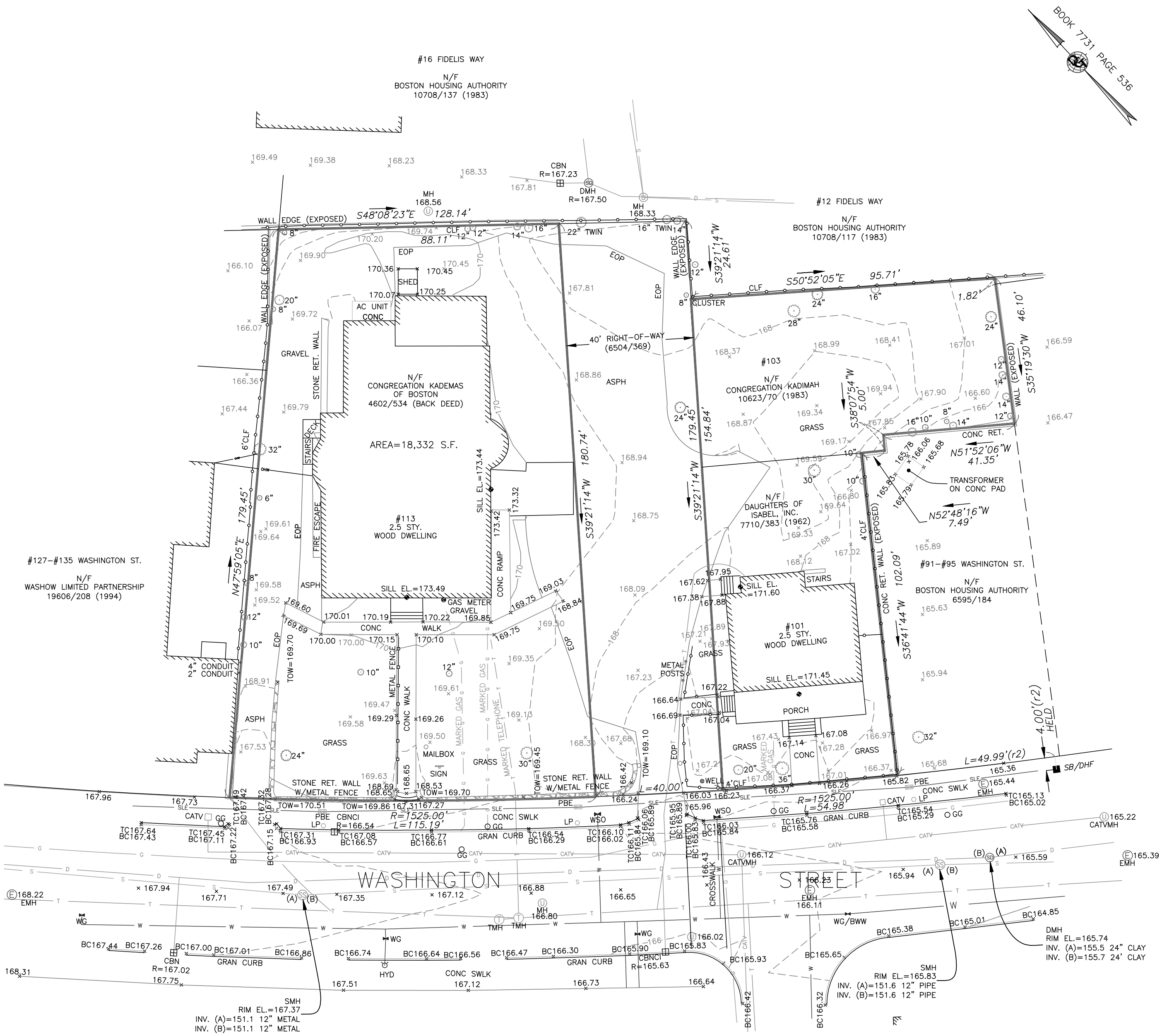
LOCUS PLAN

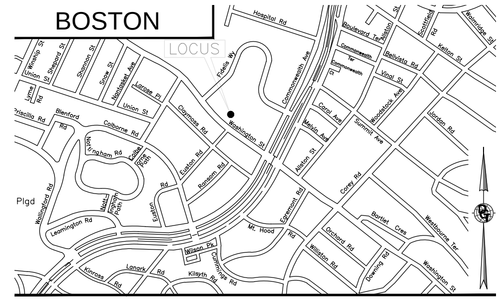
Figure 1 - 2
USGS Map

The Site is located at approximately 165 feet above mean sea level. There are no surface waters or wetlands located on the Site. The nearest body of water is the Chestnut Hill Reservoir, approximately 3,000 feet to the southwest. See **Figure 1-3** for existing site conditions, and **Figures 1-4** to **1-9** for site and surrounding area context photographs.

1.2.2 Detailed Project Description

The Proposed Project will be constructed as an up to a seven-story residential market rate development (with affordable units provided in accordance with Boston's affordable housing unit policy) with a new replacement on-site Congregation Kadimah-Toras Moshe Synagogue and new Mikvah buildings. (See **Table 1-1** Approximate Project Dimensions.) The Proposed Project is ideally situated within close proximity to the MBTA Green "B" Line Station at Commonwealth Avenue and Washington Street, making it convenient for future resident commuters. As referenced, the Proposed Project is in close proximity to the Chestnut Hill Reservoir and other local parks, providing residents with significant open and green spaces to utilize. The proposed Site is also within walking distance to both Brighton Center and Washington Street neighborhood services, offering many neighborhood shops and restaurants to service the new residents of the development.





LOCUS MAP N.T.S.

PLAN REFERENCES

MASSACHUSETTS LAND COURT:
LAND COURT CASE 12446A

SUFFOLK COUNTY REGISTRY OF DEEDS:
BOOK 5037 PAGE 565 (1928) PLAN
BOOK 7731 PAGE 536 (1962) PLAN
BOOK 10708 PAGE 117 (1983) PLAN

CITY OF BOSTON ENGINEERING RECORDS:
CITY NOTE BOOK 742 PAGES 139-142
CITY NOTE BOOK 775 PAGE 31
CITY NOTE BOOK 775 PAGE 37

NOTES

1) FIELD SURVEY PERFORMED: MARCH 3-4, 2016.

2) ELEVATIONS SHOWN REFER TO BOSTON CITY BASE (BCB).

3) CITY BENCHMARK USED:

LEFT OUTER CORNER LOWEST STONE STEP (LOCLSS) #1572 COMMONWEALTH AVENUE; ELEVATION = 161.53 (BCB).

4) ALL UNDERGROUND UTILITIES SHOWN ARE QUALITY LEVEL "D" PER ASCE STANDARD 38-02 DESIGNATION. UNLESS NOTED, THEY ARE APPROXIMATE ONLY AND WERE COMPILED ACCORDING TO AVAILABLE RECORDS FROM THE VARIOUS COMPANIES AND PUBLIC AGENCIES. ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD. BEFORE DESIGNING, EXCAVATING, BLASTING, INSTALLING, BACKFILLING, GRADING, PAVEMENT RESTORATION, REPAVING OR OTHER CONSTRUCTION, ALL UTILITY COMPANIES MUST BE NOTIFIED INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THIS PLAN. SEE CHAPTER 370, ACTS OF 1963, MASSACHUSETTS. CALL "DIG SAFE" AT 1-888-344-7233 OR DIAL 811. THE DGT SURVEY GROUP ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE FUTURE CONNECTIONS, THE APPROPRIATE UTILITY ENGINEERING DEPARTMENTS MUST BE CONSULTED.

I HEREBY CERTIFY THAT:

THIS PLAN IS BASED ON AN ON-THE-GROUND SURVEY AND PRESENTS THE FACTS AS FOUND AT THE TIME OF THE SURVEY.

113 WASHINGTON STREET	RESEARCH: D. CLIFFORD FIELD: A. RUSH
TOPOGRAPHIC PLAN OF LAND IN BOSTON, MASSACHUSETTS SUFFOLK COUNTY - BRIGHTON DISTRCIT	CALCULATION: B. TALEB DRAFTING: W. SHEN CHECK: R. STAPLES, PLS.
PREPARED FOR: BROOKLINE DEVELOPMENT CORP.	PROJ. MANAGER: B. TALEB
PREPARED BY: *J.F. Hennessy Co.* A DIVISION OF DIGITAL GEOGRAPHIC TECHNOLOGIES, INC. P.O. BOX 909 BROOKLINE, MA 02446 TEL: 617-566-3860 info@jfhennessycompany.com	DATE: XX-XXX-XXXX JOB NO. H-1003.00 CRD FILE H-1003-ALL.CRD SHEET NO. 1 OF 1

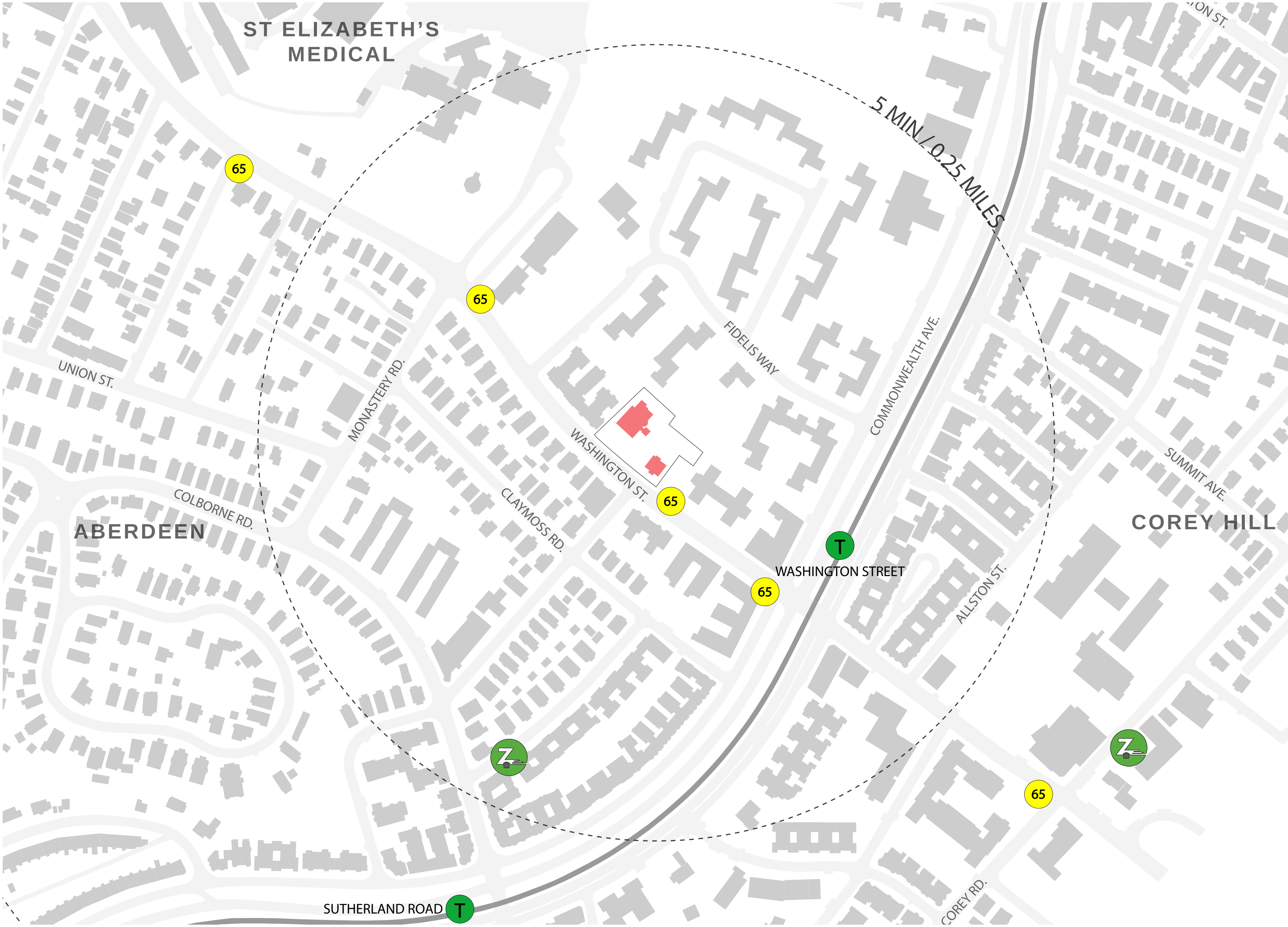
EXISTING CONDITIONS PLAN

0 50'

RODE

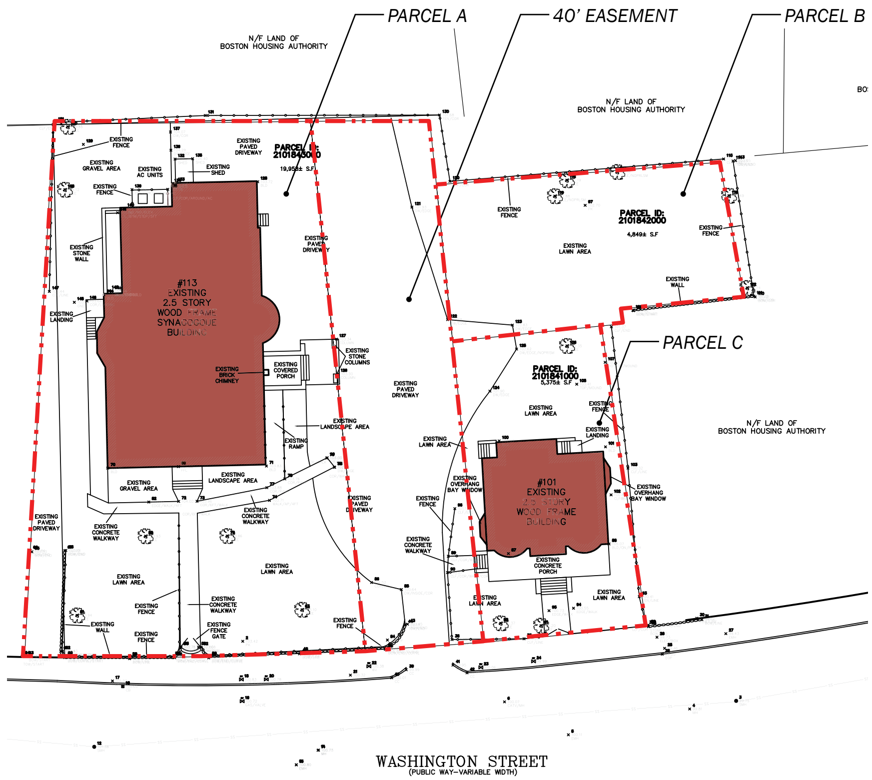
101 - 105 WASHINGTON STREET

Figure 1.3



LOCUS PLAN - TRANSIT

LOCUS AERIAL



EXISTING SITE PLAN

PROPOSED SITE PLAN

PARCEL MAP

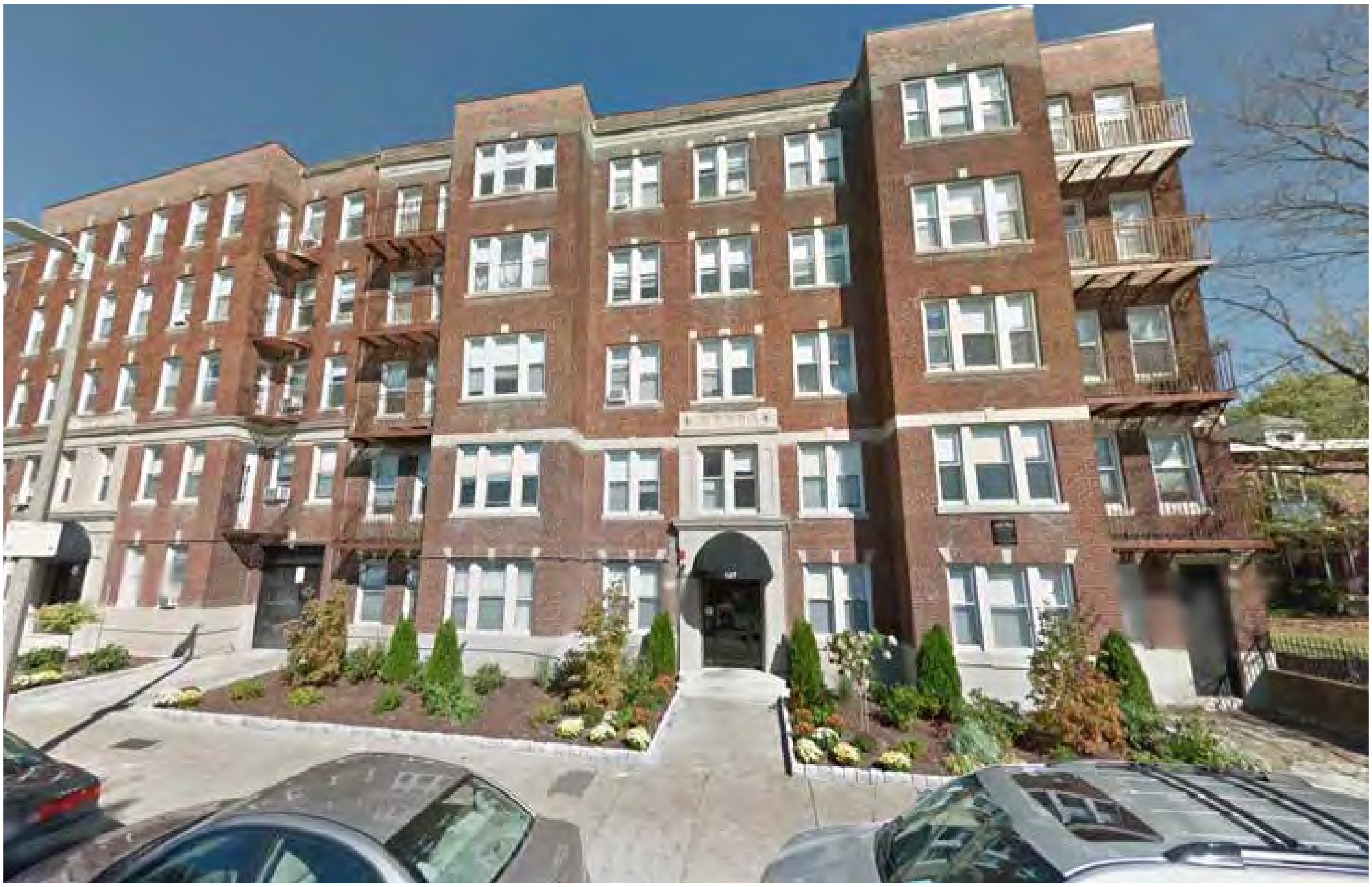
NEIGHBORING PROGRAM

BUILDING HEIGHTS

CONTEXT ANALYSIS

CONTEXT PHOTOS

CONTEXT PHOTOS



CONTEXT PHOTOS

CONTEXT PHOTOS

CONTEXT PHOTOS

Table 1-1 101-105 Washington Street, Approximate Project Dimensions

Lot Area*:	Parcel A (Including 40 ft easement): Parcel B (Mikvah): Parcel C (Synagogue): **TOTAL SF:**	25,539 sf 4,861 sf 5,372 sf **35,772 sf**
Gross Building Footprint Area:	Parcel A (Multi-Family Residence): Parcel B (Mikvah): Parcel C (Synagogue): **TOTAL SF:**	13,460 sf 2,450 sf 3,085 sf **18,995 sf**
Gross Square Feet:	Parcel A (Multi-Family Residence): Parcel B (Mikvah): Parcel C (Synagogue): **TOTAL SF:**	85,330 sf 5,030 sf 9,285 sf **99,645 sf**
FAR:	Parcel A (Multi-Family Residence): Parcel B (Mikvah): Parcel C (Synagogue): **TOTAL FAR:**	3.34 1.03 1.73 **2.79**
Floors:	Parcel A (Multi-Family): Parcel B (Mikvah): Parcel C (Synagogue):	7-Floors 2-Floors 2-Floors
Height:	Parcel A (Multi-Family Residence): Parcel B (Synagogue): Parcel C (Mikvah):	69 ft. 8 inches 34 ft. 24 ft. 6 inches

*See Section 3.0, Urban Design Plans, for a locus map showing Lots A, B, and C.

The proposed multi-family residences will have a mixture of unit types and sizes, which will accommodate Brighton's diverse and growing population, including 24 one-bedroom units, and 49 two-bedroom units. The Proponent understands that parking is always a concern to neighborhood residents, and is proposing a below grade parking facility that will house 64 parking spaces (including 60 spaces dedicated to the residential units, or approximately 0.8 spaces for each proposed unit), and bike racks for 73 spaces as required by the Boston Transportation Department guidelines. In addition, there will be an additional 16 associated parking spaces for the Synagogue and Mikvah, with 12 spaces located at grade behind the Synagogue building and 4 spaces located in the below-grade parking area.

The Site circulation plan is designed to create a safe and pleasant entry to the Proposed Project with the residential entrance from Washington Street. Service vehicle and a loading area access will also be provided from Washington Street.

1.3 Summary of Project Impacts and Mitigation

1.3.1 Urban and Landscape Design

The parcels at 101, 103 and 105 Washington Street are located along a stretch of Washington Street that hosts several distinct but typical examples of historic residential development in Boston. 3-1/2 to 6-story residential multi-family buildings form a consistent edge to the street wall on both the north and south sides of Washington Street, while a 7-story Boston Housing Authority ("BHA") building pulls away from the street edge with a generous front yard. The 2-1/2 story one- and two-family dwellings of the Aberdeen neighborhood signal a transition to lower density, single-use zoning east and north of the Site. To the rear of the Site, BHA property flanks all edges to the west and north. The property falls beyond the scope of the Commonwealth Avenue Greenbelt and Aberdeen Local Historic Districts.

Into these existing conditions, 101 - 105 Washington Street inserts a small urban campus: relocating onsite an existing Synagogue and Mikvah into new structures, building a new 73-unit 7-story residential building, and unifying all with a landscaped site plan over a sub-grade parking garage. The siting of these three structures is directly informed by the site's adjacent conditions, and by the optimal placement relative to each building's program. The residential building locates its density on the westernmost parcel, extending the street wall and typology of the existing multi-family buildings. The Synagogue and Mikvah are placed on the eastern edge of the site, as figures in the ground of green space extended in from the BHA properties beyond. The Synagogue claims a more prominent place along the street edge, while the Mikvah is set back to accommodate its programmatic need for privacy.

The three buildings of the Proposed Project derive their massing and form from the varied existing conditions that abut the Site, responding in a cohesive campus that mitigates a transition between several distinct grains in the urban fabric. Materials and articulation are informed by historic building typologies, to give the residential building an appropriate scale and texture, and the Synagogue and Mikvah a civic presence appropriate to their function.

The entry court along Washington St is designed to unify two divergent programmatic functions at the 101, 103 and 105 addresses: residential use and religious worship. The proposed paving patterns act to minimize automobile access through the courtyard. The front court includes two framing seatwalls, granite sign piers (for site identification).

Shade trees, and perennial and shrub plantings will provide privacy for the first floor residential units and accents to the entrances at the residential lobby and synagogue.

The underground parking garage extends below the large paved courts and planting beds that include lawn areas, tree plantings, and ornamental shrub and perennial/groundcovers. The interior courtyard acts as an open space for the Residents, and also provides parking in support of the religious ceremonies of the Mikvah and education/worship at the Synagogue.

1.3.2 Sustainable Design

Sustainability informs every design decision. Enduring and efficient buildings conserve embodied energy and preserve natural resources. The full development of 101-105 Washington Street embraces the opportunity to positively influence the urban environment. Its urban location takes advantage of existing infrastructure while convenient access to mass transportation will reduce dependence on single occupant vehicle trips and minimize transportation impacts.

Our team is committed to incorporating environmentally sensitive, sustainable design elements into the 101-105 Washington Street project. These elements will improve the quality of life for the residents of this project, as well as the neighborhood, while helping to protect the global environment. Ultimately, they will also reduce operating costs while increasing value for the project, improving its business viability.

We are committed to identifying opportunities presented by the development of 101-105 Washington Street by setting proactive goals and ensuring an undertaking that is LEED Silver certifiable as a minimum and satisfies the requirements of the City of Boston Environment Department. The LEED rating system tracks the sustainable features of the project by achieving points in following categories: Sustainable Sites; Water Efficiency; Energy and Atmosphere; Materials and Resources; Indoor Environmental Quality; and Innovation and Design Process. A summary of the design intent of the LEED calculations is contained in **Section 3.7**.

1.3.3 Wind

The Proposed Project is similar in massing to buildings on the north and south sides of Washington Street. Although the proposed approximately 69 ft building height will exceed the existing zoning allowance of 35 feet, the 101-105 Washington Street proposal will be within 15-20 feet of the heights of buildings in the immediate vicinity. Therefore, the overall wind environment is not expected to change as a result of the Proposed Project.

1.3.4 Shadow

Section 4-1 of this PNF provides a shadow analysis describing and graphically depicting the anticipated shadow impacts from the Proposed Project for the No Build and Build condition.

New shadows introduced by this proposal are largely consistent with the existing grain of shadows in the area studied. The form and extent of the shadows cast by the Multi-Family residential building are consistent with the impact of the existing multi-family buildings that abut the site. Setbacks and other adjustments to the Apartment building massing help to mitigate this condition along the northwest edge of the property. Of the ten time periods studied, three yielded shadows on Public sidewalks and public ways, including shallow shadows on Washington Street on the summer solstice morning. Afternoon and evening shadows fall on the Commonwealth Tenants Association Gardens and open space. Washington St. and Commonwealth Ave. are virtually unaffected by the proposed development's shadows.

1.3.5 Daylight

Although the Proposed Project will cause an increase in daylight obstruction when compared to the existing conditions at the site, the Proposed Project was designed to be of similar massing to the mix of existing buildings along Washington Street and at the rear of the property. The Proposed Project will reach a maximum of approximately 69 feet in height, which is somewhat higher than the existing abutting buildings along Washington Street as well as the existing zoning. As a result, daylight obstruction values from the Proposed Project are expected to be consistent with and typical to the surrounding neighborhood.

1.3.6 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.

1.3.7 Air Quality

Tech Environmental, Inc., the Project's air quality consultant, conducted analyses to evaluate the existing air quality in the Project area, predict the worst-case air quality impacts from the Project's parking garage, and evaluate the potential impacts of Project-generated traffic on the air quality at the most congested local intersections (See **Section 4.2**).

Recent representative air quality measurements from the Massachusetts Department of Environmental Protection (DEP) monitors reveal that the existing air quality in the Project area is in compliance with Massachusetts and National Ambient Air Quality Standards (NAAQS) for all of the criteria air pollutants.

The worst-case air quality impacts from the Project's parking garage will not have an adverse impact on air quality. The maximum one-hour and eight-hour ambient CO impacts from the parking garage, at all locations around the Project site, including background CO concentrations, are predicted to be safely in compliance with the NAAQS for CO.

A microscale air quality analysis was not performed for the Proposed Project due to its extremely small motor vehicle trip generation. The extremely small number of motor vehicle trips generated by the Project will not have a significant impact on the delays or the level of service at the local intersections. Therefore, the motor vehicle traffic generated by the project will not have a significant impact on air quality at any intersection in the Project area and a microscale air quality analysis is not necessary for this Project. It is expected that the air quality in the Project area will remain safely in compliance with the NAAQS for CO after the Project is built.

1.3.8 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 (See **Section 4.3**).

This acoustical analysis involved five steps: (1) establishment of pre-construction ambient sound levels in the vicinity of the Site; (2) identification of potential major noise sources; (3) development of noise source terms based on manufacturer specifications (where available) and similar project designs; (4) conservative predictions of maximum sound level impacts at sensitive locations using industry standard acoustic methodology; and (5) the incorporation of mitigation measures to ensure compliance with applicable City of Boston noise regulations, ordinances and guidelines and with the DEP Noise Policy.

Nighttime ambient baseline sound level (L_{90}) monitoring was conducted at two 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 39 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 sound levels from the potential significant Project noise sources are discussed in this section.

The design for the Proposed Project is expected to include as many as seventy (70) individual air handling units, a 10-ton common space air handling unit, and a garage exhaust fan on the seventh story roof of the Proposed Project. Additionally, the design includes two individual air handling units, and a 40-ton common space air handling unit on the roof of the new replacement Congregation Kadimah-Toras Moshe Synagogue, and a 20-ton common space air handling unit on the roof of the new Mikvah building. This equipment, to be located between the Proposed Project's elevated stories and the elevated stories of various abutting properties, were included in the noise impact analysis.

Noise Mitigation

To minimize the sound level at nearby residences, the following noise mitigation specification will be incorporated into the final engineering design of the Proposed Project, as necessary, to comply with the applicable sound level criteria:

- **Specification of low-noise mechanical equipment:** The air handling units will be of a low-noise design.
- **Sound barrier walls:** The 10-ton common space air handling unit and garage exhaust fan on the seventh story roof of the Proposed Project will be enclosed with an 8-foot sound barrier wall. The 40-ton common space air handling unit on the roof of the new replacement Congregation Kadimah-Toras Moshe Synagogue will be enclosed with a 14-foot sound barrier wall that is lined with highly sound absorbing materials. And, the 20-ton common space air handling unit on the roof of the new Mikvah building will be enclosed with an 11-foot sound barrier wall that is lined with highly sound absorbing materials.

With the mitigation outlined in this PNF, the 101-105 Washington Street project will not create a noise nuisance condition and will fully comply with the most stringent sound level limits set by the Massachusetts DEP Noise Policy and City of Boston Noise Regulations.

1.3.9 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 stormwater management features will include peak flow mitigation, groundwater recharge, and water quality treatment. The stormwater recharge system(s) will be based on the 1-inch, first-flush from the proposed impervious surfaces on site. Stormwater runoff from vehicular areas will be treated through the use of catch basins and a water quality treatment structure. A Stormwater Operation and Maintenance Plan and a Long-Term Pollution Prevention Plan will be developed to support the long-term functionality of the proposed stormwater management system.

During construction, the project will include erosion and sediment control measures to minimize the transport of site soils to off-site areas and to the BWSC storm drain systems. Erosion and sediment controls will include perimeter sediment barriers, catch basin protection, dewatering controls, and stone tracking pad. All necessary dewatering will be conducted in accordance with applicable BWSC discharge permits. These controls will be inspected and maintained throughout the construction phase until the areas of disturbance have been stabilized through the placement of pavement, structure, or vegetative cover. Once construction is completed, the Proposed Project will be in compliance with local and state stormwater management policies, as applicable.

1.3.10 Solid and Hazardous Waste

Solid Waste

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 the City and DEP's Regulations for Solid Waste.

In order to meet the requirements for the Boston Environmental Department and the LEED™ rating system, the Project will include space dedicated to the storage and collection of recyclables, including dedicated dumpsters at the loading area. The recycling program will meet or exceed the City's guidelines, and provide areas for waste paper and newspaper, metal, glass, and plastics (21 through 27, co-mingled).

Hazardous Waste

A Phase I Environmental Site Assessment for 105 Washington Street (the "Property") was completed by FSL Associates, Inc on April 22, 2106. According to the FSL report, environmental permit violations were not identified but the assessment revealed evidence of recognized environmental conditions in the form of a potential vapor encroachment condition (VEC) and evidence of a former surface spill of oil on the Site. FSL recommended that an intrusive subsurface investigation be performed to test soil and groundwater for the presence of extractable petroleum hydrocarbons/polycyclic aromatic hydro (EPH/PAH) and volatile petroleum hydrocarbons (VPH). The complete Phase I Environmental Site Assessment is available upon request. See **Section 4.3.2** for more detail on the FSL environmental site analysis.

As appropriate, the Proponent will provide Licensed Site Professional support services during property redevelopment activities to maintain compliance with the Massachusetts Contingency Plan (MCP) requirements.

1.3.11 Geotechnical/Groundwater Impacts Analysis

Based on a Preliminary Geotechnical Summary for the property located 113 Washington Street completed by UTS of Massachusetts, Inc. on February 16, 2016, the subgrade conditions are favorable for supporting the proposed buildings on a conventional spread footing foundation with a concrete floor slab. Bedrock conditions are expected to be encountered in many areas during foundation construction, requiring excavation. Groundwater was expected to be encountered at greater than 10 feet below grade.

Construction mitigation measures will be incorporated into the Proposed Project to avoid any potential for ground movement and settlement. See **Section 4.6** for a more detailed analysis of the geotechnical/groundwater analysis.

1.3.12 Construction Impacts Analysis

Section 4.7 presents impacts likely to result from the construction of the Proposed Project and the steps that will be taken to avoid or minimize environmental and transportation-related impacts. Construction methodologies and scheduling will aim to minimize impacts on the surrounding environment. The Proponent will insure that the general contractors 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 29 months, beginning in the 1st Quarter 2017 and reaching completion in the 2nd Quarter 2019. The Mikvah will be initially constructed between January thru August 2018; followed by Synagogue between September 2017 thru March 2018; and then the multi-family apartments April 2018 thru May 2019.

1.3.13 Wetlands/Flood Hazard Zone

The existing Project Site is 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, the Property is above the 100-year floor level.

1.3.14 Response to Climate Change Resiliency and Adaptability Questionnaire

The Proponent's response to the Climate Change Resiliency and Adaptability Questionnaire is contained in **Appendix E.**

1.3.15 Historic Resources Component

The site has been used with a 2-1/2 story wood framed synagogue building at 105 Washington Street ("Congregation Kadimah-Toras Moshe") and a Mikvah at 101 Washington Street. In addition, there is vacant land (at 103 Washington Street) running to the rear of the Mikvah building which is unimproved. On February 9, 2016, the Boston Landmarks Commission (BLC) determined that the synagogue at 105 Washington Street is not a significant building under the Criteria for determining significance in Section 85-5.3 (a-e) of the Demolition Delay Ordinance (Article 85, Chapter 665 of the Acts of 1956 as amended), and on April 8, 2016, the BLC determined that the Mikvah building at 101 Washington Street was similarly not a significant building under the same Criteria used for 105 Washington Street.

The proposed Site is located within a ¼ mile of numerous historic churches/monastery, schools, residential areas, and commercial properties, including Saint Gabriel's Monastery and Massachusetts Metropolitan Hospital. There are not expected to be any impacts to these properties with the proposed new construction.

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. See **Section 5.0** for a further discussion of historic resources in the Project vicinity.

1.3.16 Infrastructure Systems Component

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.

Washington Street contains a 12-inch sanitary sewer line, a 24-inch storm drain, a 12-inch water main, a gas line, and various electric and telecommunication conduits.

The existing sewer system and water distribution and storm drain systems are shown in the figures in **Section 6.0.**

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 main lines in Washington Street. The proposed connections to the sewer, storm drain, and water distribution systems will be designed in conformance with the BWSC's design standards, Sewer Use and Water Distribution System Regulations, and Requirements for Site Plans. 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 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.

1.3.17 Transportation Component

The 101-105 Washington Street project will enhance the project site, Washington Street and the local neighborhood. It is both consistent with current trends in the neighborhood and in furtherance of the residential policy goals of Boston Mayor Martin J. Walsh's 2030 Housing Plan. Moreover, the 101-105 Washington Street project will upgrade and ensure the long term physical viability of two long serving religious institutions.

The project also supports ongoing initiatives to enhance multi-modal access and choice throughout the City's neighborhoods by adding sidewalk and pedestrian amenities, secure and covered on-site bike parking for future residents of the apartment building, public bicycle racks and unbundled parking – reducing the incentives for car ownership and incenting less drive alone commuting.

All unsignalized intersections and approaches operate at LOS B or better, which is well within typically accepted BTD standards. The LOS for all signalized intersections is unaffected as compared to the No Build scenario, with minimal, negligible increases in delay.

The Project will provide numerous enhancements including a new and more inviting street presence with open plaza areas, landscaping, sidewalk upgrades and a centrally located, consolidated, wider driveway providing access to the new residential building, Congregation Kadima-Toras Moshe Synagogue and Daughters of Israel Mikvah. With its higher density, walking and biking amenities and proposed TDM measures (see following section), the Project supports the growth of Brighton as a transit-rich, walkable, bikeable neighborhood. The project will add multi-modal supportive infrastructure and help to encourage new residents towards active modes of transportation use and riding transit. Specific transportation enhancements include the following:

- Adding a new street-facing residential development, consistent with existing and proposed neighborhood residential uses; this will
    - Activate the street; and
    - Enhance the sense of safety on this section of Washington Street.
- Adds a new main entrance, visible and accessible to Washington Street for the Congregation Kadimah-Toras Moshe Synagogue, creating a welcoming and pedestrian friendly environment, replacing a wall and fences.
- Closes an existing unused curb cut/driveway.
- Creating a new, wider internal driveway serving the parking and connecting to the street.
- Upgrading the pedestrian ramps and crosswalks at the Washington Street, Euston Road and Site Driveway intersection to meet current City and ADA standards.
- Reconstructing the sidewalk along the Site frontage.
- Adding open plaza areas with landscaping and shade trees on Washington Street, enhancing the public realm.
- Provides 0.82 parking spaces per residential unit – well within City/BTD guidelines - housed in a below grade garage.
- Providing dedicated parking for the Daughters of Israel Mikvah and Congregation Kadimah-Toras Moshe Synagogue.
- Provides electric vehicle charging station(s) as needed.
- Unbundles accessory residential parking from the price of a residential unit – consistent with best practices to reduce vehicular travel demand.

- Provides 73 bicycle parking spaces (1 per unit) in a covered, secure bike room helping to promote bicycle use and convenience amongst future residents.
- Adds 15 outdoor, publicly available bike parking spaces – useful for both visitors and the public.

1.3.18 Response to Accessibility Guidelines

The Proponent's response to the City of Boston Accessibility Guidelines is contained in **Appendix F.**

2.0 General Information

2.1 Applicant Information

2.1.1 Project Proponent

Brookline Development Corporation (BDC) has completed more than $200 million in multiple projects over the past 20 years, including ground up construction, building rehabilitation, multi-family rehabilitation, and office and industrial construction. BDC has partnered with many local community groups and historical societies in and around the City of Boston as part of the process of gaining project approvals. Jeff Feuerman, BDC President, has been involved in real estate development/investment since 1987. He currently owns and manages over 300 apartment units for his own portfolio. His most recent project was a ground up multi-family residential development at 375 Market Street, close to Brighton Center, and another multi-family development at 150 Chestnut Hill Avenue in Brighton.

Mr. Feuerman, therefore, has experience in managing and developing real estate, and in managing local businesses, which will guide this Proposed Project to completion.

2.1.2 Project Team

Project Name	101-105 Washington Street, Brighton
Property Owner/Developer	**Brookline Development Corporation** 93 Fisher Avenue Brookline, MA 02445 Jeff Feuerman jeff@bdcorp.biz Tel: 617-733-5455
Article 80 Permitting Consultant	**Mitchell L. Fischman Consulting (“MLF Consulting”) LLC** 41 Brush Hill Road Newton, MA 02461 Mitch Fischman mitchfischman@gmail.com Tel: 781-760-1726

Legal Counsel/Outreach	**McDermott Quilty & Miller LLP** 28 State Street, Suite 802 Boston, MA 02109 Tel: 617-946-4600 Joseph Hanley, Esq. - Partner jhanley@mqmllp.com Tel: 617-946-4600, Ext. 4438 Nicholas Zozula, Esq. nzozula@mqmllp.com Tel: 617-946-4600
Architect	**RODE ARCHITECTS Inc.** 535 Albany Street #405 Boston, MA 02118 Rodearchitects.com Tel: 617-422-0090 Eric Robinson eric@rodearchitects.com Ben Wan ben@rodearchitects.com
Transportation Planner/Engineer	**Nelson Nygaard** 77 Franklin Street Boston. MA 02110 Tel: 617-521-9404 Ralph DeNisco rdenisco@nelsonnygaard.com Tel: 617-279-0932 Tom Yardley tyardley@nelsonnygaard.com
Civil Engineer/Surveyor	**JF Hennessy** Sam JF Taleb btaleb@gunthereng.com Tel: 781-443-2072 Schofield Brothers Bert Corey bcorey@schofieldbros.com

Landscape Architect	**Blair Hines Design Associates** 318 Harvard Avenue, Suite 25 Brookline, MA 02446 Blair Hines bh@bhdassociates.com Tel: 617-478-0611 Cell: 617-645-6716 Katya Podsiadlo kp@bhdassociates.com Tel: 617-735-1180
Noise and Air Consultant	**Tech Environmental, Inc.** Hobbs Brook Office Park 303 Wyman Street, Suite 295 Waltham, MA 02451 Tel: 781-890-2220 Marc C. Wallace mwallace@techenv.com Tel: 781-890-2220 x30
Sustainability Consultant	**Soden Sustainability Consulting** 19 Richardson Street Winchester, MA 01890 Tel: 617-372-7857 Colleen Ryan Soden, LEED AP BD+C colleen@sodensustainability.com
Environmental/21E Engineer	**FSL Associates, Inc.** 358 Chestnut Hill Avenue Boston, MA 02135
Geotechnical Engineer	**UTS of Massachusetts, Inc.** 5 Richardson Lane Stoneham, MA 02180 Kevin Martin, P.E. kevinmartinpe@aol.com Tel: 781-438-7755

Project Schedule	101-105 Washington Street Project
Construction Commencement	1st Quarter 2017
Construction Completion	3rd Quarter 2019
Status of Project Design	Schematic

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:

There is a 40-foot easement that runs from the front of the site thru to the rear, and is in the middle of the existing synagogue and Mikvah buildings, representing an access serving both uses. This access will be preserved and slightly widened although the easement will be formally extinguished as a part of the redevelopment of the Site.

2.3 Public Benefits

The Proposed Project will provide substantial benefits to the City of Boston and the Brighton community and generate both direct and indirect economic and social benefits including:

- Creating much needed market rate housing in the Brighton Neighborhood.
- Creating affordable rental units within the Proposed Project.
- Introducing new residents to provide support to the local community and who will use local businesses.
- Providing a much-needed upgrade and replacement of the Synagogue and Mikvah facilities for two long-existing and established religious organizations in the Brighton community by the construction of a new and appropriately-programmed Synagogue structure for Congregation

Kadimah-Toras Moshe and Mikvah property for the Daughters of Israel, while allowing for the reasonable and appropriate development of the remaining land area.

- Encouraging alternative modes of transportation through the use of bicycling and walking, close proximity to the MBTA Commonwealth Avenue B-Line, and access to Zip Car spaces inside the development's parking garage.
- Creating bicycle racks for 73 bikes within the building to encourage bicycling as an alternative mode of transportation, leading to less vehicular traffic.
- Adding revenue in the form of new annual property taxes to the City of Boston.
- Creating temporary construction and labor jobs.

2.4 Regulatory Controls and Permits

The Proposed Project is located within the Multi-Family Residential Sub-district (MFR-1) of the Allston-Brighton Neighborhood District (Article 51), which allows the new Multi-family Residential Uses and exempts the existing Religious Uses, subject to certain dimensional, density, lot, floor area, off-street parking/loading and other restrictions and limitations of the Zoning Code. Thus, the Proponent will seek zoning relief for the Proposed Project in the form of Variances and/or Conditional Use Permit(s) from the City of Boston's Board of Appeal.

2.4.1 Compliance with and/or Variances from the Boston Zoning Code – Use, Dimensional and Other Requirements

The Site is located in an MFR-1 (Multifamily Residential) Sub District of the Allston/Brighton Neighborhood District and governed by Article 51 of the Boston Zoning Code (the "Code"). (See **Table 2-1.** 101-105 Washington Street - Zoning Compliance).

Comprised of 35,772 square feet of land, the site consists of three (3) contiguous parcels, including a 5,372 square foot lot with the existing Mikvah facility at 101 Washington Street; a vacant rear lot of 4,861 square feet; and, a 25,539 square foot parcel at 105 Washington Street. The Proposed Project will retain the Site's three (3) separate lot configuration, with potential adjustment/reconfiguration, and construct approximately 99,645 gross square feet of new floor area in three (3) separate, but related projects, as follows:

- Raze and replace the existing and former three-family structure utilized since the 1960's as a Mikvah on the 101 Washington Street parcel, and construct a new and improved Mikvah facility of approximately 5,000 gross square feet with dedicated on-site parking on the vacant rear parcel at 103 Washington Street (the "New Mikvah");
- Raze and replace the existing former single-family/boarding house structure on the 105 Washington Street parcel, utilized as a Synagogue facility since the 1940's, and construct a new Synagogue facility of approximately 9,285 gross square-feet at the 101 Washington Street parcel (the "New Synagogue");

- Construct a new 73-unit multi-family residential building of approximately 85,330 gross square feet, with an underground parking garage (for vehicles, bicycles and internal trash), in place of the former Synagogue facility at the 105 Washington Street parcel (the "New Residential Building"); and
- Introduce overall site integration of the uses, open space/landscaping, above grade parking for the new religious facilities, common vehicular access and pedestrian improvements.

Based on the Proponent's anticipated filing of three (3) separate but related building permit applications for review and/or refusal by the City's Building Department, the Proposed Project is anticipated to require certain relief from the terms and conditions of the Zoning Code, as applicable for each of the three (3) separate but related projects (see **Table 2-1** below):

- Excessive Floor Area Ratio ("FAR");
- Excessive Building Height (feet and stories);
- Insufficient Lot Area per Dwelling Units;
- Insufficient Lot Frontage;
- Insufficient Open Space;
- Insufficient Parking/Loading; and
- Certain Front, Rear and/or Side Yards Setback Requirements.

Taken individually, the New Residential Building is projected to have an FAR of 3.34, with an FAR of 1.73 for the New Synagogue and 1.03 FAR for the New Mikvah; with a total combined FAR of approximately 2.79. While consistent with certain abutting and surrounding building heights and residential densities along this block of Washington Street and the surrounding area, the New Residential Building will exceed both the allowable Building Height and minimum required Lot Area for Dwelling Units as required by the Zoning Code. Furthermore, due to the respective land area constraints and related limitations of the subject parcels, while the New Residential Building will slightly exceed the Code's Minimum Open Space requirement, there will be certain Set-Back deficiencies and other potential dimensional violations at each of the three (3) separate but related projects, which are also generally consistent with that of the long-existing non-conformities at the combined Site and appropriate for the reasonable re-use of the land as contemplated.

Table 2-1 101-105 Washington Street – Zoning Compliance				Shaded – Variance	
Categories	**MFR-1 Sub District**	**Existing Condition**	**Proposed Multi-Family Residential Project *(Parcel A)***	**Proposed Mikvah *(Parcel B)***	**Proposed Synagogue *(Parcel C)***
Lot Area Min (Square Feet)	4,000 sf for first 3 units	28,565sf [1]	Provided: 25,539sf Required: 82,000sf *[(4000*3)+1000*70]*	+/- 4,861sf	+/- 5,372sf
Min. Lot Area for Each Additional Dwelling Unit	1,000 sf			n/a	n/a
Floor Area Ratio	1.0	Parcel A: 0.68 Parcel B: 0.00 Parcel C: 0.94	3.34 (85,330 GSF)	1.03 (5,030 GSF)	1.73 (9,285 GSF)
Min. Lot Width	40 ft	Parcel A: 88'-3" Parcel B: 50'-3" Parcel C: 95'-8"	128'-5"	50'-3"	95'-8"
Min. Lot Frontage	40 ft	Parcel A: 115'-2" Parcel B: none Parcel C: 54'-11"	155'-2"	21'-0" [2]	54'-11"
Min. Front Yard	20 ft	Parcel A: 63'-6" Parcel B: - - Parcel C: 30'-4"	10'-9"	2'-8" (109'-6" to sidewalk)	9'-5"
Min. Side Yard	10 ft	Parcel A: E: 16'-8" W: 24'-2" Parcel B: - - Parcel C: E: 4'-9" W: 6'-8"	E: 31'-8" W: 0'-0"	E: 2'-9" W: 32'-2"	E: 4'-8" W: 7'-3"
Min. Rear Yard	20 ft	Parcel A: 21'-7" Parcel B: - - Parcel C: 35'-6"	4'-9"	2'-6"	13'-3"
Max. Building Height	35 ft (3 stories)		69'-8" 7 stories	24'-6" 2 stories	34'-0" 2 stories
Minimum Usable Open Space / DU	200 sf	n/a	Provided: 14,420 sf Required: 14,600 sf	n/a	n/a
Off-Street Parking Spaces[3] *(To be reviewed in Accordance with Article 80 Large Project Review)*	146 (Residential); 42 (Mikvah/ Synagogue)[4]		60 (Multi-Family) (0.82 spaces/unit)	16 *(Combined Synagogue and Mikvah)*	
Rear Yard Max Occ. by Access. Bldg	25%				

FOOTNOTES For Table 2-1 (ON PRECEDING PAGE)

1. Existing total lot area equals +/- 28,565. Proposed total lot area, capturing the 40' easement, equals +/- 35,772.
2 . Unobstructed access provided by a shared drive aisle located on Parcel A.
3. This Proposed Project is Subject to Article 80. The provisions of Article 51, Table J do not apply to Proposed Projects that are subject to Large Project Review.
4. Using guidelines in Article 51, Table J: 2.0 spaces per dwelling unit for 10+ units (146 parking spaces); 0.7 spaces per DU for Affordable Units (7 parking spaces). Additionally, a cultural use such as a Place of Worship requires 3.0 parking spaces per 1,000 square feet of area. As the Mikvah is proposed to be +/- 5,000sf and the Synagogue is proposed to be +/- 9,000sf, these two (2) uses would require 42 parking spaces.

2.4.2 Compliance with Parking and Off-Street Loading Requirements

For a proposed project that is subject to Large Project Review, required off-street parking spaces and off-street loading facilities will be determined as a part of the Large Project Review in accordance with the provisions of Article 80 of the Code.

Pursuant to Article 51-56 of the Code, for any Proposed Project subject to or electing to comply with Large Project Review, required off-street parking spaces and off-street loading facilities are to be determined through such review in accordance with the provisions of Article 80. As all three (3) of the separate but related improvements are part of the overall Proposed Project, the sum of the Off-Street Parking and Loading program shall be determined through the Article 80 process, as such. For illustration purposes, however, the Code would otherwise require two (2) Off-Street Parking Spaces per dwelling unit (with 0.7 spaces per affordable unit) and 3.0 parking spaces per 1,000 square feet of area for a Religious/Place of Worship Use.

The Proposed Project will provide 64 off-street parking spaces in a garaged facility for the New Residential Building, including 60 spaces dedicated to the residential component resulting in a ratio of .80 per dwelling unit. An additional 16 off-street parking spaces will be provided for the combined Synagogue and Mikvah facilities. Although the proposed off-street parking ratio is less than what would otherwise be required by the Code, the parking program for the Proposed Project is specifically mitigated by the Orthodox aspects of the two (2) religious Uses as well as the particular bedroom count and type of rental housing proposed for the New Residential Building (versus homeownership), in addition to the Site's close proximity to multiple bus routes and the nearby MBTA's C-Line Greenline stop, shared bike and vehicle service offerings and its specific programming commitment to the same.

2.4.3 Preliminary List of Permits or Other Approvals Which May be Sought

Agency Name	Permit or Action*
State Agencies	
MA Department of Environmental Protection, Division of Water Pollution Control	Sewer Connection Self Certification
Local Agencies	
Boston Redevelopment Authority	Article 80 Review and Execution of Related Agreements; Section 80B-6 Certificate of Compliance
Boston Civic Design Commission	Schematic Design Review
Boston Parks Commission	Possible Boston Parks Commission Review for a Project within a distance of 100 feet from a park (adjacent Commonwealth Tenants Association Common Garden- may be subject to Parks Commission Jurisdiction)
Boston Transportation Department	Transportation Access Plan Agreement; Construction Management Plan
Boston Department of Public Works Public Improvements Commission	Possible Sidewalk Repair Plan; Curb-Cut Permit; Street/Sidewalk Occupancy Permit; Permit for Street Opening
Boston Landmarks Commission	Art. 85- Demolition Delay Reviews (Approvals received from BLC on 02/09/16 and 04/08/16)
Boston Zoning Board of Appeals	Possible Variances and Dimensional Relief from the Existing Zoning Code Requirements
Boston Public Safety Commission Committee on Licenses	Permit for Storage of Fuel in (Emergency Storage) Tanks; Garage License
Boston Fire Department	Approval of Fire Safety Equipment
Boston Water and Sewer Commission	Approval for Sewer and Water and Connections; Construction Site Dewatering; and Storm Drainage
Boston Department of Inspectional Services	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.

2.5 Public Review Process and Agency Coordination

The Proponent has discussed the Proposed Project with representatives of the BRA prior to filing this Project Notification Form in order to identify issues /concerns as well as design requirements related to the Proposed Project. Meetings have been held with the BRA's planners and urban design staff.

The Proponent's development team has engaged in extensive community outreach efforts for the Proposed Project including various abutter and community meetings in the Allston-Brighton neighborhood and presentations before various elected officials. As part of the process, the development team held an initial neighborhood meeting on March 28, 2016, to explain the Proposed Project to surrounding neighbors that will be directly impacted during and after construction. The Proponent received positive feedback from neighbors, and has made design changes accordingly. The development team also appeared before the Brighton-Allston Improvement Association ("BAIA") on May 5, 2016, and held an initial site visit and walkthrough with the BAIA leadership on March 23, 2016.

In accordance with Article 80 requirements, an Impact Advisory Group ("IAG") has been formed and BRA-sponsored neighborhood meeting will be scheduled to review the PNF and receive community comments on the Proposed Project during the public review period.

The Proponent's development team has also met individually with the applicable elected officials and their staff members, including: City Councilor Mark Ciommo, State Representative Kevin Honan and Mayor's Office of Neighborhood Services Liaison for Allston-Brighton, Amy Mahler. Allston-Brighton elected officials have had input during the community outreach process and have had staff presence at all of the community meetings.

The Proposed Project may abut the Commonwealth Tenants Association Common Garden, which is located to the rear of the Site. As such, the Proponent's development team may be required to appear before the City of Boston Parks Commission for approval in accordance with City of Boston Code 7-4.11 Permission for Construction Near Parks or Parkways, "No building or structure shall hereafter be erected or altered within a distance of one hundred (100') feet from park or parkway in the City of Boston, without permission in writing having first been obtained from the Parks and Recreation Commission . . ." The development team may therefore need to appear before the Parks Commission for a presentation at a later date.

Finally, 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. 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.

2.6 Development Impact Payment ("DIP") Status

Based on current schematic design plans, it is not anticipated that Development Impact Payments ("DIP"), in accordance with Article 80B-7 of the Code, will be required for Proposed Project. The Proposed Project is expected to have approximately 13,000 gross non-residential FAR square feet (Mikvah and Synagogue Uses), and be below the 100,000 gsf threshold where DIP is required.

3.0 URBAN DESIGN AND SUSTAINABILITY COMPONENT

3.1 Site and Surroundings

The Project Site fronts onto Washington Street in Brighton, one block north of Commonwealth Avenue and less than one half mile south from Brighton Center. The property is located on the outskirts of the Aberdeen neighborhood, in a zone of transition between several different scales of the urban fabric. The St. Elizabeth's and Franciscan Children's Hospitals, along with significant property holdings by the Boston Housing Authority, dominate the heavily institutional blocks to the north and east, while one- and two-family structures of the Aberdeen neighborhood abut Washington Street to the west. At this stretch of Washington Street, however, multi-family masonry buildings dominate the streetscape. The property falls beyond the scope of the Commonwealth Avenue Greenbelt District and Aberdeen Historic District.

The parcels at 101, 103 and 105 Washington Street are located along a stretch of Washington Street that hosts several distinct but typical examples of historic residential development in Boston. Southeast of the site, approaching Commonwealth Avenue, the southern side of the street is lined with blocks of 3-1/2- to 6-story residential multi-family buildings that form a consistent edge to the street wall. Across Washington from these buildings, single-story retail buildings front along Commonwealth Avenue followed by a 7-story Boston Housing Authority ("BHA") building adjacent the project site's southeastern edge. The public housing building pulls away from the street edge, representing the 'tower in a park' approach to planning typical of mid-century urban renewal practices. Beyond the site to the northwest, the strong street wall of Washington Street reappears on its north side with a series of 5-story masonry residential blocks. Across from these, the 2-1/2 story one- and two-family dwellings of the Aberdeen neighborhood signal a transition to lower density, single-use zoning. To the rear of the site, BHA property flanks all edges to the west and north.

Washington Street itself provides a connective north-south corridor - a *neighborhood connector* by the city's Complete Streets guidelines - between the heavier transportation arterials of Commonwealth Avenue and Cambridge Street. The MBTA local bus route 65 traverses the street from Brighton Center to Brookline Village, making direct connections to three of the MBTA Green line branches. The public realm of the immediate vicinity is defined by the streetscape of Washington Street. Besides the one-story retail at Commonwealth Avenue, all existing buildings pull back from the sidewalk edge, with a fairly consistent front yard setback along the south side of the street, and on the northern side of the street to the north of the Site. Between the Site and Commonwealth avenue the building alignment falls away, and the BHA property offers a landscaped setback of up to 75' in depth. West of the Site and to its rear, the green space of the BHA properties extends to Fidelis Way, with the Commonwealth Tenants Association Community Gardens directly abutting the site.

The site itself is comprised of three parcels, including one incorporated easement, as identified in **Table 3-1**. An existing Synagogue and Mikvah will be demolished and relocated into new structures on site to enable construction of the apartment building on the site that is currently occupied by the Synagogue.

3.2 Project Description

The Proposed Project will be constructed as an up to a seven-story residential market rate development (with affordable units provided in accordance with Boston's affordable unit policy) with a new replacement on-site Synagogue for the Congregation Kadimah-Toras Moshe and a new building for the Daughters of Israel Mikvah. The Proposed Project is ideally situated within close proximity to the MBTA Green "B" Line Station at Commonwealth Avenue and Washington Street, making it convenient for future resident commuters. As referenced, the Proposed Project is in close proximity to the Chestnut Hill Reservoir and other local parks, providing residents with significant open and green spaces to utilize. The proposed Site is also within walking distance to both Brighton Center and Washington Street neighborhood services, offering many neighborhood shops and restaurants to service the new residents of the development. Lastly, the Project provides a unique opportunity to help meet the housing needs of a thriving city while preserving and renewing two long-standing religious institutions with deep ties to the local community.

The proposed multi-family residences will have a mixture of unit types and sizes that will accommodate Brighton's diverse and growing population, including 24 one-bedroom units, and 49 two-bedroom units. The Proponent understands that parking is always a concern to neighborhood residents, and is proposing a below grade parking facility that will house 64 parking spaces (including 60 spaces dedicated to the residential units, or roughly 0.8 spaces for each proposed unit), and bike racks for 73 spaces as required by the Boston Transportation Department guidelines. In addition, there will be an additional 16 associated parking spaces for the Synagogue and Mikvah, with 12 spaces located at grade behind the Synagogue building and 4 spaces located in the below grade parking area.

The Site circulation and access plan is designed to embrace all modes of transportation, with particular emphasis on pedestrian and bicycle uses. Main entrances to the residential building and Synagogue together create a safe and pleasant entry to the Proposed Project with frontage along Washington Street. The Service vehicle and loading area access will also be provided from Washington Street.

3.3 Proposed Building Uses and Dimensions

Table 3-1 that follows provides a summary of the approximate Proposed Project dimensions.

Table 3-1 101-105 Washington Street - Summary of Proposed Project Dimensions	
Lot Area	Parcel A (Including 40 ft easement): 25,539 sf Parcel B (Synagogue): 4,861 sf Parcel C (Mikvah): 5,372 sf **TOTAL SF: 35,772 sf**
Gross Building Footprint Area	Parcel A (Multi-Family Residence): 13,460 sf Parcel B (Synagogue): 3,085 sf Parcel C (Mikvah): 2,450 sf **TOTAL SF: 18,995 sf**
Gross Square Feet	Parcel A (Multi-Family Residence): 85,330 sf (excludes 26,280 sf basement parking garage) Parcel B (Mikvah): 5,030 sf Parcel C (Synagogue): 9,285 sf (includes 3,149 sf basement level) **TOTAL SF: 99,645 sf**
No. of Residential Units	73 Units
No. of Parking Spaces	At grade: 12 spaces (shared between Mikvah and Synagogue) In Basement Garage: 64 spaces (4 spaces shared between Mikvah and Synagogue, 60 spaces dedicated to the Multi-Family residential units) **TOTAL SPACES: 76 spaces** Bicycle Spaces: 73 spaces in secure Bike Room (1 per Residential Unit) 15 visitor spaces
Floor Area Ratio (FAR)	Parcel A (Multi-Family Residence): 3.34 Parcel B (Mikvah): 1.03 Parcel C (Synagogue): 1.73 **TOTAL FAR: 2.79**
Floors	Parcel A (Multi-Family): 7-Floors Parcel B (Mikvah): 2-Floors Parcel C (Synagogue): 2-Floors
Height	Parcel A (Multi-Family Residence): 69 ft. 8 inches Parcel B (Synagogue): 34 ft. Parcel C (Mikvah): 24 ft. 6 inches

3.4 Urban Design Concept

101 - 105 Washington Street inserts a small urban campus into the existing varied development that abuts the Site. The project relocates onsite an existing Synagogue and Mikvah into new structures, builds a new 73-unit 7-story residential building, and unifies all with a landscaped site plan over a sub-grade parking garage. The siting of these three structures is directly informed by the site's adjacent conditions, and by the optimal placement relative to each building's program.

The residential building locates its density on the westernmost parcel, as a formal and programmatic extension of the existing multi-family buildings. Its height relates to the 6.5-story buildings at Fidelis Way, and the 6- and 7-story buildings that abut the site along Washington Street. At the street edge, however, the building steps down one story to relate to the adjacent buildings at 127-135 Washington. The residential building aligns with and extends the street wall of that building, and continues its rhythm of vertical bays. The mass of the building transitions from this strong street edge towards the interior of the Project, where reductions in the scale of the building better relate to the religious buildings, and the landscaped interior and pedestrian spaces between them.

The Synagogue and Mikvah are placed on the eastern edge of the site, as figures in the ground of green space drawn in from the BHA properties beyond. The Synagogue claims a more prominent place along the street edge, with its main entry opening to the street and set within a landscaped front yard and paved gathering space. The Mikvah building is set back from the street, accessed via the shared drive aisle, and looking out onto the Community Gardens of the Fidelis Way property. This more discrete siting allows the Mikvah to be enveloped by landscape, and accommodates its programmatic need for privacy and contemplation.

3.5 Building Massing and Materials

The three buildings of the Proposed Project derive their massing and form from the varied existing conditions that abut the Site, responding in a cohesive campus that mitigates a transition between several distinct grains in the urban fabric. Materials and articulation are informed by historic building typologies, to give the residential building an appropriate scale and texture, and the Synagogue and Mikvah a civic presence appropriate to their function.

The residential building is most closely an interpretation of the block housing typology exhibited by the adjacent multi-family buildings at 127-135 Washington Street: a T-shaped floor plate presents a strong continuous bar form along the street frontage with its stem extending back into the site. When aggregated in a series, as along Washington Street, the stem portion varies its width to narrow for light wells mid-block and widen at the rear towards beneficial exposures. The Proposed Project takes this known typology, and modifies it to respond to the different urban conditions that abut the site.

The face of the residential building on Washington Street works to transition between the solid urban edge formed by the multi-family buildings on its north side, and the eased landscaped edge of the Boston Housing Authority property to the south. The residential building aligns itself with the multi-family buildings to hold the street wall, then proceeds to step inward in increments as the mass moves south, creating a front lawn that aligns with the increased open space drawing up from the south. A play in datum lines draws from the cornice line, parapet, and heavily articulated 2-story base condition of the multi-family buildings, threading a visual continuity with the existing while the plane of the street wall pulls away. Brick masonry holds the street edge and continues the street wall, with tall vertical masonry bays projecting in a rhythm that draws on the grain of the existing buildings. Above the second story the masonry wall begins to recede from the foreground, opening into a series of stacked decks, and setting up a gradual reduction in scale towards the interior of the site, and the Synagogue and Mikvah.

The existing curb cut is widened and reutilized as the drive aisle entrance for the new campus, between the residential building and Synagogue. A front lawn - continued across from the BHA buildings – creates an intimate open place of relief off the public realm, unifying the two entrances. The architecture of the residential building enhances this moment by folding in off the street and stepping down in height to better scale with the synagogue. The drive moves between the residential building and synagogue, framed by a threshold of landscaped edges on either side, to the rear of the site. Here the building forms pull apart to open up a generous landscaped room, extending the green space of the BHA property Community Gardens into the new campus. On the north and west facades, the building steps away from the property line to allow for glazing, light and air. The composition of windows is organized and simple, with a slight shift to designate the upper levels.

Vertical assemblages of decks bring a depth and shadow to the elevations, and break down the larger edges and corners of the building mass. These elements add a visual language to the residential use within and bring life to the street in warm weather. The taller volumes of the building are clad in a cementitious material with a vertically oriented panel system. The panel conveys a residential graining, with a lighter tectonic appearance when compared to masonry, which allows the masonry volumes to hold the street edge and frame important moments in the landscape while the panel recedes into the background.

The Synagogue building assumes a simple form, derived from its program. A volume along the eastern property line contains the ‘service’ elements of circulation, bathrooms and kitchen space, while a larger masonry volume contains the main sanctuary and upper level social hall. Pushing the Synagogue close to the east property line allows for a wider central aisle for vehicular and pedestrian access with landscaped edges along the residential building and synagogue. The move also allows for more prominent openings on the west façade, favoring glazed openings into the sanctuary and social hall and a skylight down into basement level classrooms. The openings appear to be ‘carved’ from the masonry volume by a series of richly textured ‘planes’, that add a material warmth in contrast to the heavy masonry. The use of glass – both vision and translucent – is intentionally placed to highlight internal activity, foster a welcoming atmosphere for the congregation, emphasize the spiritual happenings of the synagogue, and maintain discretion where appropriate. Placed along the western façade and along the central drive aisle, the openings foster interaction between the different Project components and reinforce a sense of community within the campus.

The Mikvah building finds its form from the religious ceremonies that are housed within, most significantly the act of collecting rainwater, and the tactile weight of the containers that hold the ritual waters. Masonry grounds the building to the earth, and keeps generally closed to the interior. Limited openings delineate special moments in the plan – entry, and indirect light at clerestory level for the immersion pools. The living spaces of the two dwelling units above open larger windows out into the landscape. The roof of the Mikvah gives form to the act of rainwater collection, inverted to direct towards the building's internal collection system. Lifted up off the masonry base, the butterfly form gives a lightness to an otherwise weighty building, and gestures towards the landscaped surrounds.

3.6 Landscape Design

3.6.1 General Landscape Spatial Organization

The proposed landscape is organized by the building configuration into a front yard area along Washington Street and a courtyard through the middle of the site. The streetscape is composed of a private zone along the face of the residential building, two semi-public zones at the entries into the Residential building and into the Synagogue, and the main drive entry apron which accesses the courtyard area through the middle. The central courtyard functions as the main outdoor space for the Residential building, as well as for the Mikvah and the Synagogue congregations. Variations in the pavement reinforce the angles at the front entries to the Residences and the Synagogue. The side and rear yard spaces along the abutting properties are narrow and will accommodate private balconies at the Residential building.

3.6.2 Circulation

A hierarchy of pavement styles signifies the major entries, the main pedestrian walkways, the secondary routes of travel, as well as the vehicular drives to the below grade parking garage and the at-grade temporary parking spaces. Pedestrian walkways, patios and seating areas are afforded the most prominence in the proposed design. Two primary walkways off the public sidewalk access the front doors of the Residential building and the Synagogue. Bollards aligned along the main pedestrian walkways delineate safe edges of travel through the main spine. Diagonal walkways that connect entrances are proposed to be more visually dominant than the vehicular paved areas.

In addition to the interior bike room, there will be bike racks for visitors at both the front and the rear doorways to the Residential building.

The central, two-way drive to the courtyard will provide access to the basement level garage. And, while the courtyard acts as an open space for the Residents, Synagogue and Mikvah, it will also provide occasional surface parking (12 total) in support of the religious ceremonies of the Mikvah and education/worship at the Synagogue.

3.6.3 Planting

The proposed planting plan is challenged due to the planting conditions above the garage roof deck for a majority of the site. The plan proposes the addition of five street trees in tree pits within the sidewalk. A disease-resistant variety of American Elm is preferred for this location due to their elegant form and fast growth. At the central courtyard, the planting palette includes ornamental trees (possibly hornbeam, crabapples, or river birch) as well as ornamental shrubs and hardy perennials. Evergreen hedging is proposed around the at-grade private patios for privacy.

A lawn with benches at its edges is proposed adjacent to the central courtyard. It is intended for use as a flexible play space for children, quiet reflection area for the religious congregations or other small gatherings.

3.6.4 Special Features

The proposed landscape includes several seating areas. Granite seatwalls combined with ornamental plantings define the entries along Washington Street. Alternative seating, in the form of wood benches, are located at the front doors of the Residential building and in the rear courtyard area – providing an opportunity for quieter relaxation.

Metal trellises attached to the building façade through the central spine at the pedestrian level will support vines and enrich the layered effect of the planted landscape.

3.7 Sustainable Design/Energy Conservation

3.7.1 Sustainable Sites

The development of sustainable sites is at the core of sustainable design. The sustainable sites credit category encourages development on previously developed land, minimizing a building's impact on ecosystems and waterways, regionally appropriate landscaping, smart transportation choices, stormwater runoff management, and reduction of erosion, light pollution, heat island effect, and pollution related to construction and site maintenance.

The previously developed site features connectivity to basic services in the community and is located in an urban setting that is well served by the existing utility infrastructure. The site's adjacency to basic services in the community and the development density of its urban context enable the project to satisfy available approaches to the Development Density and Community Connectivity credit. Access to the Green line is within 0.1 miles and the 65 bus at the front door of the project along and on-site bike storage/rental will offer environmentally sound transportation alternatives. Coupled with alternative parking options, the Project will reduce parking capacity below zoning requirements. Through these approaches, the Project also achieves many of the Alternative Transportation credits. In addition to the interior bike room, there will be bike racks for visitors at both the front and the rear doorways to the Residential building.

The planted gardens interspersed on the ground help to limit stormwater runoff to assist in meeting Stormwater Design- Quantity credit. The side and rear yard spaces along the abutting properties are narrow and will accommodate private balconies at the Residential building.

The central, two-way drive to the courtyard will provide access to the basement level garage. At the central courtyard, the planting palette includes ornamental trees and shrubs hedging is also proposed around the at-grade private patios for privacy. A lawn with benches at its edges is proposed adjacent to the central courtyard. It is intended for use as a flexible play space for children, quiet reflection area for the religious congregations or other small gatherings.

To achieve Heat Island Effect credits and minimize the project's impact on the creation of urban heat islands, a combination of high-albedo roofing membrane and planted areas to maximize solar reflectance and minimize heat gain. In addition more than 50% of the parking spaces are below grade.

3.7.2 Water Efficiency

Buildings are major users of our potable water supply and conservation of water preserves a natural resource while reducing the amount of energy and chemicals used for sewage treatment. The goal of the Water Efficiency credit category is to encourage smarter use of water, inside and out. Water reduction is typically achieved through more efficient appliances, fixtures and fittings inside and water-wise landscaping outside. To satisfy the requirements of the Water Use Reduction Prerequisite and credit, the project will incorporate water conservation strategies that include low flow plumbing fixtures for water closets and faucets. Further, drought tolerant plant species will be specified in landscaped areas to eliminate the requirement for irrigation in most areas and satisfy the requirements for the Water Efficient Landscaping credit.

3.7.3 Energy and Atmosphere

According to the U.S. Department of Energy, buildings use 39% of the energy and 74% of the electricity produced each year in the United States. The Energy and Atmosphere credit category encourages a wide variety of energy strategies: commissioning; energy use monitoring; efficient design and construction; efficient appliances, systems and lighting; the use of renewable and clean sources of energy, generated on-site or off-site; and other innovative practices.

To meet the Optimize Energy Performance credit, the building envelope will include high performance glazing systems and high levels of insulation. In addition, the large amount of glass used in each building reduces the daytime requirement for electrical lighting. LED, halogen or fluorescent bulbs are used in light fixtures throughout the property. These lights use much less energy, generate less heat and last much longer than incandescent bulbs.

The Project will meet or exceed the ASHRAE 90.1-2007 standard for Minimum Energy Performance through a variety of measures. Further, no chlorofluorocarbon (CFC) based refrigerants will be used in the project to reduce ozone depletion in the atmosphere and satisfy the Fundamental Refrigeration Management prerequisite. Fundamental Commissioning of Building Energy Systems will be performed to ensure that systems are operating at peak efficiency. In addition, Enhanced Commissioning will assess the performance of energy and water systems during the first days of building operation and can help to bring additional efficiency to the systems for the life of the building.

3.7.4 Materials and Resources

During both construction and operations, buildings generate a lot of waste and use a lot of materials and resources. This credit category encourages the selection of sustainable materials, including those that are harvested and manufactured locally, contain high-recycled content, and are rapidly renewable. It also promotes the reduction of waste through building and material reuse, construction waste management, and ongoing recycling programs.

The project includes recycling facilities within the building for the convenience of the occupants in accordance with the requirements of the Storage and Collection of Recyclables prerequisite. A Demolition and Construction Waste Management Plan will be implemented to divert construction waste material from landfills per the Construction Waste Management credit. Building materials will be specified based on their recycled content and proximity of extraction and manufacturing locations to the project site such that points will be achieved in each of the Recycled Content and Regional Materials credits.

3.7.5 Indoor Environmental Quality

The U.S. Environmental Protection Agency estimates that Americans spend about 90% of their day indoors, where the air quality can be significantly worse than outside. The Indoor Environmental Quality credit category promotes strategies that can improve indoor air through low emitting materials selection and increased ventilation. It also promotes access to natural daylight and views.

During construction, an indoor air quality management plan will be implemented to prevent contamination of mechanical systems and absorptive materials. Material specifications will include only low-emitting interior finishes for paints, carpets, and woods to preserve indoor air quality. Occupants will also have control over lighting and their thermal environment. The project shall be designed to meet or exceed the rates as per ASHRAE 62.1-2007 “Ventilation for Acceptable Indoor Air Quality” and rooms will have access to daylight and views.

3.7.6 Innovation and Design Process

The Innovation in Design and Innovation in Operations credit categories provide additional points for projects that use new and innovative technologies, achieve performance well beyond what is required by LEED credits, or utilize green building strategies that are not specifically addressed elsewhere in LEED. This credit category also rewards projects for including a LEED Accredited Professional on the team to ensure a holistic, integrated approach to design, construction, operations and maintenance. Four credits are being pursued and could include the following.

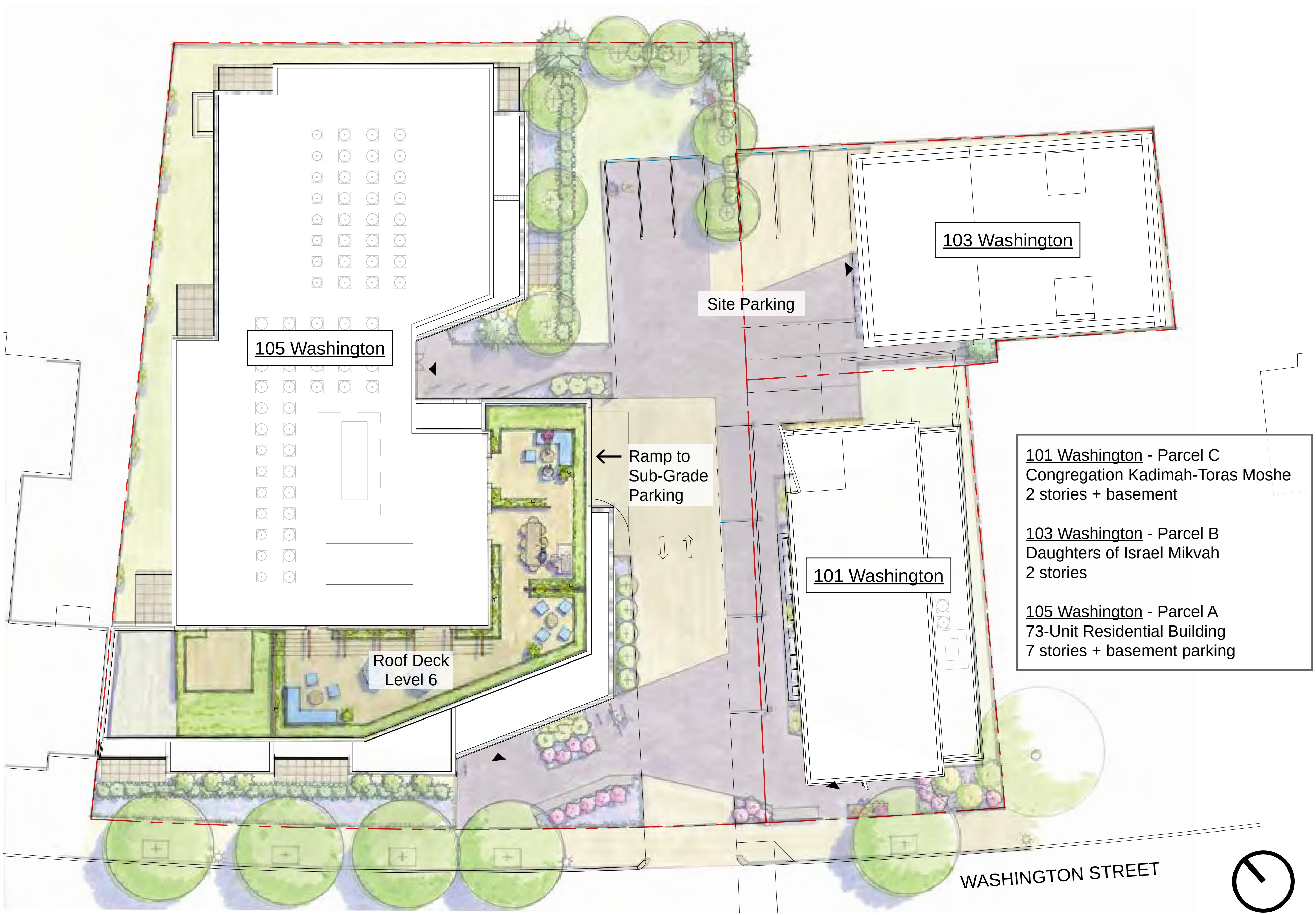
- Innovation in Design: Exemplary Perf SS 5.2
- Innovation in Design: Exemplary Perf WEc3
- Innovation in Design: Green Housekeeping
- Innovation in Design: Energy Star Appliances
- Innovation in Design: Education Plan

Regional Priority-

- Regional Priority: SS c3
- Regional Priority: Heat Island 7.1-Non- Roof
- Regional Priority: Heat Island 7.2 Roof
- Regional Priority: SS 6.1 Stormwater Quantity

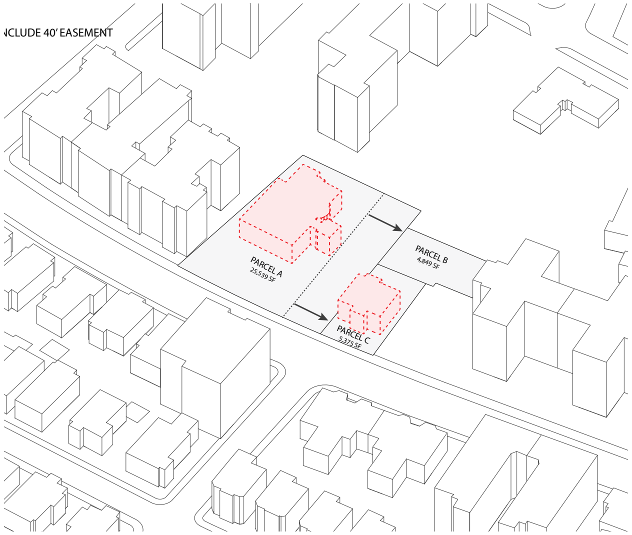
3.8 Urban Design Drawings and LEED Checklist

The Proposed Project's urban design drawings and perspectives, and the LEED Checklist are contained in the following section and include:

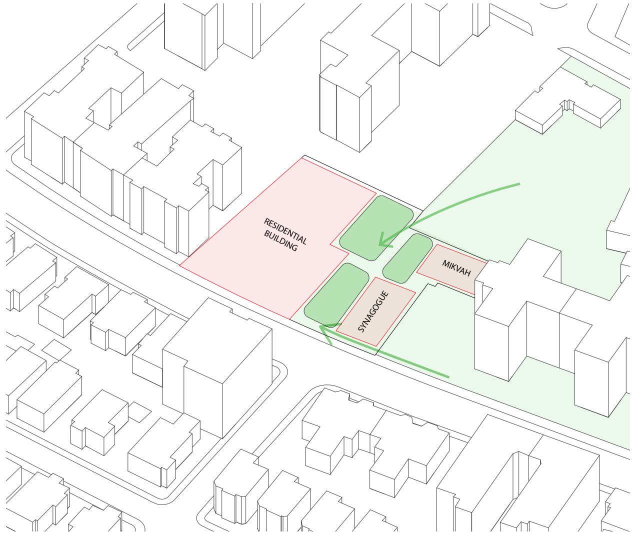


105 Washington
103 Washington
101 Washington
Site Parking
Ramp to
Sub-Grade
Parking
Roof Deck
Level 6
101 Washington - Parcel C
Congregation Kadimah-Toras Moshe
2 stories + basement
103 Washington - Parcel B
Daughters of Israel Mikvah
2 stories
105 Washington - Parcel A
73-Unit Residential Building
7 stories + basement parking
WASHINGTON STREET
0
30'

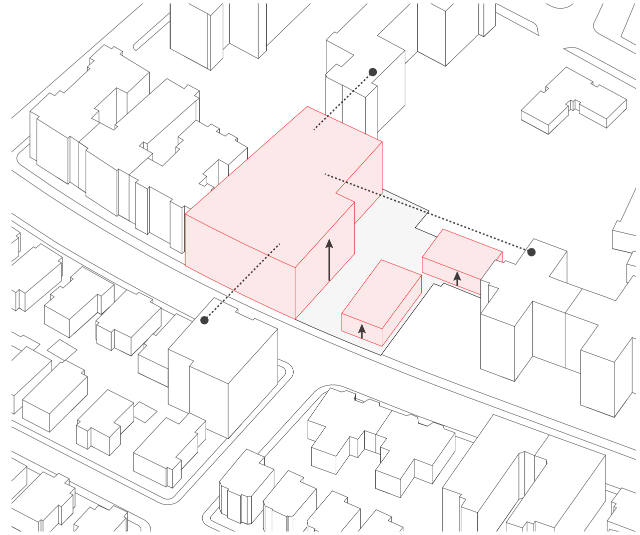
SITE PLAN



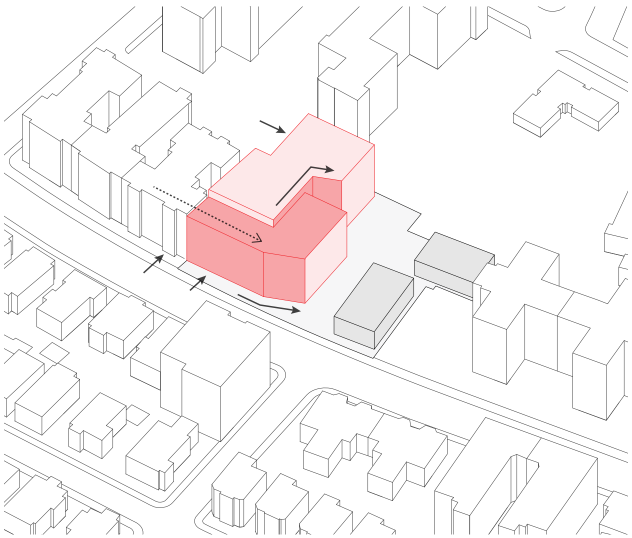
EXISTING The existing Synagogue and Mikvah - representing long standing entities in the Brighton neighborhood - will be relocated and rebuilt onsite to accommodate new housing.



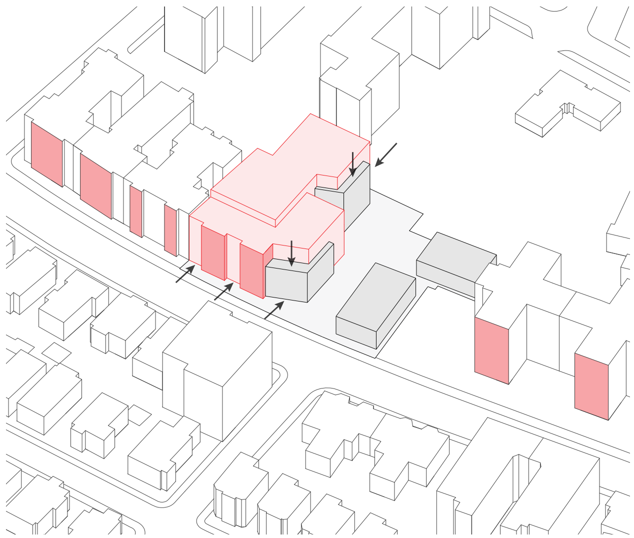
SITING The Residential building tucks its mass against the programmatically similar existing buildings to the west. The Synagogue and Mikvah are enveloped by a landscaped field extended in from the BHA properties to the east and north.



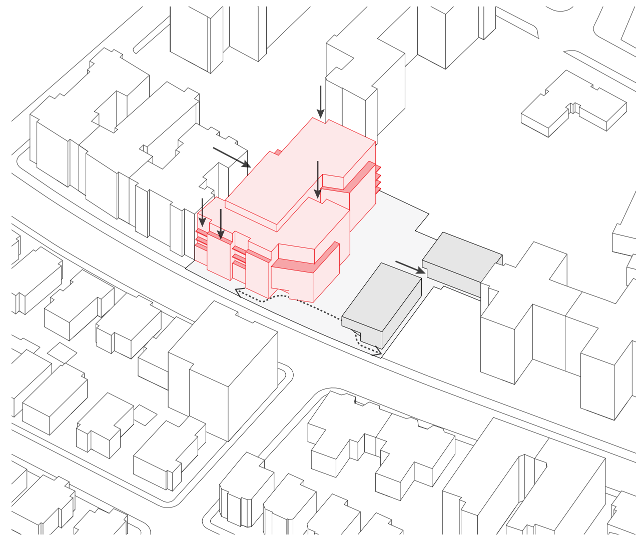
HEIGHT The Synagogue and Mikvah each require two stories to achieve their program. The Residential building rises to a height in direct relation to abutting properties to the north, east, and south.



CONTEXT The predominant face of the Residential building pulls back from Washington Street to respect the Street Wall and steps down one story to align with the existing adjacent property. The mass folds farther into the site, opening towards the Synagogue. Massing shifts along the west and rear introduce light wells.

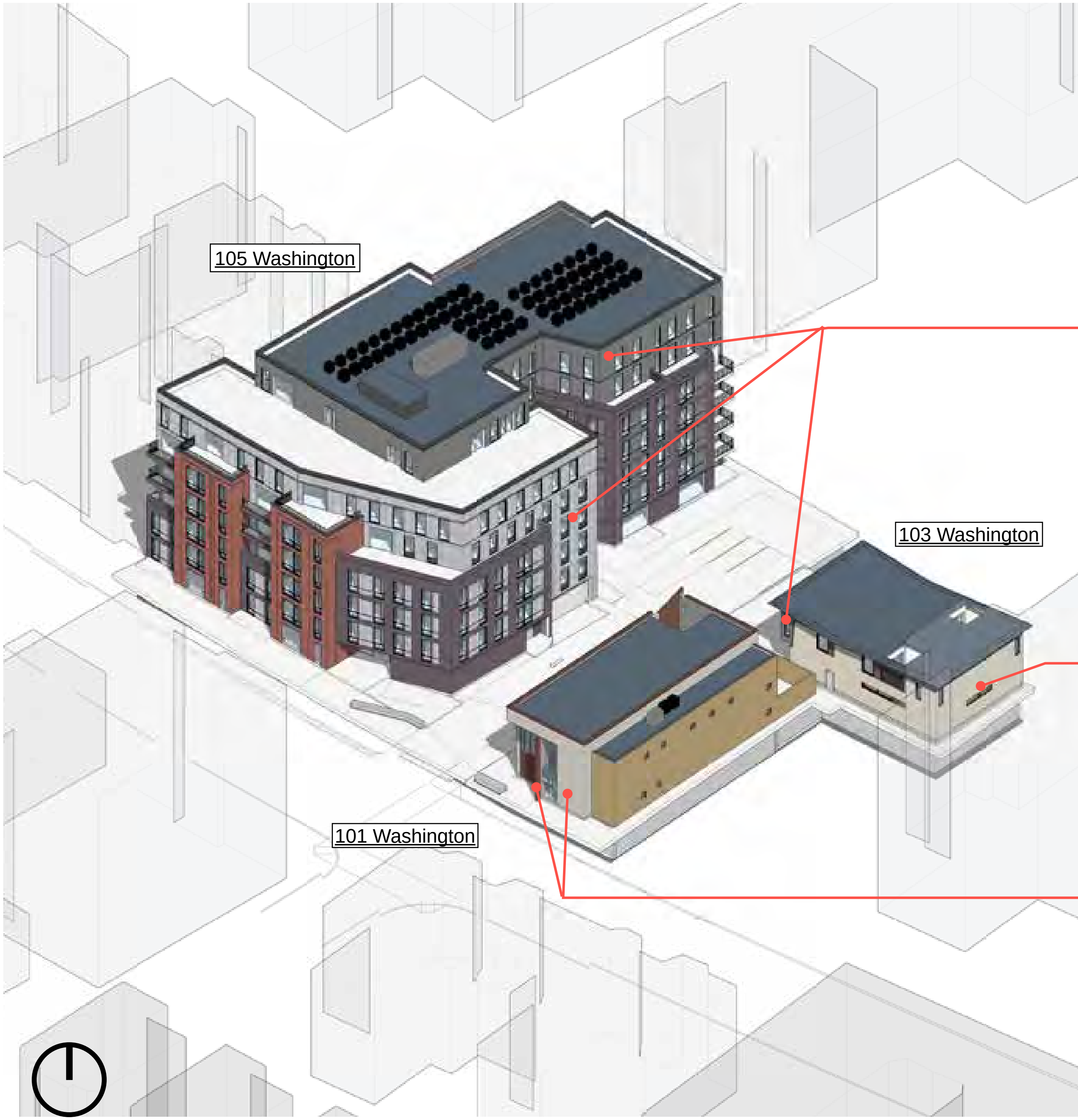


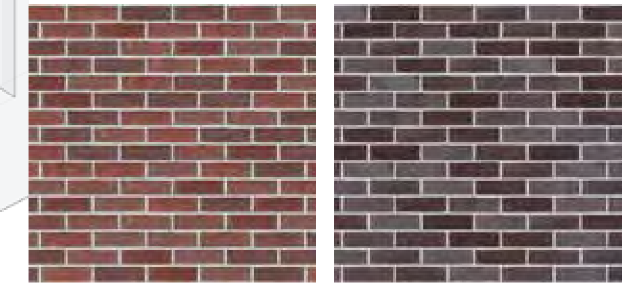
GRAIN A series of bay projections tie into the existing varied rhythm of the street. The Residential building steps down in mass to scale against the Synagogue, Mikvah and landscaped areas between.



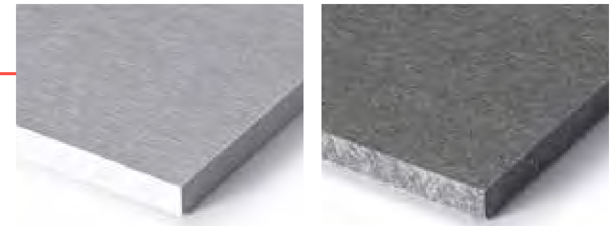
TEXTURE A series of medium-scale carves into the three buildings designate building entries, introduce balconies, and tie the buildings into the existing residential vernacular of the neighborhood.

URBAN RESPONSE



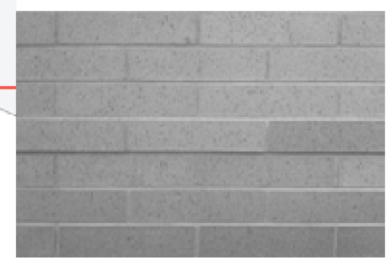


Brick Masonry

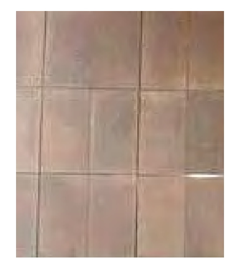


High-Density Cementitious Panel

Cast Stone Cladding

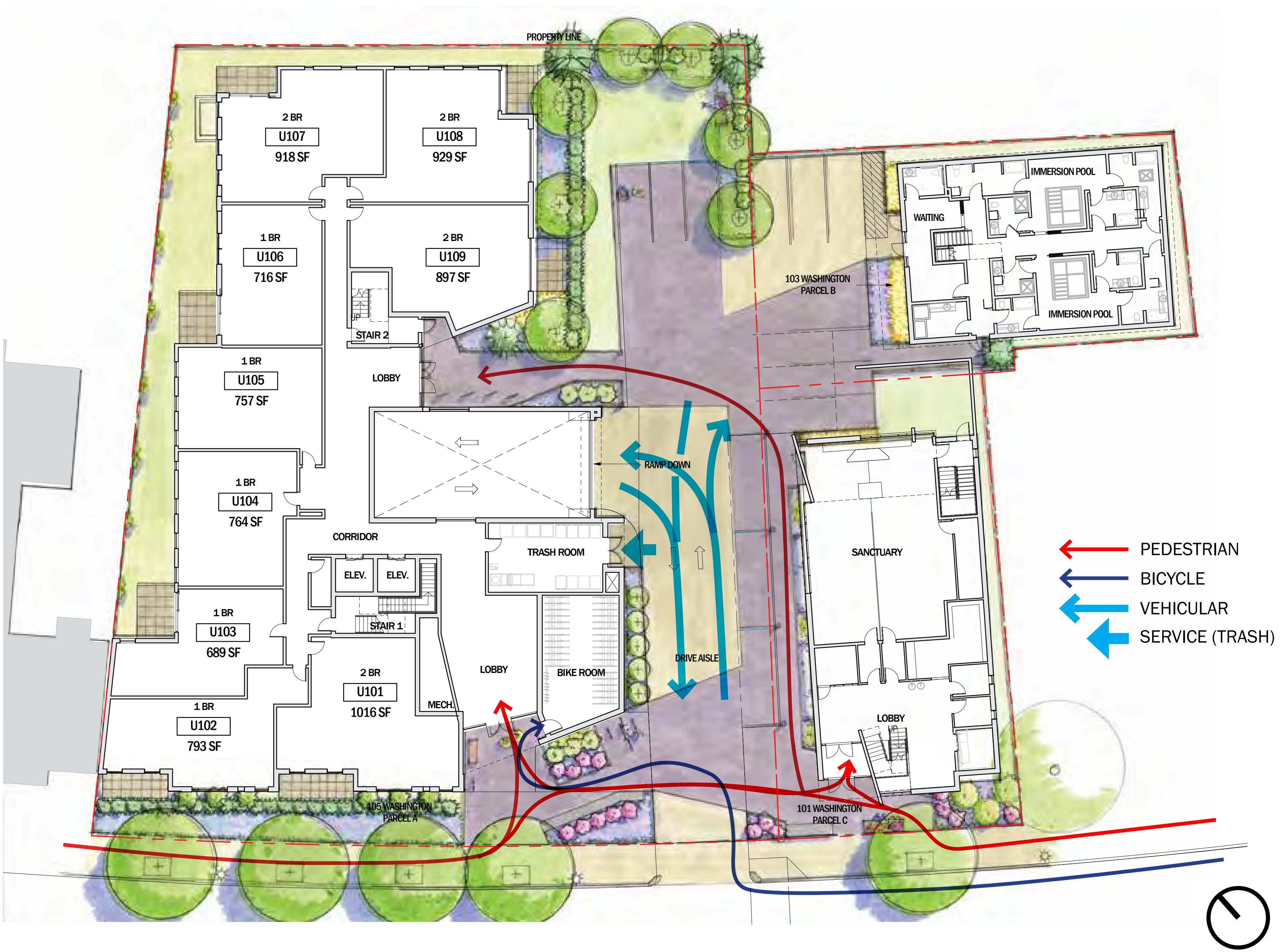


Masonry



Bronze Textured Panel

SITE AXONOMETRIC - MATERIALS PALETTE

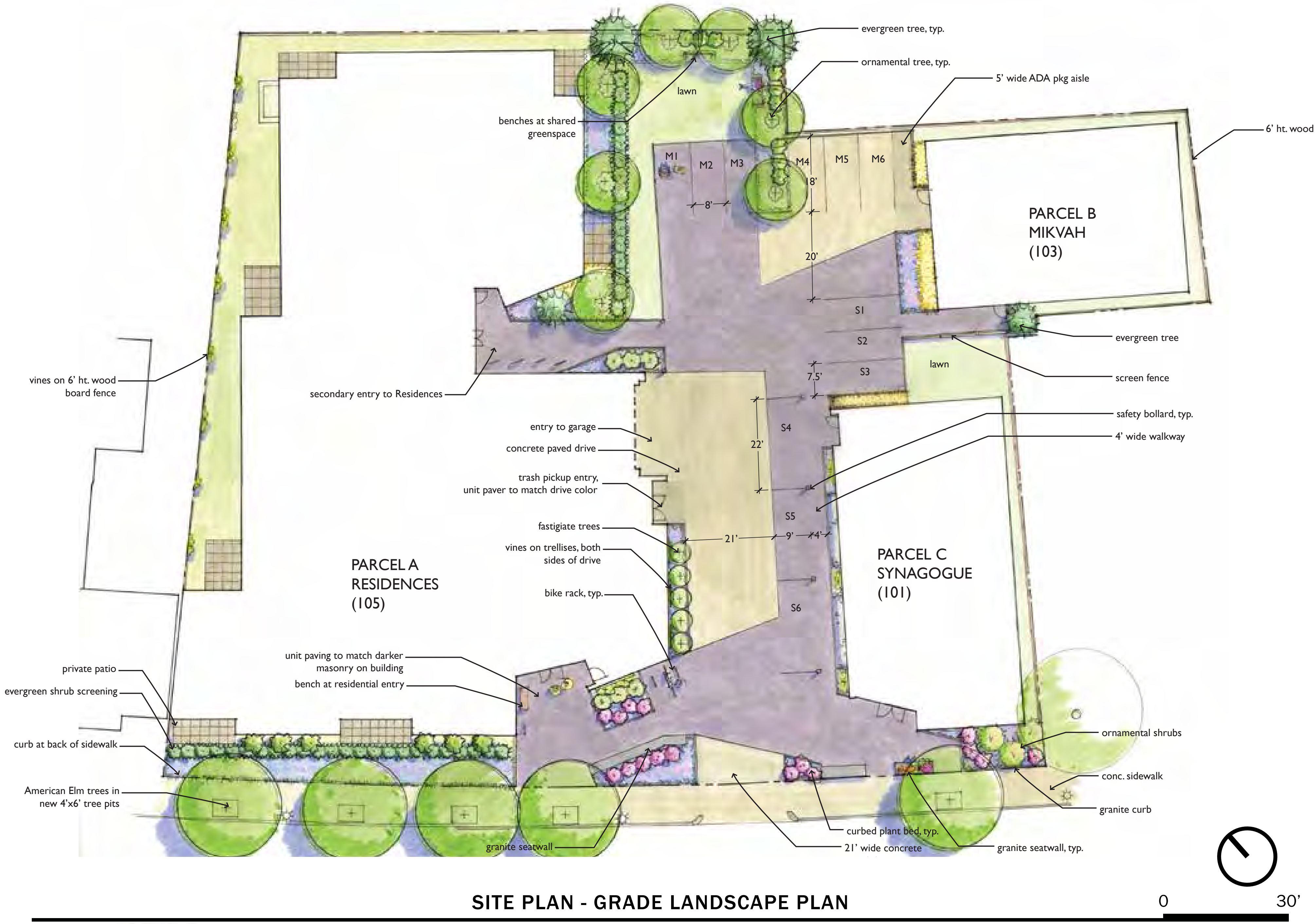


SITE PLAN - GRADE PLAN

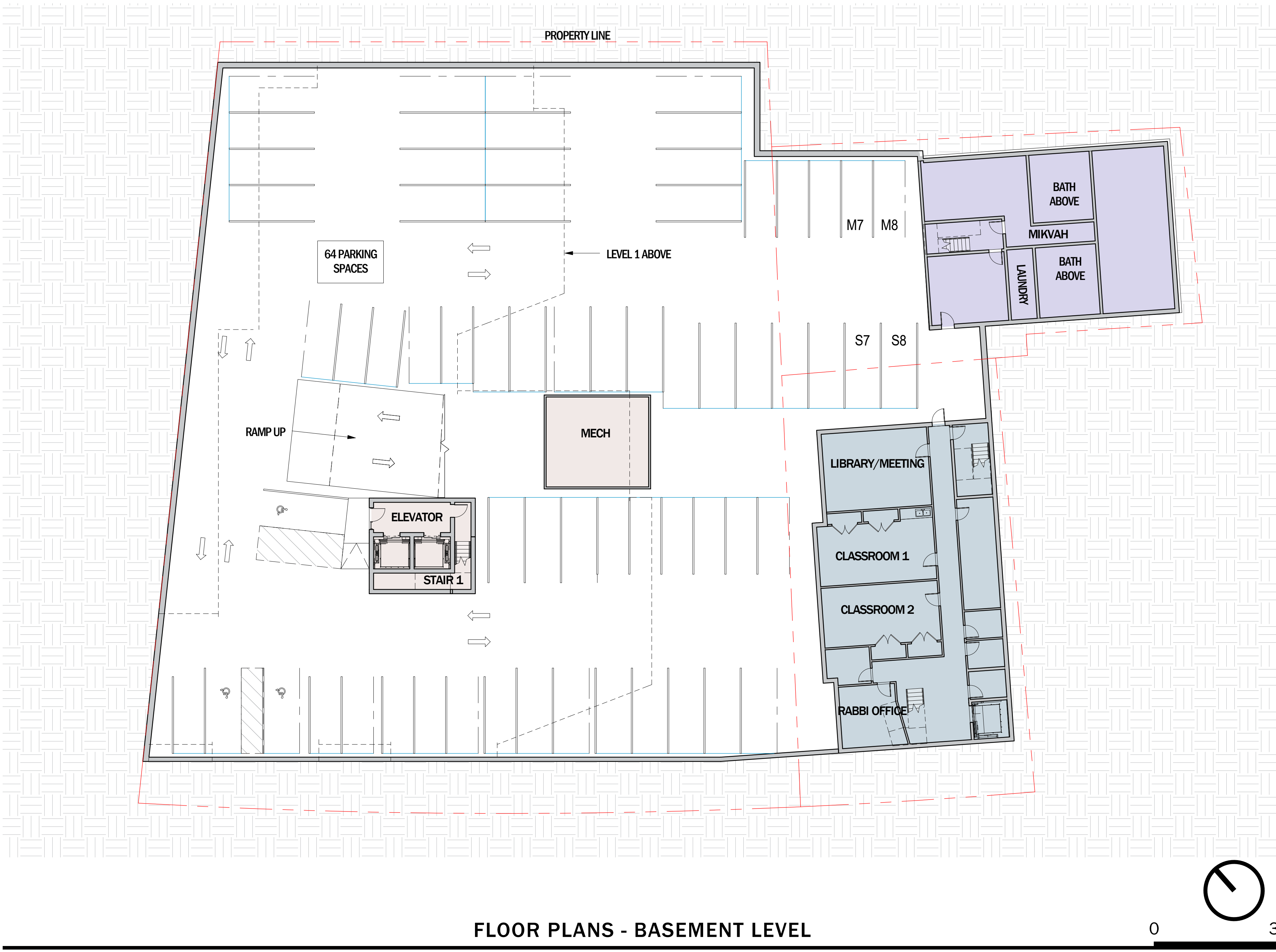
RODE

101 - 105 WASHINGTON STREET

Figure 3.4



SITE PLAN - GRADE LANDSCAPE PLAN



FLOOR PLANS - BASEMENT LEVEL

101 - 105 WASHINGTON STREET

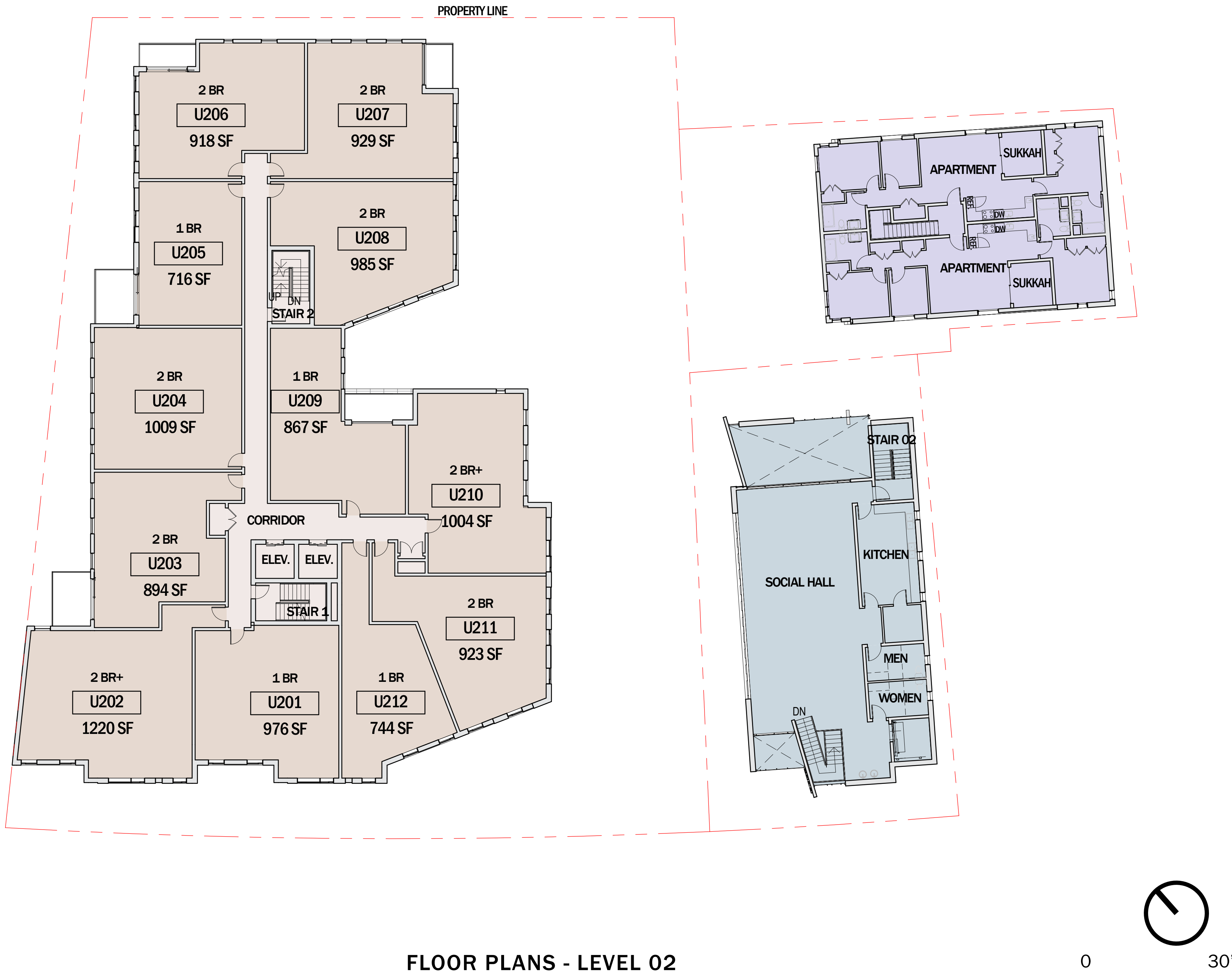
Figure 3.6

FLOOR PLANS - GROUND LEVEL

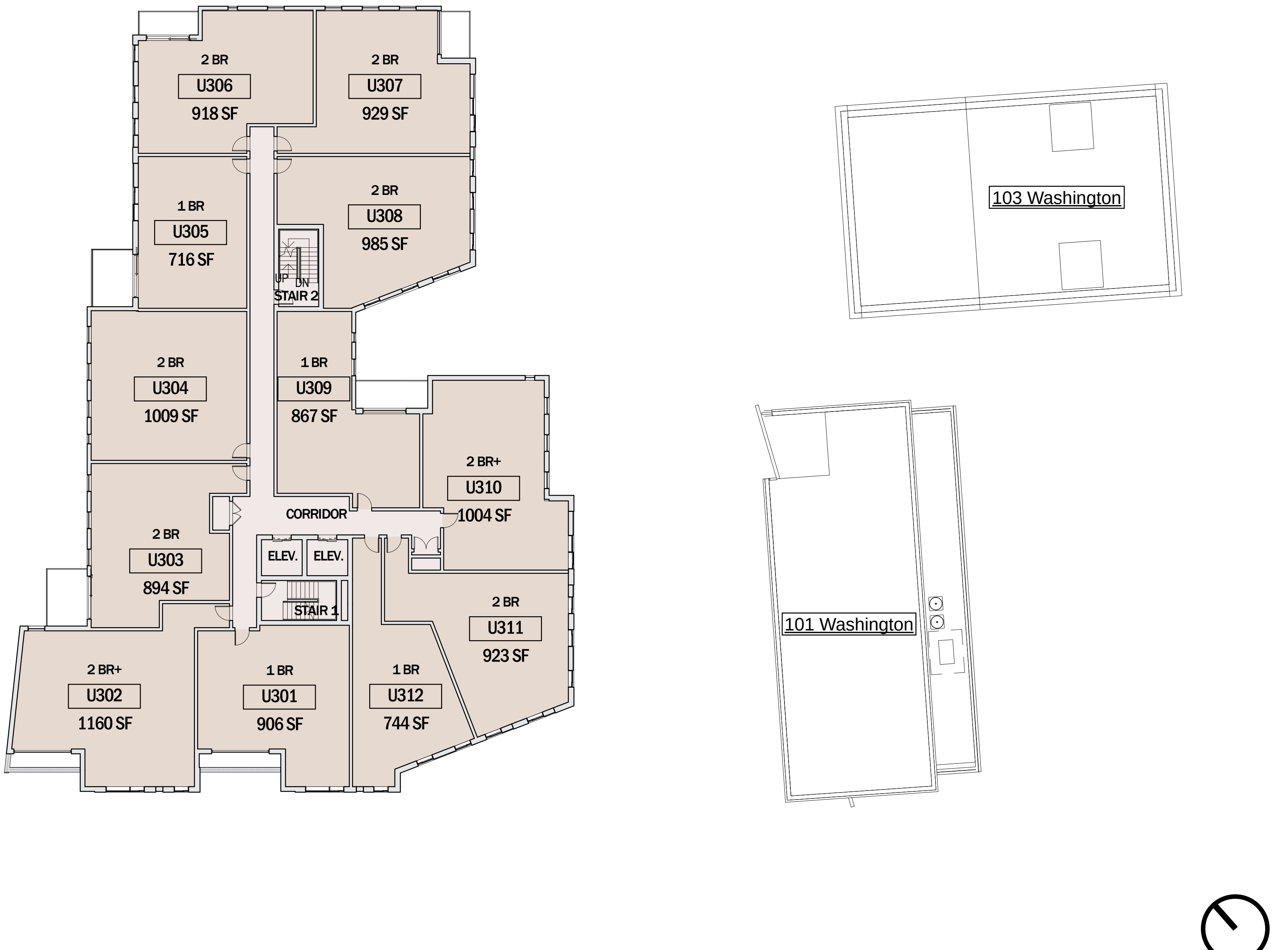
RODE

101 - 105 WASHINGTON STREET

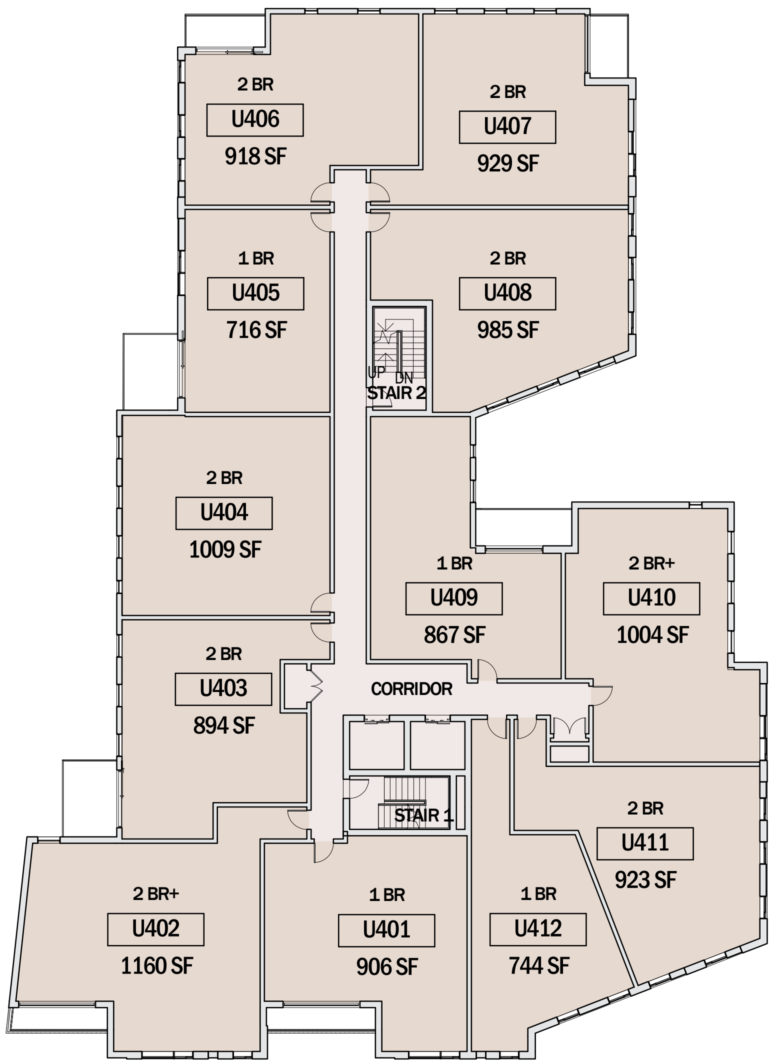
Figure 3.7



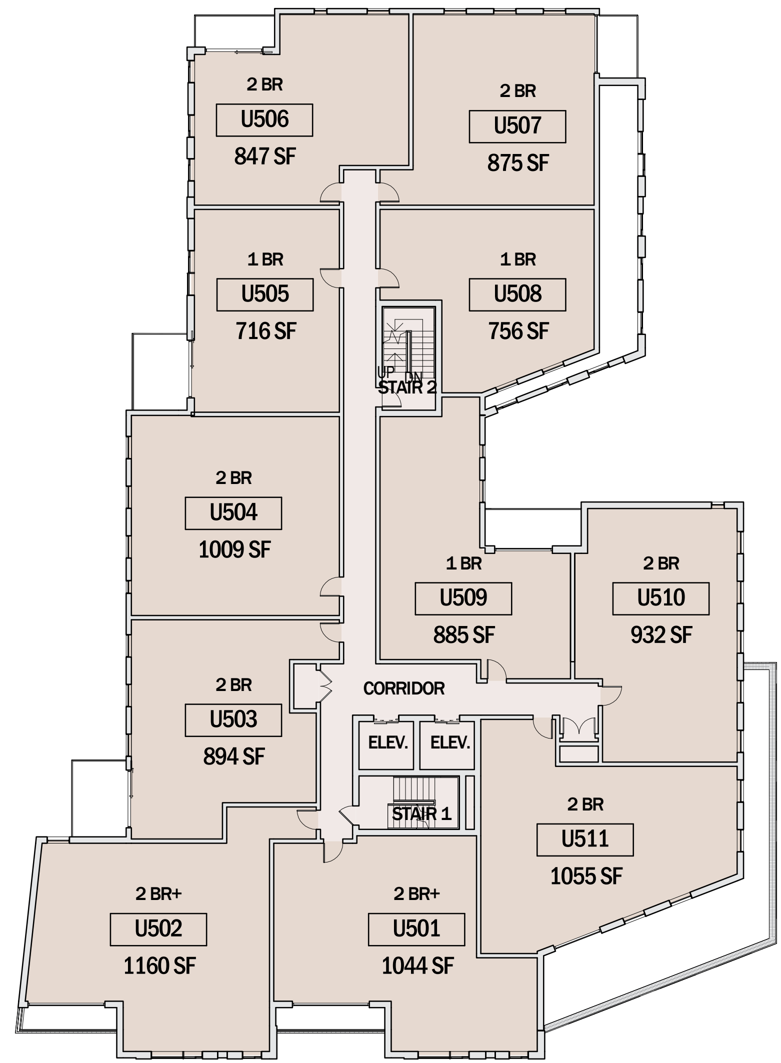
FLOOR PLANS - LEVEL 02



FLOOR PLANS - LEVEL 03



LEVEL 4



LEVEL 5

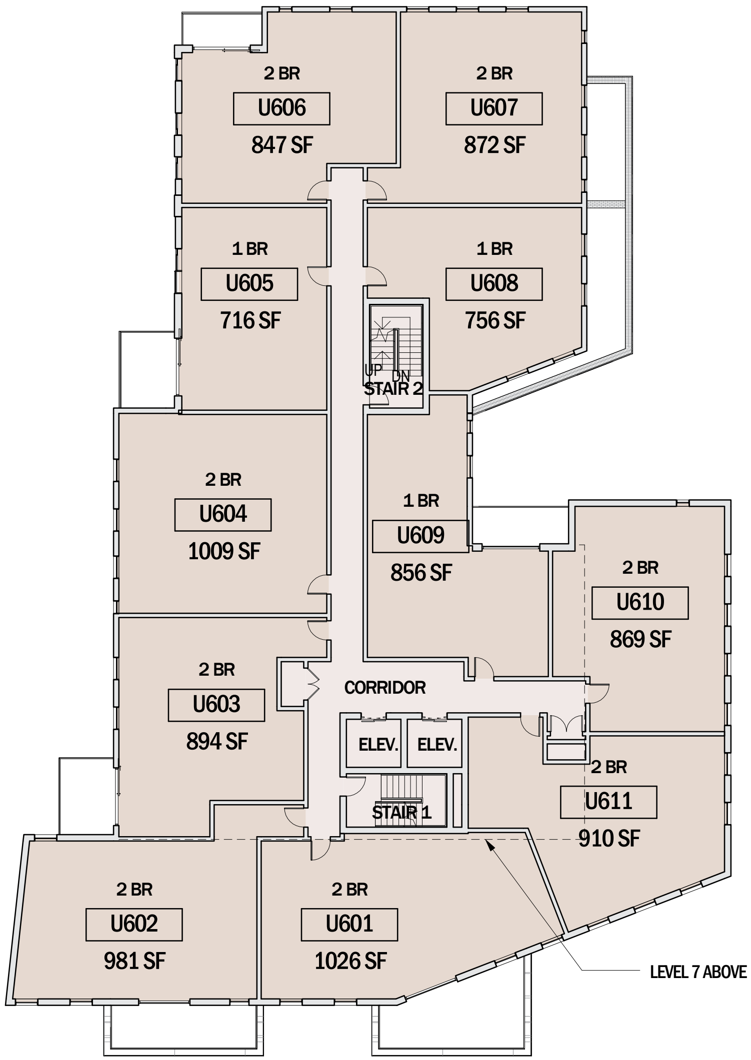
0 30'

FLOOR PLANS - LEVELS 04 to 05

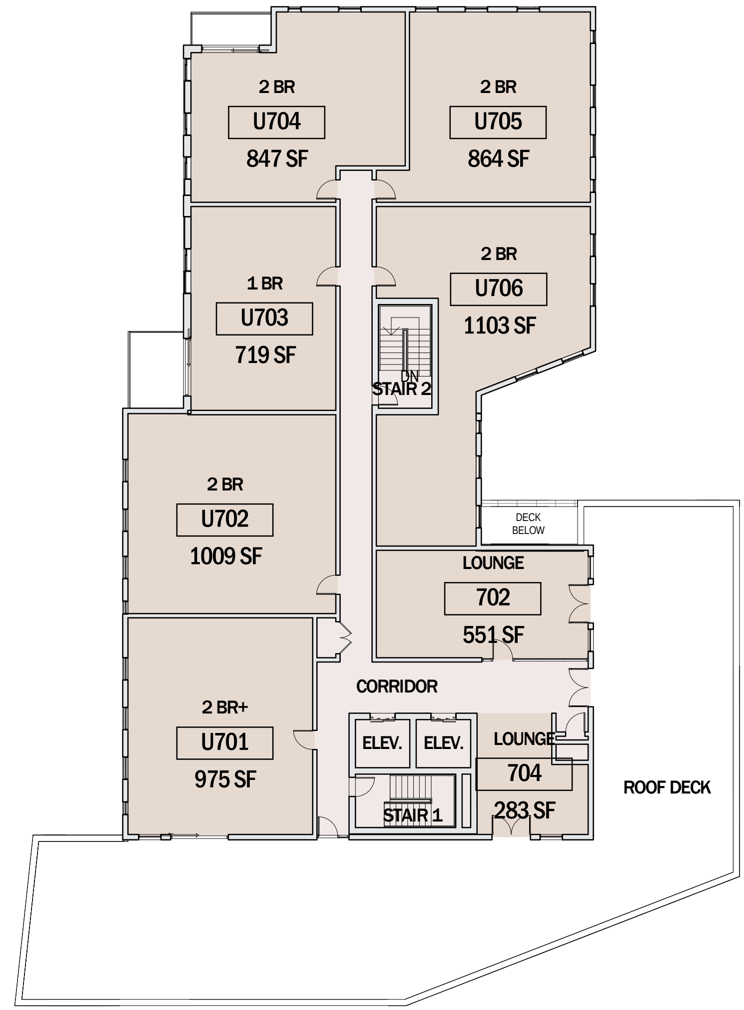
RODE

101 - 105 WASHINGTON STREET

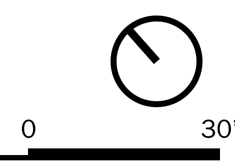
Figure 3.10



LEVEL 6



LEVEL 7



FLOOR PLANS - LEVELS 06 to 07

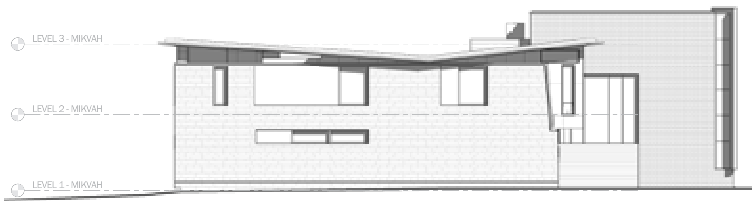
SITE ELEVATION - East through Drive Aisle

SITE ELEVATION - South along Washington Street

SITE ELEVATIONS

North Elevation

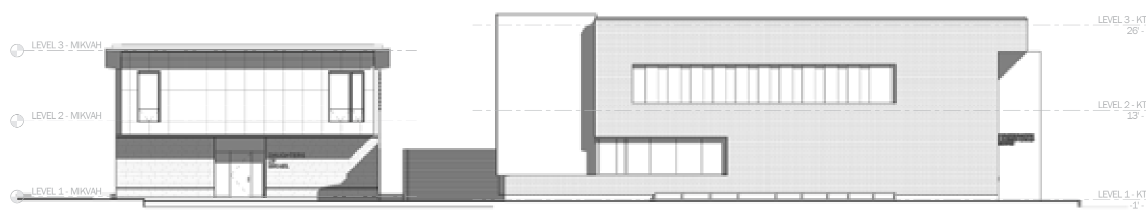
West Elevation



North Elevation

East Elevation

South Elevation



West Elevation

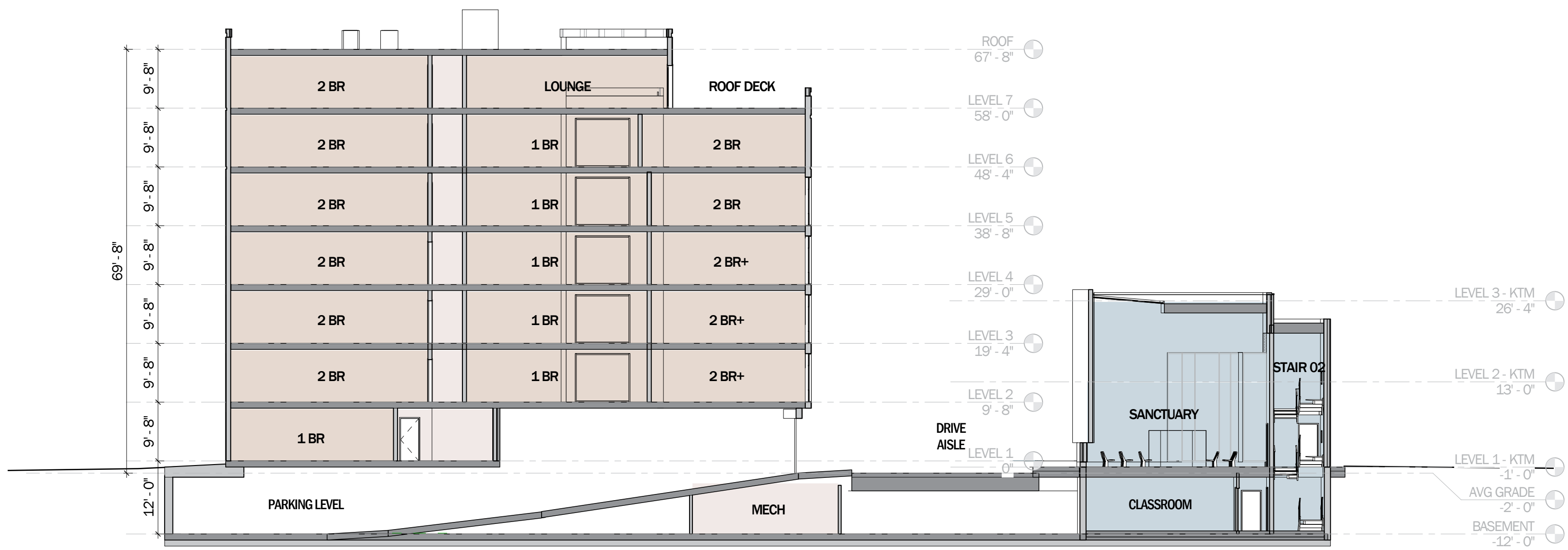
BUILDING ELEVATIONS - SYNAGOGUE & MIKVAH

0 30’

RODE

101 - 105 WASHINGTON STREET

Figure 3.14



SITE SECTION - EAST-WEST

0 30'

Development viewed from the North

Development viewed from the South

CONTEXT PERSPECTIVES

View of 105 Washington from across Washington Street

CONTEXT PERSPECTIVES

View of 105 Washington from across Washington Street

View from the north - Fidelis Way

Views from the north - Jette Court

CONTEXT PERSPECTIVES

Figure 3.20 LEED 2009 Checklist for New Construction and Major Renovations

LEED 2009 for New Construction and Major Renovations

Project Checklist

101- 105 Washington Street

Y	?	N			
22	4		**Sustainable Sites**	**Possible Points:**	**26**
Y			Prereq 1	Construction Activity Pollution Prevention	
1			Credit 1	Site Selection	1
5			Credit 2	Development Density and Community Connectivity	5
1			Credit 3	Brownfield Redevelopment	1
6			Credit 4.1	Alternative Transportation—Public Transportation Access	6
1			Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
3			Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
2			Credit 4.4	Alternative Transportation—Parking Capacity	2
	1		Credit 5.1	Site Development—Protect or Restore Habitat	1
1			Credit 5.2	Site Development—Maximize Open Space	1
	1		Credit 6.1	Stormwater Design—Quantity Control	1
	1		Credit 6.2	Stormwater Design—Quality Control	1
1			Credit 7.1	Heat Island Effect—Non-roof	1
1			Credit 7.2	Heat Island Effect—Roof	1
	1		Credit 8	Light Pollution Reduction	1
5	3	2	**Water Efficiency**	**Possible Points:**	**10**
Y			Prereq 1	Water Use Reduction—20% Reduction	
2	2		Credit 1	Water Efficient Landscaping	2 to 4
		2	Credit 2	Innovative Wastewater Technologies	2
3	1		Credit 3	Water Use Reduction	2 to 4
6	13	16	**Energy and Atmosphere**	**Possible Points:**	**35**
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
5	4	10	Credit 1	Optimize Energy Performance	1 to 19
	1	6	Credit 2	On-Site Renewable Energy	1 to 7
	2		Credit 3	Enhanced Commissioning	2
	2		Credit 4	Enhanced Refrigerant Management	2
1	2		Credit 5	Measurement and Verification	3
	2		Credit 6	Green Power	2
4	3	7	**Materials and Resources**	**Possible Points:**	**14**
Y			Prereq 1	Storage and Collection of Recyclables	
		3	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
		2	Credit 3	Materials Reuse	1 to 2
			Materials and Resources, Continued		
1	1		Credit 4	Recycled Content	1 to 2
1	1		Credit 5	Regional Materials	1 to 2
		1	Credit 6	Rapidly Renewable Materials	1
	1		Credit 7	Certified Wood	1
10	4	1	**Indoor Environmental Quality**	**Possible Points:**	**15**
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
		1	Credit 1	Outdoor Air Delivery Monitoring	1
	1		Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
1			Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems—Lighting	1
1			Credit 6.2	Controllability of Systems—Thermal Comfort	1
1			Credit 7.1	Thermal Comfort—Design	1
	1		Credit 7.2	Thermal Comfort—Verification	1
	1		Credit 8.1	Daylight and Views—Daylight	1
	1		Credit 8.2	Daylight and Views—Views	1
4	2		**Innovation and Design Process**	**Possible Points:**	**6**
	1		Credit 1.1	Innovation in Design: EP Green Power	1
1			Credit 1.2	Innovation in Design: EP Alt Transportation	1
1			Credit 1.3	Innovation in Design: Education Plan	1
1			Credit 1.4	Innovation in Design: Appliances	1
	1		Credit 1.5	Innovation in Design: TBD	1
1			Credit 2	LEED Accredited Professional	1
4			**Regional Priority Credits**	**Possible Points:**	**4**
1			Credit 1.1	Regional Priority: SS c3	1
1			Credit 1.2	Regional Priority: SS 6.1	1
1			Credit 1.3	Regional Priority: SS 7.1	1
1			Credit 1.4	Regional Priority: SS 7.2	1
55	29	26	**Total**	**Possible Points:**	**110**

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

4.0 ENVIRONMENTAL PROTECTION COMPONENT

4.1 Shadow Impacts Analysis

4.1.1 Introduction

The following shadow analysis was prepared to analyze the shade impact of the project on the surrounding neighborhood. It was used to avoid adverse conditions for the 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)	9:00 am, 12:00 noon, 3:00 pm
Summer Solstice (June 22)	9:00 am, 12:00 noon, 3:00 pm, 6:00 pm
Autumnal Equinox (September 21)	9:00am, 12:00noon, 3:00pm, 6:00 pm
Winter Solstice (December 21)	9:00 am, 12:00 noon, 3:00 pm

4.1.1 Vernal Equinox (March 21)

Figures 4.1 through **4.2** depict shadows during the Vernal Equinox for three time periods.

At 9:00 am a new shadow is cast to the northwest onto the rear of 135 Washington Street, and shading parking and service access. The southeast façade of 135 Washington Street is shaded. The Synagogue and Mikvah cast their shadows within the Project Site.

At 12:00 noon a new shadow is cast to the north, shading a façade of both 16 Fidelis Way and 135 Washington Street Shadows are cast onto the open space between the Project Site and 16 Fidelis Way. A portion of the Mikvah casts shadow on the southwest edge of the Commonwealth Tenants Association Garden.

At 3:00 pm new shadow from the Apartment building is cast to the northeast, shading the southwest corner of the building and the parking area for 16 Fidelis Way. A shadow cast from the Mikvah falls on a portion of the Commonwealth Tenants Association Garden.

4.1.2 Summer Solstice (June 22)

Figures 4.3 through **4.4** depict shadow impacts on June 22 during the Summer Solstice for four time periods.

At 9:00 am new shadows are cast to the west, falling on the immediate facades of 135 Washington Street. Additional shadows fall along the sidewalk of Washington Street in the immediate vicinity of the proposed structure. The Synagogue and Mikvah cast their shadows within the Project Site.

At 12:00 noon shadows are cast to the north onto a small portion of the open space between the Project Site and 16 Fidelis Way. No facades of existing buildings are shaded.

At 3:00 pm a new shadow is cast to the east, shading parking for 16 Fidelis Way and a small portion of the Commonwealth Tenants Association Garden.

At 6:00 pm shadows are cast to the east-southeast, falling on the facades of 91-95 Washington Street and 6-8 Fidelis Way. A shadow from the Apartment building is cast on the Commonwealth Tenants Association Garden. The Synagogue casts shadow on the open space between the Project Site and the building at 91-95 Washington Street.

4.1.3 Autumnal Equinox (September 21)

Figures 4.5 through **4.6** depict shadows during the Autumnal Equinox for four time periods.

At 9:00 am a new shadow is cast to the northwest onto the rear of 135 Washington Street, and shading parking and service access. The southeast façade of 135 Washington Street is shaded. The Synagogue and Mikvah cast their shadows within the Project Site.

At 12:00 noon a new shadow is cast to the north, shading a façade of both 16 Fidelis Way and 135 Washington Street Shadows are cast onto the open space between the Project Site and 16 Fidelis Way. A portion of the Mikvah casts shadow on the southwest edge of the Commonwealth Tenants Association Garden.

At 3:00 pm new shadow from the Apartment building is cast to the northeast, shading the southwest corner of the building and the parking area for 16 Fidelis Way. A shadow cast from the Mikvah falls on a portion of the Commonwealth Tenants Association Garden.

At 6:00 pm shadows cast throughout the neighborhood are very long, as the sun is nearing sunset; no new shadows are cast onto the existing ground plane. Many buildings are completely shaded by existing shadows; new shadows from the Apartment building are cast onto the westerly facades of 6-8 Fidelis Way.

4.1.4 Winter Solstice (December 21)

Figures 4.7 through **4.8** depict shadow impacts during the Winter Solstice for three time periods. Winter sun casts the longest shadows of the year.

At 9:00 am a new shadow is cast to the northwest onto the rear of 135 Washington Street, and shading parking and service access. Shadow is cast onto Fidelis Way, and a small portion of the property at 139 Washington Street. The Synagogue and Mikvah cast their shadows within the Project Site.

At 12:00 noon a new shadow is cast to the north, shading a façade of both 16 Fidelis Way and 135 Washington Street shadows are cast onto the open space between the Project Site and 16 Fidelis Way and between 32 and 16 Fidelis Way. A portion of the Mikvah casts shadow on the southwest edge of the Commonwealth Tenants Association Garden.

At 3:00 pm new shadow from the Apartment building is cast to the northeast, shading the southwest corner of the building and the parking area for 16 Fidelis Way, then crossing Fidelis Way and ultimately falling on Jette Court. A shadow cast from the Mikvah falls across the Commonwealth Tenants Association Garden and into the open space beyond.

4.1.5 Summary

New shadows introduced by this proposal are largely consistent with the existing grain of shadows in the area studied. The form and extent of the shadows cast by the Apartment building are consistent with the existing impact of the multi-family buildings that abut the site. Setbacks and other adjustments to the Apartment building massing help to mitigate this condition along the northwest edge of the property. Of the fourteen time periods studied, three yielded new shadows on Public sidewalks and public ways, including shallow shadows on Washington Street on the summer solstice morning. Afternoon and evening shadows fall on the Commonwealth Tenants Association Gardens and open space. Washington Street and Commonwealth Avenue are virtually unaffected by the proposed development's shadows.

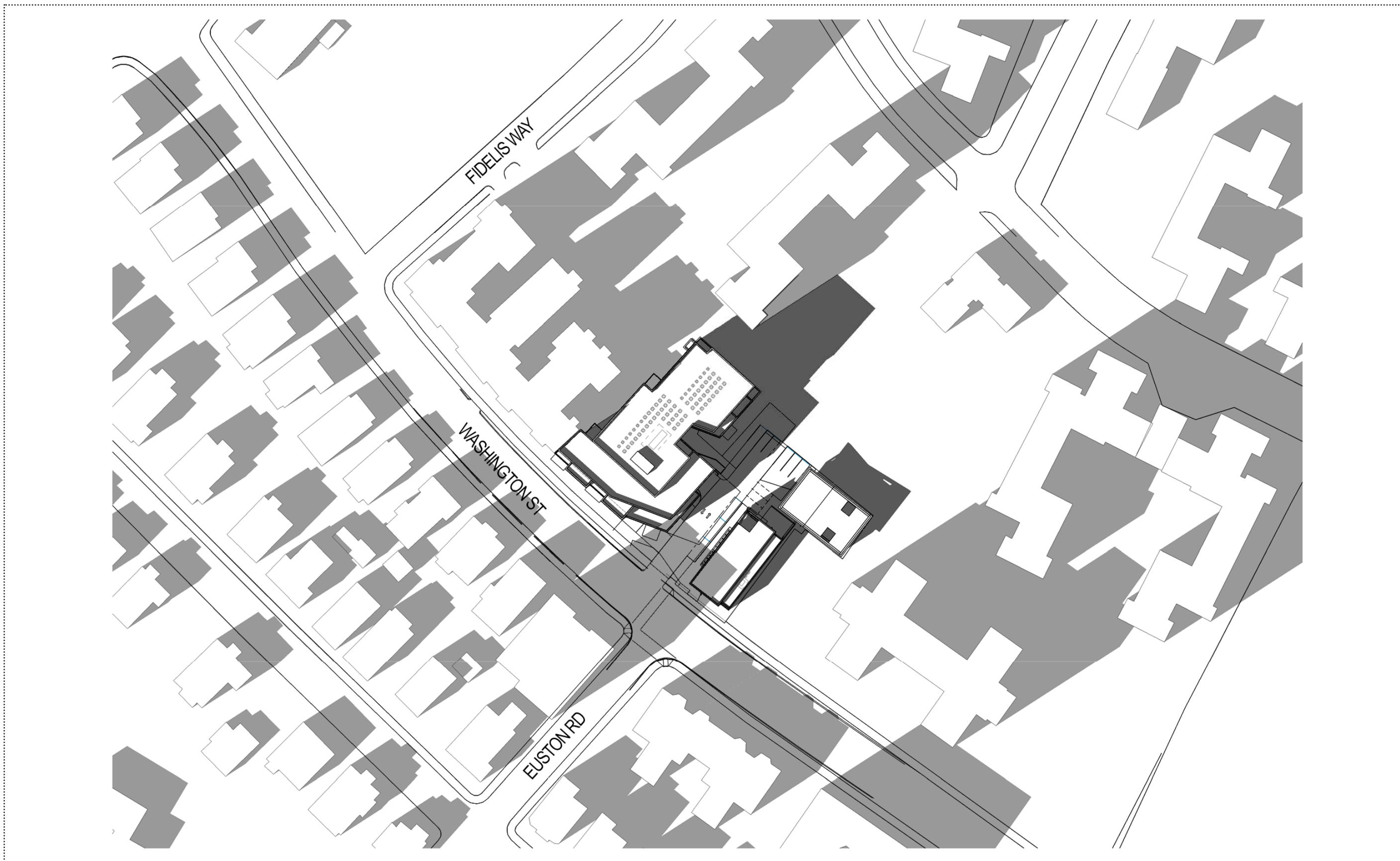
9:00 AM Azimuth 125.75° Elevation 33.11°

12:00 PM Azimuth 183.24° Elevation 48.01°

Net New Shadow
Existing Shadow

N

SHADOW STUDY - VERNAL EQUINOX



3:00 PM Azimuth 238.35° Elevation 30.52°

Net New Shadow
Existing Shadow
N

SHADOW STUDY - VERNAL EQUINOX

9:00 AM Azimuth 105.49° Elevation 50.84°

12:00 PM Azimuth 189.67° Elevation 70.87°

Net New Shadow
Existing Shadow
N

SHADOW STUDY - SUMMER SOLSTICE

3:00 PM Azimuth 260.38º Elevation 45.88º

6:00 PM Azimuth 289.85º Elevation 13.2º

Net New Shadow
Existing Shadow

N

SHADOW STUDY - SUMMER SOLSTICE

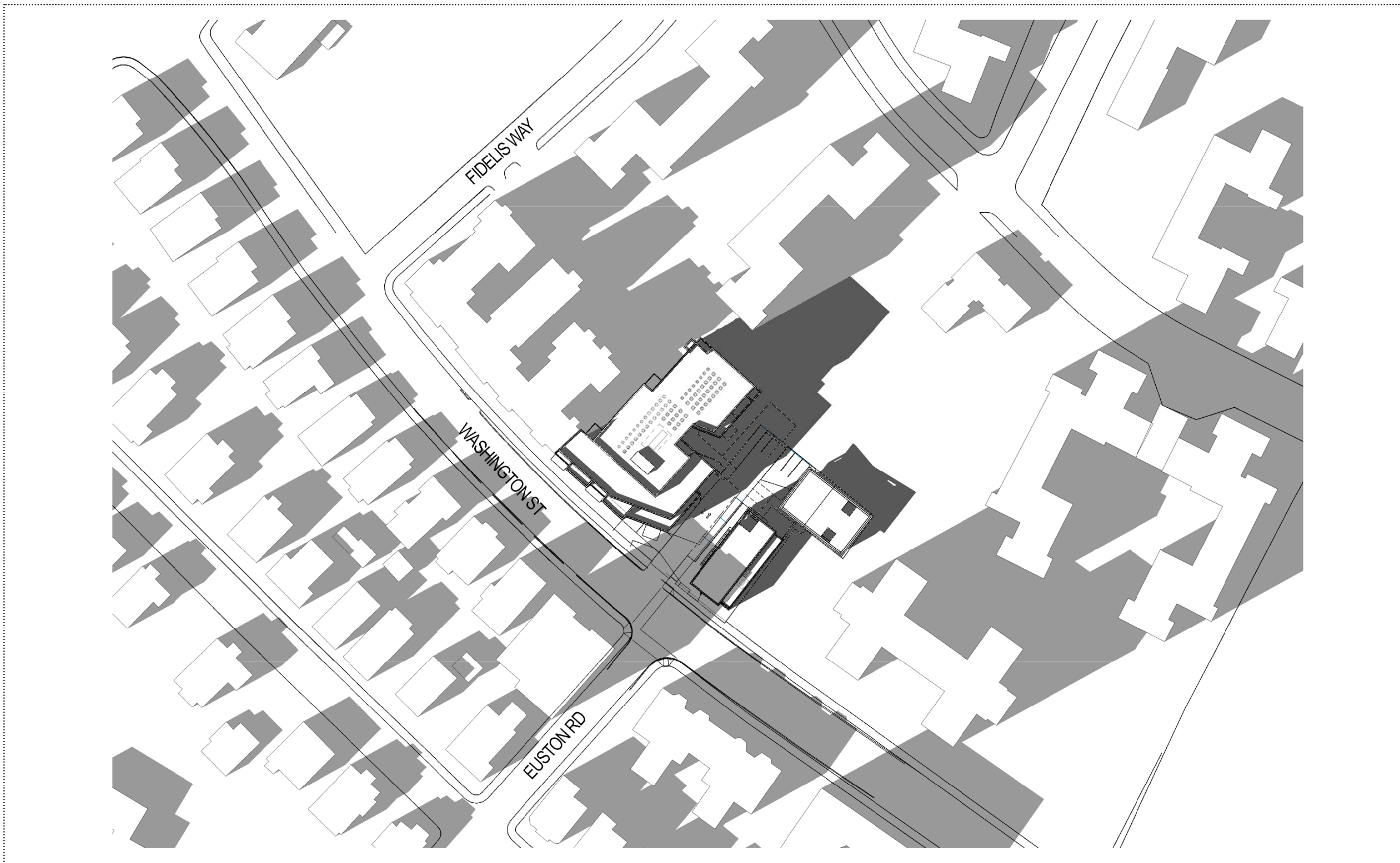
9:00 AM Azimuth 129.02º Elevation 35.37º

12:00 PM Azimuth 188.49º Elevation 47.89º

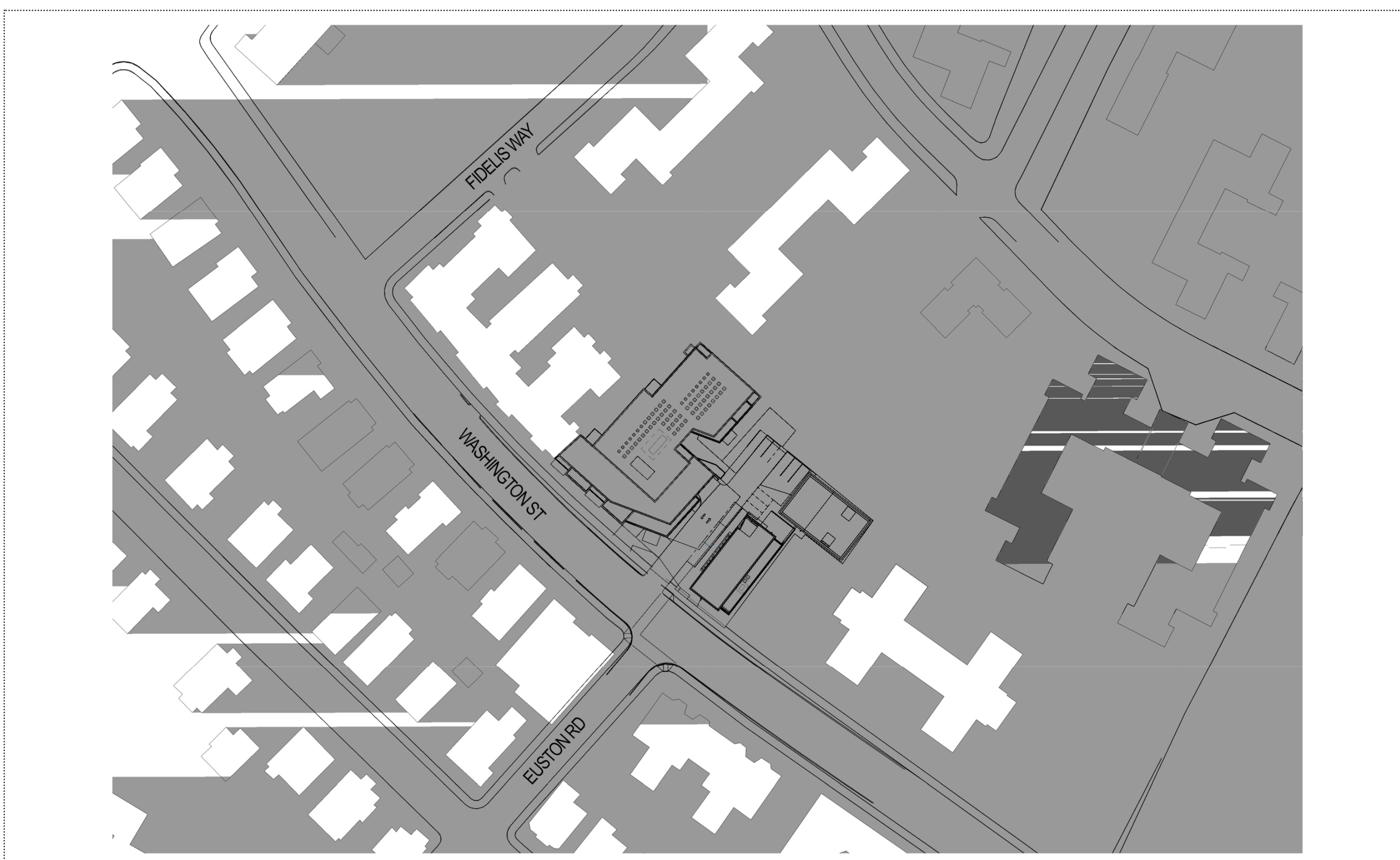
Net New Shadow
Existing Shadow

N

SHADOW STUDY - AUTUMNAL EQUINOX



3:00 PM Azimuth 241.49° Elevation 28.31°

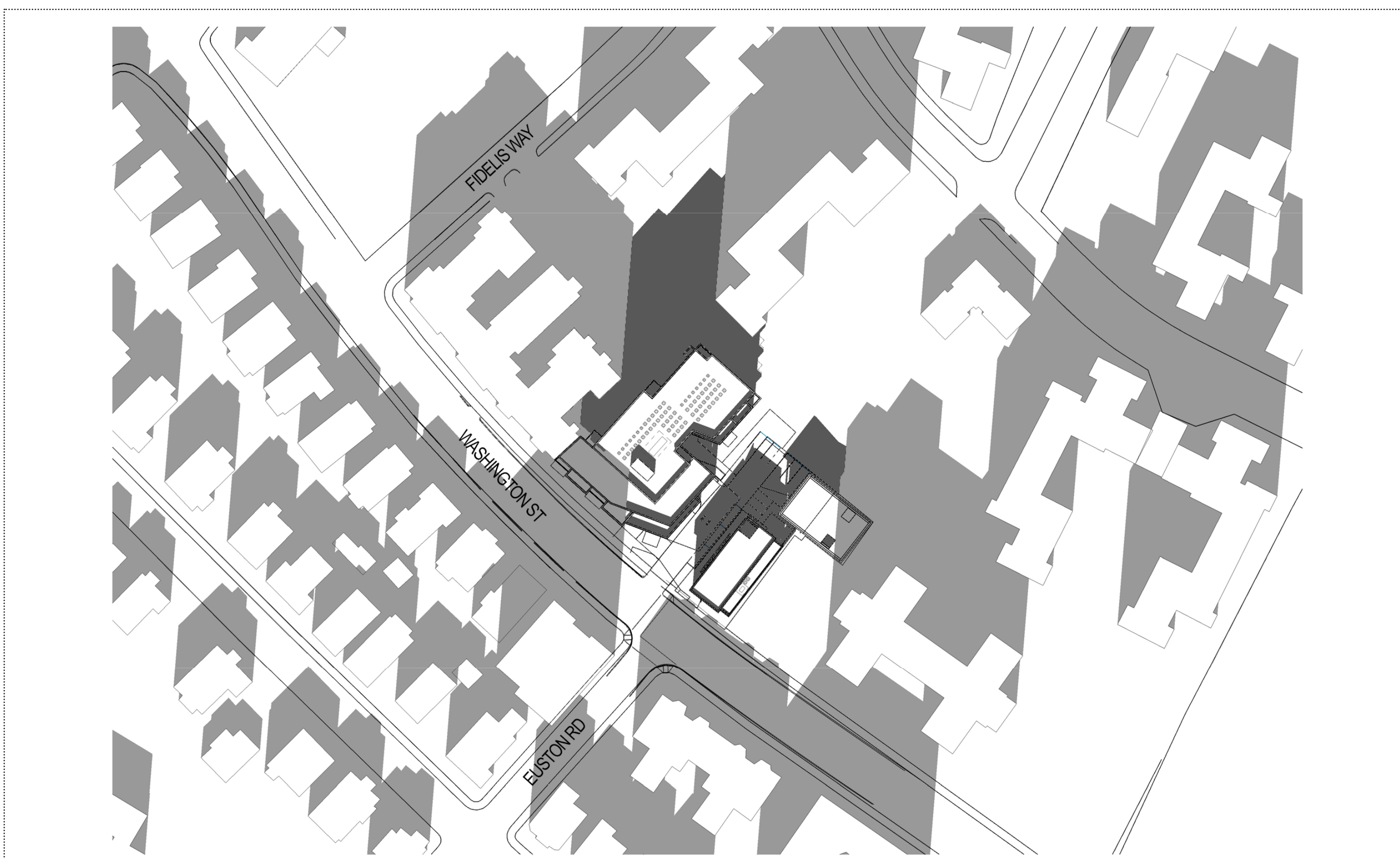


6:00 PM Azimuth 274.18° Elevation -3.84° (astronomical twilight at -18°)

Net New Shadow
Existing Shadow
N

SHADOW STUDY - AUTUMNAL EQUINOX

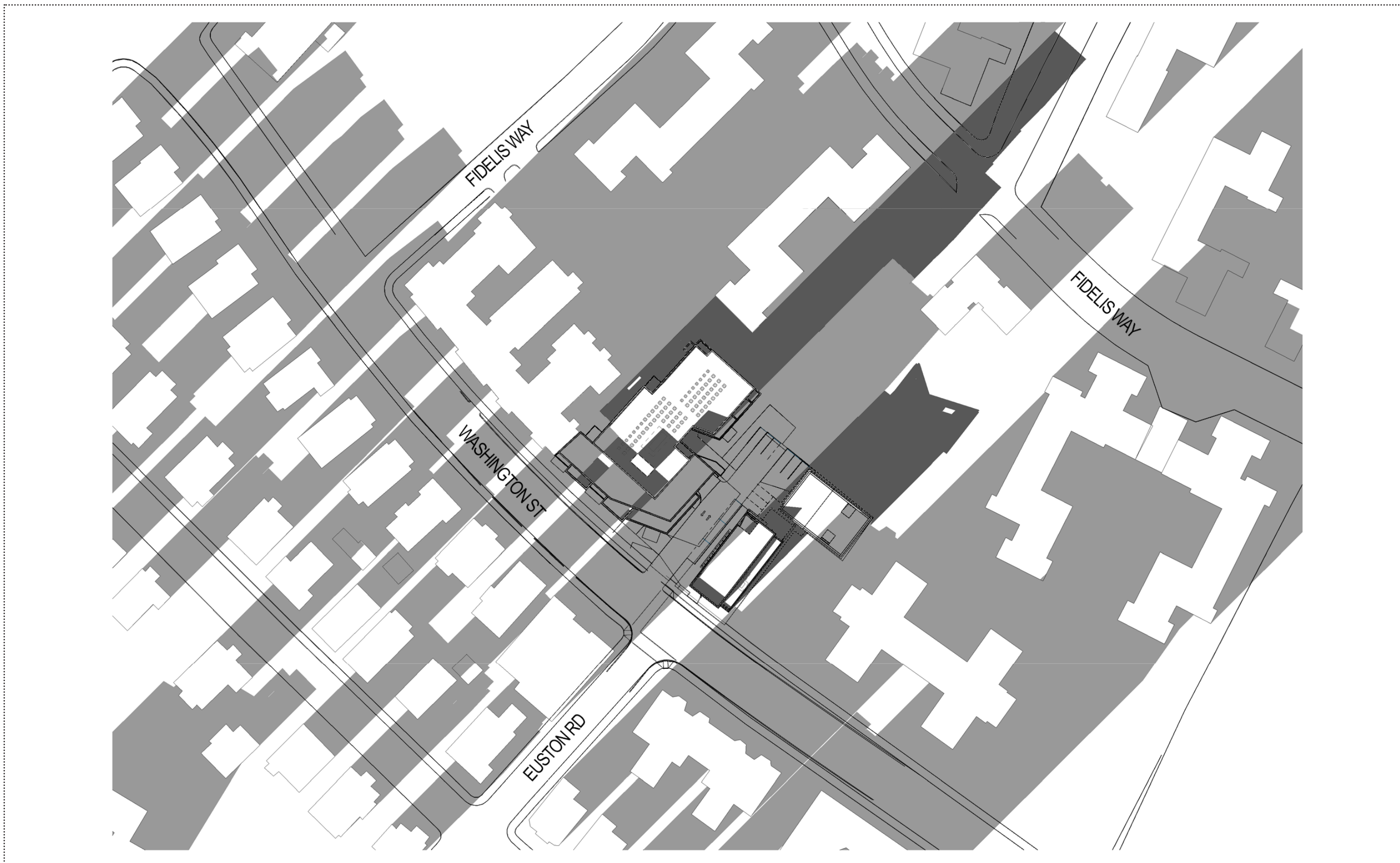
9:00 AM Azimuth 141.98º Elevation 14.36º



12:00 PM Azimuth 184.43º Elevation 24.12º

Net New Shadow
Existing Shadow
N

SHADOW STUDY - WINTER SOLSTICE



3:00 PM Azimuth 225.01° Elevation 10.07°

Net New Shadow
Existing Shadow
N

SHADOW STUDY - WINTER SOLSTICE

4.2 Air Quality

Tech Environmental, Inc. performed air quality analyses for the Proposed Project (the "Project") to be located at 105 Washington Street in Brighton, MA. These analyses consisted of: 1) an evaluation of existing air quality; 2) an evaluation of potential carbon monoxide (CO) impacts from the operation of the Project's underground parking garage, and 3) a microscale CO analysis for intersections in the Project area that meet the BRA criteria for requiring such an analysis.

4.2.1 Existing Air Quality

The City of Boston is currently classified as being in attainment of the Massachusetts and National Ambient Air Quality Standards ("NAAQS") for all of the criteria air pollutants except ozone (see **Table 4.2-1**). These air quality standards have been established to protect the public health and welfare in ambient air, with a margin for safety.

The Massachusetts Department of Environmental Protection ("DEP") currently operates air monitors in various locations throughout the city. The closest, most representative, DEP monitors for carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), fine particulate matter ($PM_{2.5}$), coarse particulate matter (PM_{10}), and lead are located at Dudley Square (Harrison Avenue). Harrison Avenue, Boston, MA. The closest, most representative, DEP monitor for ozone is located at Dudley Square (Harrison Avenue).

Table 4.2-2 summarizes the DEP air monitoring data, for the most recent available, complete, three-year period (2012-2014), that are considered to be representative of the project area. **Table 4.2-2** shows that the existing air quality in the Project area is generally much better than the NAAQS. The highest impacts relative to a NAAQS are for ozone and $PM_{2.5}$. Ozone is a regional air pollutant on which the small amount of additional traffic generated by this Project will have an insignificant impact. The Project's operations will not have a significant impact on local $PM_{2.5}$ concentrations.

Table 4.2-1 Massachusetts and National Ambient Air Quality Standards (NAAQS)

Pollutant	Averaging Time	NAAQS ($\mu g/m^3$)
SO_2	1-hour[P] 24-hour[P] Annual[P] (Arithmetic Mean)	196[a] 365[b] 80
CO	1-hour[P] 8-hour[P]	40,000[b] 10,000[b]
NO_2	1-hour[P] Annual[P/S] (Arithmetic Mean)	188[c] 100
PM_{10}	24-hour[P/S]	150
$PM_{2.5}$	24-hour[P/S] Annual[P/S] (Arithmetic Mean)	35[d] 12[e,f]
O_3	8-hour[P/S]	138[g]
Pb	Rolling 3-Month Avg.[P/S] Calendar Quarter[P/S] (Arithmetic Mean)	0.15 1.5

P = primary standard; S = secondary standard.
[a] 99th percentile 1-hour concentrations in a year (average over three years).
[b] One exceedance per year is allowed.
[c] 98th percentile 1-hour concentrations in a year (average over three years).
[d] 98th percentile 24-hour concentrations in a year (average over three years).
[e] Three-year average of annual arithmetic means.
[f] As of March 18, 2013, the U.S. EPA lowered the $PM_{2.5}$ annual standard from 15 ug/m^3 to 12 ug/m^3.
[g] Three-year average of the annual 4th-highest daily maximum 8-hour ozone concentration must not exceed 0.070 ppm (138 ug/m^3) (effective October 28, 2015) and the annual PM_{10} standard was revoked in 2006.

Table 4.2-2 Representative Existing Air Quality in the Project Area

Pollutant, Averaging Period	Monitor Location	Value (μg/m³)	NAAQS (μg/m³)	Percent of NAAQS
CO, 1-hour	Harrison Avenue, Boston	2,519	40,000	6%
CO, 8-hour	Harrison Avenue, Boston	1,832	10,000	18%
NO_2, 1-hour	Harrison Avenue, Boston	90.9	188	48%
NO_2, Annual	Harrison Avenue, Boston	32.8	100	33%
Ozone, 8-hour	Harrison Avenue, Boston	125	138	91%
PM_{10}, 24-hour	Harrison Avenue, Boston	37	150	25%
$PM_{2.5}$, 24-hour	Harrison Avenue, Boston	16.4	35	47%
$PM_{2.5}$, Annual	Harrison Avenue, Boston	7.2	12	60%
Lead, Quarterly	Harrison Avenue, Boston	0.014	1.5	1.1%
SO_2, 1-hour	Harrison Avenue, Boston	30.8	196	16%

Source: MassDEP, http://www.mass.gov/dep/air/priorities/aqreports.htm., downloaded August 9, 2015.

Notes:

(1) Annual averages are highest measured during the most recent three-year period for which data are available (2012 - 2014). Values for periods of 24-hours or less are highest, second-highest over the three-year period unless otherwise noted.

(2) The eight-hour ozone value is the 3-year average of the annual fourth-highest values, the 24-hour $PM_{2.5}$ value is the 3-year average of the 98th percentile values, the annual $PM_{2.5}$ value is the 3-year average of the annual values – these are the values used to determine compliance with the NAAQS for these air pollutants.

(3) The one-hour NO_2 value is the -year average of the 98th percentile values and the one-hour SO_2 value is the -year average of the 99th percentile values

(4) The one-hour ozone standard was revoked by the US EPA in 2005; the annual PM_{10} standard was revoked in 2006 and the 3-hour SO_2 standard was revoked by the US EPA in 2010.

4.2.2 Parking Garage

The Project also includes a parking garage designed to provide parking spaces for 69 vehicles. An analysis of the worst-case air quality impacts from the proposed parking garage was performed (see **Appendix B**). The procedures used for this analysis are consistent with U.S. EPA's Volume 9 guidance.[1] The objective of this analysis was to determine the maximum CO concentrations inside the garage and at the closest sensitive receptors surrounding the Project. These closest sensitive receptors include: air intakes located on the proposed building and nearby existing buildings and pedestrians at ground level anywhere near the Project. CO emissions from motor

[1] US EPA, "Guidelines for Air Quality Maintenance Planning and Analysis Volume 9 (Revised): Evaluating Indirect Sources," EPA-450/4-78-001, September 1978.

vehicles operating inside the garage were calculated and the CO concentrations inside the garage and surrounding the Project were based on morning and afternoon peak traffic periods.

The objective of this analysis was to determine the maximum CO concentrations at the closest sensitive receptors surrounding the Project. These closest sensitive receptors include: air intakes located on the proposed building and nearby existing buildings, and pedestrians at ground level anywhere near the Project. The gas-fired heating equipment and parking garage CO emissions were modeled using an U.S. EPA-approved air model.

Garage Ventilation System

The proposed parking garage will require mechanical ventilation. The garage ventilation system will be designed to provide adequate dilution of the motor vehicle emissions before they are vented outside. The design of the garage ventilation system will meet all building code requirements. Full ventilation of the garage will require a maximum flow of approximately 17,600 cubic feet per minute (cfm) of fresh air. This quantity of air is designed to meet the building code and will be more than adequate to dilute the emissions inside the parking garage to safe levels before they are vented outside. The garage ventilation exhaust will likely be located at the rooftop.

Peak Garage Traffic Volumes

The peak morning and afternoon one-hour entering and exiting traffic volumes for the garage are shown in **Table 4.2-3**.

Table 4.2-3 Peak-Hour Garage Traffic Volumes

Period	Entering (vehicles/hour)	Exiting (vehicles/hour)	Total (vehicles/hour)
Morning Peak Hour	4	15	19
Afternoon Peak Hour	14	8	22

Source: Nelson\Nygaard Consulting Associates, Inc.

Motor Vehicle Emission Rates

The U.S. Environmental Protection Agency (EPA) MOVES2014 emission factor model was used to calculate single vehicle CO emissions rates, for a vehicle speed of 5 mph. The inputs to the MOVES2014 model followed the latest guidance from the Massachusetts Department of Environmental Protection (DEP) and were performed for the future traffic year of 2021. The CO emission rate calculated by MOVES2014, for idling vehicles, was 0.51 grams per hour (gph) for each entering and exiting vehicle. These emission rates apply to wintertime conditions when motor vehicle CO emissions are greatest due to cold temperatures. MOVES2014 model output is provided in the **Appendix B.**

To determine the maximum one-hour CO emissions inside the garage it was necessary to estimate the amount of time each motor vehicle will be in the parking garage with its engine running. To be conservative, it was assumed that every car entering or leaving the garage will be operating during that peak hour. The calculations in **Appendix B** show how long each vehicle will be operating in the garage for both the morning and afternoon peak periods.

Peak Garage CO Emission Rate and CO Concentration Inside the Garage

The peak one-hour CO emission rate for the parking garage was calculated to be 0.16 grams per minute (0.0027 grams/second) for the morning peak hour and 0.19 grams per minute (0.0031 grams per second) for the afternoon peak hour. Applying the maximum volumetric garage ventilation flow rate for the parking garage, the peak one-hour CO concentration inside the garage was calculated to be 0.28 parts of CO per million parts of air (ppm) for the morning and 0.33 ppm of CO for the afternoon peak hour. These predictions represent conservative estimates of the peak garage CO emissions and concentrations.

Peak Ambient CO Concentration

Worst-case concentrations of CO from the building heating system and parking garage were predicted for locations around the building with using AERMOD model (Version 15181) in screening-mode. The results of the air quality analysis for locations outside and around the building are summarized in **Table 4.2-4**. The results in Table 4.3-4 represent all outside locations on and near the Project Site, including nearby building air intakes and nearby residences. **Appendix B** contains the AERMOD model output.

The AERMOD model in screening-mode was used to predict the maximum concentration of CO by modeling parking garage emissions as a volume source using worst-case meteorological conditions for an urban area. The screening-mode option simulates modeling results predicted by AERMOD. The predicted concentrations presented here represent the worst-case air quality impacts from the parking garage at all locations on and around the Project. AERMOD predicted one-hour average concentrations of air pollutants.

AERMOD predicted that the maximum one-hour CO concentration from parking garage will be 0.005 ppm (5.54 $\mu g/m^3$). This concentration represents the maximum CO concentration at any location surrounding the Project. AERSCREEN guidance allows the maximum eight-hour CO impact to be conservatively estimated by multiplying the maximum one-hour impact by a factor of 0.9 (i.e. the eight-hour impact is 90% of the one-hour impact). The maximum predicted eight-hour CO concentration was determined to be approximately 0.0045 ppm (0.005 ppm x 0.9).

The U.S. EPA has established National Ambient Air Quality Standards (NAAQS) to protect the public health and welfare in ambient air, with a margin for safety. The NAAQS for CO are 35 ppm for a one-hour average and 9 ppm for an eight-hour average. The Commonwealth of Massachusetts has established the same standards for CO. Conservative, urban CO background values of 1.8 ppm for a one-hour period and 1.5 ppm for an eight-hour period were added to the maximum predicted garage ambient impacts to represent the CO contribution from other, more distant, sources. With the conservative background concentration added, the peak, total, one-hour and eight-hour CO impacts from the parking garage, at any location around the building, will be no larger than 1.50 ppm and 1.80 ppm, respectively. These maximum predicted total CO concentrations (garage exhaust impacts plus background) are safely in compliance with the NAAQS. This analysis demonstrates that the operation of the parking garage will not have an adverse impact on air quality.

Table 4.2-4 Peak Predicted Parking Garage Air Quality Impacts

Location	Peak Predicted One-Hour Impact (ppm)	One-Hour NAAQS (ppm)	Peak Predicted Eight-Hour Impact (ppm)	Eight-Hour NAAQS (ppm)
Outside – Surrounding the Building* (Parking Garage)	1.805	35 (NAAQS)	1.504	9 (NAAQS)

NAAQS = Massachusetts and National Ambient Air Quality Standards for CO (ppm = parts per million)
* Representative of maximum CO impact at all nearby residences, buildings, and sidewalks.
** Includes background concentrations of 1.8 ppm for the one-hour period and 1.5 ppm for the eight-hour period.

4.2.3 Microscale CO Analysis for Selected Intersections

The Boston Redevelopment Authority (BRA) and the Massachusetts DEP typically require a microscale air quality analysis for any intersection in the Project study area where the level of service (LOS) is expected to deteriorate to D and the proposed project causes a 10% increase in traffic or where the level of service is E or F and the project contributes to a reduction in LOS. For such intersections, a microscale air quality analysis is required to examine the carbon monoxide (CO) concentrations at sensitive receptors near the intersection.

A microscale air quality analysis was not performed for this Project due to the Project trip generation having minimal impacts on the overall delays at the five intersections. The Project will generate approximately 19 motor vehicle trips during the morning peak traffic hour and approximately 22 motor vehicle trips during the afternoon traffic hour. Under the Build scenario, the overall LOS will be the same during the morning peak traffic hour for all intersections, except for the Site Driveway at Washington Street (LOS improves) and the Washington Street at Euston Road (LOS degrades) when compared to the Existing Scenario. Under the Build scenario, the overall LOS will be the same or better during the afternoon peak traffic hour for all intersections when compared to the Existing scenario. **Table 4.2-4** shows a comparison of the Existing (2016) and Build (2021) LOS at the five intersections. The motor vehicle trip generation from the Project will not have a significant impact on motor vehicle delays and air pollutant emissions at the analyzed intersections. Therefore, the motor vehicle traffic generated by the Project will not have a significant impact on air quality at any intersection in the Project area and a microscale air quality analysis is not necessary for this Project.

Table 4.2-4 Summary of Build Case Level of Service

Intersection	Existing LOS (AM/PM)	Build LOS (AM/PM)	Requires Analysis?
Site Driveway at Washington Street – unsignalized	B/B	B/C	NO
Washington Street at Euston Road – unsignalized	B/B	A/A	NO
Washington Street at Fidelis Way - unsignalized	B/B	B/B	NO
Washington Street at Commonwealth Avenue - signalized	C/C	C/C	NO
Washington Street and Monastery Road - signalized	B/B	B/B	NO

The LOS shown represents the overall delay at each signalized intersection and the worst approach at the unsignalized intersection.

Source: Nelson\Nygaard Consulting Associates, Inc.

Conclusions

The microscale CO air quality dispersion modeling analysis clearly indicates that the worst-case traffic generated by the Project will not cause or contribute to any violations of the NAAQS for CO, and will not significantly affect air quality. Total CO impacts at the intersections with the largest delays and at the Project site, including the impacts from the parking garage, are predicted to be safely in compliance with the NAAQS for CO.

4.3 Noise Impacts

Tech Environmental, Inc., performed a noise study to determine whether the operation of the proposed Project will comply with the City of Boston Noise Regulations and the Massachusetts Department of Environmental Protection ("DEP") Noise Policy.

4.3.1 Common Measures of Community Noise

The unit of sound pressure is the decibel (dB). The decibel scale is logarithmic to accommodate the wide range of sound intensities to which the human ear is subjected. A property of the decibel scale is that the sound pressure levels of two separate sounds are not directly additive. For example, if a sound of 70 dB is added to another sound of 70 dB, the total is only a 3-decibel increase (or 73 dB), not a doubling to 140 dB. Thus, every 3 dB increase represents a doubling of sound energy. For broadband sounds, a 3 dB change is the minimum change perceptible to the human ear. **Table 4.3-1** gives the perceived change in loudness of different changes in sound pressure levels.[2]

Table 4.3-1 Subjective Effects of Changes in Sound Pressure Levels

Change in Sound Level	Apparent Change in Loudness
3 dB	Just perceptible
5 dB	Noticeable
10 dB	Twice (or half) as loud

Non-steady noise exposure in a community is commonly expressed in terms of the A-weighted sound level (dBA); A-weighting approximates the frequency response of the human ear. Levels of many sounds change from moment to moment. Some are sharp impulses lasting 1 second or less, while others rise and fall over much longer periods of time. There are various measures of sound pressure designed for different purposes. To establish the background ambient sound level in an area, the L_{90} metric, which is the sound level exceeded 90 percent of the time, is typically used. The L_{90} can also be thought of as the level representing the quietest 10 percent of any time period. Similarly, the L_{10} can also be thought of as the level representing the quietest 90 percent of any time period. The L_{10} and L_{90} are broadband sound pressure measures, i.e., they include sounds at all frequencies.

Sound level measurements typically include an analysis of the sound spectrum into its various frequency components to determine tonal characteristics. The unit of frequency is Hertz (Hz), measuring the cycles per second of the sound pressure waves, and typically the frequency analysis examines nine octave bands from 32 Hz to 8,000 Hz. A source is said to create a pure tone if acoustic energy is concentrated in a narrow frequency range and one octave band has a sound level 3 dB greater than both adjacent octave bands.

The acoustic environment in an urban area such as the Project area results from numerous sources. Observations show that major contributors to the background sound level in the Project area include motor vehicle traffic on local and distant streets, aircraft over-flights, mechanical equipment on nearby buildings, and general city noises such as street sweepers and police/fire sirens. Typical sound levels associated with various activities and environments are presented in **Table 4.3-2**.

[2] American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc., 1989 ASHRAE Handbook--Fundamentals (I-P) Edition, Atlanta, GA, 1989.

4.3.2 Noise Regulations

Commonwealth Noise Policy

The DEP regulates noise through 310 CMR 7.00, "Air Pollution Control." In these regulations "air contaminant" is defined to include sound and a condition of "air pollution" includes the presence of an air contaminant in such concentration and duration as to "cause a nuisance" or "unreasonably interfere with the comfortable enjoyment of life and property."

Regulation 7.10 prohibits "unnecessary emissions" of noise. The DEP DAQC Policy Statement 90-001 (February 1, 1990) interprets a violation of this noise regulation to have occurred if the noise source causes either:

1. An increase in the broadband sound pressure level of more than 10 dBA above the ambient level; or
2. A "pure tone" condition.

The ambient background level is defined as the L_{90} level as measured during equipment operating hours. A "pure tone" condition occurs when any octave band sound pressure level exceeds both of the two adjacent octave band sound pressure levels by 3 dB or more.

The DEP does not regulate noise from motor vehicles accessing a site or the equipment backup notification alarms. Therefore, the provisions described above only apply to a portion of the sources that may generate sound following construction of the Project.

Local Regulations

The City of Boston Environment Department regulates noise through the Regulations for the Control of Noise as administered by the Air Pollution Control Commission. The Project is located in an area consisting of commercial and residential uses. The Project will have low-rise residential uses to the north, east, and south. The Project must comply with Regulation 2.2 for noise levels in Residential Zoning Districts at these residential locations**. Table 4.3-3** lists the maximum allowable octave band and broadband sound pressure levels for residential and business districts. Daytime is defined by the City of Boston Noise Regulations as occurring between the hours of 7:00 a.m. and 6:00 p.m. daily except Sunday. Compliance with the most restrictive nighttime residential limits will ensure compliance for other land uses with equal or higher noise limits.

Table 4.3-2 Common Indoor and Outdoor Sound Levels

Outdoor Sound Levels	Sound Pressure (μPa)	Sound Level (dBA)	Indoor Sound Levels
	6,324,555	110	Rock Band at 5 m
Jet Over-Flight at 300 m		105	
	2,000,000	100	Inside New York Subway Train
Gas Lawn Mower at 1 m		95	
	632,456	90	Food Blender at 1 m
Diesel Truck at 15 m		85	
Noisy Urban Area—Daytime	200,000	80	Garbage Disposal at 1 m
		75	Shouting at 1 m
Gas Lawn Mower at 30 m	63,246	70	Vacuum Cleaner at 3 m
Suburban Commercial Area		65	Normal Speech at 1 m
	20,000	60	
Quiet Urban Area—Daytime		55	Quiet Conversation at 1m
	6,325	50	Dishwasher Next Room
Quiet Urban Area—Nighttime		45	
	2,000	40	Empty Theater or Library
Quiet Suburb—Nighttime		35	
	632	30	Quiet Bedroom at Night
Quiet Rural Area—Nighttime		25	Empty Concert Hall
Rustling Leaves	200	20	Average Whisper
		15	Broadcast and Recording Studios
	63	10	
		5	Human Breathing
Reference Pressure Level	20	0	Threshold of Hearing

Notes: μPa, or micro-Pascals, describes sound pressure levels (force/area). DBA, or A-weighted decibels, describes sound pressure on a logarithmic scale with respect to 20 μPa (reference pressure level).

Table 4.3-3 Maximum Allowable Sound Pressure Levels (dB) City of Boston

Octave Band (Hz)	Zoning District		
	Residential (Daytime)	Residential (All Other Times)	Business (anytime)
32 Hz	76	68	79
63 Hz	75	67	78
125 Hz	69	61	73
250 Hz	62	52	68
500 Hz	56	46	62
1000 Hz	50	40	56
2000 Hz	45	33	51
4000 Hz	40	28	47
8000 Hz	38	26	44
Broadband (dBA)	**60**	**50**	**65**

4.3.3 Pre-Construction Sound Level Measurements

Existing baseline sound levels in the Project area were measured during the quietest overnight period when human activity and street traffic were at a minimum, and when the Project's mechanical equipment (the principal sound sources) could be operating. Since the Project's mechanical equipment may operate at any time during a 24-hour day, a weekday between 11:30 p.m. and 4:00 a.m. was selected as the worst-case time period, i.e., the time period when Project-related sounds may be most noticeable due to the quieter background sound levels. Establishing an existing background (L_{90}) during the quietest hours of the facility operation is a conservative approach for noise impact assessment and is required by the DEP Noise Policy.

The nighttime noise measurement locations are as follows (see **Figure 1** in **Appendix C**):

Monitoring Location #1: Jette Ct.

Monitoring Location #2: 113 Washington St.

Broadband (dBA) and octave band sound level measurements were made with a Bruel and Kjaer Type 2250 environmental sound level analyzer, at each monitoring location, for a duration of approximately thirty minutes. The full octave band frequency analysis was performed on the frequencies spanning 16 to 16,000 Hertz. A time-integrated statistical analysis of the data used to quantify the sound variation was also performed, including the calculation of the L_{90}, which is used to set the ambient background sound level.

The B&K model 2250 is equipped with a ½" precision condenser microphone and has an operating range of 5 dB to 140 dB and an overall frequency range of 3.5 Hz to 20,000 Hz. This meter meets or exceeds all requirements set forth in the ANSI S1.4-1983 Standards for Type 1 quality and accuracy and the State and City requirements for sound level instrumentation. Prior to any measurements, this sound analyzer was calibrated with an ANSI Type 1 calibrator that has an accuracy traceable to the National Institute of Standards and Technology (NIST). During all measurements, the B&K 2250 was tripod mounted at approximately five feet above the ground in open areas away from vertical reflecting surfaces.

The sound level monitoring was conducted on Thursday, March 31, 2016. Weather conditions during the sound survey were conducive to accurate sound level monitoring: the temperature ranged from 45ºF to 46ºF, the skies were mostly clear, and the winds were 5 to 15 mph. The microphone of the sound level analyzer was fitted with a 3-inch windscreen to negate any effects of wind-generated noise.

The nighttime sound level measurements taken in the vicinity of the Project Site reveal sound levels that are typical for a densely populated area. A significant source of existing sound at all locations is motor vehicle traffic on nearby highways and local streets, residential and commercial air handling equipment, pedestrians, construction equipment, the MBTA train station/ commuter trains, and emergency vehicle noise.

The results of the nighttime baseline sound level measurements are presented in **Table 4.3-4**, and the complete measurement printouts are provided in **Appendix C**. The nighttime background L_{90} level was 39.3 dBA at Location #1 and 40.2 dBA at Location #2. The octave band data in **Table 4.3-4** show that no pure tones were detected in the nighttime noise measurements.

Table 4.3-4 Nighttime Baseline Sound Level Measurements, March 31, 2016

Sound Level Measurement	(Location #1) Jette Ct. 1:40 a.m. - 2:12 a.m.	(Location #2) Washington St. 2:38 a.m. - 3:10 a.m.
Broadband (dBA)		
Background (L_{90})	39.3	40.2
Octave Band L_{90} (dB)		
16 Hz	47.9	50.2
32 Hz	48.1	49.6
63 Hz	46.8	48.4
125 Hz	43.6	44.8
250 Hz	39.8	41.7
500 Hz	37.3	38.3
1000 Hz	34.4	34.6
2000 Hz	27.6	29.1
4000 Hz	19.0	20.5
8000 Hz	17.0	14.5
16000 Hz	12.5	12.3
Pure Tone?	No	No

4.3.4 Reference Data and Candidate Mitigation Measures

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 sound levels from all potential significant Project noise sources are discussed in this section.

The design for the Proposed Project is expected to include the following significant mechanical equipment:

- Residential Building (Residential Units): Seventy (70) Carrier 3-Ton Rooftop condenser units.
- Residential Building (Common Area): One (1) Trane 10-Ton R410A PKGD Unitary Rooftop condensing unit.
- Residential Building (Garage): One (1) Garage exhaust fan.
- Synagogue: Two (2) Carrier 3-Ton Rooftop condenser units.
- Synagogue: One (1) Aaon 26-70-Ton Packaged RN Rooftop condenser unit.

- Mikvah: One (1) Trane 20-Ton Packaged Commercial Rooftop condensing unit.

The equipment listed above, which will be located on the three buildings rooftops, was included in the noise impact analysis. The Project's traffic was not included in the noise analysis because motor vehicles are exempt under both the City of Boston and Massachusetts DEP noise regulations.

The sound generation profiles for the mechanical equipment noise sources operating concurrently under full-load conditions were used to determine the maximum possible resultant sound levels from the Project Site as a whole, to define a worst-case scenario. To be in compliance with City and DEP regulations, the resultant sound level must not exceed the allowable octave band limits in the City of Boston noise regulation and must be below the allowable incremental noise increase, relative to existing noise levels, as required in the DEP Noise Policy.

This sound level impact analysis was performed using sound generation data for representative equipment to demonstrate compliance with noise regulations. As the building designs evolve, the sound generation for the actual equipment selected may differ from the values that were utilized for the analysis.

Noise Mitigation

To minimize the sound level at nearby residences, the following noise mitigation specification will be incorporated into the final engineering design of the Proposed Project, as necessary, to comply with the applicable sound level criteria:

- **Specification of low-noise mechanical equipment:** The air handling units will be of a low-noise design.
- **Sound barrier walls:** The 10-ton common space air handling unit and garage exhaust fan on the seventh story roof of the Proposed Project will be enclosed with an 8-foot sound barrier wall. The 40-ton common space air handling unit on the roof of the new replacement Congregation Kadimah-Toras Moshe Synagogue will be enclosed with a 14-foot sound barrier wall that is lined with highly sound absorbing materials. In addition, the 20-ton common space air handling unit on the roof of the new Mikvah building will be enclosed with an 11-foot sound barrier wall that is lined with highly sound absorbing materials.

4.3.5 Calculated Future Sound Levels

Methodology

Future maximum sound levels at the upper floors of all existing residences bordering the Project, and at the nearest residential property lines, were calculated with acoustic modeling software assuming simultaneous operation of all mechanical equipment at their maximum loads.

The Cadna-A computer program, a comprehensive 3-dimensional acoustical modeling software package was used to calculate Project generated sound propagation and attenuation.[3] The model is based on ISO 9613, an internationally recognized standard specifically developed to ensure the highly accurate calculation of environmental noise in an outdoor environment. ISO 9613 standard incorporates the propagation and attenuation of sound energy due to divergence with distance, surface and building reflections, air and ground absorption, and sound wave diffraction and shielding effects caused by barriers, buildings, and ground topography.

Receptors

The closest/worst-case sensitive (residential) location is to the west of the project area at 127 & 135 Washington Street. This location was selected based on the proximity of the equipment (smaller distances correspond to larger noise impacts) and the amount of shielding by the project (residences further from the project will experience less shielding from the Project’s rooftop mechanical equipment, which may result in larger potential noise impacts from the Project). This location is expected to receive the largest sound level impacts from the Project’s rooftop mechanical equipment. It can be classified as a residential zone.

The sound level impacts from the building’s mechanical equipment were predicted at the closest residential location, as well as additional residential uses to the north (32 & 34 Fidelis Way and 16 Fidelis Way), northeast (12 Fidelis Way), east (6 & 8 Fidelis Way), southeast (91 & 95 Washington Street), south (108 Washington Street and 116 Washington Street), and southwest (116 Washington Street, 120 & 122 Washington Street, 124 Washington Street, 128 & 130 Washington Street and 132 Washington Street). Figure 1 in Appendix C shows the locations of the modeled noise receptors. Noise impacts at other nearby noise-sensitive locations (residences, parks, etc.) farther from the Project Site will be less than those predicted for these receptors.

4.3.6 Compliance with State and Local Noise Standards

The City of Boston and DEP noise standards apply to the operation of the mechanical equipment at the proposed Project. The details of the noise predictions are presented in **Tables 4.3-5** through **4.3-16**. The sound impact analysis includes the simultaneous operation of the Project’s rooftop HVAC equipment. The predicted sound levels are worst-case predictions that represent all hours of the day, as the analysis assumes full operation of the mechanical equipment 24-hours a day. The typical sound level impacts from the mechanical equipment will likely be lower than what is presented here, since most of the mechanical equipment will operate at full-load only during certain times of the day and during the warmer months of the year, it is not likely that all of the mechanical equipment will operate at the same time. Sound level impacts at locations farther from the Project (e.g. other residences, etc.) will be lower than those presented in this report.

[3] Cadna-A Computer Aided Noise Abatement Program, Version 4.3

City of Boston Noise Standards

The noise impact analysis results, presented in **Tables 4.3-5** through **4.3-16**, reveal that the sound level impact at the upper floors of the closest residences will be between 34.0 and 43.4 dBA. The smallest sound level impact of 34.0 dBA is predicted to occur at 132 Washington Street. The largest sound level impact of 43.4 dBA is predicted to occur at 116 Washington Street. Noise impacts predicted at all locations are in compliance with the City of Boston's nighttime noise limit (50 dBA) for a residential area. Note that sound levels from the Project will be below the residential nighttime limits at all times. The results also demonstrate compliance with the City of Boston, residential, non-daytime, octave band noise limits at both closest locations.

The City of Boston noise limits for business areas are significantly higher than the nighttime noise limits for residential areas (see **Table 4.3-3**). The Project will also easily comply with the City of Boston business area noise limits at all surrounding commercial properties.

Massachusetts DEP Noise Regulations

The predicted sound level impacts at the worst-case residential locations were added to the measured L_{90} value of the quietest daily hour to test compliance with DEP's noise criteria. Assuming the Project's mechanical noise is constant throughout the day, the Project will cause the largest increase in sound levels during the period when the lowest background noise occurs. Minimum background sound levels (diurnal) typically occur between 12:00 a.m. and 5:00 a.m.

The predicted sound level impacts at the upper floors of the closest residences were added to the L_{90} values measured during the period with the least amount of background noise to test compliance with DEP's noise criteria. The predicted noise impacts at the property line and the closest residences were added to the most-representative measured L_{90} values to determine the largest possible increase in the sound level at each location during the quietest hour at the Project Site.

As shown in **Tables 4.3-5** through **4.3-16**, the Project is predicted to produce a less than 6 dBA change in the background sound levels at all modeled locations. Therefore, the Project’s worst-case sound level impacts during the quietest nighttime periods will be in compliance with the Massachusetts DEP allowed noise increase of 10 dBA. The noise predictions for each octave band indicate that the mechanical equipment will not create a pure tone condition at any location.

Table 4.3-5 Estimated Future Sound Level Impacts – Anytime, 127 & 135 Washington Street (Closest/Worst Case Residence) – Location R1

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	49
63 Hz	67	47
125 Hz	61	48
250 Hz	52	45
500 Hz	46	39
1000 Hz	40	36
2000 Hz	33	33
4000 Hz	28	26
8000 Hz	26	17
Broadband (dBA)	**50**	**42**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #2)	40.2
101-105 Washington Street Project*	42.2
Calculated Combined Future Sound Level	44.3
Calculated Incremental Increase	+4.1
Compliance with DEP Noise Policy?	Yes

* Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA

Table 4.3-6 Estimated Future Sound Level Impacts – Anytime, 32 & 34 Fidelis Way – Location R2

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	46
63 Hz	67	44
125 Hz	61	41
250 Hz	52	39
500 Hz	46	33
1000 Hz	40	33
2000 Hz	33	30
4000 Hz	28	23
8000 Hz	26	10
Broadband (dBA)	**50**	**38**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #1)	39.3
101-105 Washington Street Project*	37.7
Calculated Combined Future Sound Level	41.6
Calculated Incremental Increase	+2.3
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA.

Table 4.3-7 Estimated Future Sound Level Impacts – Anytime, 16 Fidelis Way – Location R3

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	52
63 Hz	67	52
125 Hz	61	47
250 Hz	52	45
500 Hz	46	41
1000 Hz	40	38
2000 Hz	33	33
4000 Hz	28	26
8000 Hz	26	17
Broadband (dBA)	**50**	**43**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #1)	39.3
101-105 Washington Street Project*	42.9
Calculated Combined Future Sound Level	44.5
Calculated Incremental Increase	+5.2
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA.

Table 4.3-8 Estimated Future Sound Level Impacts – Anytime, 12 Fidelis Way – Location R4

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	52
63 Hz	67	51
125 Hz	61	45
250 Hz	52	41
500 Hz	46	36
1000 Hz	40	32
2000 Hz	33	26
4000 Hz	28	18
8000 Hz	26	5
Broadband (dBA)	**50**	**38**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #1)	39.3
101-105 Washington Street Project*	38.3
Calculated Combined Future Sound Level	41.8
Calculated Incremental Increase	+2.5
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA.

Table 4.3-9 Estimated Future Sound Level Impacts – Anytime, 6 & 8 Fidelis Way – Location R5

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	51
63 Hz	67	50
125 Hz	61	45
250 Hz	52	43
500 Hz	46	38
1000 Hz	40	33
2000 Hz	33	29
4000 Hz	28	22
8000 Hz	26	9
Broadband (dBA)	**50**	**40**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #1)	39.3
101-105 Washington Street Project*	40.0
Calculated Combined Future Sound Level	42.7
Calculated Incremental Increase	+3.4
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA.

Table 4.3-10 Estimated Future Sound Level Impacts – Anytime, 91 & 95 Washington Street – Location R6

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	55
63 Hz	67	54
125 Hz	61	49
250 Hz	52	46
500 Hz	46	42
1000 Hz	40	36
2000 Hz	33	30
4000 Hz	28	25
8000 Hz	26	17
Broadband (dBA)	**50**	**43**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #2)	40.2
101-105 Washington Street Project*	43.1
Calculated Combined Future Sound Level	44.9
Calculated Incremental Increase	+4.7
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA.

Table 4.3-11 Estimated Future Sound Level Impacts – Anytime, 108 Washington Street – Location R7

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	52
63 Hz	67	40
125 Hz	61	47
250 Hz	52	44
500 Hz	46	40
1000 Hz	40	34
2000 Hz	33	29
4000 Hz	28	23
8000 Hz	26	15
Broadband (dBA)	**50**	**41**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #2)	40.2
101-105 Washington Street Project*	41.4
Calculated Combined Future Sound Level	43.9
Calculated Incremental Increase	+3.7
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA.

Table 4.3-12 Estimated Future Sound Level Impacts – Anytime, 116 Washington Street – Location R8

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	51
63 Hz	67	50
125 Hz	61	48
250 Hz	52	46
500 Hz	46	42
1000 Hz	40	37
2000 Hz	33	33
4000 Hz	28	26
8000 Hz	26	16
Broadband (dBA)	**50**	**43**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #2)	40.2
101-105 Washington Street Project*	43.4
Calculated Combined Future Sound Level	45.1
Calculated Incremental Increase	+4.9
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA.

Table 4.3-13 Estimated Future Sound Level Impacts – Anytime, 120 & 122 Washington Street – Location R9

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	49
63 Hz	67	48
125 Hz	61	45
250 Hz	52	42
500 Hz	46	38
1000 Hz	40	32
2000 Hz	33	26
4000 Hz	28	20
8000 Hz	26	10
Broadband (dBA)	**50**	**39**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #2)	40.2
101-105 Washington Street Project*	39.0
Calculated Combined Future Sound Level	42.7
Calculated Incremental Increase	+2.5
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA.

Table 4.3-14 Estimated Future Sound Level Impacts – Anytime, 124 Washington Street – Location R10

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	47
63 Hz	67	44
125 Hz	61	42
250 Hz	52	40
500 Hz	46	36
1000 Hz	40	30
2000 Hz	33	24
4000 Hz	28	18
8000 Hz	26	8
Broadband (dBA)	**50**	**37**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #2)	40.2
101-105 Washington Street Project*	36.8
Calculated Combined Future Sound Level	41.8
Calculated Incremental Increase	+1.6
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA.

Table 4.3-15 Estimated Future Sound Level Impacts – Anytime, 128 & 130 Washington Street – Location R11

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	45
63 Hz	67	43
125 Hz	61	42
250 Hz	52	38
500 Hz	46	34
1000 Hz	40	29
2000 Hz	33	24
4000 Hz	28	17
8000 Hz	26	6
Broadband (dBA)	**50**	**36**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #2)	40.2
101-105 Washington Street Project*	36.0
Calculated Combined Future Sound Level	41.6
Calculated Incremental Increase	+1.4
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA.

Table 4.3-16 Estimated Future Sound Level Impacts – Anytime, 132 Washington Street – Location R12

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	44
63 Hz	67	42
125 Hz	61	40
250 Hz	52	37
500 Hz	46	32
1000 Hz	40	27
2000 Hz	33	22
4000 Hz	28	16
8000 Hz	26	4
Broadband (dBA)	**50**	**34**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #2)	40.2
101-105 Washington Street Project*	34.0
Calculated Combined Future Sound Level	41.1
Calculated Incremental Increase	+0.9
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA.

4.3.7 Conclusions

Sound levels at all nearby sensitive locations and at all property lines will fully comply with the most stringent City of Boston and DEP daytime and nighttime sound level limits.

This acoustic analysis demonstrates that the Project's design will meet the applicable acoustic criteria.

4.4 Stormwater Management and Water Quality

4.4.1 Stormwater Management

The existing storm drain utility infrastructure in Washington Street appears to be of adequate capacity to service the needs of the project. Best management practices and sustainable design will be incorporated into the Project wherever practical and applicable.

The proposed stormwater management systems will include a groundwater recharge system and a water quality unit. There will be a slight increase in impervious area under proposed conditions. It is anticipated that the stormwater recharge systems will work to passively infiltrate runoff into the ground with a gravity recharge system. The groundwater recharge system will be designed to meet the City of Boston Stormwater Management Requirements. The underground recharge system will be designed to contain 1-inch of stormwater from the proposed impervious surfaces on site. In addition, a water quality unit will be installed to reduce pollutants prior to discharging to the storm drain system in Washington Street. The stormwater management treatment train will be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS).

All improvements and connections to BWSC infrastructure will be reviewed as part of the site plan review process for the Proposed Project. This process includes an in depth design review of the proposed connections, a project demand and system capacity review and the establishment of service accounts. Utility connections will be designed to minimize impacts to the surrounding area and all appropriate permits and approvals will be acquired prior to construction. Once completed, the Project will be in compliance with all local and state stormwater management policies, as applicable.

4.4.2 Water Quality Impact

The Proposed Project will not impact the water quality of nearby water bodies. During construction, the project will include erosion and sediment control measures to minimize the transport of site soils to off-site areas and to the BWSC storm drain systems, as well as to protect abutting properties. Erosion and sediment controls will include perimeter sediment barriers, catch basin protection, dewatering controls, and a stone tracking pad. All necessary dewatering will be conducted in accordance with applicable discharge permits. These controls will be inspected and maintained throughout the construction phase until the areas of disturbance have been stabilized through the placement of pavement, structure, or vegetative cover.

All public and private infrastructure located on or adjacent to the Proposed Project will be protected during construction. All work in the public way will be in accordance with BWSC, Boston Public Works, Dig-Safe and other applicable utility companies' requirements. All necessary permits will be obtained prior to the commencement of work. The Proponent will coordinate with BWSC and all utility companies to ensure a coordinated utility operation throughout construction.

4.5 Solid and Hazardous Waste Materials

4.5.1 Solid Waste

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 the City and DEP's Regulations for Solid Waste.

Upon completion of construction, the Proposed Project will generate approximately 584 tons of solid waste per year, based on the assumption that each residential unit generates 8 lbs of solid waste per day. Residential waste will be handled through a trash chute extending to all floors, and then compacted before being brought to the loading / unloading area.

The project will also include ambitious goals for construction waste management in order to meet the requirements for the LEED™ rating system. This strategy will divert demolition and construction waste by reusing and recycling materials.

In order to meet the requirements for the Boston Environmental Department and the LEED™ rating system, the Project will include space dedicated to the storage and collection of recyclables, including dedicated dumpsters at the loading area. The recycling program will meet or exceed the City's guidelines, and provide areas for waste paper and newspaper, metal, glass, and plastics (21 through 27, co-mingled).

4.5.2 Hazardous Waste and Materials

A Phase I Environmental Site Assessment for 105 Washington Street (the "Property") was completed by FSL Associates, Inc on April 22, 2106. According to the FSL Site Assessment, environmental permit violations were not identified but the assessment revealed evidence of recognized environmental conditions in the form of a potential vapor encroachment condition (VEC) and evidence of a former surface spill of oil on the Site. FSL recommended that an intrusive subsurface investigation be performed to test soil and groundwater for the presence of extractable petroleum hydrocarbons/polycyclic aromatic hydro (EPH/PAH) and volatile petroleum hydrocarbons (VPH).

According to the property manager, Mr. Steven Silva, there formerly were several aboveground storage tanks used for the storage of heating oil in the basement of the Site building. After a fuller evaluation, FSL did not find this and associated information to be recognized as environmental conditions.

As appropriate, the Proponent will provide Licensed Site Professional support services during property redevelopment activities to maintain compliance with the Massachusetts Contingency Plan (MCP) requirements.

4.6 Geotechnical/Groundwater Impacts Analysis

Based on a Preliminary Geotechnical Summary prepared by UTS of Massachusetts, Inc. on February 16, 2016, groundwater was encountered in the deepest test holes at depths of approximately 14 feet below grade.

Based on the UTS Summary, the subgrade conditions are considered to be favorable for supporting the proposed apartment building on a conventional spread footing foundation with a concrete floor slab. Bedrock conditions are expected to be encountered in many areas during foundation construction, requiring some blasting during construction. The bearing subgrade should ultimately be stable, dewatered, free of frost and compact throughout construction.

Due to the proposed basement level, a foundation drainage system will be required to permanently control the high groundwater. For the preliminary design, UTS recommends an estimated high groundwater level at approximately 10 feet below grade. The contractor should be required to maintain a stable-dewatered subgrade for the building foundation and for other concerned areas during construction.

Bedrock excavation is expected to be required for site construction. Bedrock removal will likely involve blasting for large areas or mechanical hoe rams for localized areas.

Additional geotechnical exploration and engineering is expected to be completed as the project design progresses.

4.7 Construction Impact

The following section describes impacts likely to result from the construction of the Proposed Project and the steps that will be taken to avoid or minimize environmental and transportation-related impacts. Construction methodologies and scheduling will aim to minimize impacts on the surrounding environment. The Proponent will insure that the general contractors 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.

4.7.1 Construction Management Plan

The Proponent will comply with applicable state and local regulations governing construction of the Project. The Proponent will insure that general contractors comply with the Construction Management Plan, (“CMP”) developed in consultation with and approved by the Boston Transportation Department (“BTD”), prior to the commencement of construction. The CMPs will establish the guidelines for the duration of the Project phases and will include specific mitigation measures and staging plans to minimize impacts on abutters.

Construction methodologies that will ensure safety will be employed, signage will include General Contractor contact information with emergency contact numbers.

4.7.2 Proposed Construction Program

Construction Activity Schedule

The construction period for the Proposed Project is expected to extend for approximately 29 months, beginning in the 1st Quarter 2017 and reaching completion in the 2nd Quarter 2019. The Mikvah will be initially constructed between January thru August 2018; followed by Synagogue between September 2017 thru March 2018; and then the multi-family apartments April 2018 thru May 2019.

The City of Boston Noise and Work Ordinances will dictate the normal work hours, which will be from 7:00 AM to 6:00 PM, Monday through Friday. Saturday work will be only in the event of schedule delay or unusual tasks such as street openings, etc.

Perimeter Protection/Public Safety

The CMP will describe any necessary sidewalk closures, pedestrian re-routings, and barrier placements and/or fencing deemed necessary to ensure safety around the Site perimeter. When possible, the sidewalk will remain open to pedestrian traffic during the construction period. Barricades and secure fencing will be used to isolate construction areas from pedestrian traffic. In addition, sidewalk areas and walkways near construction activities will be well marked to ensure pedestrian safety.

Proper signage will be placed at every corner of the Proposed Project as well as those areas that may be confusing to pedestrians and automobile traffic.

The Proponent will continue to coordinate with all pertinent regulatory agencies and representatives of the surrounding neighborhoods to ensure they are informed of any changes in construction activities.

4.7.3 Construction Traffic Impacts

Construction Vehicle Routes

Specific truck routes will be established with BTD through the CMPs. These established truck routes will prohibit truck travel on residential side streets. Construction contracts will include clauses restricting truck travel to BTD requirements. Maps showing approved truck routes will be provided to all suppliers, contractors, and subcontractors. It is anticipated that all deliveries will be transported via the major regional highway system including Washington Street directly to the site, passing through residential areas in Allston/Brighton as little as possible.

Construction Worker Parking

The number of workers required for construction of the Proposed Project will vary during the construction period and during each of the phases. However, it is anticipated that all construction workers will arrive and depart prior to peak traffic periods.

Limited parking in designated areas of the Project Site and lay-down area(s) will be allowed. Parking will be discouraged in the immediate neighborhood. Further, given the Proposed Project's close proximity to transit service (e.g., MBTA Green Line, as well as bus service) public transit use will be encouraged with the Proponent and general contractor working to ensure the construction workers are informed of the many public transportation options immediately adjacent to this area. Terms and conditions related to worker parking will be written into each subcontractor's contract. The general contractors will provide a weekly orientation with all new personnel to ensure enforcement of this policy.

Pedestrian Traffic

Pedestrian traffic may be temporarily impacted on Washington Street. The general contractor will minimize the impact the construction of the proposed building will have on the adjacent sidewalks. The general contractor will implement plans that will clearly denote all traffic patterns. Safety measures such as jersey barriers, fencing, and signage will be used to direct pedestrian traffic around the construction site and to secure the work area.

4.7.4 Construction Environmental Impacts and Mitigation

Construction Air Quality

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

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

- Using wetting agents to control and suppress dust from construction debris;
- Ensuring that all trucks traveling to and from the Project Site will be fully covered;

- Removing construction debris regularly;
- Monitoring construction practices closely to ensure any emissions of dust are negligible;
- Cleaning streets and sidewalks to minimize dust and dirt accumulation;
- Monitoring construction activities by the job site superintendent; and
- Wheel-washing trucks before they leave the Project Site during the excavation phase.

Erosion and sediment control measures will be implemented during construction to minimize the transport of site soils to off-site areas and Boston Water and Sewer ("BWSC") storm drain systems. During construction, existing catch basins will be protected from sediments with filter fabric, silt sacks or hay bale filters.

Construction Noise Impacts

To reduce the noise impacts of construction on the surrounding neighborhood, a number of noise mitigation measures will be included in the CMP. Some of the measures that may be taken to ensure a low level of noise emissions include:

- Initiating a proactive program for compliance to the City of Boston's noise limitation requirements;
- Scheduling of work during regular working hours as much as possible;
- Using mufflers on all equipment and ongoing maintenance of intake and exhaust mufflers;
- Muffling enclosures on continuously operating equipment, such as air compressors and power and welding generators;
- Scheduling construction activities so as to avoid the simultaneous operation of the noisiest construction activities;
- Turning off all idling equipment;
- Reminding truck drivers that trucks cannot idle more than five (5) minutes unless the engine is required for operational activity;
- Locating noisy equipment at locations that protect sensitive receptors and neighborhood homes through shielding or distance;
- Installing a site barricade as required;
- Identifying and maintaining truck routes to minimize traffic and noise throughout the project;
- Maintaining all equipment to have proper sound attenuation devices.

4.7.5 Rodent Control

The City of Boston enforces the requirements established under Massachusetts State Sanitary Code, Chapter 11, 105 CMR 410.550. This policy establishes that the elimination of rodents and ongoing rodent control is required for issuance of any building permits. Before and during construction, rodent control service visits will be made by a certified rodent control firm to monitor the situation.

4.7.6 Utility Protection During Construction

Existing public and private infrastructure located within nearby public rights-of-way will be protected during Project construction. The installation of proposed utility connections within public ways will be undertaken in accordance with BWSC, Boston Public Works Department, the Dig-Safe Program, and applicable utility company requirements. The Contractor will notify utility companies and call “Dig Safe” prior to excavation. During construction, infrastructure will be protected using sheeting and shoring, temporary relocations, and construction staging as required. The Construction Contractor will be required to coordinate all protection measures, temporary supports, and temporary shutdowns of all utilities with the appropriate utility owners and/or agencies. The Construction Contractor will also be required to provide adequate notification to the utility owner prior to any work commencing on their utility. Also, in the event a utility cannot be maintained in service during switch over to a temporary or permanent system, the Construction Contractor will be required to coordinate the shutdown with the utility owners and project abutters to minimize impacts and inconveniences. All necessary permits will be obtained before the commencement of work.

5.0 HISTORIC RESOURCES COMPONENT

The Proposed Project site is located in Brighton. The historic resources within one-quarter-mile radius of the Proposed Project are summarized in **Table 5-1** below.

Table 5.1 Historic Resources in the Vicinity of the Project Site

Key to Historic Resources Figure (Figure 5-1)	Historic Resource	Address
Properties included in the Inventory of Historic and Archaeological Assets of the Commonwealth		
1	Gideon L. Davidson Apartment Building	1534-1546 Commonwealth Ave
2	Bernard Rudnick Apartment Building	1562-1576 Commonwealth Ave.
3	1607 Commonwealth Ave	1607 Commonwealth Ave.
4	1615 Commonwealth Ave	1615 Commonwealth Ave.
5	1625-1645 Commonwealth Ave	1625-1645 Commonwealth Ave.
6	Hasiotis Funeral Home	1642 Commonwealth Ave.
7	Cummings Realty Company Apartment Building	1662-1666 Commonwealth Ave.
8	1675 Commonwealth Ave	1675 Commonwealth Ave.
9	1681 Commonwealth Ave	1681 Commonwealth Ave.
10	Saint Gabriel's Monastery Roman Catholic Church and adjacent buildings	139 and 159 Washington Street
11	Barney Hurwitz Apartment Building	4-16 Ransom Rd.
12	Herman Weisberg Apartment Building	24 – 36 Ransom Rd.
13	Massachusetts Metropolitan Hospital and medical offices	296 Allston St.
14	11 – 15 Carol Ave	11 – 15 Carol Ave.

5.1.1 Historic Resources Within the Project Site

The current site is located on the northeastern side of Washington Street in a mostly residential area. Multi-family and multi-story residential apartment buildings abut the site in all directions. The site has been used with a 2-1/2 story wood framed synagogue building at 105 Washington Street ("Congregation Kadimah-Toras Moshe") and a Mikvah at 101 Washington Street. In addition, there is vacant land (at 103 Washington Street) running to the rear of the Mikvah building which is unimproved. On February 9, 2016, the Boston Landmarks Commission (BLC) determined that the synagogue at 105 Washington Street is not a significant building under the Criteria for determining significance in Section 85-5.3 (a-e) of the Demolition Delay Ordinance (Article 85, Chapter 665 of the Acts of 1956 as amended), and on April 8, 2016, the BLC determined that the Mikvah building at 101 Washington Street was similarly not a significant building under the same Criteria used for 105 Washington Street.

A review of the Site history by FSL Associates, Inc. during the Phase I Environmental Site Assessment investigation in 2016, reported that occupancy of the 105 Washington Street building changed circa December 1941 from a dwelling to use for religious purposes. The Site Assessment reported that an accessory barn, formerly on the 105 Washington Street, was demolished circa 1964. Prior to 1941, the Site building at 105 Washington Street was identified as a residential building, which was also depicted on the 1925 and 1898 Sanborn maps. There is no record currently available on the 101 Washington Street, current Mikvah building.

5.1.2 Historic Resources Within the Vicinity of the Project Site

The Proposed Project site is located within a ¼ mile of numerous historically significant churches and residential properties. However, there are no historically registered landmarks within ¼ mile. There are not expected to be any impacts to the historically significant properties with the proposed new construction. See **Figure 5-1.** Historic Resources**.**

5.1.3 Archaeological Resources

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.

1 = Gideon L. Davidson Apartment Building
2 = Bernard Rudnick Apartment Building
3 = 1607 Commonwealth Ave
4 = 1615 Commonwealth Ave
5 = 1625-1645 Commonwealth Ave
6 = Hasiotis Funeral Home
7 = Cummings Realty Company Apartment Building
8 = 1675 Commonwealth Ave
9 = 1681 Commonwealth Ave
10 = Saint Gabriel's Monastery Roman Catholic Church and adjacent buildings
11 = Herman Weisberg Apartment Building
12 = Barney Hurwitz Apartment Building
13 = Massachusetts Metropolitan Hospital and medical offices
14 = 11 - 15 Carol Ave

= Property on MACRIS Inventory of Historic Places

= 1/4 mile buffer = Project Site

Figure 5 - 1
Historic Resources

6.0 INFRASTRUCTURE SYSTEMS COMPONENT

The existing infrastructure surrounding the site appears sufficient to service the needs of the Proposed Project. The following sections describe the existing sewer, water, and drainage systems surrounding the site and explain how these systems will service the development (see **Figure 6-3**). The analysis also discusses any anticipated Project-related impacts on the utilities and identifies mitigation measures to address these potential impacts.

A detailed infrastructure analysis will be performed when the Project proceeds into the Design Development Phase. The Project's team will coordinate with the appropriate utilities to address the capacity of the area utilities to provide services for the new building. A Boston Water and Sewer Commission (BWSC) Site Plan and General Service Application is required for the new water, sanitary sewer, and storm drain connections. Proposed connections to the BWSC's water, sanitary sewer and storm drain system will be designed in conformance with the BWSC's design standards, Sewer Use and Water Distribution System Regulations, and Requirements for Site Plans. The Proponent will submit a Site Plan Review application package for approval. The site plan will indicate existing and proposed water mains, sanitary sewers, and stormwater lines. The preliminary plan includes cutting & capping of the existing services as well as proposed connections.

6.1 Sanitary Sewer System

6.1.1 Existing Sewer System

The Boston Water and Sewer Commission ("BWSC") owns and maintains the sewer systems adjacent to the site (See **Figure 6-1**). BWSC record drawings indicate an existing 12-inch sanitary sewer in Washington Street which flows downgradient in a northwesterly direction. The BWSC lines connect to the Massachusetts Water Resource Authority (MWRA) system and ultimately discharges to the Deer Island Treatment Facility.

6.1.2 Project-Generated Sewage Flow

The Project's sewage generation rates were estimated using Massachusetts State Environmental Code (Title 5) at 310 CMR 15.203. This reference lists typical generation values for the sources listed in **Table 6-1**. As shown in the **Table 6-1,** the residential building will have an average daily flow of approximately 13,420 gallons per day (gpd) of sanitary sewage, the Synagogue will have an average daily flow of approximately 720 gpd, and the Mikvah will have an average daily flow of approximately 810 gpd. In total, the Project will have an average daily flow of 14,950 gpd.

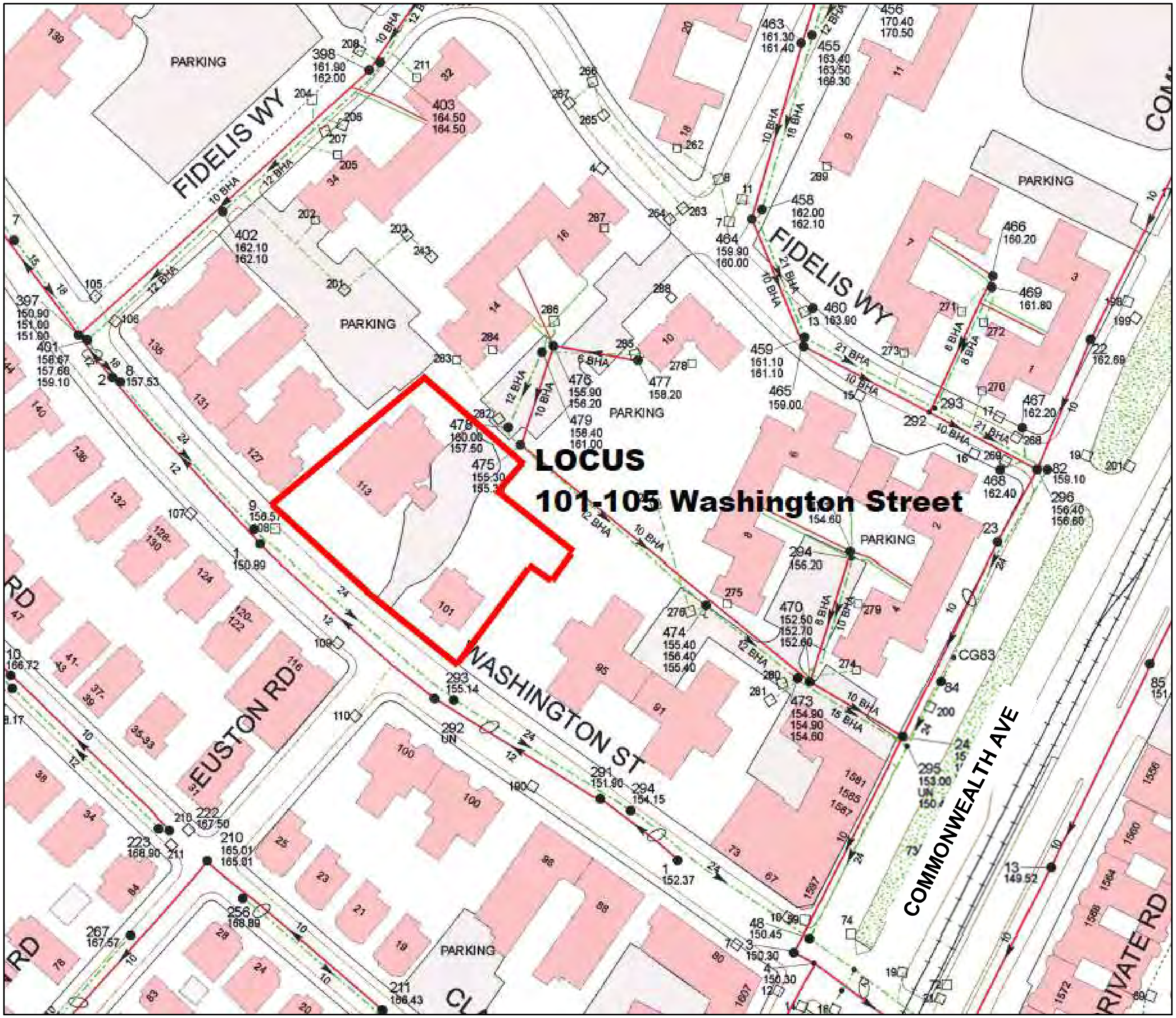


FIGURE 6-1
BWSC SEWER SYSTEM MAP
N.T.S.

Table 6-1 Projected Sanitary Sewer Flows

Use	Quantity	Unit Flow Rate	Estimated Maximum Daily Flow (gpd)
Residential	122 bedrooms	110 gpd/bedroom	13,420 gpd
Synagogue	120 seats w/ kitchen	6 gpd / sf	720 gpd
Mikvah	6 bedrooms + 15 people use the Mikvah per night	110 gpd/bedroom + 10 gpd/person	810 gpd
Total			**14,950 gpd**

6.1.3 Sanitary Sewage Connection

An 8-inch sewer is proposed that will collect sewage from the residential building, Synagogue, and the Mikvah. The 8-inch sewer will connect to the existing 12-inch sewer in Washington Street with a chimney-style connection. The three buildings will each be serviced with a 6-inch sewer. The connection will be performed so as to minimize any effects on the adjacent streets and to ensure that adequate facilities are available to service the site and surrounding area during construction. It should be noted these sewer flows will be kept separate from all storm drain service connections. All appropriate permits and approvals will be obtained prior to construction.

6.1.4 Sewer System Mitigation

To help conserve water and reduce the amount of wastewater generated by the Proposed Project, the Proponent will investigate the use of water-efficient toilets, aerated shower-heads, and low-flow lavatory faucets in compliance with all pertinent Code requirements to reduce water usage and sewer generation.

6.2 Water System

6.2.1 Existing Water Service

A 12-inch diameter ductile iron cement lined pipe water main (installed 1989) runs within Washington Street adjacent to the proposed buildings (see **Figure 6-2**). According to BWSC tie cards, #101 and #113 Washington Street are serviced by 1-1/2" and 1" domestic water line from Washington Street, respectively.

There is an existing fire hydrant (H120) directly across the street from the project site on Washington Street. There are no capacity issues anticipated for serving the Project with water from the city system. The Proponent will confirm that the hydrants are sufficient for the development with BWSC and the Boston Fire Department (BFD) during the detailed design phase.

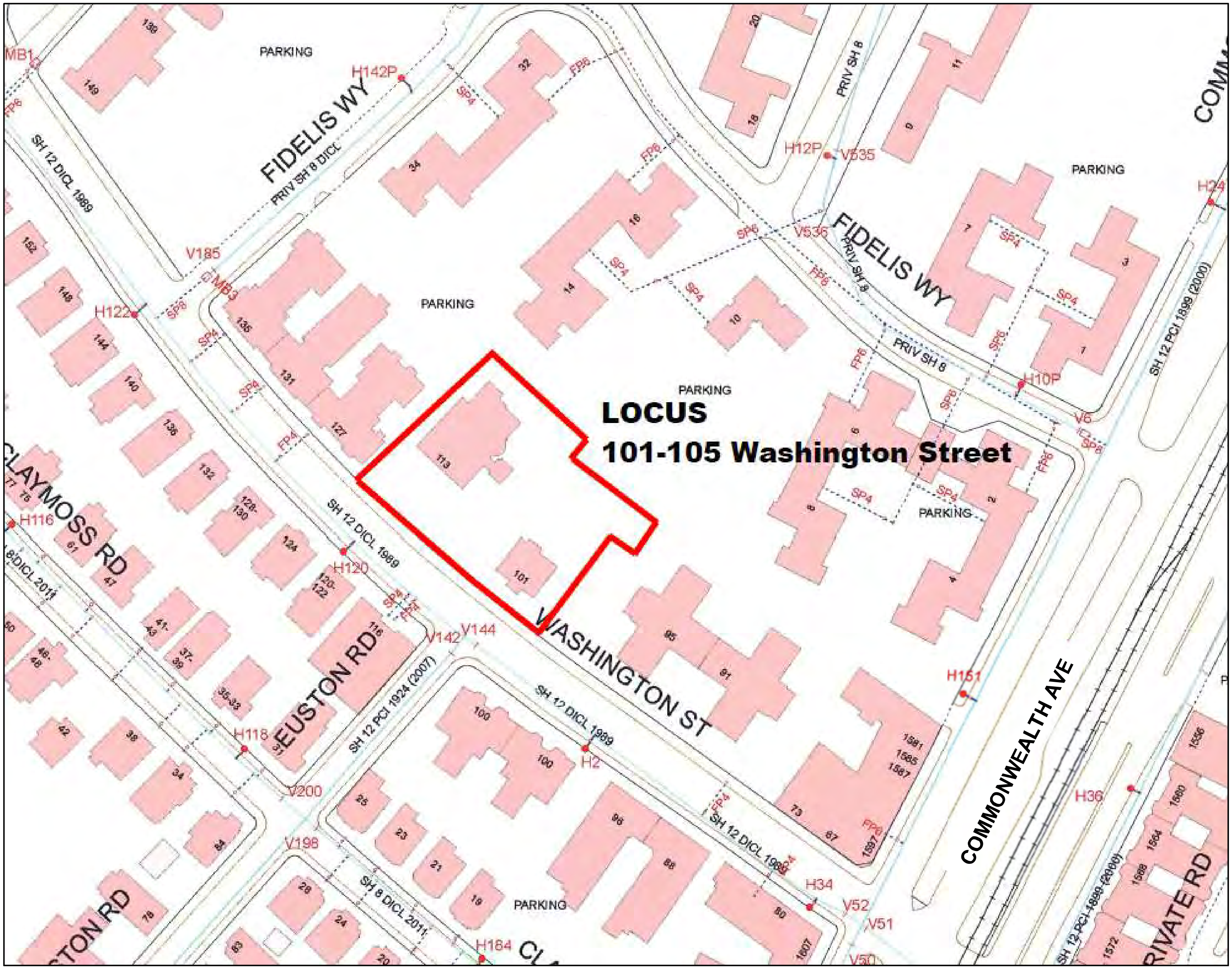


FIGURE 6-2
BWSC WATER SYSTEM MAP
N.T.S.

The BWSC record flow test data containing actual flow and pressure for hydrants within the vicinity of the site will be requested by the Proponent. If hydrant flow data is not available for any hydrants located near the project site, as the design progresses, the Proponent will request hydrant flows be conducted by the BWSC adjacent to the site. Hydrant flow data must be less than a year old to be used as a design tool. The Proponent will confirm that the flow and pressure is sufficient for the redevelopment and coordinate any proposed changes with BWSC and the Boston Fire Department (BFD) during the detailed design phase.

6.2.2 Anticipated Water Consumption

The Project's water demand estimate for domestic services is based on the project's estimated sewage generation, plus a factor of 10 percent to account for consumption, system losses, and other usages to estimate an average water demand. The total estimated water demand is 16,445 gpd. The water for the Project will be supplied by BWSC.

6.2.3 Proposed Water Service

It is anticipated that the domestic water and fire protection services for the Project will be from a proposed 8-inch water line, which will connect to the existing 12-inch water main in Washington Street. The water supply systems servicing the building will be gated so as to minimize public hazard or inconvenience in the event of a water main break. Final locations and sizes of the services will be provided on a Site Plan during the detailed design phase and submitted to BWSC for review and approval.

The construction of all connections will be performed so as to minimize any effects on the adjacent streets and to ensure that adequate facilities are available to service the site and surrounding area during construction. All appropriate permits and approvals will be obtained prior to construction.

Water service to the building will be metered in accordance with BWSC's requirements. The property owner will provide a suitable location for a Meter Transmission Unit (MTU) as part of BWSC's Automatic Meter Reading System. A backflow preventer will be installed on the fire protection service and will be coordinated with BWSC's Cross Connection Control Department.

6.3 Water Supply System Mitigation

As discussed in the Sewer System Mitigation Section, water conservation measures such as the use of water-efficient toilets, low-flow lavatory faucets, and aerated showerheads in compliance with all pertinent Code requirements are being considered to reduce potable water usage. Water usage for landscape irrigation will be significantly reduced by the selection of native and adaptive plantings, and using soil moisture sensors as part of the irrigation system.

6.4 Storm Drainage System

6.4.1 Existing Drainage Conditions

Currently, the site is occupied by two wood-framed dwellings, two bituminous concrete driveways, bituminous concrete parking areas, concrete walkways, and vegetation. The site is essentially flat however there are distinct drainage subcatchments. Most of the stormwater runoff from the site enters Washington Street. A small portion of the site enters an abutting property at the east and north side of the site. There are no known existing infiltration, detention, or water quality features in place currently to treat stormwater runoff.

The BWSC owns and maintains the storm sewer systems adjacent to the site (See **Figure 6-1**). There is an existing 24-inch storm drain main in Washington Street.

6.4.2 Proposed Drainage Systems

The Proposed Project is expected to improve the water quality and will meet the Boston Water and Sewer Commission (BWSC) Site Plan requirements. The existing storm drain utility infrastructure surrounding the Site appears to be of adequate capacity to service the needs of the Project. The Project will result in an increase in impervious area, but will improve the quality and attenuate the quantity of stormwater runoff being discharged to BWSC storm drain system through the installation of an on-site infiltration (recharge) system. It is anticipated that the equivalent of 1 inch over the site's impervious area can be recharged.

In addition to the installation of an on-site infiltration system, stormwater runoff will be treated through the use of a water quality treatment unit. A Stormwater Operation and Maintenance Plan will be developed to support the long-term functionality of the proposed stormwater management system.

It is anticipated that the following stormwater management objectives will need to be met:

1. Recharge facilities will be designed to capture and infiltrate a recharge volume based on 1-inch from all impervious surfaces on site.
2. Stormwater will be connected to a storm drainage system. Sewage flow will be connected to a sanitary sewer.

All necessary dewatering will be conducted in accordance with applicable BWSC discharge permits. Once construction is complete, the Proposed Project will be in compliance with local and state stormwater management policies. See **Figure 6-3** for Proposed Utility Map.

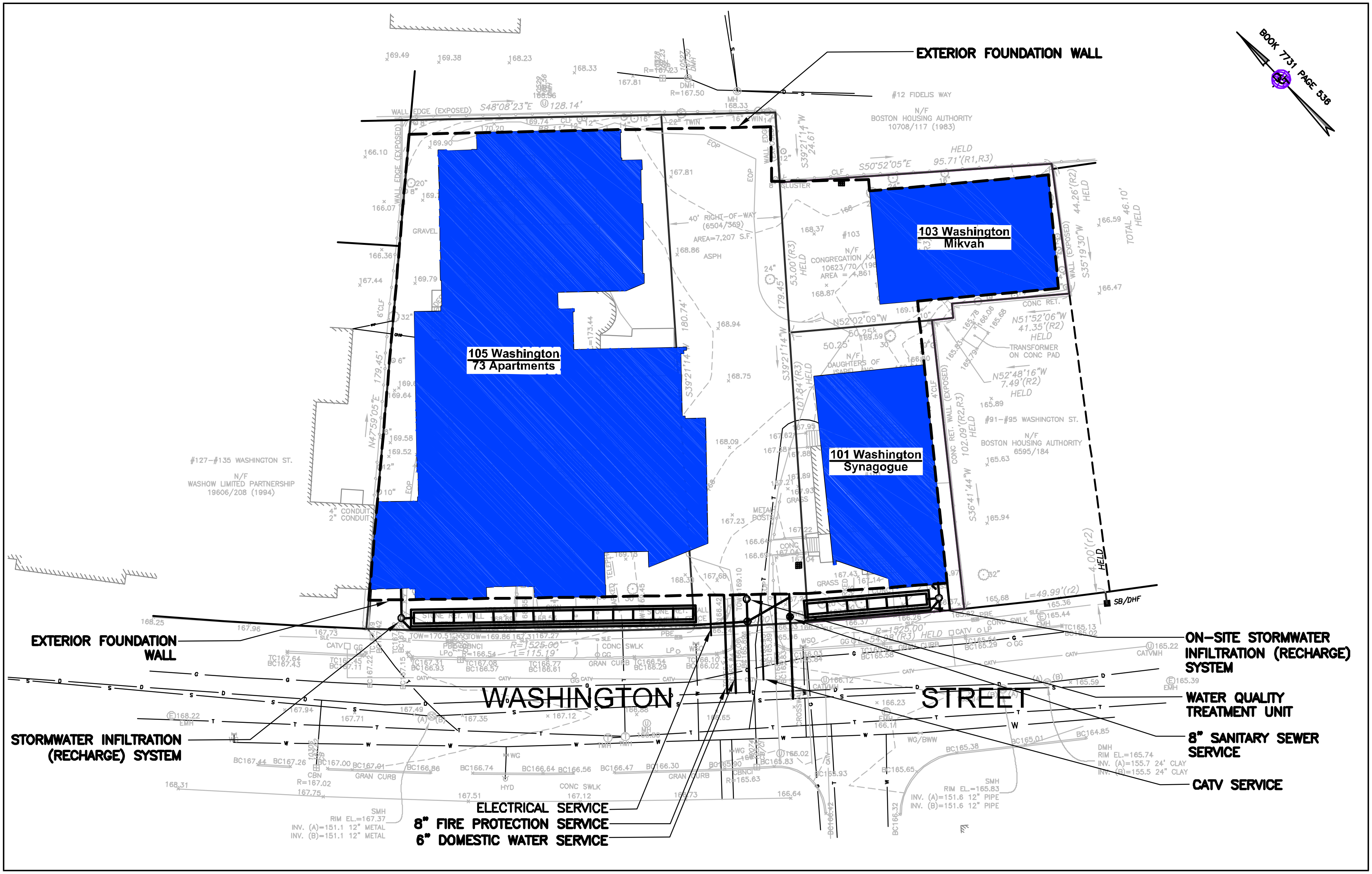


FIGURE 6-3
PROPOSED UTILITY MAP
SCALE: 1"=50'

6.5 Water Quality

The Proposed Project will improve the quality of stormwater leaving the site through the installation of an on-site infiltration (recharge) system and a water quality treatment unit and therefore is not expected to have negative impacts on the water quality of the Charles River. Erosion and sediment controls will be used during construction to protect adjacent properties and the municipal storm drain system. These controls will be inspected and maintained throughout the construction phase until the areas of disturbance have been stabilized through the placement of pavement, structure, or vegetative cover.

All necessary dewatering will be conducted in accordance with applicable BWSC discharge permits. Once construction is complete, the Proposed Project will be in compliance with BWSC Site Plan requirements.

6.6 Electric Systems

Eversource owns and maintains the electrical transmission system in the vicinity of the Proposed Project. It is anticipated that electrical load requirement can be provided by Eversource. Electric power supply design, and any upgrades that may be required, will be further coordinated with Eversource as the design progresses. The Proponent will investigate energy conservation measures, including high efficiency lighting.

6.7 Telephone and Cable Systems

Verizon, Comcast, and RCN provide telephone service in the Project area. It is anticipated that telephone service can be provide by any of the providers. Any upgrades will be coordinated with the provider. Telephone systems will be reviewed with the provider as the design progresses.

Comcast and RCN provide cable and internet service in the Project area. It is expected that Comcast and/or RCN can provide services to the Project site. Any upgrade required to the services will be coordinated with the services providers.

6.8 Steam and Gas Systems

The Proposed Project is not expected to require steam service and there is no steam infrastructure in the Project area.

National Grid provides natural gas in the Project area. National Grid owns and maintains a gas main in Washington Street. The project is expected to use natural gas for heating and domestic hot water. It is expected that there is adequate supply of natural gas in the area. The actual size and location of the building services will be coordinated with National Grid.

6.9 Utility Protection During Construction

Existing public and private infrastructure located within nearby public rights-of-way will be protected during Project construction. The installation of proposed utility connections within public ways will be undertaken in accordance with BWSC, Boston Public Works Department, the Dig-Safe Program, and applicable utility company requirements. The Contractor will notify utility companies and call "Dig Safe" prior to excavation. During construction, infrastructure will be protected using sheeting and shoring, temporary relocations, and construction staging as required. The Construction Contractor will be required to coordinate all protection measures, temporary supports, and temporary shutdowns of all utilities with the appropriate utility owners and/or agencies. The Construction Contractor will also be required to provide adequate notification to the utility owner prior to any work commencing on their utility. Also, in the event a utility cannot be maintained in service during switch over to a temporary or permanent system, the Construction Contractor will be required to coordinate the shutdown with the utility owners and project abutters to minimize impacts and inconveniences. All necessary permits will be obtained before the commencement of work.

7.0 TRANSPORTATION COMPONENT

7.1 Introduction

The purpose of this analysis is to evaluate the transportation impacts of the Proposed Project at 101-105 Washington Street in Brighton per the requirements of the Boston Redevelopment Authority and Boston Transportation Department processes.

The Project contemplates a collaborative redevelopment and re-use of the Project Site, by replacing and upgrading the existing facilities of two religious institutions and introducing a new residential development with accompanying integrated site, landscape, vehicular and pedestrian access measures and improvements. The Parties' shared vision is to replace the existing and inadequate facilities of two important religious institutions in order to support their long-term stability in the Brighton neighborhood, with the allocation of remaining land area for new residential housing. The scope and scale of the Proponent's residential program is also intended to further the residential policy goals of Boston Mayor Martin J. Walsh's 2030 Housing Plan.

Brighton continues its evolution and growth towards a primarily residential area, but with an increased focus on multi-family buildings. The proposed project is consistent with trends in the immediate neighborhood: both 1505 Commonwealth Avenue and 5 Washington Street are also adding similar new housing opportunities in Brighton. With convenient access to the Green Line, local bus routes and pedestrian and bicycle options such as Hubway, the proposed residential building will add needed supply to the City's stock of transit-dependent apartments. Site improvements will further enhance the walking and pedestrian environment for both residents and the local and regional draw of the Congregation Kadimah-Toras Moshe Synagogue and Daughters of Israel Mikvah.

7.1.1 Project Description

The Proposed Project consists of approximately 99,645 gross square feet of new floor area in three (3) separate, but related projects:

- Raze and replace the existing and former three-family structure utilized since the 1960's as a Mikvah on the 101 Washington Street parcel, and construct a new and improved Mikvah facility of approximately 5,030 gross square feet with dedicated on-site parking on the vacant rear parcel at 103 Washington Street (the "New Mikvah");
- Raze and replace the existing former single-family/boarding house structure on the 105 Washington Street parcel, utilized as a Synagogue facility since the 1940's, and construct a new Synagogue facility of approximately 9,285 gross square-feet with dedicated above-grade surface parking on the adjacent 101 Washington Street parcel to be vacated by razing the existing Mikvah facility (the "New Synagogue"); and

- Construct a new 73-unit residential building of approximately 85,330 gross square feet, with an underground parking garage for 64 vehicle spaces, 73 bicycle spaces and internal trash storage, in place of the former Synagogue facility at the 105 Washington Street parcel (the "New Residential Building").

The Project will also introduce overall site integration of the uses, open space/landscaping including 12 above-grade parking spaces for the new religious facilities, common vehicular access and pedestrian improvements.

The Project program is summarized below in **Table 7-1.**

Table 7-1 Project Program

Project Component	Units/Square Feet/Parking
New Mikvah	5,030 gross square feet
New Synagogue	9,285 gross square feet
Parking (Mikvah and Synagogue)	12-surface parking spaces
73-Unit Apartment Building	85,330 gross square feet
1-bedroom units	24
2-bedroom units	49
Parking (Apartments)	64-underground parking spaces

The Proposed Project is ideally situated within close proximity to the MBTA Green "B" Line Station at Commonwealth Avenue and Washington Street, making it convenient for future resident commuters. As referenced, the Proposed Project is in close proximity to the Chestnut Hill Reservoir and other local parks, providing residents with significant open and green spaces to utilize. The proposed Site is also within walking distance to both Brighton Center and Washington Street neighborhood services, offering many neighborhood shops and restaurants to service the new residents of the development.

The proposed multi-family residences will have a mixture of unit types and sizes, which will accommodate Brighton's diverse and growing population, including 24 one-bedroom units, and 49 two-bedroom units. The Proponent understands that parking is always a concern to neighborhood residents, and is proposing a below grade parking facility that will house 64 parking spaces (including 60 spaces dedicated to the residential units, or approximately 0.8 spaces for each proposed unit), and bike racks for 73 spaces as required by the Boston Transportation Department guidelines. In addition there will be an additional 16 associated parking spaces for the Synagogue and Mikvah, with 12 spaces located at grade behind the Synagogue building and 4 spaces located in the below-grade parking area.

The Site circulation plan is designed to create a safe and pleasant entry to the Proposed Project with the residential entrance from Washington Street. Service vehicle and a loading area access will also be provided from Washington Street.

7.1.2 Study Area and Methodology

<u>Study Area</u>

The Project site is located west of the intersection of Washington Street and Commonwealth Avenue in Brighton and is currently occupied the Congregation Kadima-Toras Moshe Synagogue and Daughters of Israel Mikvah (see **Figure 7-3**). The surrounding neighborhood is predominantly residential, with a mixture of large, multi-family buildings and single-family homes. The area is a moderately dense, walkable neighborhood situated near commercial and retail districts, and well-served by MBTA bus and rapid transit service. The close proximity of transportation services will help to reduce potential vehicular traffic impacts of the proposed development.

<u>Methodology</u>

The scope of the analysis completed herein was developed in coordination with the Boston Transportation Department (BTD) and follows the guidelines for the completion of a Transportation Access Plan (TAPA) under the Article 80 review process. This report presents an overview and evaluation of the transportation issues and analysis related to the Proposed Project. This analysis looks primarily at adjacent intersections and streets, but also includes a broader evaluation of the transportation network surrounding the project site. Specific intersections included for transportation analysis include:

- Washington Street and Monastery Road
- Washington Street and Fidelis Way
- Washington Street and Site Driveway
- Washington Street and Euston Road
- Washington Street and Commonwealth Avenue

7.1.3 Transportation Analysis Summary

The 101-105 Washington Street project will enhance the project site, Washington Street and the local neighborhood. It is both consistent with current trends in the neighborhood and in furtherance of the residential policy goals of Boston Mayor Martin J. Walsh's 2030 Housing Plan. Moreover, the 101-105 Washington Street project will upgrade and ensure the long term physical viability of two long serving religious institutions.

The project also supports ongoing initiatives to enhance multi-modal access and choice throughout the City's neighborhoods by adding sidewalk and pedestrian amenities, secure and covered on-site bike parking for future residents of the apartment building, public bicycle racks and unbundled parking – reducing the incentives for car ownership and incenting less drive alone commuting.

All unsignalized intersections and approaches operate at LOS B or better, which is well within typically accepted BTD standards. The LOS for all signalized intersections is unaffected as compared to the No Build scenario, with minimal, negligible increases in delay.

The Project will provide numerous enhancements including a new and more inviting street presence with open plaza areas, landscaping, sidewalk upgrades and a centrally located, consolidated, wider driveway providing access to the new residential building, Congregation Kadima-Toras Moshe Synagogue and Daughters of Israel Mikvah. With its higher density, walking and biking amenities and proposed TDM measures (see following section), the Project supports the growth of Brighton as a transit-rich, walkable, bikeable neighborhood. The project will add multi-modal supportive infrastructure and help to encourage new residents towards active modes of transportation use and riding transit. Specific transportation enhancements include the following:

- Adding a new street-facing residential development, consistent with existing and proposed neighborhood residential uses; this will:
  - Activate the street; and
  - Enhance the sense of safety on this section of Washington Street
- Adds a new main entrance, visible and accessible to Washington Street for the Congregation Kadimah-Toras Moshe Synagogue, creating a welcoming and pedestrian friendly environment, replacing a wall and fences
- Closes an existing unused curb cut/driveway
- Creating a new, wider internal driveway serving the parking and connecting to the street
- Upgrading the pedestrian ramps and crosswalks at the Washington Street, Euston Road and Site Driveway intersection to meet current City and ADA standards.
- Reconstructing the sidewalk along the Site frontage
- Adding open plaza areas with landscaping and shade trees on Washington Street, enhancing the public realm
- Provides 0.88 parking spaces per residential unit – well within City guidelines - housed in a below grade garage
- Providing dedicated parking for the Daughters of Israel Mikvah and Congregation Kadimah-Toras Moshe Synagogue
- Provides electric vehicle charging station(s) as needed
- Unbundles accessory residential parking from the price of a residential unit – consistent with best practices to reduce vehicular travel demand

- Provides 73 bicycle parking spaces (1 per unit) in a covered, secure bike room helping to promote bicycle use and convenience amongst future residents
- Adds 15 outdoor, publicly available bike parking spaces – useful for both visitors and the public

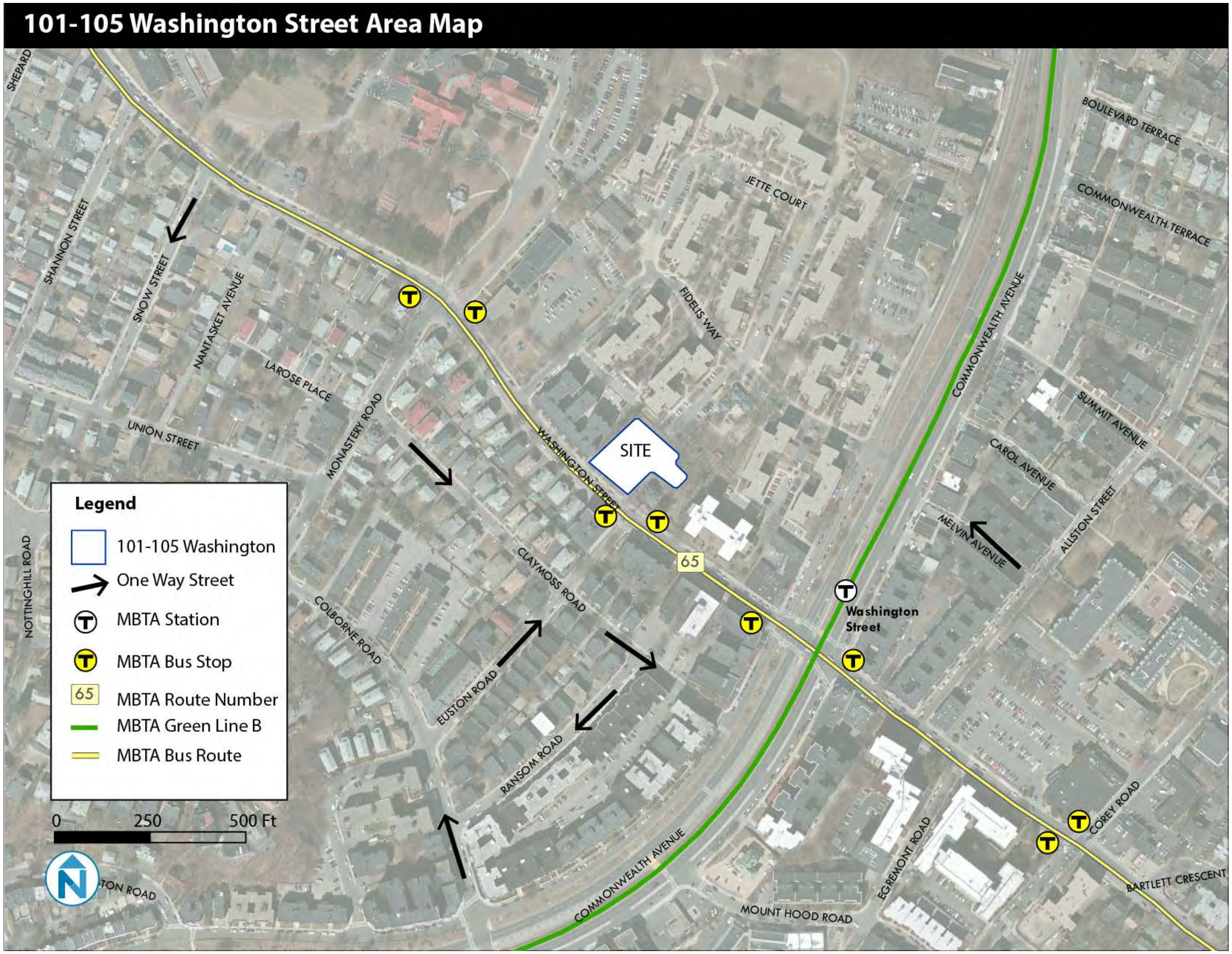


Figure 7-1 101-105 Washington Street

7.2 Existing Conditions

7.2.1 Project Site

- The 30,042 square foot Project Site is located at 101-105 Washington Street in the Brighton neighborhood of Boston. The site comprises two parcels including the Congregation Kadima-Toras Moshe Synagogue, a forty foot easement and the Daughters of Israel Mikvah. Adjacent properties include the Washington Heights apartments located at 127-135 Washington Street, and Boston Housing Authority (BHA) properties located at 91-95 Washington Street and on the north side by a Boston Housing Authority properties at 2-34 Fidelis Way.
- The site is within walking distance of public transportation, restaurants and retail. Commonwealth Avenue is a 1 minute walk to the southeast and Brighton Center and Cambridge Street a 7 minute walk to the northwest. Both provide local retail, commercial uses and services. The site is also within a five minute walk of the Green Line B Branch which provides access to Chestnut Hill and Boston College to the west, and to Boston University and Downtown Boston to the east.

7.2.2 Existing Uses

The Site is comprised of three parcels, including one incorporated easement, and is currently occupied by a 2-1/2 story wood framed Synagogue building at 105 Washington Street (“Congregation Kadimah-Toras Moshe”) and a Mikvah (“Daughters of Israel Mikvah”) at 101 Washington Street. In addition, there is vacant land (at 103 Washington Street) running to the rear of the Mikvah building which is unimproved. There is an easement that runs northeast from and perpendicular to Washington Street which transects the Site in the middle.

<u>Congregation Kadimah Toras Moshe Synagogue</u>
Congregation Kadimah-Toras Moshe was Brighton’s first Orthodox synagogue and was organized in 1941. It was first known as Congregation Kadimah and later merged with Congregation Toras Moshe of Roxbury in 1960. The congregation includes approximately 75-100 people in total. of whom only a few drive to the Synagogue. On Saturdays, the Jewish Sabbath, and Jewish holidays when the Synagogue is mostly in use, driving is restricted per Orthodox doctrine, though we note that per discussions, a few congregants drive and leave their vehicles outside of restricted hours. Staffing includes a part-time secretary, book keeper and rabbi. A tenant running a Jewish Youth organization occupies a small office. A list of typical activity and services is provided below: Daily services, morning and evening

- Friday night service
- Saturday morning service

- Saturday afternoon service
- Sunday morning service
- Small occasional meetings

The level of activity at the Synagogue is not expected to change with the construction of the new building, and thus no changes were accounted for in the transportation analysis. We note that the new pedestrian, bicycle and vehicle counts taken for this analysis, were completed with the Synagogue in typical operation.

Daughters of Israel Mikvah

The Daughters of Israel Mikvah was established in 1946 and is the oldest continuously-used Mikvah in New England serving Brighton, neighboring communities and the greater Boston area. The Daughters of Israel Mikvah is not directly affiliated with the Congregation Kadimah-Toras Moshe Synagogue and is operated separately and independently. A Mikvah is a ritual bathhouse used for multiple religious purposes. The Mikvah operates mostly by appointment, and as proscribed, is almost exclusively used only after sundown. The Mikvah is open every night of the year with appointment times available depending after sundown, and thus varying seasonally. The Mikvah is operated by a minimal staff, with regular onsite caretakers. Private, dedicated parking will be provided as part of the Project. As with the Synagogue, the level of activity at the Mikvah is not expected to change appreciably with the construction of the new facility, and thus no changes were accounted for in the transportation analysis. Again, the new pedestrian, bicycle and vehicle counts taken for this analysis, were completed with the Mikvah in typical operation. We note further that the typical (less than 10 daily appointments) overall activity occurs after sundown, which is also outside the peak traffic analysis hours analyzed.

7.2.3 Study Area Roadways

The following provides a description of area roadways.

Washington Street

Washington Street is a two-lane, minor arterial roadway under City jurisdiction and traverses the study area in a general northwest-southeast direction connecting nearby Brighton Center to the northwest, and Brookline to the east. Washington Street provides two 12-feet wide travel lanes separated by a double-yellow centerline with no marked shoulders provided. There are regulated 8-feet wide parallel parking lanes on both sides of the street. Curbside parking is mostly by residential permit. The curb to curb distance is approximately 40 feet. Sidewalks are provided on both sides of Washington Street with illumination provided by way of street lights mounted on concrete poles.

Fidelis Way

Fidelis Way is a two-lane local private way that provides access to BHA properties just north of the intersection of Washington Street and Commonwealth Avenue. Fidelis Way intersects Washington Street northwest of the site. On-street unregulated parallel parking is provided on the east side of the street. With two unmarked travel lanes, and one unmarked parking lane, Fidelis Way provides a curb-to-curb distance of approximately 25 feet. Sidewalks run on both sides of the street, with the exception of the length of street between Washington Street and Jette Court, which has a sidewalk on only one side. Land use along Fidelis Way is multi-family residential. Lighting is provided by box lights mounted on metal poles.

Euston Road

Euston Road is a local street under City jurisdiction that operates as one-way from Colborne Road terminating at Washington Street, off-set from the synagogue's driveway. It includes one unmarked travel lane and one unmarked lane of on-street parallel parking with a 25' curb to curb distance. For the section of Euston Road just south of the project site, parking is available to the public for two hours. Sidewalks are present on both sides of the street.

Commonwealth Avenue

Commonwealth Avenue (Route 30) is a four-lane (two lanes in each direction) urban principal arterial roadway under City jurisdiction. Frontage roads provide local access in each direction. Commonwealth Avenue provides access to downtown Boston to the east of the Project site and to Interstate 95/Route 128 to the west, and traverses the study area in a general northeast to southwest alignment. Within the study area, Commonwealth Avenue provides two 11 to 12-foot wide travel lanes in each direction, separated by a raised center median, with a one-foot wide shoulder. The center median accommodates the Green Line B Branch, which provides service between Brighton and downtown Boston.

The Commonwealth Avenue East Frontage Road is 18 to 29-foot wide and one-way northbound with regulated, on-street parking on the east side.

The Commonwealth Avenue West Frontage Road is two-way with two 11 to 18-foot wide travel lanes separated by a double-yellow centerline with on-street parking on both sides. West of Washington Street, the west frontage road is a one-way roadway with regulated parking allowed on the west side and a marked bike lane on the east side. Sidewalks are provided continuously along the east side of the Commonwealth Avenue East Frontage Road, and along the west side of the Commonwealth Avenue West Frontage Road, with marked crosswalks provided at major intersections. Illumination is provided by way of street lights mounted on steel or concrete poles.

Land use along Commonwealth Avenue within the study area consists of residential, commercial and institutional properties.

Monastery Road

Monastery Road is a two way local street that runs north-south from Washington Street to Colborne Road. North of Washington Street, Monastery Road offers access to various facilities owned by the Roman Catholic Archdiocese of Boston, and to St. Elizabeth's Medical Center. Monastery Road generally provides an unmarked single lane of traffic in each direction and unmarked parallel on-street parking on both sides of the street, with parking largely designated for vehicles with a residential parking permit. Both sides of the street have sidewalks available. The street offers curb to curb distances of approximately 33'.

7.2.4 Study Area Intersections

Site Driveway and Washington Street

The intersection of the site's driveway with Washington Street is an unsignalized T intersection, and provides the only vehicular access to the main part of the site. Washington Street is a two-lane, bi-directional street. Both the north and southbound Washington Street approaches allow for uncontrolled movements. The site driveway is accessible via a narrow curb cut. On-street parking is provided on either side of the site entrance. There is a crosswalk across Washington Street just south of the site driveway, near Euston Road.

Washington Street and Euston Road

Euston Road terminates at Washington Street in an unsignalized T. Vehicle traffic enters from three approaches: Euston Road eastbound, and Washington Street northbound and southbound. Neither the northbound or southbound traffic along Washington Street is stop controlled, though Euston Road has a stop sign at its terminus with Washington Street. Washington Street is a two lane thoroughfare in both directions without any traffic controls. Euston Road is one-way in the direction of Washington Street. Sidewalks and curb ramps are present on two of the three legs of the intersection. A crosswalk and curb ramps are present across Euston Road. A crosswalk is present on the northern leg of the intersection across Washington Street, with a curb ramp on the west side of the crosswalk. There is no curb ramp directly accessible on the east side, and instead a wheelchair user must use the site driveway to access the sidewalk. Parking is available on the north side of Euston Street just before the intersection, while parking is available on either side of the intersection along Washington Street except for south east of the intersection, where an MBTA bus stop is located.

Washington Street and Fidelis Way

Washington Street and Fidelis Way is an unsignalized T intersection with Fidelis Way terminating at Washington Street, and with vehicle traffic entering from three approaches. Neither the northbound or southbound traffic along Washington Street is stop controlled, though Fidelis Way has a stop sign for west bound traffic at its terminus with Washington Street. Washington Street is a two lane thoroughfare without any traffic controls. Fidelis Way allows two-way traffic with vehicles coming from, and turning onto Washington Street.

Sidewalks are present along Washington Street as well as curb ramps. Fidelis Way has a connecting sidewalk on the south east side of the intersection. There are however no crosswalks across either street, and no curb ramps on the west side of Washington Street.

Washington Street and Monastery Road

Washington Street and Monastery Road is a signalized four-way intersection, with traffic entering from four approaches: Washington Street northbound and southbound, and Monastery Road eastbound and westbound. All approaches are controlled by the traffic signal. There are no turning restrictions for this intersection. Both Washington Street and Monastery Road allow two-way traffic on either side of the intersection. The northbound approach along Washington Street has its stop line short of the actual intersection in order to accommodate a driveway and entrance to the St. Gabriel's Rectory. Parking is allowed on either of the street along Washington Street both north and south of the intersection. Parking is allowed on either side of Monastery Road west of the intersection, while the eastern portion of the street cannot accommodate on-street parking. The intersection has curb ramps, and crosswalks across all four legs of the intersection. Pedestrian indicators are present for the movements across Washington Street, and for the movement across Monastery Road on the west side of Washington Street. The signal includes an exclusive pedestrian phase.

Washington Street and Commonwealth Avenue

The signalized intersection of Washington Street/Commonwealth Avenue consists of six approaches: Commonwealth Avenue eastbound and westbound, Washington Street northbound and southbound, and the eastbound and westbound Commonwealth Avenue Frontage Roads. Additionally, the eastbound and westbound tracks of the MBTA Green Line B Branch occupy the median of Commonwealth Avenue across Washington Street with platforms for both directions on the east side of the intersection.

Due to the complexity of the intersection, there are many turning restrictions. The Commonwealth Avenue East Frontage Road approach consists of one through lane and one shared through/right-turn lane. Left-turns are restricted along this approach. The Commonwealth Avenue eastbound approach consists of one through lane and one shared through/right-turn lane. The Commonwealth Avenue westbound approach consists of a left-turn lane and two through lanes. Right-turns are restricted along this approach. The Commonwealth Avenue West Frontage Road changes from a bi-directional two lane thoroughfare east of Washington Street, to a one-way westbound street west of Washington Street. The Commonwealth Avenue West Frontage Road approach consists of one through/right turn travel lane and one parking lane. Left turns are restricted along this approach.

The Washington Street northbound approach consists of a single shared left-turn/through/right-turn lane. An MBTA bus stop is located along the northbound approach before the intersection. The Washington Street southbound approach consists of a single shared left-turn/through/right-turn lane. An MBTA bus stop is located along the southbound approach before the intersection. Parking is not allowed along the Washington Street approaches due to the location of the MBTA bus stops.

The traffic signal operates in four phases with concurrent pedestrian phasing provided. The Green Line trolleys run during the Commonwealth Avenue eastbound/westbound phase. Sidewalks are provided along both sides of Washington Street along the outer edge of the Frontage Roads. Crosswalks are marked across all approaches. Wheelchair ramps are provided at every point a crosswalk meets a curb except on the southwest corner of the intersection of Commonwealth Avenue westbound and Washington Street. Pedestrian signals are provided for all crossings.

7.2.5 Parking

Consistent with TAPA guidelines, parking was evaluated within a quarter mile radius, or five-minute walk from the project site. There is ample on-street parking in the surrounding area with varying regulations based on street locations (See **Figure 7-2**). In general, a majority of the on-street parking in the vicinity of the study area is regulated, especially in the areas further from Commonwealth Avenue and Washington Street. Parking regulations are a mix of time and permit restricted. In the immediate vicinity of the project site, Washington Street is mostly residential permit parking. Parking along the Commonwealth Avenue West Frontage Road is largely unregulated, while much of the neighborhood parking proximate to the study area requires neighborhood parking permits.

A detailed map of on-street parking regulations is described in **Figure 7-3.** Based on field assessments and analysis of aerials, there are approximately 58 residential permit spaces along Washington Street between Commonwealth and Monastery Road, with approximately 28 two hour visitor spaces along Washington Street, and the first blocks of Euston Road and Fidelis Way. There are large sections of unregulated parking along the Commonwealth Avenue West Frontage Road which would accommodate approximately 50 cars.

There are no public off-street lots within a quarter mile of the study area. All off-street parking in the immediate vicinity of the project site is either designated residential parking, particularly for the apartment buildings along Fidelis Way and Jette Court. In addition to there are two parking lots connected to Monastery Road which are used by ABCD Headstart and by St. Elizabeth's Medical Center. On the opposite side of Commonwealth Avenue from the study site there is a large parking lot available for Whole Foods and bank customers.

Figure 7-2 On-Street Parking Regulations - Study Area

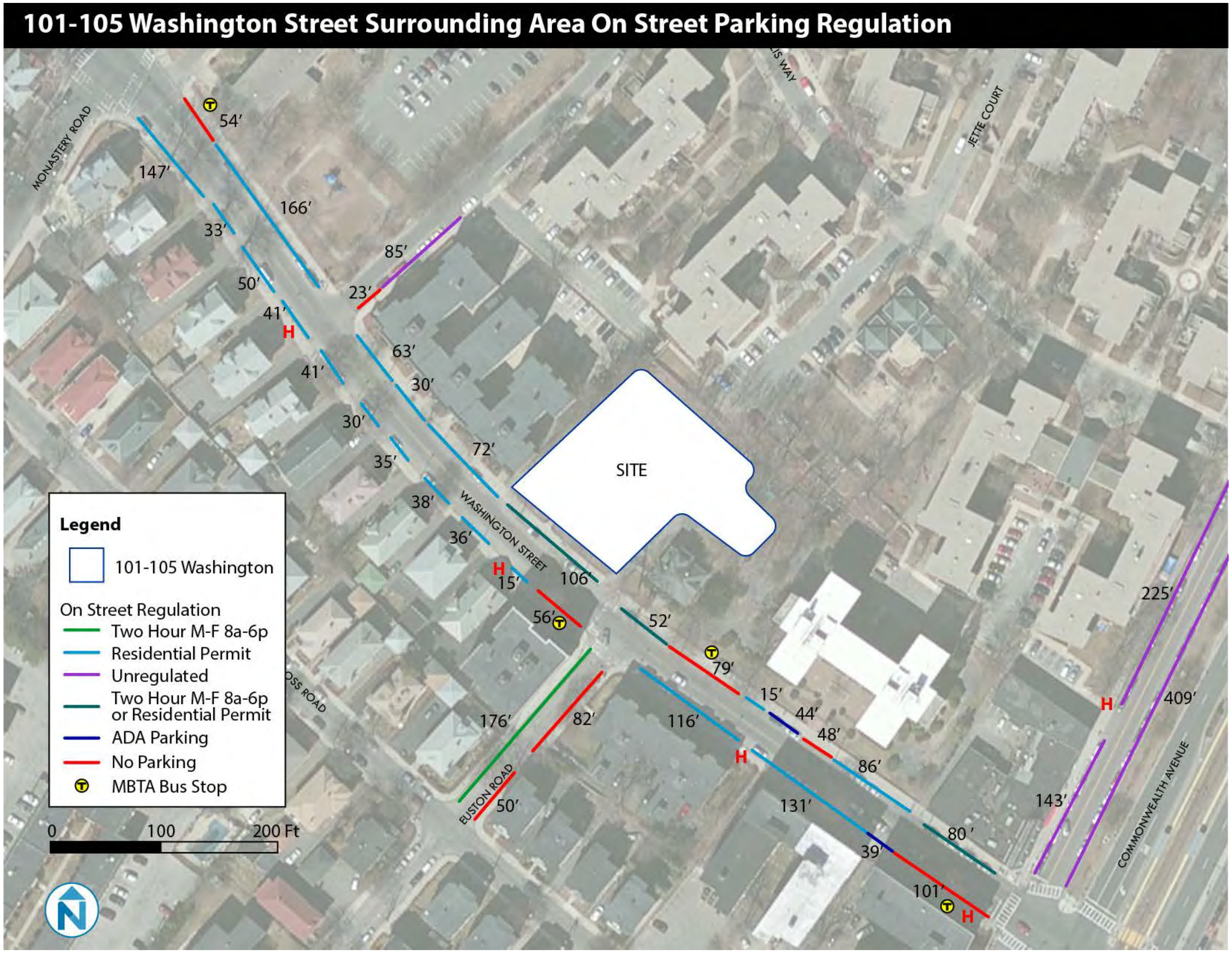


Figure 7-3 On-Street Parking Regulations - Adjacent Blocks

7.2.6 Public Transportation

Transit access was evaluated within a quarter and a half mile radius of the project site. The project site is directly accessible by the MBTA's Route 65 bus, and is situated within a 2-minute walk of the Green Line B Branch and other bus routes, as shown in **Figure 7-6**. The Route 65 bus directly passes the project site, and offers service between Brighton Center and Kenmore Station, with transfers to the MBTA Green Line and other connecting bus services. The nearby Green Line B Branch offers service between Boston College and Government Center and can be accessed from project site at Commonwealth Avenue at the Washington Street Station.

Route 65

The study area and the project site are directly served by the MBTA Route 65 bus. On Washington Street there are bus stops within one block of the site for Route 65, which operates between Brighton Center and Kenmore Station by way of Brookline Village and Fenway. A northbound bus stop for Route 65 is located just south of the project site along Washington Street, while a southbound bus stop is located directly across from the site entrance. Bus Route 65 operates between 6:17 AM and 8:57 PM on weekdays, and between 6:45 AM and 6:39 PM on Saturday; no service is provided on Sunday.

Green Line

The Green Line B Branch travels within the center median of Commonwealth Avenue and provides service to Boston College, Boston University, Kenmore Station and Park Street Station. Riders can transfer to the Red Line at Park Street Station. The Washington Street Station is a two-minute walk south of the project site. The Warren Street stop located a short walk to the north of the project site. Service on the Green Line B Branch is provided Monday through Friday between 5:01 AM and 12:52 AM, on Saturday between 4:45 AM and 12:52 AM, and on Sunday between 5:20 AM and 12:52 AM

Inbound and outbound service is available at the Washington Street Station which is located in the Commonwealth Avenue median, just north of the Washington Street and Commonwealth Avenue intersection. A pedestrian crossing provides access to the station.

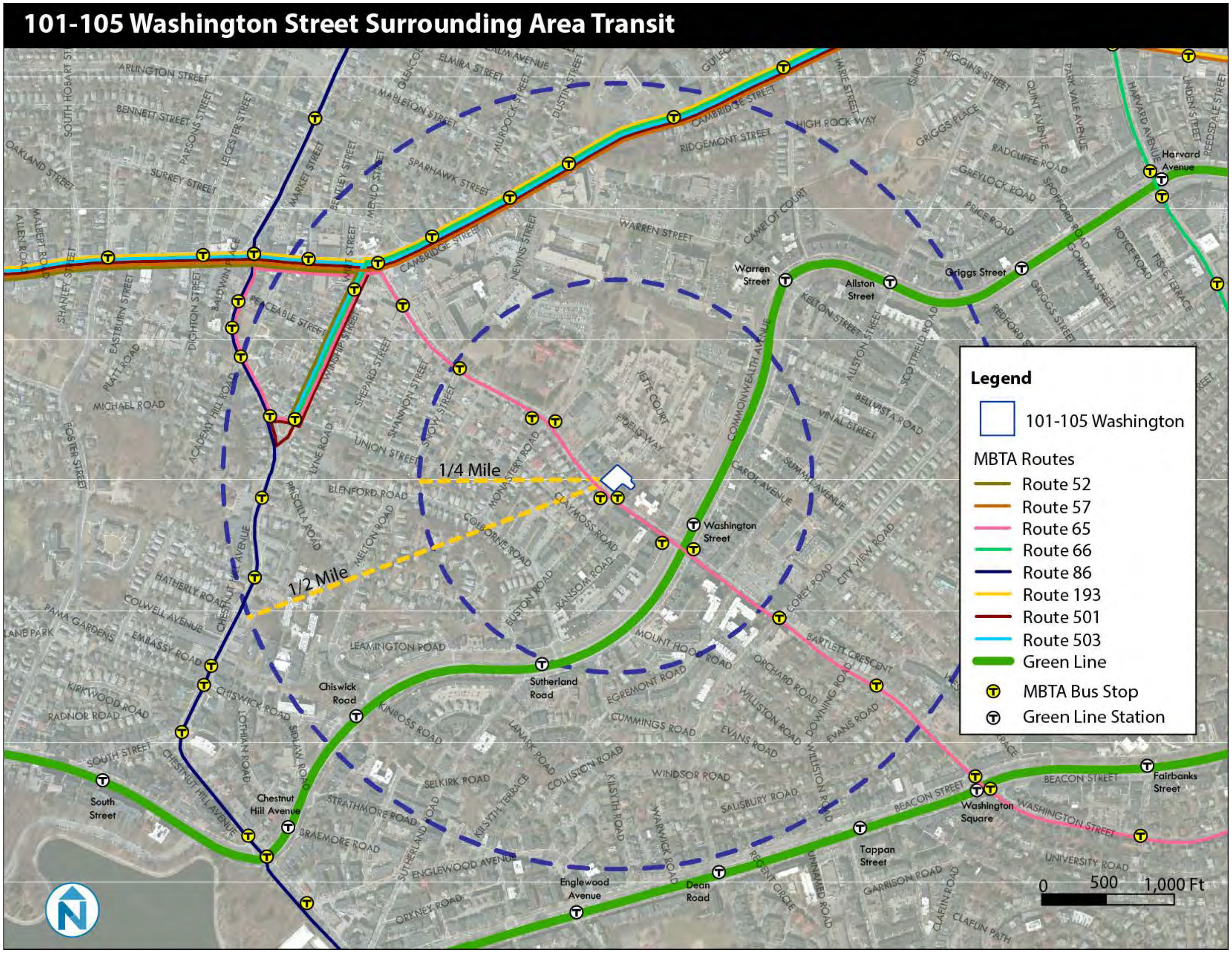


Figure 7-4 101-105 Washington Area Public Transportation

MBTA Buses

Within a half mile of 101-105 Washington Street there are seven additional MBTA bus routes including two express buses serving a variety of destinations including Downtown Boston, Cambridge, and Roxbury. Many of the routes run directly on Washington Street and Cambridge Street in Brighton Center. Service typically runs every 10-15 minutes during weekday peak hours, with midday frequencies ranging from 9-90 minutes. Further detail on nearby bus service is provided below in **Table 7-2**.

Table 7-2 Proximate MBTA Bus Routes

Bus Route	Origin- Destination	Weekday Peak/ Off Peak	Weekend
Route 52	Dedham Mall or Charles River Loop-Watertown Yard	15-30 minutes/ 45-90 minutes	No service
Route 57	Watertown Yard or Oak Square - Kenmore Station	5-15 minutes/ 10 minutes	10-20 minutes
Route 65	Brighton Center- Kenmore Station	11-15 minutes/ 35 minutes	60 minutes. No Sunday service
Route 66	Harvard Station - Dudley Station	9-15 minutes/ 9-16 minutes	15-17 minutes
Route 86	Sullivan Square Station Reservoir Station (Cleveland Circle)	10-18 minutes/ 17-40 minutes	30-35 minutes
Route 193	Watertown–Haymarket	Limited service	Limited service
Route 501	Express–Brighton Center Downtown Boston	5-10 minutes/ limited off-peak service	No service
Route 503	Express–Brighton Center Copley Square	5-10 minutes/ limited off-peak service	No service

Pedestrian Connections

Washington Street, the project environs and Brighton in general is walkable and accommodating to travel on foot. According to the Boston Transportation Department nearly a quarter of all trips taken in Brighton are on foot. Within the study area, sidewalks are provided on both sides of Washington Street, the east side of the Commonwealth Avenue East Frontage Road, along the west side of the Commonwealth Avenue West Frontage Road, and along both sides of Euston Road, Monastery Road, and one side of

Fidelis Way, with marked crosswalks at major intersections. Pedestrian traffic signals and concurrent pedestrian phasing are provided as a part of the traffic signal systems at the Washington Street and Commonwealth Avenue intersection. Pedestrian traffic signal equipment and exclusive pedestrian phasing are provided as a part of the traffic signal systems at the Washington Street/Monastery Road intersections. **Figure 7-5** describes curb cut locations near the site that conflict with safe and comfortable pedestrian movement by creating conflict zones with vehicles.

Bicycle Connections

Within the study area, formal bicycle accommodations are provided on Commonwealth Avenue East and West Frontage roads and are marked by “sharrow” pavement markings. The Commonwealth Avenue West Frontage Road provides a marked bicycle lane west of Washington Street. Washington Street appears to provide sufficient width (combined travel lane and shoulder, where present) to support bicycle travel in a shared travelled-way configuration. Hubway, the bicycle sharing system for the City of Boston, currently has a bicycle station located approximately 1/3 mile northwest of the project site at the Washington Street/Cambridge Street intersection.

Figure 7-5 Existing Site Curb Cuts

7.3 Traffic Capacity Analysis

The following traffic capacity analysis was conducted to create a detailed baseline understanding of the existing transportation conditions in the study area. The scope of the analysis was confirmed with the Boston Transportation Department.

7.3.1 Existing Conditions Analysis

In order to document existing traffic patterns and levels, vehicle, pedestrian, and bicycle turning movement counts (TMC's) were conducted on Thursday April 7, 2016 at three previously uncaptured study intersections proximate to the proposed 101-105 Washington Street project site:

- Washington Street and Monastery Road/ABCD Headstart Driveway;
- Washington Street and Fidelis Way; and
- Washington Street and the Site Driveway/Euston Road.

Counts included heavy vehicles and cars, pedestrians and bicyclists and were collected from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM. The morning peak hour was observed to be between 7:15 and 8:15 AM for Washington/Fidelis and Washington/Site Driveway, while for Washington/Monastery and the AM peak was observed between 7:45 and 8:45 AM. The evening peak hour for Washington/Monastery ran from 4:30 to 5:30 PM, from 5:00 to 6:00 PM for Washington/Fidelis, and from 4:45 to 5:45 PM for Washington/Site Driveway.

In addition to these new counts, April 2014 data was used for the intersection of Washington Street and Commonwealth Avenue. These volumes are depicted in **Figure 7-6**, **Figure 7-7**, and **Figure 7-8**. Full, complete traffic count data are included in the Transportation Appendix of this report. The analysis herein documents patterns in volumes and turning movement counts on study area intersections. The existing conditions network was then used as baseline to create the 2021 No-Build scenario and Build scenarios also documented herein.

7.3.2 Existing Traffic Volumes

<u>Vehicles</u>

Vehicle volumes within the study area vary broadly according to the street type, with total vehicles per peak period ranging between 60 to over 700 depending on the street. As shown in **Figure 7-6**, local neighborhood streets in the study area carry relatively low volumes of vehicular traffic, and few heavy vehicles. Of the local streets, Monastery Road carries the highest volumes with 60-160 eastbound vehicles entering the Washington Street intersection per peak period (both AM and PM), and a similar number of vehicles using Monastery Road to exit the intersection. Eastbound volumes on Monastery Road are higher in the AM peak than the PM peak. Fidelis Way and Euston Road serve fewer than 100 vehicles per peak period.

Washington Street, a minor arterial, serves over 350 vehicles in each direction in both the AM and PM peak periods. Southbound traffic volumes on Washington Street are higher than northbound volumes in both the AM and PM peak periods. Commonwealth Avenue has volumes between 420 and 720 vehicles per peak period. Eastbound traffic volumes are higher in the AM peak period, while westbound traffic volumes are higher in the PM peak period. Lastly it was observed that a number of illegal vehicle movements occur on both the eastbound and westbound sides of the intersection of Washington Street and Commonwealth Avenue. Most of these illegal movements occur in the evening peak period.

Most notably, the existing Site is lightly used from a vehicular perspective. Even with the current Congregation Kadimah-Toras Moshe Synagogue and Daughters of Israel Mikvah in active use, peak hour traffic volumes are very low. Recent counts show no more than 5 vehicles exiting the Site during the AM peak hour, with even less activity during the PM peak hour. As described previously, the peak uses of these activities are not significantly active, occur outside of roadway peaks, and rely to an extent on non-vehicular travel. Moreover, even with their renovation, the level and character of the activity at these uses is not expected to change.

<u>Bicycles</u>

Peak hour bicycle volumes were also observed and recorded at the locations described above. The counts showed relatively low bicycle activity within the study area. The highest bicycle volumes are concentrated along Washington Street, most frequently moving southbound in the AM peak, as well as eastbound on Commonwealth Avenue or Commonwealth Avenue Frontage Road East. Currently there are few existing bicycle facilities within a 5-minute walking radius from the site. **Figure 7-7** shows existing bicycle volumes by intersection for the morning and evening peak hours.

<u>Pedestrians</u>

Peak hour pedestrian volumes were recorded as part of the transportation counts along Washington Street. As shown in **Figure 7-8**, pedestrian volumes in the area immediately adjacent and to the north of the project site are typically higher in the AM peak period. At the intersection of Washington Street and Commonwealth Avenue however, pedestrian traffic is higher in the PM peak period for nearly all pedestrian crossings. This intersection likely experiences considerably higher pedestrian volumes due to the location of the Green Line's Washington Street station.

7.3.3 Existing Traffic Capacity

To assess the traffic operations at study area intersections, turning movement counts and volumes were compiled and evaluated utilizing the procedures outlined by the 2010 Highway Capacity Manual (HCM), and reported in accordance with BTD's standards for transportation impact analysis. Each intersection within the study area was analyzed with summary results for level-of-service (LOS), reporting the summary vehicular delay with a letter grade A to F. In addition reported in this section is volume to capacity ratio (V/C), the stop time delay in seconds and the 50th and 95th percentile queue lengths in feet. The intersection capacity analysis worksheets are provided in Appendix of this report. A summary chart of the results of this analysis is shown in below in **Table 7-3.**

As shown in **Table 7-3,** each approach at the unsignalized intersections operate at either LOS A or B, with minimal delay and queue lengths. At the signalized intersections, LOS does vary somewhat, as these intersections handle higher vehicular volumes. Regardless, in both the AM and PM peak periods, almost all approaches operate at LOS C or better, which is notable in an urban environment. Only select left turn moves operate with additional delay, with the existing westbound left turn from Commonwealth Avenue (towards Brookline) experiencing LOS F.

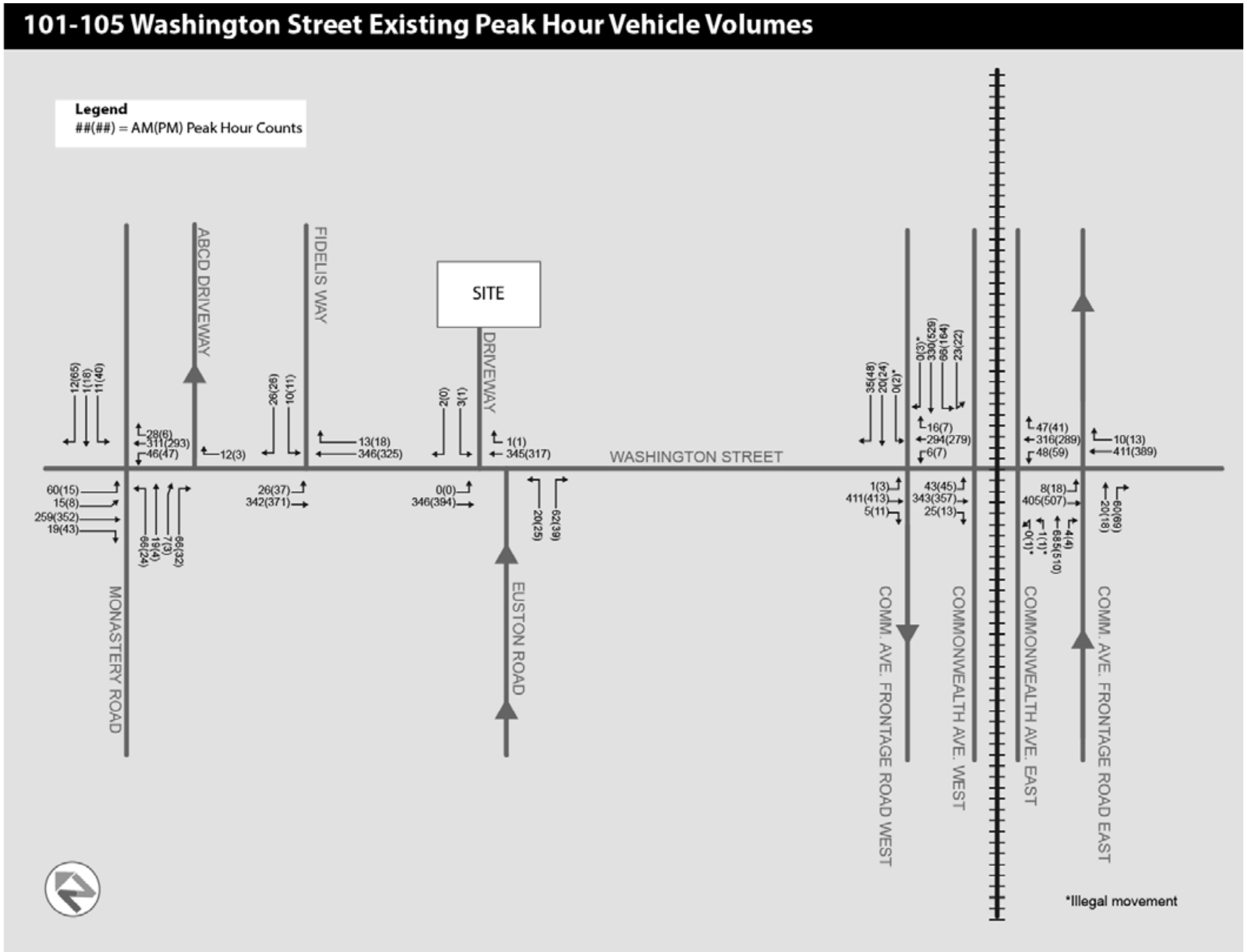


Figure 7-6 Existing Peak Hour Vehicle Volumes

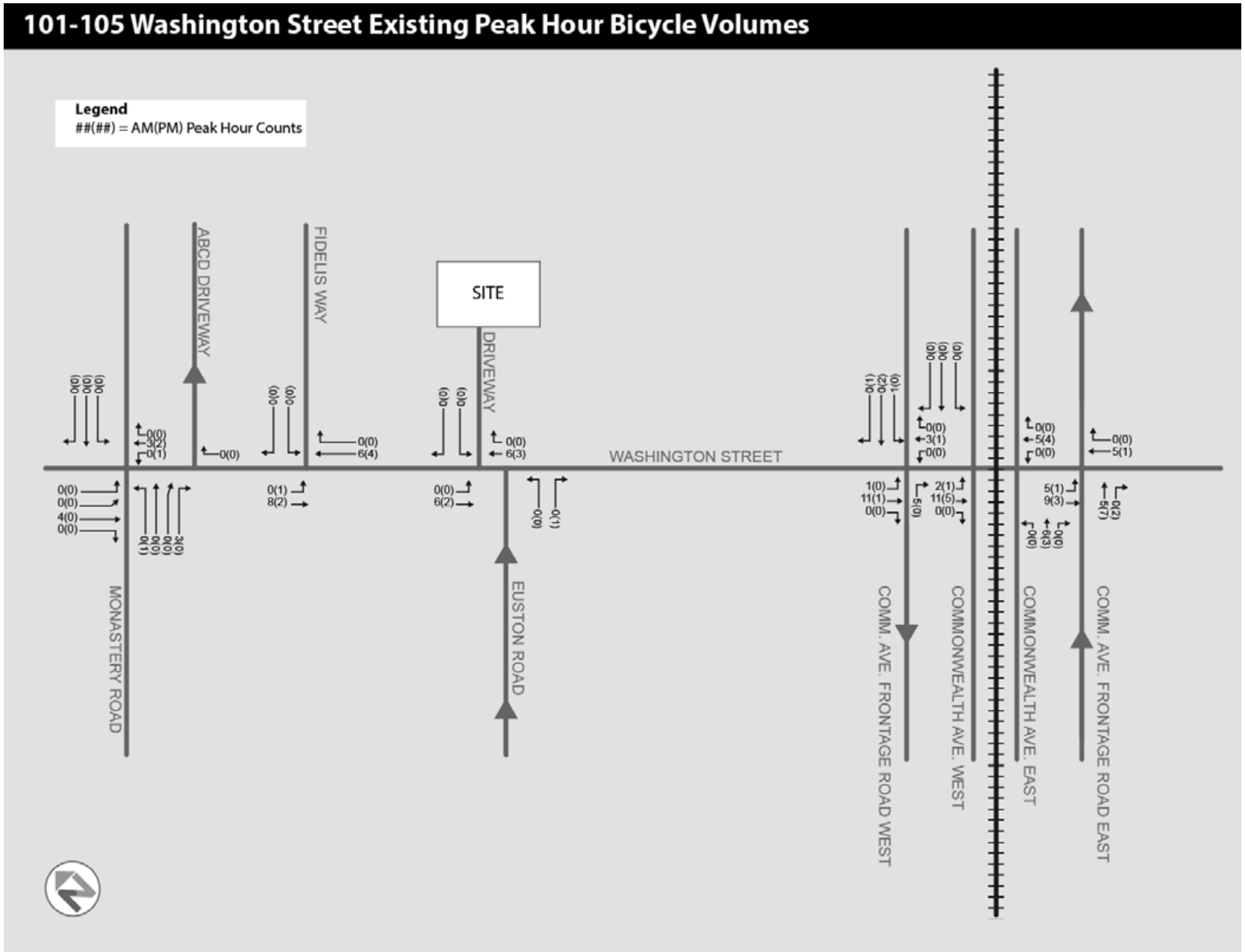


Figure 7-7 Existing Peak Hour Bicycle Volumes

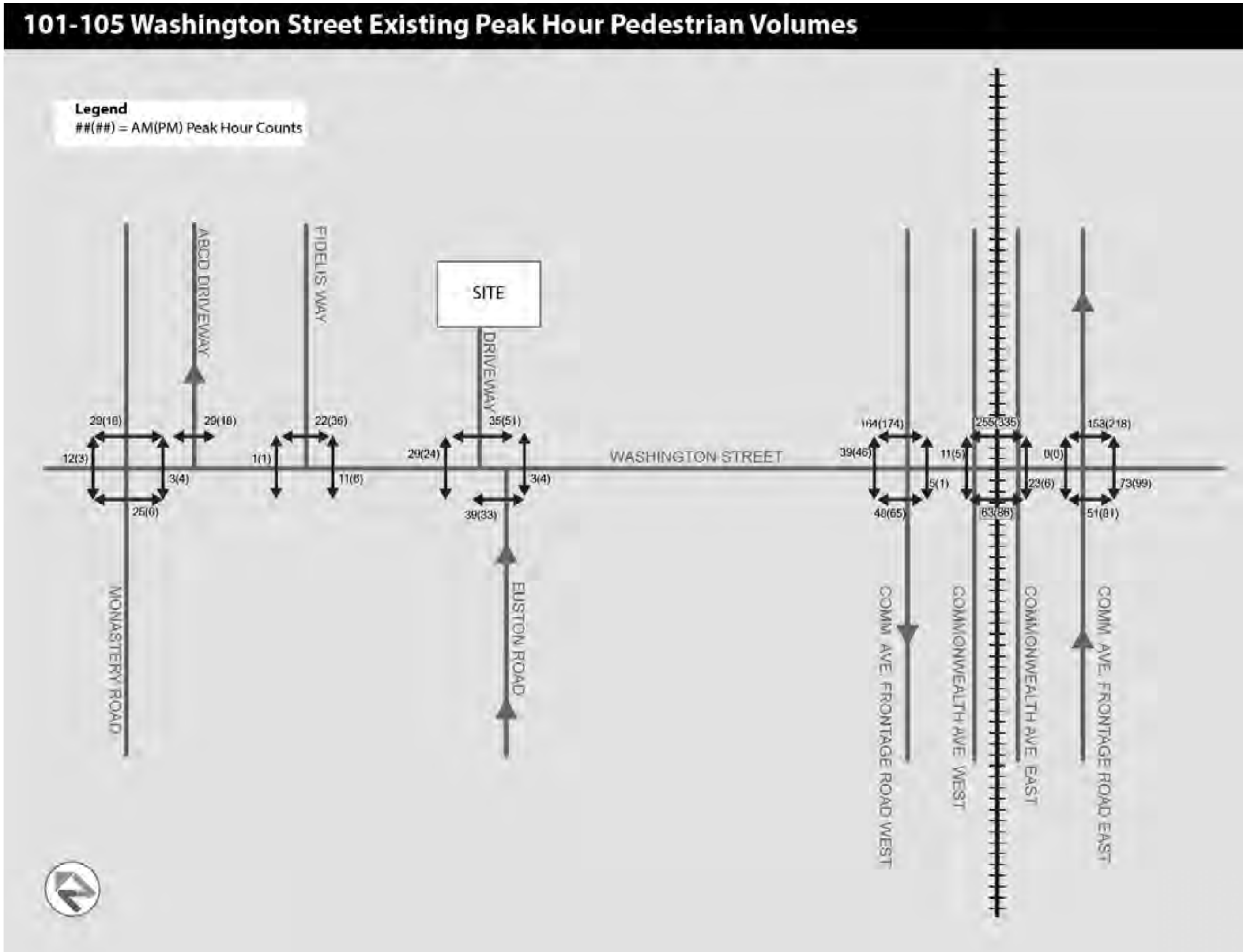


Figure 7-8 Existing Peak Hour Pedestrian Volumes

Table 7-3 Existing Level of Service Summary

Intersection	AM Peak Hour				PM Peak Hour			
	LOS	Delay	V/C	Queue $50^{th}/95^{th}$	LOS	Delay	V/C	Queue $50^{th}/95^{th}$
Unsignalized Intersections								
Site Driveway at Washington Street								
Wash. NB Right/Thru	A	0	-	- / -	A	0	-	- / -
Wash. SB Left/Thru	A	0	-	- / -	A	0	-	- / -
Site WB Right/Left	B	13	0.012	- / 0	B	14.8	0.003	- / 0
Washington Street at Euston Road								
Wash. NB Thru	A	0	0.21	- / -	A	0	0.19	- / 0
Wash. SB Thru	A	0	-	- / -	A	0	-	- / 0
Eust. EB Right/Left	A	9.2	0.09	- / 8	A	9.3	0.08	- / 6
Washington Street at Fidelis Way								
Wash. NB Right/Thru	A	0	0.23	- / 0	A	0	0.22	- / 0
Wash. SB Left/Thru	A	0.8	0.02	- / 2	A	1.1	0.03	- / 3
Fide. WB Right/Left	B	11.5	0.07	- / 5	B	11.6	0.07	- / 5
Signalized Intersections								
Washington Street and Commonwealth Avenue								
Wash. NB Right/Left/Thru	C	31.9	0.60	270 / 380	C	32.5	0.59	261 / 369
Wash. SB Right/Left/Thru	C	31.6	0.60	266 / 375	C	33.5	0.63	283 / 398
Comm. Ave. EB Thru	D	36.9	0.62	258 / 335	C	34.1	0.48	180 / 234
Comm. Ave. WB Left	F	175.8	0.53	72 / 127	F	208.9	0.91	157 / 300
Comm. Ave. WB Thru	B	17.9	0.21	81 / 113	B	18.6	0.33	135 / 176
E Frontage Rd. EB Right/Thru	A	4.5	0.11	0 / 23	A	5.9	0.13	0 / 30
E Frontage Rd. EB Thru	C	28.8	0.03	12 / 32	C	28.0	0.03	11 / 29
W Frontage Rd. WB Right/Thru	B	14.2	0.10	12 / 44	B	12.6	0.13	14 / 50
Washington Street and Monastery Road								
Wash. NB Right/Left/Thru	A	7.2	0.36	78 / 158	A	6.0	0.32	61 / 124
Wash. SB Right/Left/Thru	A	7.2	0.34	71 / 146	A	6.1	0.35	75 / 149
Mona. EB Right/Left/Thru	D	45.5	0.67	84 / 147	C	34.1	0.32	31 / 67
Mona. WB Right/Left/Thru	C	28.6	0.10	11 / 32	D	43.8	0.60	63 / 118

7.4 Evaluation of Long-Term Impacts

7.4.1 Future No Build Conditions (2021)

To provide a baseline comparison for the project impacts of the proposed 101-105 Washington Street development, a future "no-build" analysis was conducted. This process entailed creating a forecast network for the year 2021 that builds upon the existing traffic conditions as outlined previously. Following BTD's guidelines for the development of a No Build scenario, this analysis takes into account other permitted area developments, planned infrastructure changes, and a background growth rate. Projects included in the analysis below used for the development of the No Build scenario were selected in consultation with BTD.

Adjacent Developments

The Brighton neighborhood has seen the completion and proposal of several new developments on Commonwealth Avenue, and in the area near the project site. Below are short descriptions of recently completed or proposed projects near 101-105 Washington Street. Future traffic volumes projected by the projects below were added to the traffic network analysis for this project.

- **Residential Development, 1501 Commonwealth Avenue, Brighton, Massachusetts** – A 55-unit residential community with 55 parking spaces located at 1501 Commonwealth Avenue in Brighton, Massachusetts. This project has completed construction and opened.
- **Residential Development, Brighton Marine Health Center Veterans Mixed Income Housing Project, 77 Warren Street, Brighton, Massachusetts** – A 101-unit residential apartment community with 101 parking spaces proposed at 77 Warrant Street in Brighton, Massachusetts. This project has been approved by the BRA.
- **Residential Development, 1505 Commonwealth Avenue, Brighton, Massachusetts -** The renovation and redevelopment of an existing office building to provide 80 residential units, and parking for 80 vehicles. This project has been approved by the BRA.
- **Residential Development, 1650 Commonwealth Avenue, Brighton, Massachusetts** – A 39-unit residential community with 35 parking spaces to be located at 1650 Commonwealth Avenue in Brighton, Massachusetts. This project has been approved by the BRA.
- **Residential Development, 5 Washington Street, Brighton Massachusetts –** A 145-unit building, with a 105 space on-site parking garage. This project is currently under review by the BRA.

Infrastructure Projects

The following infrastructure project was identified within the larger area of the project site based on information from the Boston Transportation Department (BTD):

- **Commonwealth Avenue at Warren Street and Kelton Street** - This intersection improvement project consists of replacing the existing pedestrian equipment at the intersection with accessible pedestrian signals (APS) and pushbuttons in order to improve accessibility and pedestrian safety. It was completed in 2015.

No additional roadway or intersection improvement projects were identified, beyond routine maintenance activities by the Boston Redevelopment Authority (BRA) Capital Construction Department.

Analysis

Aside from the developments and changes described above, the No Build Analysis (2021) did not include an annual growth rate. This was determined in consultation with BTD, and because of the high level of local specific activity added to the network from the Projects identified above. For the No Build (2021) condition, traffic impacts were evaluated at the following intersections:

- Washington Street/Site Driveway
- Washington Street/Commonwealth Ave
- Washington Street/Monastery Road
- Washington Street/Fidelis Way
- Washington Street/Euston Road

7.4.2 Future No-Build (2021) Volumes

Expected project generated trips from the developments described above were added to create the Future N0-Build volumes. **Figure 7-9** displays peak hour vehicle traffic volumes for the forecasted 2021 No-Build scenario. Volume growth in the future no build scenario includes the added projected volumes from the BMHC, 5 Washington Street, and 1505 Commonwealth Avenue projects. Volume growth is shared both along Washington Street and Commonwealth Avenue.

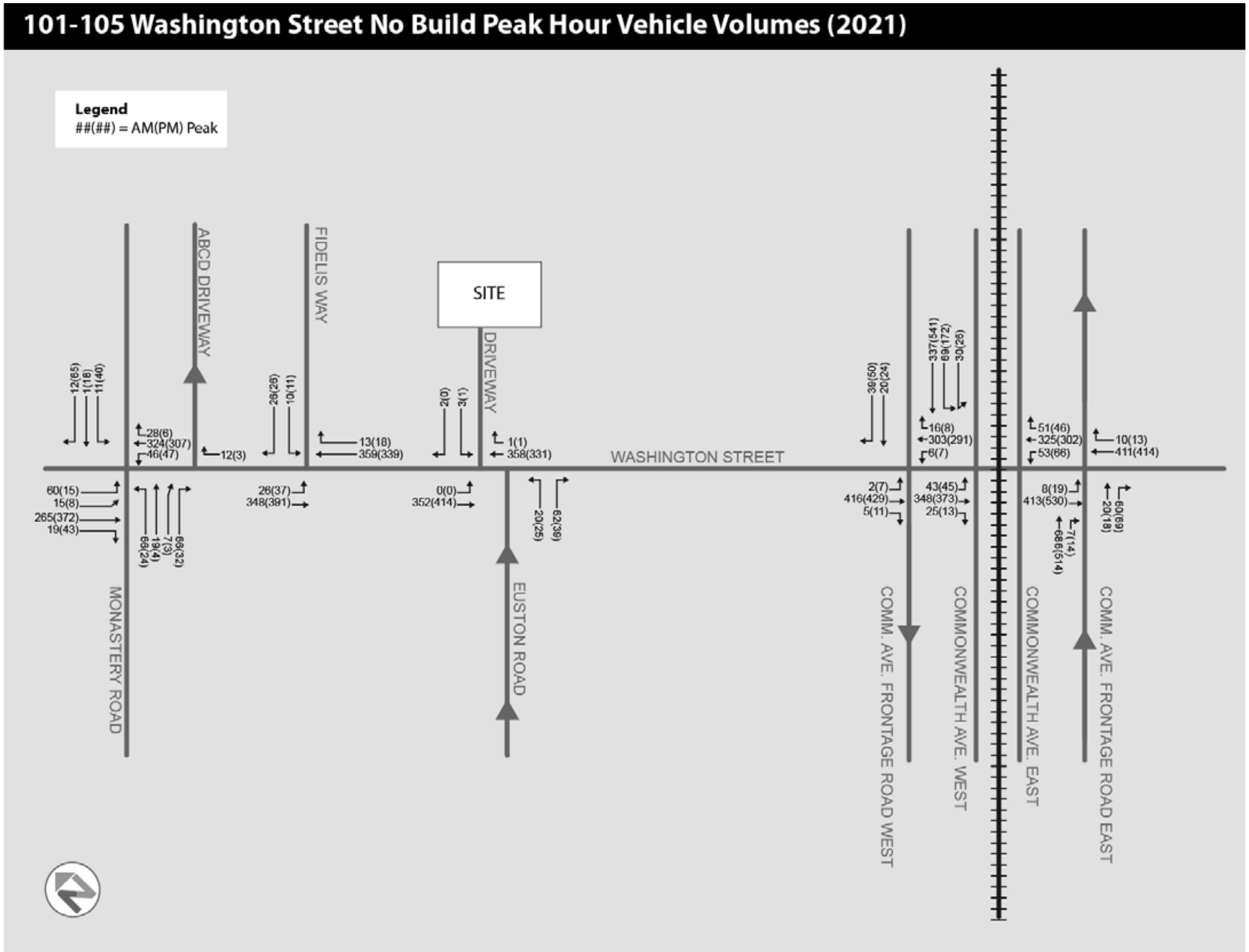


Figure 7-9 No-Build Peak Hour Vehicle Volumes (2021)

7.4.3 Future No-Build (2021) Traffic Capacity

The future No-Build vehicle volumes were added to the Existing Conditions network, and again analyzed to assess the expected transportation system for the No-Build scenario. Each identified intersection was analyzed for LOS with grades on the quality of traffic from A to F, as well as the volume to capacity ratio, the stop time delay in seconds, and the 50th and 95th percentile queue lengths in feet. The intersection capacity analysis worksheets are provided in the Appendix of this report. A summary chart of the results of this analysis is shown in **Table 7-4**. For unsignalized intersections, traffic operations for the Future No-Build scenario are largely unchanged compared to existing conditions with a decrease in LOS for the site driveway in the evening.

The Future No Build and associated background growth accounts for overall changes in LOS, delay, volume to capacity ratio, stop time delay and percentile queue lengths. There is no change in LOS for both unsignalized and signalized intersections between Future No Build and Build. Minimal changes in delay and queuing can be expected in the AM and PM peaks at the site driveway and Washington Street. See **Table 7-4** and **Table 7-7** for a summary**.**

Table 7-4 Future No Build (2021) Traffic Operations Summary

Intersection	AM Peak Hour				PM Peak Hour			
	LOS	Delay	V/C	Queue 50th/95th	LOS	Delay	V/C	Queue 50th/95th
Unsignalized Intersections								
Site Driveway at Washington Street								
Wash. NB Right/Thru	A	0	-	- / -	A	0	-	- / -
Wash. SB Left/Thru	A	0	-	- / -	A	0	-	- / -
Site WB Right/Left	B	13.2	0.012	- / -	C	15.3	0.003	- / 0
Washington Street at Euston Road								
Wash. NB Thru	A	0	0.21	- / -	A	0	0.20	- / 0
Wash. SB Thru	A	0	-	- / -	A	0	-	- / 0
Eust. EB Right/Left	A	9.2	0.09	- / 8	A	9.3	0.08	- / 6
Washington Street at Fidelis Way								
Wash. NB Right/Thru	A	0	0.24	- / 0	A	0	0.23	- / 0
Wash. SB Left/Thru	A	0.8	0.02	- / 2	A	1.0	0.03	- / 3
Fide. WB Right/Left	B	11.6	0.07	- / 5	B	11.7	0.07	- / 6
Signalized Intersections								
Washington Street and Commonwealth Avenue								
Wash. NB Right/Left/Thru	C	31.6	0.60	270 / 380	C	34.0	0.62	282 / 397
Wash. SB Right/Left/Thru	C	31.5	0.60	271 / 322	C	34.6	0.66	302 / 424
Comm. Ave. EB Thru	D	37.7	0.64	261 / 336	C	34.2	0.49	182 / 237
Comm. Ave. WB Left	F	174.1	0.57	80 / 139	F	212.1	0.97	168 / 325
Comm. Ave. WB Thru	B	18.1	0.21	83 /114	B	18.7	0.33	138 / 180
E Frontage Rd. EB Right/Thru	A	4.5	0.11	0 / 23	A	5.9	0.13	0 / 30
E Frontage Rd. EB Thru	C	29.1	0.04	12 / 32	C	28	0.03	11 / 29
W Frontage Rd. WB Right/Thru	B	13.8	0.11	12 / 45	B	12.4	0.14	14 / 50
Washington Street and Monastery Road								
Wash. NB Right/Left/Thru	A	7.3	0.37	81 / 165	A	6.1	0.33	65 / 130
Wash. SB Right/Left/Thru	A	7.2	0.35	72 / 149	A	6.3	0.37	80 / 157
Mona. EB Right/Left/Thru	D	45.5	0.67	84 / 147	C	34.1	0.32	31 / 67
Mona. WB Right/Left/Thru	C	28.6	0.10	11 / 32	D	43.8	0.60	63 / 118

7.4.4 Build Conditions

Site Access and Circulation

Proposed site access and circulation will have beneficial impacts to the project site, surrounding neighborhood and all future occupants of the new residential building, employees and visitors to the Congregation Kadimah-Toras Moshe Synagogue and Daughters of Israel Mikvah.

The residential building will front Washington Street, providing a sidewalk, streetwall and streetscape improvements including street trees. The main lobby of the residential building is pulled back from the property line, creating an inviting plaza area. A door immediately adjacent to the main entryway and lobby provides access to a covered, secure, dedicated bike room. Similar to the residential building, the Congregation Kadimah-Toras Moshe Synagogue main entrance is pulled back from the property line and served by an appealing, landscaped open plaza area contiguous and accessible from the sidewalk. The main entrance to the Daughters of Israel Mikvah is accessible at the rear of the property.

By siting the main residential and Synagogue entrances on Washington Street, the design team hopes to improve the safety and user perception of this portion of the street. Main entrances will connect to the residential entry, elevators, and parking facility. These multiple entries will help provide convenient pedestrian access to the Site and to the surrounding neighborhood. New sidewalks will be completed by the Project along the Site frontage, and the overall pedestrian circulation area will be increased, benefitting not just the Site, but the surrounding neighborhood.

An improved, wider curb cut on Washington Street will provide two-way access to the site. This improves on the current narrow driveway, and will be heavily treated to ensure attractiveness, safety and integration with the overall Site. This driveway will be in the same location as the existing main curb cut into the Site. From this entry, on the interior of the Site, access will be provided to a ramp to the below-grade parking and the surface parking spaces abutting the Daughters of Israel Mikvah and Congregation Kadimah-Toras Moshe Synagogue. An existing, additional curb cut serving a driveway at the northwest property line will be eliminated.

Delivery and loading access will no longer occur on the street and can be accommodated onsite, in the driveway. A trash room is proposed with a separate entryway directly onto the project driveway. As currently proposed the driveway, will provide access to both the parking garage via a ramp and to the surface spaces located adjacent to the Mikvah and Synagogue. Three (3) surface parking spaces are proposed flanking the Synagogue, and nine (9) surface spaces are proposed to the rear of the project site in close proximity to the Mikvah entrance. Six (6) of the surface spaces are dedicated to the Synagogue and six (6) to the Mikvah.

7.4.5 Trip Generation

To estimate the number of vehicle, transit, walk, and bicycle trips associated with the proposed 101-105 Washington Street project, trip generation analysis and estimates were developed based on the most recent data presented in the ITE Trip Generation Manual, 9^{th} Edition. As described previously, no new trips were added for the Congregation Kadimah-Toras Moshe Synagogue and Daughters of Israel Mikvah since these uses are both currently present on the Project Site, and are not anticipated to see a change in the level of use or activity. Because the project consists of only one new component, trip estimates were based on the ITE trip rates for Land Use 220 (Apartment). The ITE land use category and the corresponding trip rates used for analysis are shown in **Table 7-5** below:

Table 7-5 ITE Trip Generation Rates

ITE Class	Apartment (220)
	Trips per Dwelling Unit
Weekday	6.65
Saturday	6.39
AM Peak Hour*	0.51
PM Peak Hour*	0.62

*Peak hour of adjacent street traffic

As compared to the standard development used in ITE analyses, the study area has a low driving rate. Thus the following analysis uses Boston Transportation Department Area 10 mode split assumptions to accurately reflect the number of trips amongst the various modes of travel. Furthermore, the analysis also uses the average vehicle occupancy for Boston per the 2014 American Community Survey to convert vehicle trips to person trips. The current ratio is 1.08 person trips for every vehicle trip.

Table 7-6 Site Generated Person and Vehicle Trips

	Entering Person Trips	Entering Vehicle Trips	Exiting Person Trips	Exiting Vehicle Trips	Total Daily Person Trips	Total Vehicle Trips
Daily Avg. Mode Shares						
Auto	148	137	148	137	296	274
Transit	48		48		96	
Walk	55		55		110	
AM Peak Mode Shares						
Auto	4	4	16	15	20	19
Transit	1		9		10	
Walk	2		6		8	
PM Peak Mode Shares						
Auto	16	14	8	8	24	22
Transit	9		3		12	
Walk	6		5		11	
Saturday Mode Shares						
Auto	143	132	150	139	293	271
Transit	46		36		82	
Walk	53		56		109	

7.4.6 Trip Distribution and Assignment

A trip distribution was developed characterizing the overall split of person trips by mode and then assigning the vehicle trips to the network. As shown in **Table 7-6** the majority of site generated trips for all uses and time periods are person trip by automobile. Over 40% of daily site generated trips are expected to be made by transit or walking. Transit trips are additionally walking trips based on the assumption that transit riders typically travel to the nearest bus stop or train station on foot.

To determine auto trips, person trips by automobile were re-calculated into vehicle trips using the same vehicle occupancy rate used to derive overall person trips (1.08). These auto trips were then assigned to the network using the directional distribution shown in **Figure 7-10**. This vehicle distribution was derived from BTD's mode share guidelines for Area 10 (Brighton) and show vehicle trip percentages between Brighton and the Boston region.

61% of site generated exiting trips are assumed to move northbound on Washington Street in order to access to southwest of the site, or to access the Allston area and the Mass Pike. In turn, a majority of trips are anticipated to enter the site from the north using Washington Street, and arriving from Allston and many other parts of Boston. Overall 39% of trips are expected to exit to or arrive from points accessible from Washington Street south of the project site. 9% of all site generated trips are anticipated to use Commonwealth Avenue east of Washington Street for both entering and exiting the site, while 12% of trips are expected to enter from Euston Road and exit the area using Commonwealth Avenue west of the project site. 18% of site generated trips are anticipated to arrive to or exit from the site using Washington Street south of Commonwealth Avenue. A summary of expected vehicle movements can be viewed in **Figure 7-11**.

7.4.7 Future Build Volumes

Using the 2021 No Build as a basis, the 2021 Build network incorporates the proposed site plan and resulting project generated traffic volumes into a new network for the AM and PM peak hours. **Figure 7-12** highlights the resulting traffic volumes on the network for the 2021 build year.

7.4.8 Future Build Capacity Analysis

The 2021 Future Build network was completed by adding the site generated vehicle trips to the 2021 No Build network described above. Each intersection within the study area was again analyzed for level-of-service (LOS), reporting the quality of traffic with a letter grade A to F, volume to capacity ratio (V/C), the stop time delay in seconds and the 50th and 95th percentile queue lengths. The intersection capacity analysis worksheets are provided in the Appendix of this report. A summary chart of the results of this analysis is shown in **Table 7-7** below. All unsignalized intersections and approaches continue to operate at LOS B or better, which is well within typically accepted BTD standards. The LOS for each approach at all signalized intersections is unaffected as compared to the No Build scenario, with minimal, negligible increases in delay.

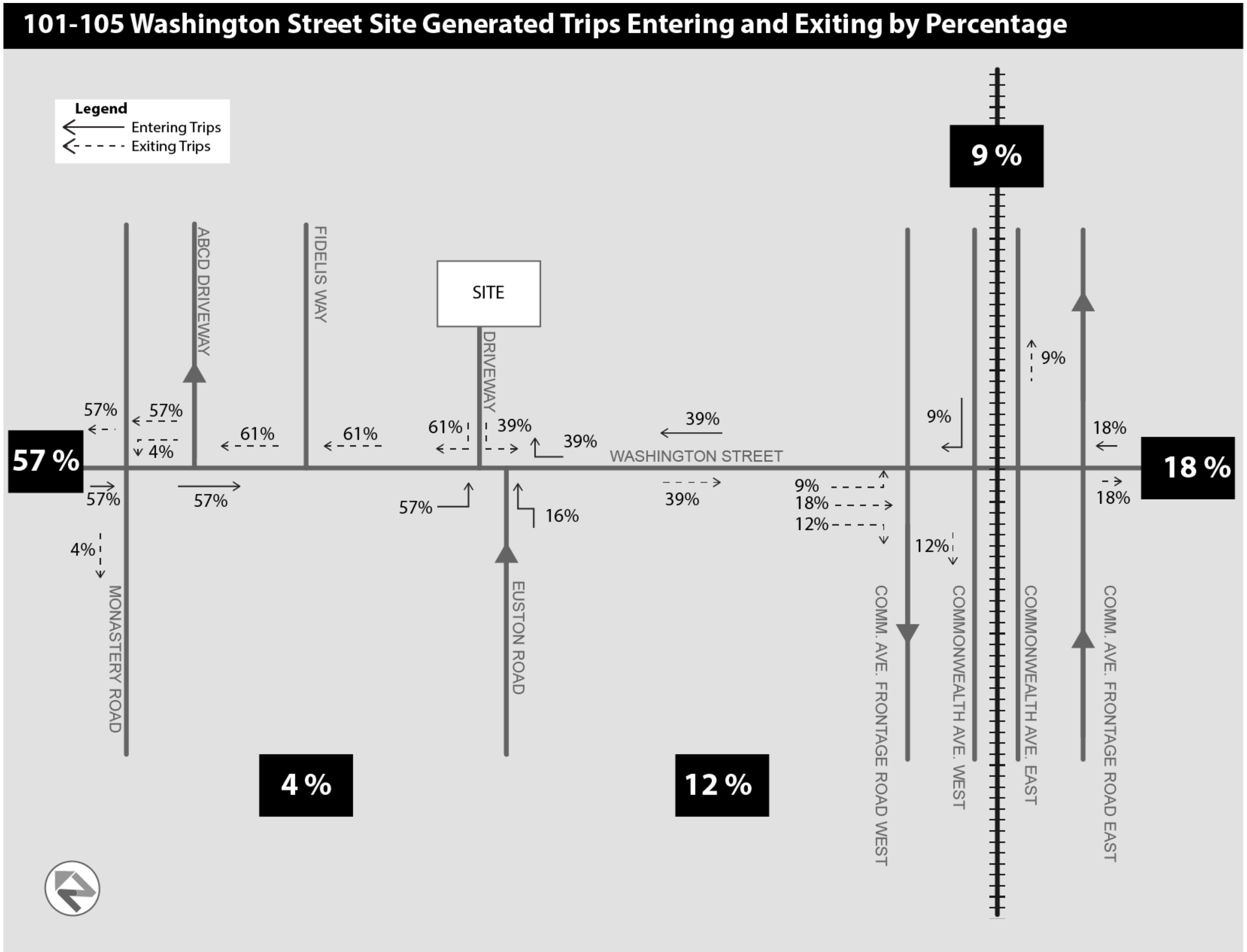


Figure 7-10 Vehicles Entering and Exiting by Percentage

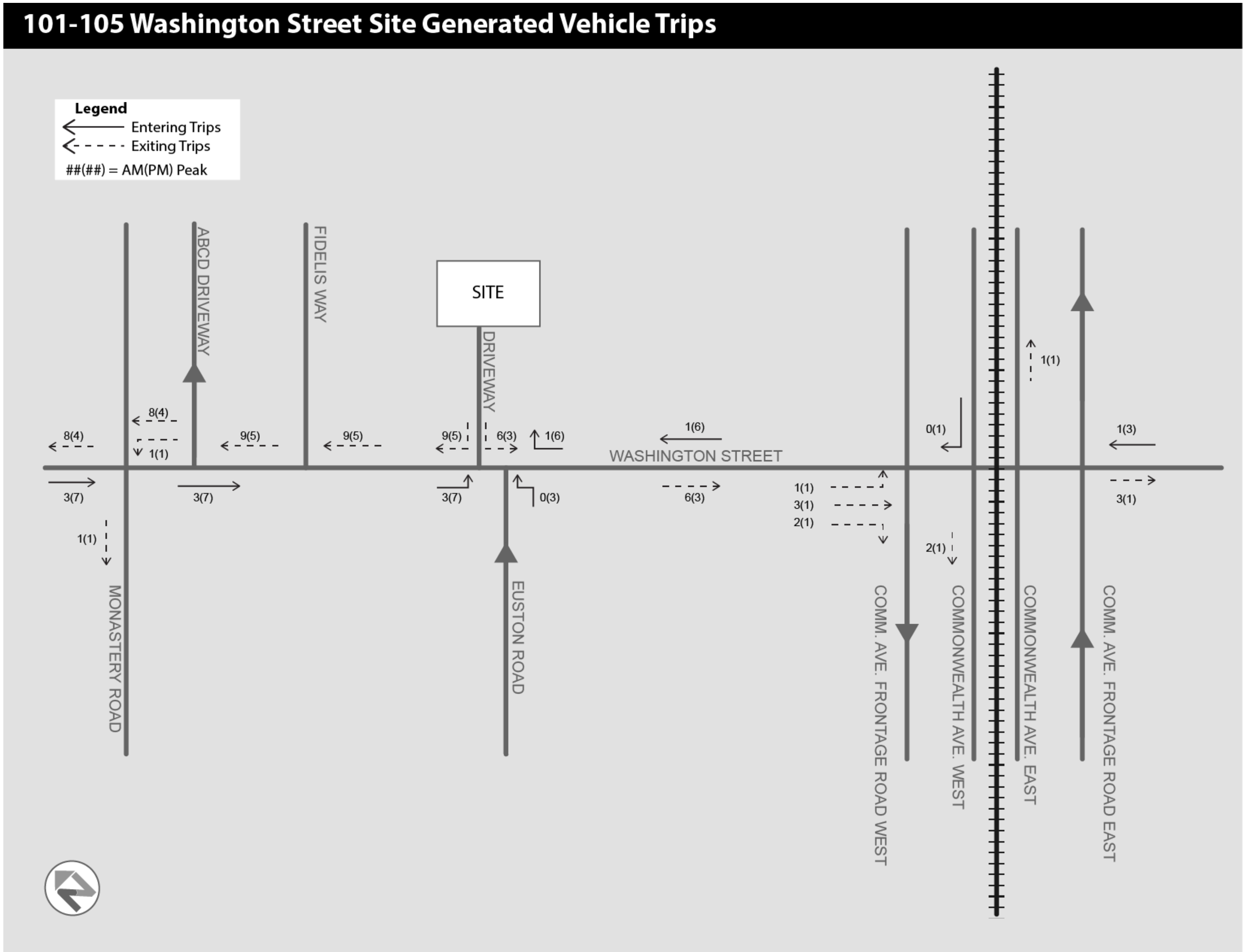


Figure 7-11 Site Generated Trips

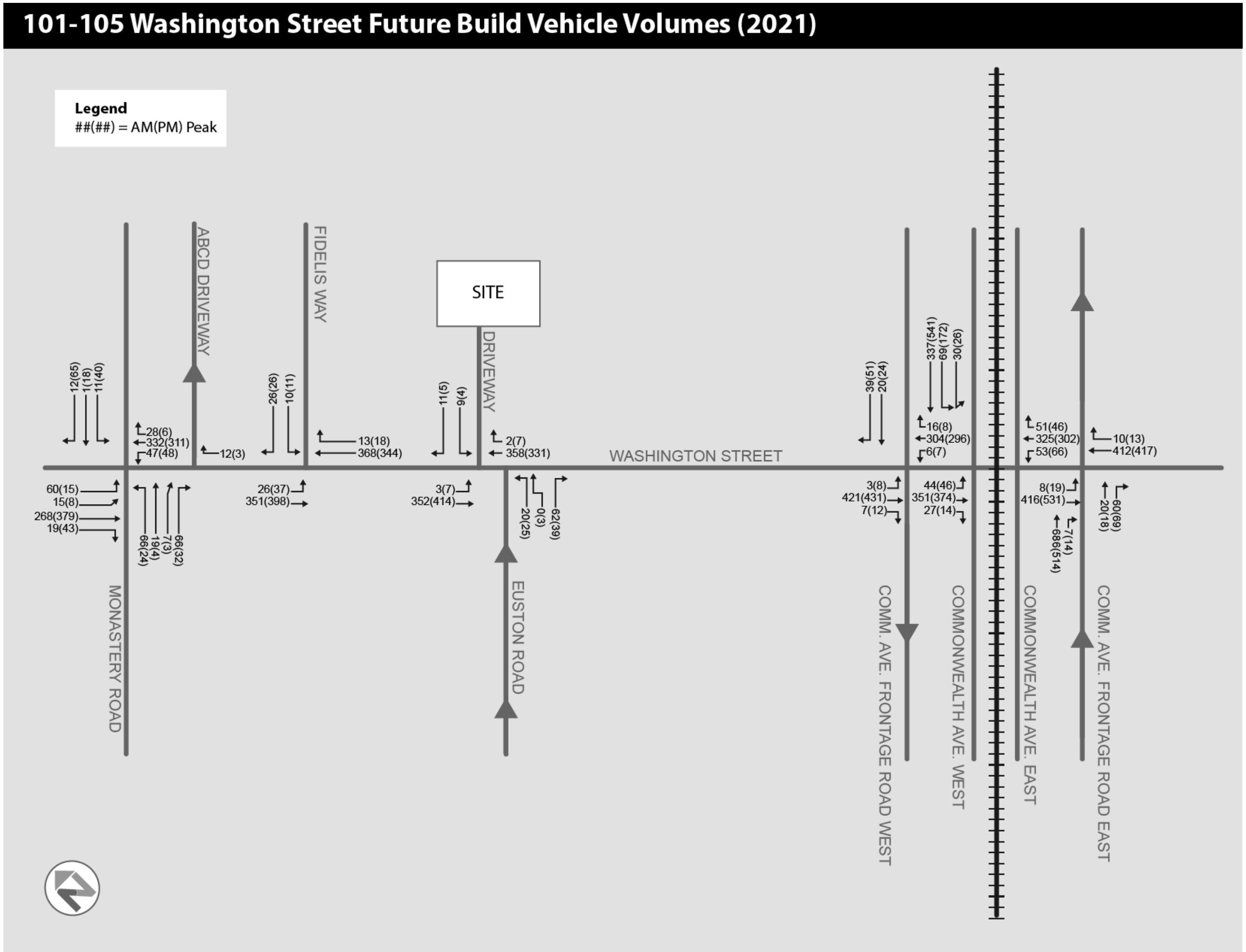


Figure 7-12 Future Build Vehicle Volumes

Table 7-7 Future Build (2021) Intersection Capacity Analysis

Intersection	AM Peak Hour				PM Peak Hour			
	LOS	Delay	V/C	Queue 50th/95th	LOS	Delay	V/C	Queue 50th/95th
Unsignalized Intersections								
Site Driveway at Washington Street								
Wash. NB Right/Thru	A	0	-	- / -	A	-	-	- / -
Wash. SB Left/Thru	A	8.0	0.006	- / -	A	8.0	0.006	- / 0
Site WB Right/Left	B	13.6	0.088	- / 0.3	C	16.2	0.053	- / 0.2
Washington Street at Euston Road								
Wash. NB Thru	A	0	0.22	- / -	A	0	0.20	- / 0
Wash. SB Thru	A	0	-	- / -	A	0	-	- / 0
Eust. EB Right/Left	A	9.2	0.09	- / 8	A	9.4	0.08	- / 7
Washington Street at Fidelis Way								
Wash. NB Right/Thru	A	0	0.24	- / 0	A	0	0.23	- / 0
Wash. SB Left/Thru	A	0.8	0.02	- / 2	A	1.0	0.03	- / 3
Fide. WB Right/Left	B	11.8	0.07	- / 5	B	11.8	0.07	- / 6
Signalized Intersections								
Washington Street and Commonwealth Avenue								
Wash. NB Right/Left/Thru	C	31.6	0.60	271 / 381	C	34.1	0.63	285 / 401
Wash. SB Right/Left/Thru	C	31.9	0.61	279 / 392	C	34.9	0.67	306 / 428
Comm. Ave. EB Thru	D	37.7	0.64	261 / 336	C	34.2	0.49	182 / 237
Comm. Ave. WB Left	F	172.8	0.57	83 / 139	F	212.1	0.97	138 / 325
Comm. Ave. WB Thru	B	18.1	0.21	80 / 114	B	18.7	0.33	168 / 180
E Frontage Rd. EB Right/Thru	A	4.5	0.11	0 / 23	A	5.9	0.13	0 / 30
E Frontage Rd. EB Thru	C	29.1	0.04	12 / 32	C	28.0	0.03	11 / 29
W Frontage Rd. WB Right/Thru	B	13.8	0.11	12 / 45	B	12.2	0.14	12 / 50
Washington Street and Monastery Road								
Wash. NB Right/Left/Thru	A	7.4	0.38	84 / 170	A	6.2	0.34	66 / 133
Wash. SB Right/Left/Thru	A	7.3	0.35	73 / 151	A	6.3	0.38	82 / 161
Mona. EB Right/Left/Thru	D	45.5	0.67	84 / 147	C	34.1	0.32	31 / 67
Mona. WB Right/Left/Thru	C	28.6	0.10	11 / 32	D	43.8	0.60	63 / 118

7.4.9 Parking Supply and Demand

- The proposed project includes a new and improved Daughters of Israel Mikvah of approximately 5,030 gross square feet with dedicated on-site parking on the vacant rear parcel at 103 Washington Street, a new Synagogue for the Congregation Kadimah-Toras Moshe of approximately 9,285 gross square-feet with dedicated above-grade surface parking and a new 73-unit residential building of approximately 85,330 gross square feet, with an underground parking garage for 64 vehicle spaces and 73 bicycle spaces. Parking supply is allocated as follows:
- Daughters of Israel Mikvah, six (6) surface spaces plus two (2) in the garage
- Congregation Kadimah-Toras Moshe Synagogue six (6) surface spaces plus two (2) in the garage
- New residential building, is built atop a sixty-four (64) space garage accessed via a ramp, sixty (60) spaces are for tenants
- Circulation and access to all of the above parking is via a shared driveway
- Electric vehicle charging station(s) are provided, consistent with City guidelines
- Consistent with best practices, accessory residential parking is unbundled from the price of a residential unit. Helping reduce vehicular travel demand and Single Occupancy Vehicle (SOV) trips.

The proposed parking supply is intended to provide an adequate amount of parking for the Project's uses. The overall project goal is to contribute to this mixed-use, dense, walkable neighborhood while providing for new parking demand on site limiting impacts to neighborhood parking. Should there be parking spaces in excess of on-site demand, these may be made available for lease to local residents.

BTD's off-street parking guidelines recommend a parking ratio of between 0.75 & 1.25 spaces per residential unit or 1,000 sq ft of non-residential development. The Project is proposing a basic Transportation Demand Management program for the residential building, which also includes the "unbundling" of parking from residential rents, to lower the Project's demand for parking. The proposed 101-105 Washington Street development corresponds to about 0.87 spaces per unit for the 73 units. These ratios for the development are shown in **Table 7-8** below.

Table 7-8 Parking Ratio

Use	Units	Number of On-Site Parking Spaces	Effective Project Parking Ratio
Apartments	73	64	0.88 spaces/ unit

7.4.10 Bicycle Accommodations

The proposed project is dedicated to supporting multi-modal alternatives. With the site's close proximity to the Green Line, local neighborhood retail and commercial areas and jobs, bicycling has the potential to serve future residents and visitors. A secure and protected bicycle room is proposed with highly visible and convenient access adjacent to the main entrance on Washington Street.

The proposed project is also committed to meeting the city of Boston's Bicycle Parking Requirements, shown in **Table 7-9**, which are intended to encourage bicycling, promote physical exercise, and reduce energy use and emissions in keeping with overall City bicycling goals. The development further supports Hubway, the city of Boston's bicycle sharing program and will advocate for its expansion to East Boston.

Table 7-9 City of Boston Bicycle Parking Requirements

Use	BTD Requirement	Bicycle Parking Required
Apartments	1 secure/covered space per unit (73 units) 1 outdoor/covered or outdoor/open space per 5 units (73/5 = 14.6)	73 secure/covered 15 outdoor
	TOTAL	**85**

7.5 Transportation Mitigation Measures

The 101-105 Washington Street project will enhance the project site, Washington Street and the local neighborhood. It will create an inviting new street presence with open plaza areas, landscaping, sidewalk upgrades and a centrally located, consolidated driveway providing access to the new residential building, Synagogue and Mikvah. With its higher density, walking and biking amenities and proposed TDM measures (see following section), the Project supports the growth of Brighton as a transit-rich, walkable, bikeable neighborhood. The project will add multi-modal supportive infrastructure and help to encourage new residents towards active modes of transportation use and riding transit. Specific transportation enhancements include the following:

- Adding a new street-facing residential development, consistent with existing and proposed neighborhood residential uses; this will:
  - Activate the street; and
  - Enhance the sense of safety on this section of Washington Street
- Adds a new main entrance, visible and accessible to Washington Street for the Congregation Kadimah-Toras Moshe Synagogue, creating a welcoming and pedestrian friendly environment, replacing a wall and fences.
- Closes an existing unused curb cut/driveway.
- Creating a new, wider internal driveway serving the parking and connecting to the street.
- Upgrading the pedestrian ramps and crosswalks at the Washington Street, Euston Road and Site Driveway intersection to meet current City and ADA standards.
- Reconstructing the sidewalk along the Site frontage.
- Adding open plaza areas with landscaping and shade trees on Washington Street, enhancing the public realm.
- Provides 0.82 parking spaces per residential unit – well within City guidelines - housed in a below grade garage.
- Providing dedicated parking for the Daughters of Israel Mikvah and Congregation Kadimah-Toras Moshe Synagogue
- Provides electric vehicle charging station(s) as needed.
- Unbundles accessory residential parking from the price of a residential unit – consistent with best practices to reduce vehicular travel demand.
- Provides 73 bicycle parking spaces (1 per unit) in a covered, secure bike room helping to promote bicycle use and convenience amongst future residents.
- Adds 15 outdoor, publicly available bike parking spaces – useful for both visitors and the public.

7.5.1 Transportation Demand Management

Transportation Demand Management (TDM) comprises a variety of strategies designed to reduce single-occupancy vehicle (SOV) travel and encourage public transit, walking, bicycling and other more space efficient and less costly modes. As a residential development in an area heavily supported by transit accessibility, the project is likely to attract residents and tenants who can rely primarily on non-auto travel for work, errands, and recreation. Nevertheless, the implementation of TDM programs is critical to helping ensure that residents and visitors can meet their mobility needs using the variety of transportation options available in the surrounding neighborhood. The project intends to adopt the following measures and programs to benefit their residents, and the surrounding neighborhood, while reducing vehicular traffic and potential environmental impacts.

Programmatic

- Provide information on travel alternatives onsite and with lease information;
- Encourage the use of non-auto modes for residents, employees and visitors;
- Post signs and enforce idling laws on the internal driveway; and
- Work with area developments on transportation issues including investigating joining the Transportation Management Association (TMA).

Parking

- Provide 0.82 spaces per unit;
- “Unbundle” the cost of parking spaces from residential lease rates to reduce parking demand;
- Provide space for an electric vehicle charging station in the garage as needed; and
- Encourage tenants to carpool/vanpool;
- Provide onsite dedicated spaces to serve the Daughters of Israel Mikvah and Congregation Kadimah-Toras Moshe Synagogue; and
- Make unleased spaces available for lease to Allston/Brighton residents.

Public Transportation

- Provide information of travel alternatives onsite in a visible and easily accessible location within the building’s common areas;

Pedestrian/Bicycle

- Provide free, secure, weather protected, on-site bicycle parking for residents, employees and visitors;
- Provide an attractive sidewalk along all Site frontages to improve and enhance the area’s walkability;
- Promote Hubway, the city of Boston’s bicycle sharing program and work to add stations in the neighborhood; and
- Provide on-site, publicly accessible bicycle spaces.

8.0 COORDINATION WITH GOVERNMENTAL AGENCIES

8.1 Architectural Access Board Requirements

This Proposed Project will comply with the requirements of the Architectural Access Board. The Project will also be designed to comply with the Standards of the Americans with Disabilities Act.

8.2 Massachusetts Environmental Policy Act

Based on information currently available, development of the Proposed Project is not expected to result in a state permit/state agency action and meet a review threshold that would require MEPA review by the MEPA Office of the Executive Office of Energy and Environmental Affairs.

8.3 Boston Civic Design Commission

It is anticipated that the Proposed Project will be reviewed by the Boston Civic Design Commission ("BCDC") even though total build-out is expected to be below the BCDC's automatic 100,000 gross square feet size threshold requirement review.

9.0 PROJECT CERTIFICATION

This form has been circulated to the Boston Redevelopment Authority as required by Article 80 of the Boston Zoning Code.

105 Washington LLC

Jeff Feuerman

Signature of Proponent MR
Jeff Feuerman, President

7/19/16
Date

Mitchell L. Fischman ("MLF") Consulting LLC

Mitchell L. Fischman

Signature of Preparer
Mitchell L. Fischman, Principal

7/19/16
Date

APPENDIX A – LETTER OF INTENT TO FILE PNF, MAY 16, 2016

McDERMOTT
QUILTY &
MILLER LLP

28 STATE STREET, SUITE 802
BOSTON, MA 02109

30 ROWES WHARF, SUITE 600
BOSTON, MA 02110

May 16, 2016

Via In-Hand Delivery

Mr. Brian Golden, Director
Boston Redevelopment Authority
One City Hall Square, 9th Floor
Boston, MA 02201
Attn: Mr. Lance Campbell, Project Manager

RE: Letter of Intent to File Project Notification - Article 80 Large Project Review
101-105 Washington Street, Brighton

Dear Director Golden:

Our office represents 105 Washington LLC (the "Proponent"), a Massachusetts Limited Liability Company and proposed owner-developer in a joint venture with Congregation Kadimah-Toras Moshe and the Daughters of Israel Mikvah (the "Parties"), as it relates to the real property located at 101-105 Washington Street, Brighton (the "Project Site"). The purpose of this letter is to notify the Boston Redevelopment Authority (the "BRA") of the Proponent's intent to file an Expanded Project Notification Form (the "PNF") with the BRA pursuant to Article 80B, Large Project Review of the Boston Zoning Code (the "Code").

The Proponent's project contemplates a collaborative redevelopment and re-use of the Project Site, by replacing and upgrading the existing facilities of two (2) long standing religious institutions and introducing a new residential development with certain accompanying integrated site, landscape, vehicular and pedestrian access measures and improvements. The Parties' shared vision is to replace the existing and inadequate facilities of these two (2) important religious institutions in order to support their long-term stability in the Brighton neighborhood, with the allocation of the Project Site's remaining land area for new residential housing. The scope and scale of the Proponent's residential program is also intended to further the residential policy goals of Boston Mayor Martin J. Walsh's 2030 Housing Plan.

In particular, the Proponent's collective redevelopment program will consist of approximately 99,330 gross square feet of new floor area in three (3) separate but related projects, delineated as follows: (1) raze and replace the existing and former three-family structure utilized since the 1960's as a Mikvah on the 101 Washington Street parcel, and construct a new and improved Mikvah facility of approximately 5,000 gross square feet with dedicated on-site parking on the vacant rear parcel at 103 Washington Street (the "New Mikvah"); (2) raze and replace the existing former single-family/bordering house structure on the 105 Washington Street parcel, utilized as a Synagogue facility since the 1940's, and construct a new Synagogue facility of approximately 9,000 gross square-feet with dedicated on-site grade parking on the adjacent 101 Washington Street parcel to be vacated by razing the existing Mikvah facility (the "New Synagogue"); (3) construct a new 73-unit residential building of approximately 85,330 gross square feet, with an underground parking garage for 64 vehicle spaces, bicycle parking and internal trash storage, in place of the former Synagogue facility at the 103 Washington Street parcel (the "New Residential Building"); and (4) introduce overall site integration of the uses, open space/landscaping, above grade parking for the new religious facilities, common vehicular access and pedestrian improvements (collectively, the "Proposed Project").

The Project Site is comprised of 35,772 square feet of land on three (3) adjacent and contiguous parcels. As referenced above, the adjacent and contiguous lots include a land area of 5,372 square feet for the existing Mikvah facility at 101 Washington Street, which will become the New Synagogue site; a vacant rear lot of 4,861 square feet, which will become the New Mikvah site; and a 25,539 square foot parcel at 105 Washington Street, where the existing Synagogue will be replaced by the New Residential Building. Existing vehicular access is provided by an appropriately located site curb cut and shared driveway to be maintained and upgraded for common access for the Proposed Project.

Surrounded by several abutting and nearby structures of five (5) to seven (7) stories in height, including that of multi-story apartment buildings on each side of the Property Site along Washington Street, the context of the immediate area is supportive and well-suited for the proposed scale and scope of the New Residential Building and the Proposed Project. (*See Figure 1. Project Locus- 101-105 Washington Street, Brighton*).

The Proposed Project is located within the Multi-Family Residential Sub-district (MFR-1) of the Allston-Brighton Neighborhood District (Article 51), which allows the new Multi-Family Residential Uses and exempts the existing Religious Uses pursuant to the provisions of the Code, but restricts and limits certain dimensional, density, lot, floor area, off-street parking/loading and other requirements for the Proposed Project. Thus, the Proponent will seek the relief required for the Proposed Project by Variance and/or Conditional Use(s).with the City of Boston Board of Appeal.

The Proposed Project will exceed the 50,000 square foot total build-out size requirement for a project in a Boston neighborhood and, therefore, require preparation of filing(s) under the Large Project Review regulations, pursuant to Article 80 of the Code. The Expanded PNF filing is expected to address many issues normally presented in a Draft Project Impact Report ("DPIR") including a transportation analysis, and air and noise, shadow, infrastructure, historic resources, and other environmental evaluations that will help explain potential project impacts from the proposed uses, and any needed mitigation measures to reduce these impacts.

Prior to submitting this Letter of Intent ("LOI"), the Proponent conducted extensive preliminary community outreach to seek initial input and support for the Proposed Project; voluntarily canvassed the neighborhood for its own sponsored initial abutters meeting and hosted site visits with community leadership. On May 5, 2016, the Project Proponent also appeared before the Brighton/Allston Improvement Association to make an initial presentation and receive community-wide input. No initial material concerns were raised by those in attendance upon the presentation and, with guidance by the BRA design staff, the Proponent integrated the articulated input and community values into its overall development program, and it looks forward to continuing to process and shape the Proposed Project with this most important constituency.

Thank you for your time and attention, and our team looks forward to working with you and your staff, members of the Impact Advisory Group to be formed, local officials and the community at-large towards a successful outcome for the City of Boston. Please also do not hesitate to contact me with if you have any questions, or if I can provide any additional information on the Proposed Project.

Very truly yours,

Joseph P. Hanley, Esq.
Partner

Attachments: Figures 1: Project Locus

cc: Jonathan Greeley, BRA Director of Development Review and Policy
Lance Campbell, BRA Project Manager
District City Councilor Ciommo
Tomas Gonzalez, Mayor's Office of Neighborhood Services

State Senator Brownsberger
State Representative Honan
Jeff Feuerman, 105 Washington LLC
Edward Bayone, Congregation Kadimah Tores-Moshe
Daughters of Israel Mikvah of Boston
Mitchell L. Fischman, MLF Consulting LLC

Project Site

FIGURE 1: PROJECT LOCUS - 101-105 WASHINGTON STREET, BRIGHTON, MA

MLF CONSULTING LLC

LOI TO FILE PNF

APPENDIX B - AIR QUALITY APPENDIX

APPENDIX B
AIR QUALITY

101-105 WASHINGTON STREET
PROJECT NOTIFICATION FORM

Pages Contents

MOVES2014 2016 and 2021 CO Emission Rates (grams/hour)

Zone ID	Road Type ID	Queue Link Length (Miles)	Queue Link Volumn (Vehicles/Hr)	Queue Link Avg Speed (Miles/Hr)	Pollutant	Queue Emission Factor (Grams/Hr)
250250	1	0	33	0	CO	0.503890991
250250	1	0	30	0	CO	0.519320011

```
INDOOR GARAGE ANALYSIS PROGRAM

  PROJECT:  VFW PARKWAY PARKING GARAGE PEAK AM HOUR - YEAR: 2021


 TOTAL EXIT VOLUME:            19 VEH/HOUR

                 CO RATE:     0.51 GRAMS CO/HR

  VENT CFM:                  17,600 CFM


  TOTAL CO EMISSIONS =   0.16 GRAMS/MIN  =  0.0027 GRAMS/SEC
  TOTAL VENTILATION  =     497 CU. M/MIN


      PEAK 1-HOUR CO CONCENTRATION FROM VEHICLES:   0.28 PPM

********************************************************************************

PROJECT:  VFW PARKWAY PARKING GARAGE PEAK PM HOUR - YEAR: 2021


  TOTAL EXIT VOLUME:            22 VEH/HOUR

                 CO RATE:     0.51 GRAMS CO/HR


  VENT CFM:                  17,600 CFM


  TOTAL CO EMISSIONS =   0.19 GRAMS/MIN  =  0.0031 GRAMS/SEC
  TOTAL VENTILATION  =     497 CU. M/MIN


      PEAK 1-HOUR CO CONCENTRATION FROM VEHICLES:  0.33 PPM
```

```
*** AERMOD - VERSION  15181 ***   *** 113 Washington Street                                                       ***        04/29/16
 *** AERMET - VERSION 14134  ***   *** CO 1-hour Screening Modeling                                                ***        14:13:55
                                                                                                                              PAGE   1
 **MODELOPTs:   NonDFAULT CONC      FLAT      FLGPOL    NOCHKD    SCREEN    NODRYDPLT NOWETDPLT URBAN

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 **Model Is Setup For Calculation of Average CONCentration Values.

   --  DEPOSITION LOGIC  --
 **NO GAS DEPOSITION Data Provided.
 **NO PARTICLE DEPOSITION Data Provided.
 **Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
 **Model Uses NO WET DEPLETION.  WETDPLT  =  F

 **Model Uses URBAN Dispersion Algorithm for the SBL for     1 Source(s),
   for Total of    1 Urban Area(s):
   Urban Population =       500.0 ;  Urban Roughness Length =  1.000 m

 **Model Allows User-Specified Options:
         1. Stack-tip Downwash.
         2. Model Assumes Receptors on FLAT Terrain.
         3. Use Calms Processing Routine.
         4. Use Missing Data Processing Routine.
         5. No Exponential Decay.
         6. Urban Roughness Length of 1.0 Meter Used.

 **Other Options Specified:
         NOCHKD   - Suppresses checking of date sequence in meteorology files
         SCREEN   - Use screening option
 which forces calculation of centerline values

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  OTHER

 **Model Calculates  1 Short Term Average(s) of:   1-HR

 **This Run Includes:      1 Source(s);       1 Source Group(s); and     176 Receptor(s)

               with:      0 POINT(s), including
                          0 POINTCAP(s) and      0 POINTHOR(s)
                and:      1 VOLUME source(s)
                and:      0 AREA type source(s)
                and:      0 LINE source(s)
                and:      0 OPENPIT source(s)


 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date: 14134

 **Output Options Selected:
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =     5.00 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                               ;  Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.5 MB of RAM.

 **Input Runstream File:          CO.DTA
 **Output Print File:             CO.LST

 **File for Summary of Results:   W:\Apps\aermod\CO.SUM
 *** AERMOD - VERSION  15181 ***   *** 113 Washington Street                                                       ***        04/29/16
 *** AERMET - VERSION 14134  ***   *** CO 1-hour Screening Modeling                                                ***        14:13:55
                                                                                                                              PAGE   2
 **MODELOPTs:   NonDFAULT CONC      FLAT      FLGPOL    NOCHKD    SCREEN    NODRYDPLT NOWETDPLT URBAN

                                          *** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
                                                              (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.


                                   *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
                                                             (METERS/SEC)
```

1.54, 3.09, 5.14, 8.23, 10.80,

*** AERMOD - VERSION 15181 *** *** 113 Washington Street *** 04/29/16
*** AERMET - VERSION 14134 *** *** CO 1-hour Screening Modeling *** 14:13:55
PAGE 3

**MODELOPTs: NonDFAULT CONC FLAT FLGPOL NOCHKD SCREEN NODRYDPLT NOWETDPLT URBAN

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: Urban.sfc Met Version: 14134
Profile file: Urban.PFL
Surface format: FREE
Profile format: FREE
Surface station no.: 11111 Upper air station no.: 22222
Name: UNKNOWN Name: UNKNOWN
Year: 2010 Year: 2010

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
10	01	01	1	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	10.	10.0	255.2	2.0
10	01	02	2	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	20.	10.0	255.2	2.0
10	01	03	3	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	30.	10.0	255.2	2.0
10	01	04	4	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	40.	10.0	255.2	2.0
10	01	05	5	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	50.	10.0	255.2	2.0
10	01	06	6	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	60.	10.0	255.2	2.0
10	01	07	7	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	70.	10.0	255.2	2.0
10	01	08	8	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	80.	10.0	255.2	2.0
10	01	09	9	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	90.	10.0	255.2	2.0
10	01	10	10	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	100.	10.0	255.2	2.0
10	01	11	11	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	110.	10.0	255.2	2.0
10	01	12	12	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	120.	10.0	255.2	2.0
10	01	13	13	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	130.	10.0	255.2	2.0
10	01	14	14	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	140.	10.0	255.2	2.0
10	01	15	15	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	150.	10.0	255.2	2.0
10	01	16	16	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	160.	10.0	255.2	2.0
10	01	17	17	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	170.	10.0	255.2	2.0
10	01	18	18	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	180.	10.0	255.2	2.0
10	01	19	19	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	190.	10.0	255.2	2.0
10	01	20	20	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	200.	10.0	255.2	2.0
10	01	21	21	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	210.	10.0	255.2	2.0
10	01	22	22	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	220.	10.0	255.2	2.0
10	01	23	23	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	230.	10.0	255.2	2.0
10	01	24	24	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	240.	10.0	255.2	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
10	01	01	01	10.0	1	10.	0.50	255.3	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

*** AERMOD - VERSION 15181 *** *** 113 Washington Street *** 04/29/16
*** AERMET - VERSION 14134 *** *** CO 1-hour Screening Modeling *** 14:13:55
PAGE 4

**MODELOPTs: NonDFAULT CONC FLAT FLGPOL NOCHKD SCREEN NODRYDPLT NOWETDPLT URBAN

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	5.53709	ON 10062502:	AT (229254.40, 899421.00, 5.00, 5.00, 8.20)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** AERMOD - VERSION 15181 *** *** 113 Washington Street *** 04/29/16
*** AERMET - VERSION 14134 *** *** CO 1-hour Screening Modeling *** 14:13:55
PAGE 5

**MODELOPTs: NonDFAULT CONC FLAT FLGPOL NOCHKD SCREEN NODRYDPLT NOWETDPLT URBAN

*** Message Summary : AERMOD Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 2 Warning Message(s)
A Total of 0 Informational Message(s)

A Total of 18504 Hours Were Processed

A Total of 0 Calm Hours Identified

A Total of 0 Missing Hours Identified (0.00 Percent)

******** FATAL ERROR MESSAGES ********
*** NONE ***

APPENDIX C - NOISE APPENDIX

APPENDIX C
NOISE

101-105 WASHINGTON STREET
PROJECT NOTIFICATION FORM

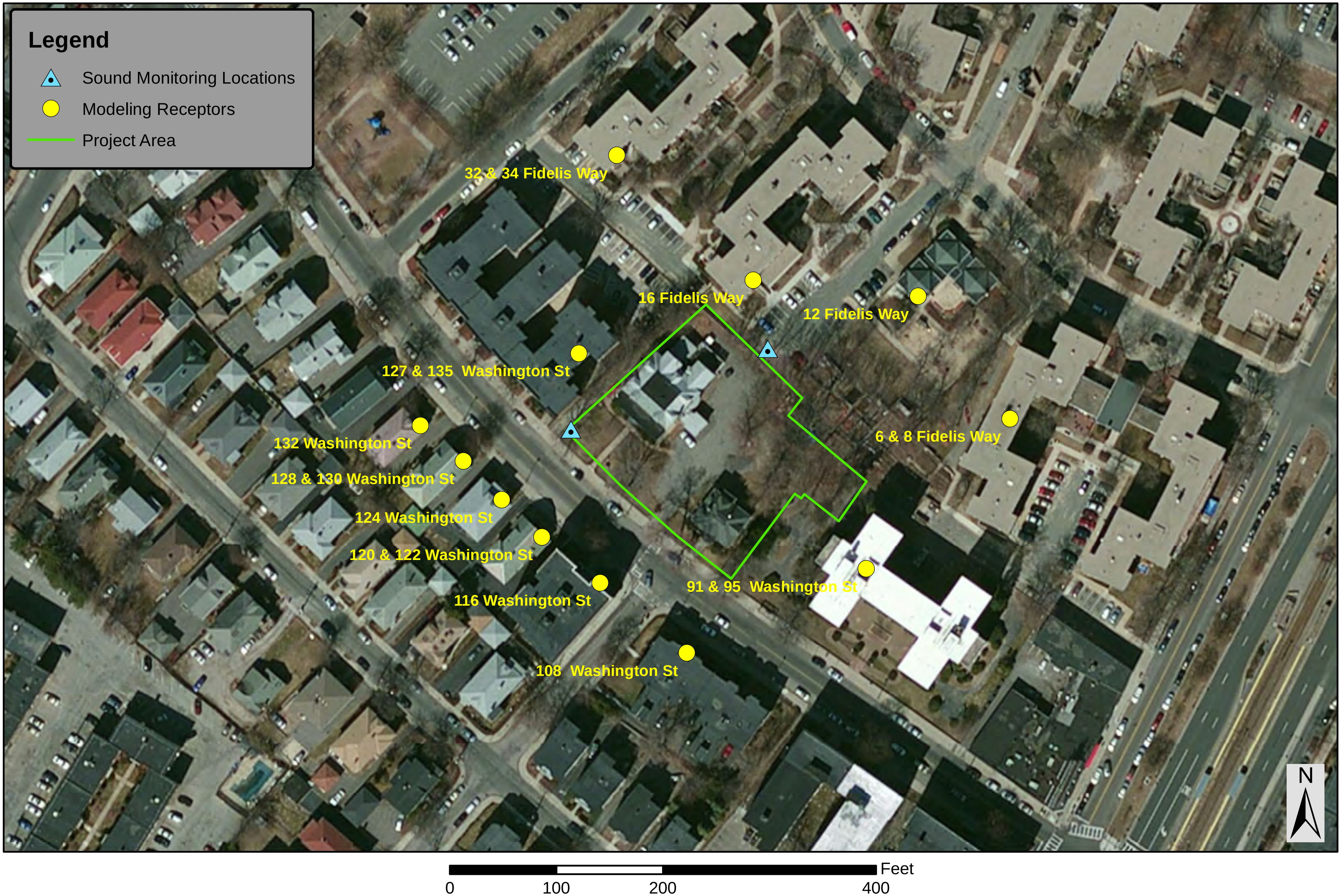


Figure 1

Sound Monitoring and Modeling Receptor Locations
For the 103/113 Washington Street Project
Brighton, MA

TECH environmental
FOCUSED KNOWLEDGE. REAL SOLUTIONS.

Sound Monitoring Results

Project #: 4088 NE			Project #: 4088 SE	
Location: Jette Ct.			Location: Washington St.	
Date: 3/31/16			Date: 3/31/16	
Time: 01:40-02:12			Time: 02:38-03:10	
Frequency (Hz)	L_{90} (dBA)		Frequency (Hz)	L_{90} (dBA)
Broadband	39.3		Broadband	40.2
16	47.9		16	50.2
31.5	48.1		31.5	49.6
63	46.8		63	48.4
125	43.6		125	44.8
250	39.8		250	41.7
500	37.3		500	38.3
1000	34.4		1000	34.6
2000	27.6		2000	29.1
4000	19.0		4000	20.5
8000	17.0		8000	14.5
16000	12.5		16000	12.3
Pure Tone?	No		Pure Tone?	No

Cadna Noise Modeling Results

Name	ID	Project Level (dBA)	Background Level (dBA)	Total New Level (dBA)	Increase Over Existing (dBA)
91 & 95 Washington St	First_Floor	40.3	40.2	43.3	3.1
91 & 95 Washington St	Sixth_Floor	43.1	40.2	44.9	4.7
108 Washington St	First_Floor	39.8	40.2	43.0	2.8
108 Washington St	Third_Floor	41.4	40.2	43.9	3.7
116 Washington St	First_Floor	38.6	40.2	42.5	2.3
116 Washington St	Sixth_Floor	43.4	40.2	45.1	4.9
120 & 122 Washington St	First_Floor	37.9	40.2	42.2	2.0
120 & 122 Washington St	Second_Floor	39	40.2	42.7	2.5
124 Washington St	First_Floor	35.6	40.2	41.5	1.3
124 Washington St	Second_Floor	36.8	40.2	41.8	1.6
128 & 130 Washington St	First_Floor	34.6	40.2	41.3	1.1
128 & 130 Washington St	Second_Floor	36	40.2	41.6	1.4
127 & 135 Washington St	First_Floor	31.6	40.2	40.8	0.6
127 & 135 Washington St	Fifth_Floor	42.2	40.2	44.3	4.1
132 Washington St	First_Floor	32.7	40.2	40.9	0.7
132 Washington St	Second_Floor	34	40.2	41.1	0.9
6 & 8 Fidelis Way	First_Floor	37	39.3	41.3	2.0
6 & 8 Fidelis Way	Sixth_Floor	40	39.3	42.7	3.4
12 Fidelis Way	First_Floor	38.3	39.3	41.8	2.5
16 Fidelis Way	First_Floor	40.3	39.3	42.8	3.5
16 Fidelis Way	Sixth_Floor	42.9	39.3	44.5	5.2
32 & 34 Fidelis Way	First_Floor	32	39.3	40.0	0.7
32 & 34 Fidelis Way	Sixth_Floor	37.7	39.3	41.6	2.3

Name	ID	Sound	Octave Band Day								
		Level	31	63	125	250	500	1000	2000	4000	8000
		(dBA)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)
91 & 95 Washington St	First_Floor	40.3	54	52	47	43	39	33	28	23	16
91 & 95 Washington St	Sixth_Floor	43.1	55	54	49	46	42	36	30	25	17
108 Washington St	First_Floor	39.8	51	49	45	42	39	32	28	22	15
108 Washington St	Third_Floor	41.4	52	50	47	44	40	34	29	23	15
116 Washington St	First_Floor	38.6	50	48	44	41	38	31	27	21	14
116 Washington St	Sixth_Floor	43.4	51	50	48	46	42	37	33	26	16
120 & 122 Washington St	First_Floor	37.9	49	47	44	41	37	31	25	19	10
120 & 122 Washington St	Second_Floor	39	49	48	45	42	38	32	26	20	10
124 Washington St	First_Floor	35.6	46	44	41	38	35	28	24	18	8
124 Washington St	Second_Floor	36.8	47	44	42	40	36	30	24	18	8
128 & 130 Washington St	First_Floor	34.6	45	43	40	37	33	28	23	17	6
128 & 130 Washington St	Second_Floor	36	45	43	42	38	34	29	24	17	6
127 & 135 Washington St	First_Floor	31.6	45	42	40	35	28	24	20	15	5
127 & 135 Washington St	Fifth_Floor	42.2	49	47	48	45	39	36	33	26	17
132 Washington St	First_Floor	32.7	44	42	39	35	31	26	22	16	3
132 Washington St	Second_Floor	34	44	42	40	37	32	27	22	16	4
6 & 8 Fidelis Way	First_Floor	37	50	49	43	40	35	30	24	17	6
6 & 8 Fidelis Way	Sixth_Floor	40	51	50	45	43	38	33	29	22	9
12 Fidelis Way	First_Floor	38.3	52	51	45	41	36	32	26	18	5
16 Fidelis Way	First_Floor	40.3	52	51	46	42	38	35	29	21	8
16 Fidelis Way	Sixth_Floor	42.9	52	52	47	45	41	38	33	26	17
32 & 34 Fidelis Way	First_Floor	32	45	44	39	34	29	26	21	13	-1
32 & 34 Fidelis Way	Sixth_Floor	37.7	46	44	41	39	33	33	30	23	10

APPENDIX D - TRANSPORTATION APPENDIX

Turning Movement Counts for 101-105 Washington Street

Transportation Data Corporation
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N/S: Washington Street
E,W/SE: Monastery Road/Head Start Drive
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716A
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Washington Street From North					Monastery Road From East					ABCD Head Start Drive From Southeast					Washington Street From South					Monastery Road From West					
Start Time	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Int. Total
07:00 AM	0	74	0	25	0	0	0	0	0	4	0	0	0	0	4	0	4	56	4	2	7	0	4	12	1	197
07:15 AM	5	74	0	15	3	0	1	1	0	6	0	0	0	0	6	3	6	66	4	1	12	1	3	11	4	222
07:30 AM	4	80	1	11	6	0	0	1	0	11	0	0	0	0	11	1	6	65	9	0	14	0	9	9	3	241
07:45 AM	3	81	1	22	3	2	0	1	0	9	0	0	0	0	9	2	14	77	11	1	14	1	5	15	5	276
Total	12	309	2	73	12	2	1	3	0	30	0	0	0	0	30	6	30	264	28	4	47	2	21	47	13	936
08:00 AM	9	65	3	16	4	1	0	4	0	7	0	0	0	0	7	4	9	91	15	0	22	2	6	21	4	290
08:15 AM	5	48	6	13	2	0	0	2	0	4	0	0	0	0	4	2	4	81	12	0	11	2	5	12	11	224
08:30 AM	2	69	5	9	3	9	1	4	0	9	0	0	0	0	9	4	1	65	8	2	22	2	3	18	5	250
08:45 AM	5	75	11	7	1	9	1	2	0	10	0	0	0	0	10	2	2	89	16	2	11	3	3	11	6	276
Total	21	257	25	45	10	19	2	12	0	30	0	0	0	0	30	12	16	326	51	4	66	9	17	62	26	1040
Grand Total	33	566	27	118	22	21	3	15	0	60	0	0	0	0	60	18	46	590	79	8	113	11	38	109	39	1976
Apprch %	4.3	73.9	3.5	15.4	2.9	21.2	3	15.2	0	60.6	0	0	0	0	100	2.4	6.2	79.6	10.7	1.1	36.5	3.5	12.3	35.2	12.6	
Total %	1.7	28.6	1.4	6	1.1	1.1	0.2	0.8	0	3	0	0	0	0	3	0.9	2.3	29.9	4	0.4	5.7	0.6	1.9	5.5	2	
Cars & Peds	33	540	27	118	22	21	3	14	0	60	0	0	0	0	60	17	46	564	79	8	109	11	38	109	39	1918
% Cars & Peds	100	95.4	100	100	100	100	100	93.3	0	100	0	0	0	0	100	94.4	100	95.6	100	100	96.5	100	100	100	100	97.1
Trucks & Buses	0	21	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	18	0	0	1	0	0	0	0	42
% Trucks & Buses	0	3.7	0	0	0	0	0	6.7	0	0	0	0	0	0	0	5.6	0	3.1	0	0	0.9	0	0	0	0	2.1
Bikes by Direction	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	3	0	0	0	0	16
% Bikes by Direction	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.4	0	0	2.7	0	0	0	0	0.8

	Washington Street From North						Monastery Road From East						ABCD Head Start Drive From Southeast						Washington Street From South						Monastery Road From West						
Start Time	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 07:45 AM																															
07:45 AM	3	**81**	1	**22**	3	**110**	2	0	1	0	**9**	12	0	0	0	0	**9**	**9**	2	**14**	77	11	1	105	14	1	5	15	5	40	276
08:00 AM	**9**	65	3	16	**4**	97	1	0	**4**	0	7	12	0	0	0	0	7	7	**4**	9	**91**	**15**	0	**119**	**22**	**2**	**6**	**21**	4	**55**	**290**
08:15 AM	5	48	**6**	13	2	74	0	0	2	0	4	6	0	0	0	0	4	4	2	4	81	12	0	99	11	2	5	12	**11**	41	224
08:30 AM	2	69	5	9	3	88	**9**	**1**	4	0	9	**23**	0	0	0	0	9	9	4	1	65	8	**2**	80	22	2	3	18	5	50	250
Total Volume	19	263	15	60	12	369	12	1	11	0	29	53	0	0	0	0	29	29	12	28	314	46	3	403	69	7	19	66	25	186	1040
% App. Total	5.1	71.3	4.1	16.3	3.3		22.6	1.9	20.8	0	54.7		0	0	0	0	100		3	6.9	77.9	11.4	0.7		37.1	3.8	10.2	35.5	13.4		
PHF	.528	.812	.625	.682	.750	.839	.333	.250	.688	.000	.806	.576	.000	.000	.000	.000	.806	.806	.750	.500	.863	.767	.375	.847	.784	.875	.792	.786	.568	.845	.897
Cars & Peds	19	247	15	60	12	353	12	1	10	0	29	52	0	0	0	0	29	29	11	28	302	46	3	390	65	7	19	66	25	182	1006
% Cars & Peds	100	93.9	100	100	100	95.7	100	100	90.9	0	100	98.1	0	0	0	0	100	100	91.7	100	96.2	100	100	96.8	94.2	100	100	100	100	97.8	96.7
Trucks & Buses	0	12	0	0	0	12	0	0	1	0	0	1	0	0	0	0	0	0	1	0	9	0	0	10	1	0	0	0	0	1	24
% Trucks & Buses	0	4.6	0	0	0	3.3	0	0	9.1	0	0	1.9	0	0	0	0	0	0	8.3	0	2.9	0	0	2.5	1.4	0	0	0	0	0.5	2.3
Bikes by Direction	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3	0	0	0	0	3	10
% Bikes by Direction	0	1.5	0	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0	0	0	0.7	4.3	0	0	0	0	1.6	1.0

Transportation Data Corporation

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N/S: Washington Street
E,W/SE: Monastery Road/Head Start Drive
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716A
Site Code : 04716
Start Date : 4/6/2016

Groups Printed- Cars & Peds

	Washington Street From North					Monastery Road From East					ABCD Head Start Drive From Southeast					Washington Street From South					Monastery Road From West					
Start Time	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Int. Total
07:00 AM	0	70	0	25	0	0	0	0	0	4	0	0	0	0	4	0	4	54	4	2	7	0	4	12	1	191
07:15 AM	5	72	0	15	3	0	1	1	0	6	0	0	0	0	6	3	6	59	4	1	12	1	3	11	4	213
07:30 AM	4	78	1	11	6	0	0	1	0	11	0	0	0	0	11	1	6	61	9	0	14	0	9	9	3	235
07:45 AM	3	75	1	22	3	2	0	1	0	9	0	0	0	0	9	2	14	75	11	1	11	1	5	15	5	265
Total	12	295	2	73	12	2	1	3	0	30	0	0	0	0	30	6	30	249	28	4	44	2	21	47	13	904
08:00 AM	9	61	3	16	4	1	0	3	0	7	0	0	0	0	7	3	9	88	15	0	21	2	6	21	4	280
08:15 AM	5	44	6	13	2	0	0	2	0	4	0	0	0	0	4	2	4	77	12	0	11	2	5	12	11	216
08:30 AM	2	67	5	9	3	9	1	4	0	9	0	0	0	0	9	4	1	62	8	2	22	2	3	18	5	245
08:45 AM	5	73	11	7	1	9	1	2	0	10	0	0	0	0	10	2	2	88	16	2	11	3	3	11	6	273
Total	21	245	25	45	10	19	2	11	0	30	0	0	0	0	30	11	16	315	51	4	65	9	17	62	26	1014
Grand Total	33	540	27	118	22	21	3	14	0	60	0	0	0	0	60	17	46	564	79	8	109	11	38	109	39	1918
Apprch %	4.5	73	3.6	15.9	3	21.4	3.1	14.3	0	61.2	0	0	0	0	100	2.4	6.4	79	11.1	1.1	35.6	3.6	12.4	35.6	12.7	
Total %	1.7	28.2	1.4	6.2	1.1	1.1	0.2	0.7	0	3.1	0	0	0	0	3.1	0.9	2.4	29.4	4.1	0.4	5.7	0.6	2	5.7	2	

	Washington Street From North						Monastery Road From East						ABCD Head Start Drive From Southeast						Washington Street From South						Monastery Road From West						
Start Time	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 08:00 AM																															
08:00 AM	**9**	61	3	**16**	**4**	93	1	0	3	0	7	11	0	0	0	0	7	7	3	**9**	**88**	15	0	**115**	21	2	**6**	**21**	4	**54**	**280**
08:15 AM	5	44	6	13	2	70	0	0	2	0	4	6	0	0	0	0	4	4	2	4	77	12	0	95	11	2	5	12	**11**	41	216
08:30 AM	2	67	5	9	3	86	**9**	**1**	**4**	0	9	**23**	0	0	0	0	9	9	**4**	1	62	8	**2**	77	**22**	2	3	18	5	50	245
08:45 AM	5	**73**	**11**	7	1	**97**	9	1	2	0	**10**	22	0	0	0	0	**10**	**10**	2	2	88	**16**	2	110	11	**3**	3	11	6	34	273
Total Volume	21	245	25	45	10	346	19	2	11	0	30	62	0	0	0	0	30	30	11	16	315	51	4	397	65	9	17	62	26	179	1014
% App. Total	6.1	70.8	7.2	13	2.9		30.6	3.2	17.7	0	48.4		0	0	0	0	100		2.8	4	79.3	12.8	1		36.3	5	9.5	34.6	14.5		
PHF	.583	.839	.568	.703	.625	.892	.528	.500	.688	.000	.750	.674	.000	.000	.000	.000	.750	.750	.688	.444	.895	.797	.500	.863	.739	.750	.708	.738	.591	.829	.905

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Client: Nelson Nygaard/A. Fletcher

File Name : 04716A
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Trucks & Buses

	Washington Street From North					Monastery Road From East					ABCD Head Start Drive From Southeast					Washington Street From South					Monastery Road From West					
Start Time	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Int. Total
07:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	6
07:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	6
07:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3
07:45 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	7
Total	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	1	0	0	0	0	22
08:00 AM	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	7
08:15 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	8
08:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
08:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
Total	0	10	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	8	0	0	0	0	0	0	0	20
Grand Total	0	21	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	18	0	0	1	0	0	0	0	42
Apprch %	0	100	0	0	0	0	0	100	0	0	0	0	0	0	0	5.3	0	94.7	0	0	100	0	0	0	0	
Total %	0	50	0	0	0	0	0	2.4	0	0	0	0	0	0	0	2.4	0	42.9	0	0	2.4	0	0	0	0	

	Washington Street From North						Monastery Road From East						ABCD Head Start Drive From Southeast						Washington Street From South						Monastery Road From West						
Start Time	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 07:30 AM																															
07:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3
07:45 AM	0	**4**	0	0	0	**4**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	**1**	0	0	0	0	**1**	7
08:00 AM	0	3	0	0	0	3	0	0	**1**	0	0	**1**	0	0	0	0	0	0	**1**	0	2	0	0	3	0	0	0	0	0	0	7
08:15 AM	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**	0	0	**4**	0	0	0	0	0	0	**8**
Total Volume	0	12	0	0	0	12	0	0	1	0	0	1	0	0	0	0	0	0	1	0	10	0	0	11	1	0	0	0	0	1	25
% App. Total	0	100	0	0	0		0	0	100	0	0		0	0	0	0	0		9.1	0	90.9	0	0		100	0	0	0	0		
PHF	.000	.750	.000	.000	.000	.750	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.000	.625	.000	.000	.688	.250	.000	.000	.000	.000	.250	.781

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Client: Nelson Nygaard/A. Fletcher

File Name : 04716A
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Bikes by Direction

	Washington Street From North					Monastery Road From East					ABCD Head Start Drive From Southeast					Washington Street From South					Monastery Road From West					
Start Time	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Int. Total
07:00 AM	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
07:15 AM	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	3
07:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3
07:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	4
Total	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	2	0	0	0	0	10
08:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	3
08:15 AM	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
08:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3
08:45 AM	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
Total	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1	0	0	0	0	6
Grand Total	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	3	0	0	0	0	16
Apprch %	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	0	0	0	0	
Total %	0	31.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	18.8	0	0	0	0	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:15 AM

	Washington Street From North						Monastery Road From East						ABCD Head Start Drive From Southeast						Washington Street From South						Monastery Road From West						
Start Time	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**	0	0	**3**	0	0	0	0	0	0	3
07:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3
07:45 AM	0	**2**	0	0	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	0	0	0	**2**	**4**
08:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	3
Total Volume	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	3	0	0	0	0	3	13
% App. Total	0	100	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	100	0	0		100	0	0	0	0		
PHF	.000	.500	.000	.000	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.375	.000	.000	.000	.000	.375	.813

Transportation Data Corporation
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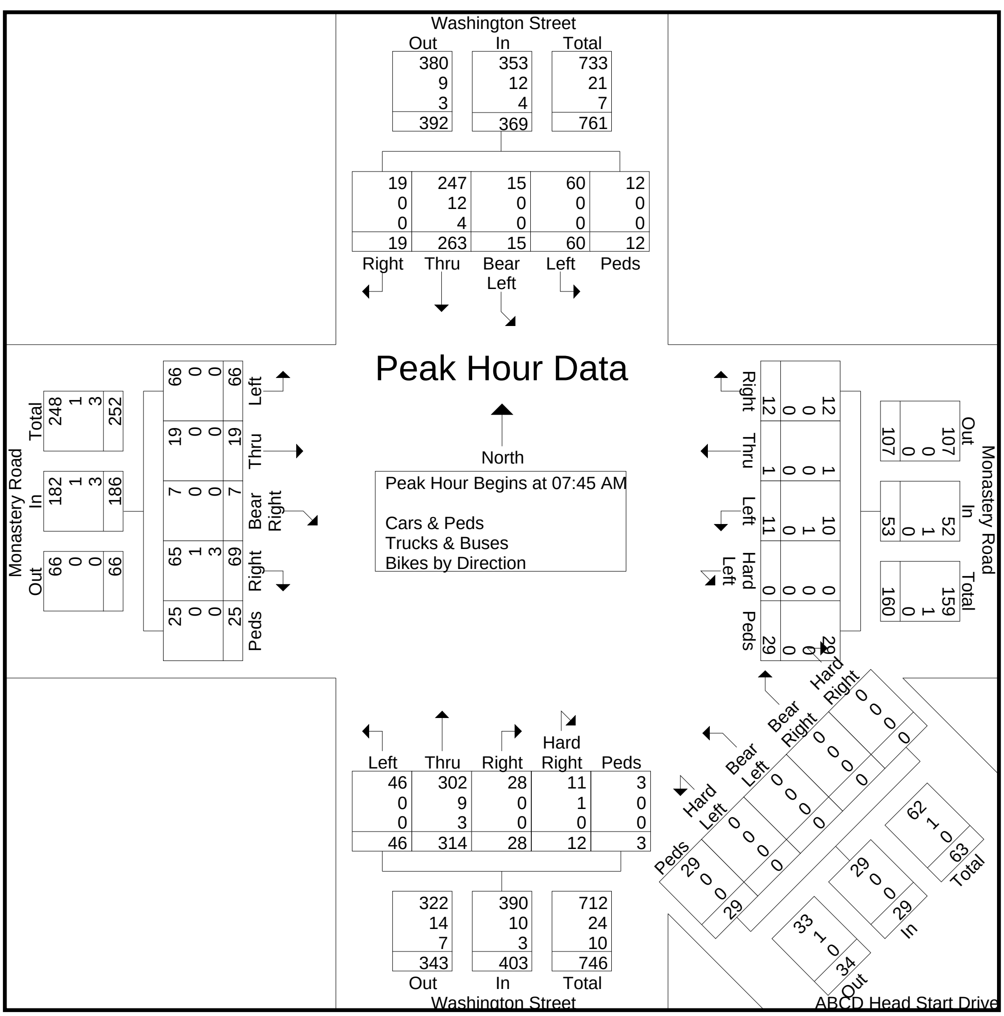
N/S: Washington Street
E,W/SE: Monastery Road/Head Start Drive
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716A
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

	Washington Street From North						Monastery Road From East					
Start Time	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 07:45 AM												
07:45 AM	3	**81**	1	**22**	3	**110**	2	0	1	0	**9**	12
08:00 AM	**9**	65	3	16	**4**	97	1	0	**4**	0	7	12
08:15 AM	5	48	**6**	13	2	74	0	0	2	0	4	6
08:30 AM	2	69	5	9	3	88	**9**	**1**	4	0	9	**23**
Total Volume	19	263	15	60	12	369	12	1	11	0	29	53
% App. Total	5.1	71.3	4.1	16.3	3.3		22.6	1.9	20.8	0	54.7	
PHF	.528	.812	.625	.682	.750	.839	.333	.250	.688	.000	.806	.576
Cars & Peds	19	247	15	60	12	353	12	1	10	0	29	52
% Cars & Peds	100	93.9	100	100	100	95.7	100	100	90.9	0	100	98.1
Trucks & Buses	0	12	0	0	0	12	0	0	1	0	0	1
% Trucks & Buses	0	4.6	0	0	0	3.3	0	0	9.1	0	0	1.9
Bikes by Direction	0	4	0	0	0	4	0	0	0	0	0	0
% Bikes by Direction	0	1.5	0	0	0	1.1	0	0	0	0	0	0

	ABCD Head Start Drive From Southeast						Washington Street From South						Monastery Road From West						
Start Time	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Int. Total
07:45 AM	0	0	0	0	**9**	**9**	2	**14**	77	11	1	105	14	1	5	15	5	40	276
08:00 AM	0	0	0	0	7	7	**4**	9	**91**	**15**	0	**119**	**22**	**2**	**6**	**21**	4	**55**	**290**
08:15 AM	0	0	0	0	4	4	2	4	81	12	0	99	11	2	5	12	**11**	41	224
08:30 AM	0	0	0	0	9	9	4	1	65	8	**2**	80	22	2	3	18	5	50	250
Total Volume	0	0	0	0	29	29	12	28	314	46	3	403	69	7	19	66	25	186	1040
% App. Total	0	0	0	0	100		3	6.9	77.9	11.4	0.7		37.1	3.8	10.2	35.5	13.4		
PHF	.000	.000	.000	.000	.806	.806	.750	.500	.863	.767	.375	.847	.784	.875	.792	.786	.568	.845	.897
Cars & Peds	0	0	0	0	29	29	11	28	302	46	3	390	65	7	19	66	25	182	1006
% Cars & Peds	0	0	0	0	100	100	91.7	100	96.2	100	100	96.8	94.2	100	100	100	100	97.8	96.7
Trucks & Buses	0	0	0	0	0	0	1	0	9	0	0	10	1	0	0	0	0	1	24
% Trucks & Buses	0	0	0	0	0	0	8.3	0	2.9	0	0	2.5	1.4	0	0	0	0	0.5	2.3
Bikes by Direction	0	0	0	0	0	0	0	0	3	0	0	3	3	0	0	0	0	3	10
% Bikes by Direction	0	0	0	0	0	0	0	0	1.0	0	0	0.7	4.3	0	0	0	0	1.6	1.0



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N/S: Washington Street
E: Fidelis Way
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716B
Site Code : 04716
Start Date : 4/6/2016

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Washington Street From North			Fidelis Way From East			Washington Street From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
07:00 AM	72	3	0	6	5	5	0	59	4	154
07:15 AM	90	1	0	3	1	5	2	76	1	179
07:30 AM	84	9	1	2	4	5	6	79	2	192
07:45 AM	93	8	0	12	4	6	2	93	8	226
Total	339	21	1	23	14	21	10	307	15	751
08:00 AM	83	8	0	9	1	6	3	104	0	214
08:15 AM	59	4	0	8	1	3	1	93	3	172
08:30 AM	82	10	0	4	2	8	2	74	3	185
08:45 AM	83	8	3	10	1	8	4	99	2	218
Total	307	30	3	31	5	25	10	370	8	789
Grand Total	646	51	4	54	19	46	20	677	23	1540
Apprch %	92.2	7.3	0.6	45.4	16	38.7	2.8	94	3.2	
Total %	41.9	3.3	0.3	3.5	1.2	3	1.3	44	1.5	
Cars & Peds	613	50	4	54	19	46	19	650	23	1478
% Cars & Peds	94.9	98	100	100	100	100	95	96	100	96
Trucks & Buses	24	1	0	0	0	0	1	19	0	45
% Trucks & Buses	3.7	2	0	0	0	0	5	2.8	0	2.9
Bikes by Direction	9	0	0	0	0	0	0	8	0	17
% Bikes by Direction	1.4	0	0	0	0	0	0	1.2	0	1.1

	Washington Street From North				Fidelis Way From East				Washington Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	90	1	0	91	3	1	5	9	2	76	1	79	179
07:30 AM	84	**9**	**1**	94	2	**4**	5	11	**6**	79	2	87	192
07:45 AM	**93**	8	0	**101**	**12**	4	**6**	**22**	2	93	**8**	103	**226**
08:00 AM	83	8	0	91	9	1	6	16	3	**104**	0	**107**	214
Total Volume	350	26	1	377	26	10	22	58	13	352	11	376	811
% App. Total	92.8	6.9	0.3		44.8	17.2	37.9		3.5	93.6	2.9		
PHF	.941	.722	.250	.933	.542	.625	.917	.659	.542	.846	.344	.879	.897
Cars & Peds	329	26	1	356	26	10	22	58	12	335	11	358	772
% Cars & Peds	94.0	100	100	94.4	100	100	100	100	92.3	95.2	100	95.2	95.2
Trucks & Buses	13	0	0	13	0	0	0	0	1	11	0	12	25
% Trucks & Buses	3.7	0	0	3.4	0	0	0	0	7.7	3.1	0	3.2	3.1
Bikes by Direction	8	0	0	8	0	0	0	0	0	6	0	6	14
% Bikes by Direction	2.3	0	0	2.1	0	0	0	0	0	1.7	0	1.6	1.7

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N/S: Washington Street
E: Fidelis Way
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716B
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Cars & Peds

	Washington Street From North			Fidelis Way From East			Washington Street From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
07:00 AM	68	3	0	6	5	5	0	57	4	148
07:15 AM	87	1	0	3	1	5	2	69	1	169
07:30 AM	82	9	1	2	4	5	6	75	2	186
07:45 AM	83	8	0	12	4	6	2	91	8	214
Total	320	21	1	23	14	21	10	292	15	717
08:00 AM	77	8	0	9	1	6	2	100	0	203
08:15 AM	55	3	0	8	1	3	1	89	3	163
08:30 AM	81	10	0	4	2	8	2	71	3	181
08:45 AM	80	8	3	10	1	8	4	98	2	214
Total	293	29	3	31	5	25	9	358	8	761
Grand Total	613	50	4	54	19	46	19	650	23	1478
Apprch %	91.9	7.5	0.6	45.4	16	38.7	2.7	93.9	3.3	
Total %	41.5	3.4	0.3	3.7	1.3	3.1	1.3	44	1.6	

	Washington Street From North				Fidelis Way From East				Washington Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	**87**	1	0	88	3	1	5	9	2	69	1	72	169
07:30 AM	82	**9**	**1**	**92**	2	**4**	5	11	**6**	75	2	83	186
07:45 AM	83	8	0	91	**12**	4	**6**	**22**	2	91	**8**	101	**214**
08:00 AM	77	8	0	85	9	1	6	16	2	**100**	0	**102**	203
Total Volume	329	26	1	356	26	10	22	58	12	335	11	358	772
% App. Total	92.4	7.3	0.3		44.8	17.2	37.9		3.4	93.6	3.1		
PHF	.945	.722	.250	.967	.542	.625	.917	.659	.500	.838	.344	.877	.902

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N/S: Washington Street
E: Fidelis Way
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716B
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Trucks & Buses

	Washington Street From North			Fidelis Way From East			Washington Street From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
07:00 AM	4	0	0	0	0	0	0	2	0	6
07:15 AM	3	0	0	0	0	0	0	4	0	7
07:30 AM	1	0	0	0	0	0	0	2	0	3
07:45 AM	5	0	0	0	0	0	0	2	0	7
Total	13	0	0	0	0	0	0	10	0	23
08:00 AM	4	0	0	0	0	0	1	3	0	8
08:15 AM	4	1	0	0	0	0	0	4	0	9
08:30 AM	1	0	0	0	0	0	0	1	0	2
08:45 AM	2	0	0	0	0	0	0	1	0	3
Total	11	1	0	0	0	0	1	9	0	22
Grand Total	24	1	0	0	0	0	1	19	0	45
Apprch %	96	4	0	0	0	0	5	95	0	
Total %	53.3	2.2	0	0	0	0	2.2	42.2	0	

	Washington Street From North				Fidelis Way From East				Washington Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	1	0	0	1	0	0	0	0	0	2	0	2	3
07:45 AM	**5**	0	0	**5**	0	0	0	0	0	2	0	2	7
08:00 AM	4	0	0	4	0	0	0	0	**1**	3	0	**4**	8
08:15 AM	4	**1**	0	5	0	0	0	0	0	**4**	0	4	**9**
Total Volume	14	1	0	15	0	0	0	0	1	11	0	12	27
% App. Total	93.3	6.7	0		0	0	0		8.3	91.7	0		
PHF	.700	.250	.000	.750	.000	.000	.000	.000	.250	.688	.000	.750	.750

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N/S: Washington Street
E: Fidelis Way
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716B
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Bikes by Direction

	Washington Street From North			Fidelis Way From East			Washington Street From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	3	0	3
07:30 AM	1	0	0	0	0	0	0	2	0	3
07:45 AM	5	0	0	0	0	0	0	0	0	5
Total	6	0	0	0	0	0	0	5	0	11
08:00 AM	2	0	0	0	0	0	0	1	0	3
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	2	0	2
08:45 AM	1	0	0	0	0	0	0	0	0	1
Total	3	0	0	0	0	0	0	3	0	6
Grand Total	9	0	0	0	0	0	0	8	0	17
Apprch %	100	0	0	0	0	0	0	100	0	
Total %	52.9	0	0	0	0	0	0	47.1	0	

	Washington Street From North				Fidelis Way From East				Washington Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	0	0	0	0	0	0	0	0	0	**3**	0	**3**	3
07:30 AM	1	0	0	1	0	0	0	0	0	2	0	2	3
07:45 AM	**5**	0	0	**5**	0	0	0	0	0	0	0	0	**5**
08:00 AM	2	0	0	2	0	0	0	0	0	1	0	1	3
Total Volume	8	0	0	8	0	0	0	0	0	6	0	6	14
% App. Total	100	0	0		0	0	0		0	100	0		
PHF	.400	.000	.000	.400	.000	.000	.000	.000	.000	.500	.000	.500	.700

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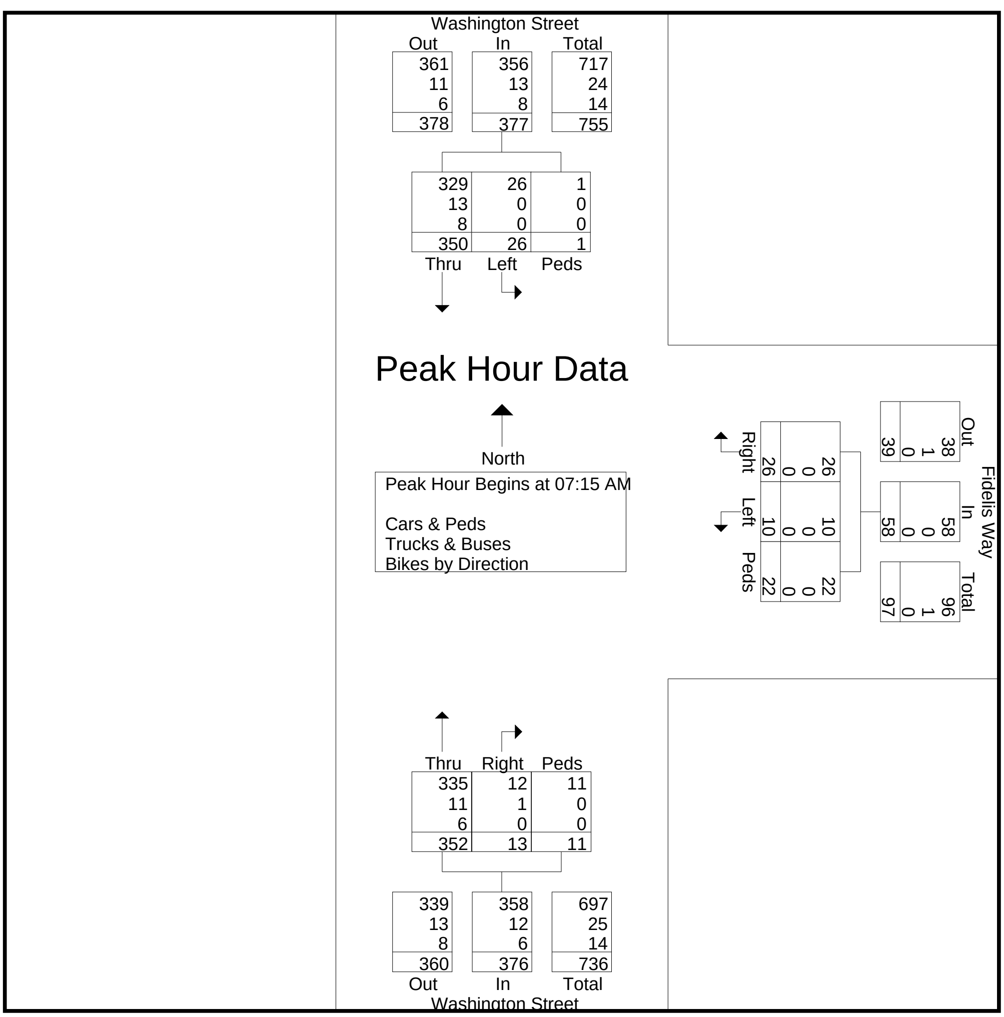
N/S: Washington Street
E: Fidelis Way
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716B
Site Code : 04716
Start Date : 4/6/2016

	Washington Street From North				Fidelis Way From East				Washington Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	90	1	0	91	3	1	5	9	2	76	1	79	179
07:30 AM	84	**9**	**1**	94	2	**4**	5	11	**6**	79	2	87	192
07:45 AM	**93**	8	0	**101**	**12**	4	**6**	**22**	2	93	**8**	103	**226**
08:00 AM	83	8	0	91	9	1	6	16	3	**104**	0	**107**	214
Total Volume	350	26	1	377	26	10	22	58	13	352	11	376	811
% App. Total	92.8	6.9	0.3		44.8	17.2	37.9		3.5	93.6	2.9		
PHF	.941	.722	.250	.933	.542	.625	.917	.659	.542	.846	.344	.879	.897
Cars & Peds	329	26	1	356	26	10	22	58	12	335	11	358	772
% Cars & Peds	94.0	100	100	94.4	100	100	100	100	92.3	95.2	100	95.2	95.2
Trucks & Buses	13	0	0	13	0	0	0	0	1	11	0	12	25
% Trucks & Buses	3.7	0	0	3.4	0	0	0	0	7.7	3.1	0	3.2	3.1
Bikes by Direction	8	0	0	8	0	0	0	0	0	6	0	6	14
% Bikes by Direction	2.3	0	0	2.1	0	0	0	0	0	1.7	0	1.6	1.7



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N/S: Washington Street
E/W: Synagogue Drive/Euston Road
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716C
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Washington Street From North				Synagogue Driveway From East				Washington Street From South				Euston Road From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	76	0	7	0	0	0	7	3	52	0	1	5	0	3	13	167
07:15 AM	0	92	0	6	0	0	0	9	1	81	0	0	15	0	6	6	216
07:30 AM	0	86	0	10	1	0	2	12	0	71	0	0	14	0	6	12	214
07:45 AM	0	95	0	10	1	0	1	9	0	102	0	1	14	0	1	13	247
Total	0	349	0	33	2	0	3	37	4	306	0	2	48	0	16	44	844
08:00 AM	0	79	0	3	0	0	0	5	0	97	0	2	19	0	7	8	220
08:15 AM	0	64	0	6	0	0	0	4	0	94	0	0	15	0	3	19	205
08:30 AM	0	87	0	6	0	0	0	10	0	69	1	1	20	0	4	7	205
08:45 AM	0	82	0	11	0	0	0	5	0	93	0	1	17	0	10	15	234
Total	0	312	0	26	0	0	0	24	0	353	1	4	71	0	24	49	864
Grand Total	0	661	0	59	2	0	3	61	4	659	1	6	119	0	40	93	1708
Apprch %	0	91.8	0	8.2	3	0	4.5	92.4	0.6	98.4	0.1	0.9	47.2	0	15.9	36.9	
Total %	0	38.7	0	3.5	0.1	0	0.2	3.6	0.2	38.6	0.1	0.4	7	0	2.3	5.4	
Cars & Peds	0	629	0	59	2	0	3	61	4	632	1	6	118	0	38	93	1646
% Cars & Peds	0	95.2	0	100	100	0	100	100	100	95.9	100	100	99.2	0	95	100	96.4
Trucks & Buses	0	24	0	0	0	0	0	0	0	20	0	0	0	0	1	0	45
% Trucks & Buses	0	3.6	0	0	0	0	0	0	0	3	0	0	0	0	2.5	0	2.6
Bikes by Direction	0	8	0	0	0	0	0	0	0	7	0	0	1	0	1	0	17
% Bikes by Direction	0	1.2	0	0	0	0	0	0	0	1.1	0	0	0.8	0	2.5	0	1

	Washington Street From North					Synagogue Driveway From East					Washington Street From South					Euston Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	92	0	6	98	0	0	0	9	9	**1**	81	0	0	82	15	0	6	6	27	216
07:30 AM	0	86	0	**10**	96	**1**	0	**2**	**12**	**15**	0	71	0	0	71	14	0	6	12	32	214
07:45 AM	0	**95**	0	10	**105**	1	0	1	9	11	0	**102**	0	1	**103**	14	0	1	**13**	28	**247**
08:00 AM	0	79	0	3	82	0	0	0	5	5	0	97	0	**2**	99	**19**	0	**7**	8	**34**	220
Total Volume	0	352	0	29	381	2	0	3	35	40	1	351	0	3	355	62	0	20	39	121	897
% App. Total	0	92.4	0	7.6		5	0	7.5	87.5		0.3	98.9	0	0.8		51.2	0	16.5	32.2		
PHF	.000	.926	.000	.725	.907	.500	.000	.375	.729	.667	.250	.860	.000	.375	.862	.816	.000	.714	.750	.890	.908
Cars & Peds	0	334	0	29	363	2	0	3	35	40	1	334	0	3	338	62	0	19	39	120	861
% Cars & Peds	0	94.9	0	100	95.3	100	0	100	100	100	100	95.2	0	100	95.2	100	0	95.0	100	99.2	96.0
Trucks & Buses	0	12	0	0	12	0	0	0	0	0	0	11	0	0	11	0	0	1	0	1	24
% Trucks & Buses	0	3.4	0	0	3.1	0	0	0	0	0	0	3.1	0	0	3.1	0	0	5.0	0	0.8	2.7
Bikes by Direction	0	6	0	0	6	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	12
% Bikes by Direction	0	1.7	0	0	1.6	0	0	0	0	0	0	1.7	0	0	1.7	0	0	0	0	0	1.3

Transportation Data Corporation
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N/S: Washington Street
E/W: Synagogue Drive/Euston Road
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716C
Site Code : 04716
Start Date : 4/6/2016

Groups Printed- Cars & Peds

	Washington Street From North				Synagogue Driveway From East				Washington Street From South				Euston Road From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	72	0	7	0	0	0	7	3	50	0	1	5	0	3	13	161
07:15 AM	0	89	0	6	0	0	0	9	1	74	0	0	15	0	6	6	206
07:30 AM	0	84	0	10	1	0	2	12	0	67	0	0	14	0	6	12	208
07:45 AM	0	87	0	10	1	0	1	9	0	100	0	1	14	0	1	13	237
Total	0	332	0	33	2	0	3	37	4	291	0	2	48	0	16	44	812
08:00 AM	0	74	0	3	0	0	0	5	0	93	0	2	19	0	6	8	210
08:15 AM	0	59	0	6	0	0	0	4	0	90	0	0	15	0	3	19	196
08:30 AM	0	85	0	6	0	0	0	10	0	66	1	1	19	0	3	7	198
08:45 AM	0	79	0	11	0	0	0	5	0	92	0	1	17	0	10	15	230
Total	0	297	0	26	0	0	0	24	0	341	1	4	70	0	22	49	834
Grand Total	0	629	0	59	2	0	3	61	4	632	1	6	118	0	38	93	1646
Apprch %	0	91.4	0	8.6	3	0	4.5	92.4	0.6	98.3	0.2	0.9	47.4	0	15.3	37.3	
Total %	0	38.2	0	3.6	0.1	0	0.2	3.7	0.2	38.4	0.1	0.4	7.2	0	2.3	5.7	

	Washington Street From North					Synagogue Driveway From East					Washington Street From South					Euston Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	**89**	0	6	95	0	0	0	9	9	**1**	74	0	0	75	15	0	**6**	6	27	206
07:30 AM	0	84	0	**10**	94	**1**	0	**2**	**12**	**15**	0	67	0	0	67	14	0	6	12	32	208
07:45 AM	0	87	0	10	**97**	1	0	1	9	11	0	**100**	0	1	**101**	14	0	1	**13**	28	**237**
08:00 AM	0	74	0	3	77	0	0	0	5	5	0	93	0	**2**	95	**19**	0	6	8	**33**	210
Total Volume	0	334	0	29	363	2	0	3	35	40	1	334	0	3	338	62	0	19	39	120	861
% App. Total	0	92	0	8		5	0	7.5	87.5		0.3	98.8	0	0.9		51.7	0	15.8	32.5		
PHF	.000	.938	.000	.725	.936	.500	.000	.375	.729	.667	.250	.835	.000	.375	.837	.816	.000	.792	.750	.909	.908

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N/S: Washington Street
E/W: Synagogue Drive/Euston Road
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716C
Site Code : 04716
Start Date : 4/6/2016

Groups Printed- Trucks & Buses

	Washington Street From North				Synagogue Driveway From East				Washington Street From South				Euston Road From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	4	0	0	0	0	0	0	0	2	0	0	0	0	0	0	6
07:15 AM	0	3	0	0	0	0	0	0	0	4	0	0	0	0	0	0	7
07:30 AM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
07:45 AM	0	5	0	0	0	0	0	0	0	2	0	0	0	0	0	0	7
Total	0	13	0	0	0	0	0	0	0	10	0	0	0	0	0	0	23
08:00 AM	0	3	0	0	0	0	0	0	0	3	0	0	0	0	1	0	7
08:15 AM	0	4	0	0	0	0	0	0	0	4	0	0	0	0	0	0	8
08:30 AM	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	4
08:45 AM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
Total	0	11	0	0	0	0	0	0	0	10	0	0	0	0	1	0	22
Grand Total	0	24	0	0	0	0	0	0	0	20	0	0	0	0	1	0	45
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	100	0	
Total %	0	53.3	0	0	0	0	0	0	0	44.4	0	0	0	0	2.2	0	

	Washington Street From North					Synagogue Driveway From East					Washington Street From South					Euston Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	**5**	0	0	**5**	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	7
08:00 AM	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	0	0	**1**	0	**1**	7
08:15 AM	0	4	0	0	4	0	0	0	0	0	0	**4**	0	0	**4**	0	0	0	0	0	**8**
08:30 AM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
Total Volume	0	14	0	0	14	0	0	0	0	0	0	11	0	0	11	0	0	1	0	1	26
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	100	0		
PHF	.000	.700	.000	.000	.700	.000	.000	.000	.000	.000	.000	.688	.000	.000	.688	.000	.000	.250	.000	.250	.813

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N/S: Washington Street
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City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716C
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Bikes by Direction

	Washington Street From North				Synagogue Driveway From East				Washington Street From South				Euston Road From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
07:30 AM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
07:45 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	0	4	0	0	0	0	0	0	0	5	0	0	0	0	0	0	9
08:00 AM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
08:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	3
08:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	4	0	0	0	0	0	0	0	2	0	0	1	0	1	0	8
Grand Total	0	8	0	0	0	0	0	0	0	7	0	0	1	0	1	0	17
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	50	0	50	0	
Total %	0	47.1	0	0	0	0	0	0	0	41.2	0	0	5.9	0	5.9	0	

	Washington Street From North					Synagogue Driveway From East					Washington Street From South					Euston Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	**3**	0	0	**3**	0	0	0	0	0	**3**
07:30 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
07:45 AM	0	**3**	0	0	**3**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
08:00 AM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Total Volume	0	6	0	0	6	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	12
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	1.00

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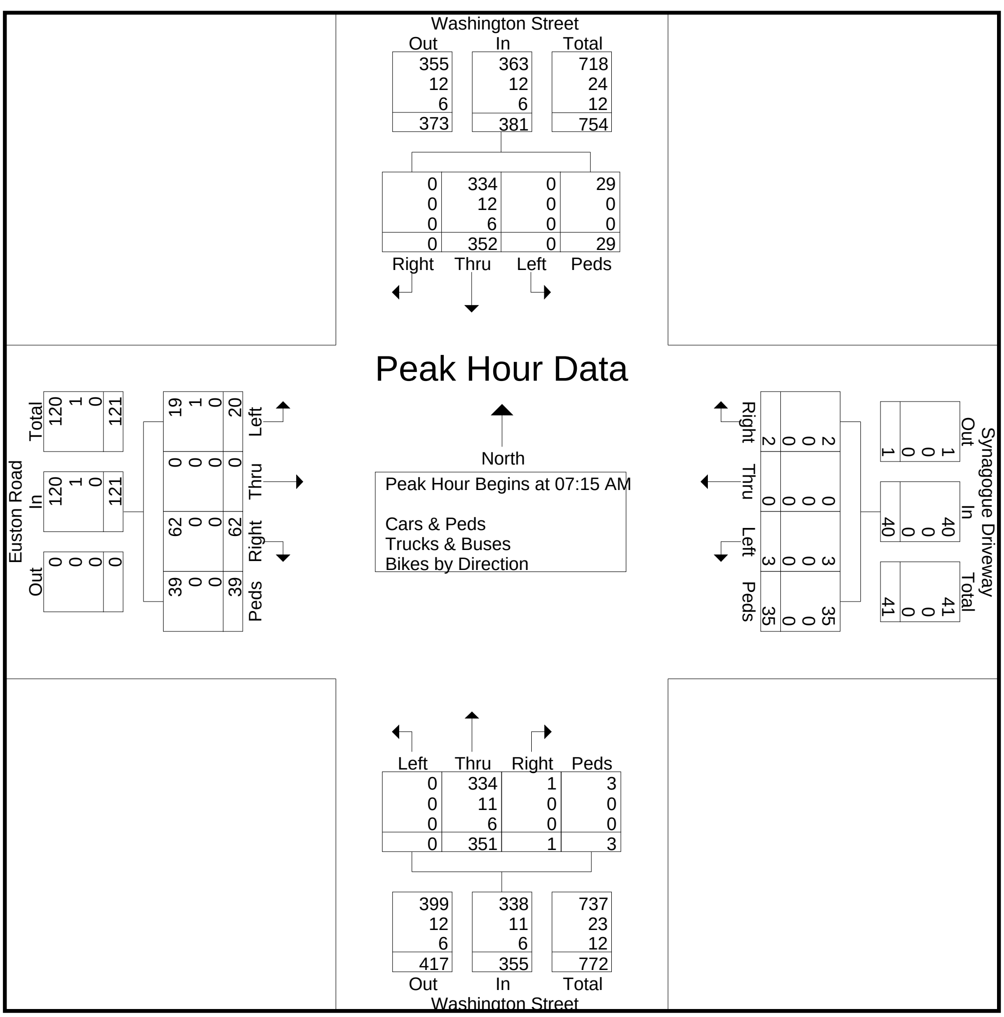
N/S: Washington Street
E/W: Synagogue Drive/Euston Road
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716C
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

	Washington Street From North					Synagogue Driveway From East					Washington Street From South					Euston Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	92	0	6	98	0	0	0	9	9	**1**	81	0	0	82	15	0	6	6	27	216
07:30 AM	0	86	0	**10**	96	**1**	0	**2**	**12**	**15**	0	71	0	0	71	14	0	6	12	32	214
07:45 AM	0	**95**	0	10	**105**	1	0	1	9	11	0	**102**	0	1	**103**	14	0	1	**13**	28	**247**
08:00 AM	0	79	0	3	82	0	0	0	5	5	0	97	0	**2**	99	**19**	0	**7**	8	**34**	220
Total Volume	0	352	0	29	381	2	0	3	35	40	1	351	0	3	355	62	0	20	39	121	897
% App. Total	0	92.4	0	7.6		5	0	7.5	87.5		0.3	98.9	0	0.8		51.2	0	16.5	32.2		
PHF	.000	.926	.000	.725	.907	.500	.000	.375	.729	.667	.250	.860	.000	.375	.862	.816	.000	.714	.750	.890	.908
Cars & Peds	0	334	0	29	363	2	0	3	35	40	1	334	0	3	338	62	0	19	39	120	861
% Cars & Peds	0	94.9	0	100	95.3	100	0	100	100	100	100	95.2	0	100	95.2	100	0	95.0	100	99.2	96.0
Trucks & Buses	0	12	0	0	12	0	0	0	0	0	0	11	0	0	11	0	0	1	0	1	24
% Trucks & Buses	0	3.4	0	0	3.1	0	0	0	0	0	0	3.1	0	0	3.1	0	0	5.0	0	0.8	2.7
Bikes by Direction	0	6	0	0	6	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	12
% Bikes by Direction	0	1.7	0	0	1.6	0	0	0	0	0	0	1.7	0	0	1.7	0	0	0	0	0	1.3



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N/S: Washington Street
E,W/SE: Monastery Road/Head Start Drive
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716AA
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Washington Street From North					Monastery Road From East					ABCD Head Start Drive From Southeast					Washington Street From South					Monastery Road From West					
Start Time	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Int. Total
04:00 PM	6	71	0	1	0	9	3	5	0	5	0	0	0	0	5	1	2	68	7	0	8	0	0	6	3	200
04:15 PM	5	68	0	1	0	13	3	7	0	8	0	0	0	0	8	0	0	66	11	5	8	2	0	4	0	209
04:30 PM	11	90	1	3	1	18	8	9	0	2	0	0	0	0	2	0	2	71	11	0	7	0	0	6	0	242
04:45 PM	7	85	5	6	1	17	1	11	0	4	0	0	0	0	4	1	1	73	15	3	12	2	3	12	1	264
Total	29	314	6	11	2	57	15	32	0	19	0	0	0	0	19	2	5	278	44	8	35	4	3	28	4	915
05:00 PM	12	78	2	4	0	23	2	14	0	7	0	0	0	1	7	0	2	80	12	1	9	1	1	4	5	265
05:15 PM	13	99	0	2	1	7	7	6	0	5	0	0	0	0	5	2	1	71	10	0	4	0	0	3	0	236
05:30 PM	10	86	1	3	2	13	3	7	0	6	0	0	0	0	6	0	1	72	11	1	7	0	1	4	0	234
05:45 PM	7	82	1	1	2	8	1	2	1	9	0	0	0	0	9	0	0	76	16	1	10	0	2	5	4	237
Total	42	345	4	10	5	51	13	29	1	27	0	0	0	1	27	2	4	299	49	3	30	1	4	16	9	972
Grand Total	71	659	10	21	7	108	28	61	1	46	0	0	0	1	46	4	9	577	93	11	65	5	7	44	13	1887
Apprch %	9.2	85.8	1.3	2.7	0.9	44.3	11.5	25	0.4	18.9	0	0	0	2.1	97.9	0.6	1.3	83.1	13.4	1.6	48.5	3.7	5.2	32.8	9.7	
Total %	3.8	34.9	0.5	1.1	0.4	5.7	1.5	3.2	0.1	2.4	0	0	0	0.1	2.4	0.2	0.5	30.6	4.9	0.6	3.4	0.3	0.4	2.3	0.7	
Cars & Peds	71	648	10	21	7	108	28	61	1	46	0	0	0	1	46	4	9	558	89	11	64	5	7	43	13	1851
% Cars & Peds	100	98.3	100	100	100	100	100	100	100	100	0	0	0	100	100	100	100	96.7	95.7	100	98.5	100	100	97.7	100	98.1
Trucks & Buses	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	3	0	1	0	0	0	0	25
% Trucks & Buses	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.3	3.2	0	1.5	0	0	0	0	1.3
Bikes by Direction	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	0	1	0	11
% Bikes by Direction	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1.1	0	0	0	0	2.3	0	0.6

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

	Washington Street From North						Monastery Road From East						ABCD Head Start Drive From Southeast						Washington Street From South						Monastery Road From West						
Start Time	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Int. Total
04:30 PM	11	90	1	3	**1**	106	18	**8**	9	0	2	37	0	0	0	0	2	2	0	**2**	71	11	0	84	7	0	0	6	0	13	242
04:45 PM	7	85	**5**	**6**	1	104	17	1	11	0	4	33	0	0	0	0	4	4	1	1	73	**15**	**3**	93	**12**	**2**	**3**	**12**	1	**30**	264
05:00 PM	12	78	2	4	0	96	**23**	2	**14**	0	**7**	**46**	0	0	0	**1**	**7**	**8**	0	2	**80**	12	1	**95**	9	1	1	4	**5**	20	**265**
05:15 PM	**13**	**99**	0	2	1	**115**	7	7	6	0	5	25	0	0	0	0	5	5	**2**	1	71	10	0	84	4	0	0	3	0	7	236
Total Volume	43	352	8	15	3	421	65	18	40	0	18	141	0	0	0	1	18	19	3	6	295	48	4	356	32	3	4	25	6	70	1007
% App. Total	10.2	83.6	1.9	3.6	0.7		46.1	12.8	28.4	0	12.8		0	0	0	5.3	94.7		0.8	1.7	82.9	13.5	1.1		45.7	4.3	5.7	35.7	8.6		
PHF	.827	.889	.400	.625	.750	.915	.707	.563	.714	.000	.643	.766	.000	.000	.000	.250	.643	.594	.375	.750	.922	.800	.333	.937	.667	.375	.333	.521	.300	.583	.950
Cars & Peds	43	347	8	15	3	416	65	18	40	0	18	141	0	0	0	1	18	19	3	6	289	45	4	347	31	3	4	24	6	68	991
% Cars & Peds	100	98.6	100	100	100	98.8	100	100	100	0	100	100	0	0	0	100	100	100	100	100	98.0	93.8	100	97.5	96.9	100	100	96.0	100	97.1	98.4
Trucks & Buses	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	0	6	1	0	0	0	0	1	12
% Trucks & Buses	0	1.4	0	0	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.4	4.2	0	1.7	3.1	0	0	0	0	1.4	1.2
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	0	0	0	1	0	1	4
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	2.1	0	0.8	0	0	0	4.0	0	1.4	0.4

Transportation Data Corporation

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N/S: Washington Street
E,W/SE: Monastery Road/Head Start Drive
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716AA
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Cars & Peds

	Washington Street From North					Monastery Road From East					ABCD Head Start Drive From Southeast					Washington Street From South					Monastery Road From West					
Start Time	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Int. Total
04:00 PM	6	71	0	1	0	9	3	5	0	5	0	0	0	0	5	1	2	66	7	0	8	0	0	6	3	198
04:15 PM	5	65	0	1	0	13	3	7	0	8	0	0	0	0	8	0	0	61	10	5	8	2	0	4	0	200
04:30 PM	11	89	1	3	1	18	8	9	0	2	0	0	0	0	2	0	2	70	10	0	7	0	0	6	0	239
04:45 PM	7	84	5	6	1	17	1	11	0	4	0	0	0	0	4	1	1	72	14	3	12	2	3	11	1	260
Total	29	309	6	11	2	57	15	32	0	19	0	0	0	0	19	2	5	269	41	8	35	4	3	27	4	897
05:00 PM	12	76	2	4	0	23	2	14	0	7	0	0	0	1	7	0	2	79	12	1	8	1	1	4	5	261
05:15 PM	13	98	0	2	1	7	7	6	0	5	0	0	0	0	5	2	1	68	9	0	4	0	0	3	0	231
05:30 PM	10	84	1	3	2	13	3	7	0	6	0	0	0	0	6	0	1	69	11	1	7	0	1	4	0	229
05:45 PM	7	81	1	1	2	8	1	2	1	9	0	0	0	0	9	0	0	73	16	1	10	0	2	5	4	233
Total	42	339	4	10	5	51	13	29	1	27	0	0	0	1	27	2	4	289	48	3	29	1	4	16	9	954
Grand Total	71	648	10	21	7	108	28	61	1	46	0	0	0	1	46	4	9	558	89	11	64	5	7	43	13	1851
Apprch %	9.4	85.6	1.3	2.8	0.9	44.3	11.5	25	0.4	18.9	0	0	0	2.1	97.9	0.6	1.3	83.2	13.3	1.6	48.5	3.8	5.3	32.6	9.8	
Total %	3.8	35	0.5	1.1	0.4	5.8	1.5	3.3	0.1	2.5	0	0	0	0.1	2.5	0.2	0.5	30.1	4.8	0.6	3.5	0.3	0.4	2.3	0.7	

	Washington Street From North						Monastery Road From East						ABCD Head Start Drive From Southeast						Washington Street From South						Monastery Road From West						
Start Time	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 04:30 PM																															
04:30 PM	11	89	1	3	**1**	105	18	**8**	9	0	2	37	0	0	0	0	2	2	0	**2**	70	10	0	82	7	0	0	6	0	13	239
04:45 PM	7	84	**5**	**6**	1	103	17	1	11	0	4	33	0	0	0	0	4	4	1	1	72	**14**	**3**	91	**12**	**2**	**3**	**11**	1	**29**	260
05:00 PM	12	76	2	4	0	94	**23**	2	**14**	0	**7**	**46**	0	0	0	**1**	**7**	**8**	0	2	**79**	12	1	**94**	8	1	1	4	**5**	19	**261**
05:15 PM	**13**	**98**	0	2	1	**114**	7	7	6	0	5	25	0	0	0	0	5	5	**2**	1	68	9	0	80	4	0	0	3	0	7	231
Total Volume	43	347	8	15	3	416	65	18	40	0	18	141	0	0	0	1	18	19	3	6	289	45	4	347	31	3	4	24	6	68	991
% App. Total	10.3	83.4	1.9	3.6	0.7		46.1	12.8	28.4	0	12.8		0	0	0	5.3	94.7		0.9	1.7	83.3	13	1.2		45.6	4.4	5.9	35.3	8.8		
PHF	.827	.885	.400	.625	.750	.912	.707	.563	.714	.000	.643	.766	.000	.000	.000	.250	.643	.594	.375	.750	.915	.804	.333	.923	.646	.375	.333	.545	.300	.586	.949

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N/S: Washington Street
E,W/SE: Monastery Road/Head Start Drive
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716AA
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Trucks & Buses

	Washington Street From North					Monastery Road From East					ABCD Head Start Drive From Southeast					Washington Street From South					Monastery Road From West					
Start Time	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
04:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	6
04:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
04:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
Total	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	2	0	0	0	0	0	0	12
05:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	4
05:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	4
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
05:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3
Total	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	1	0	1	0	0	0	0	13
Grand Total	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	3	0	1	0	0	0	0	25
Apprch %	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	81.2	18.8	0	100	0	0	0	0	
Total %	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	12	0	4	0	0	0	0	

	Washington Street From North						Monastery Road From East						ABCD Head Start Drive From Southeast						Washington Street From South						Monastery Road From West						
Start Time	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 04:15 PM																															
04:15 PM	0	**2**	0	0	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**	**1**	0	**4**	0	0	0	0	0	0	**6**
04:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2
04:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
05:00 PM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	**1**	0	0	0	0	**1**	4
Total Volume	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	2	0	7	1	0	0	0	0	1	14
% App. Total	0	100	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	71.4	28.6	0		100	0	0	0	0		
PHF	.000	.750	.000	.000	.000	.750	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.417	.500	.000	.438	.250	.000	.000	.000	.000	.250	.583

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N/S: Washington Street
E,W/SE: Monastery Road/Head Start Drive
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716AA
Site Code : 04716
Start Date : 4/6/2016

Groups Printed- Bikes by Direction

	Washington Street From North					Monastery Road From East					ABCD Head Start Drive From Southeast					Washington Street From South					Monastery Road From West					
Start Time	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Int. Total
04:00 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
04:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3
04:30 PM	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	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	1	0	6
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
05:15 PM	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	1
05:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
05:45 PM	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	1
Total	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	5
Grand Total	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	0	1	0	11
Apprch %	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85.7	14.3	0	0	0	0	100	0	
Total %	0	27.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54.5	9.1	0	0	0	0	9.1	0	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:00 PM

	Washington Street From North						Monastery Road From East						ABCD Head Start Drive From Southeast						Washington Street From South						Monastery Road From West						
Start Time	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Int. Total
04:00 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
04:15 PM	0	**1**	0	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	0	**2**	0	0	0	0	0	0	**3**
04:30 PM	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	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	0	0	**1**	0	1	0	0	0	**1**	0	**1**	2
Total Volume	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4	0	0	0	1	0	1	6
% App. Total	0	100	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	75	25	0		0	0	0	100	0		
PHF	.000	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.375	.250	.000	.500	.000	.000	.000	.250	.000	.250	.500

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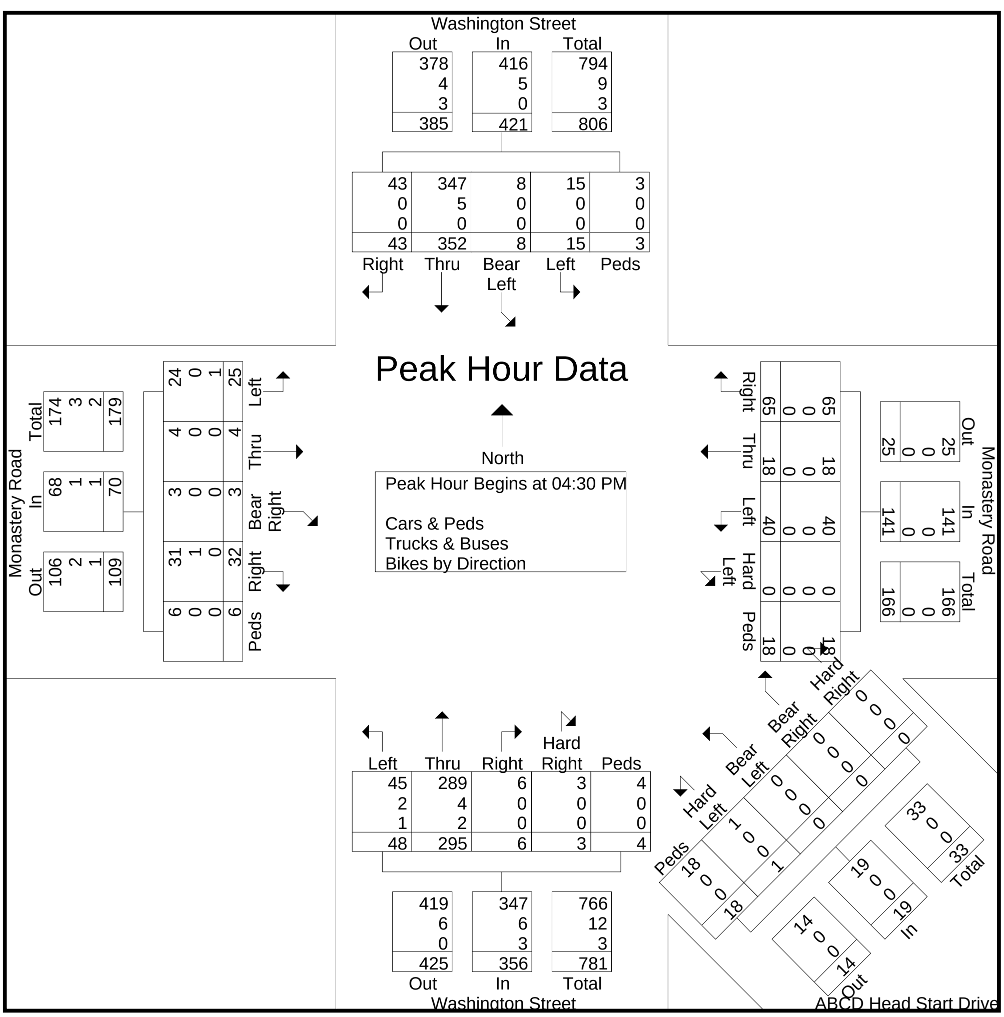
N/S: Washington Street
E,W/SE: Monastery Road/Head Start Drive
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716AA
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

	Washington Street From North						Monastery Road From East						ABCD Head Start Drive From Southeast						Washington Street From South						Monastery Road From West						
Start Time	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 04:30 PM																															
04:30 PM	11	90	1	3	**1**	106	18	**8**	9	0	2	37	0	0	0	0	2	2	0	**2**	71	11	0	84	7	0	0	6	0	13	242
04:45 PM	7	85	**5**	**6**	1	104	17	1	11	0	4	33	0	0	0	0	4	4	1	1	73	**15**	**3**	93	**12**	**2**	**3**	**12**	1	**30**	264
05:00 PM	12	78	2	4	0	96	**23**	2	**14**	0	**7**	**46**	0	0	0	**1**	**7**	**8**	0	2	**80**	12	1	**95**	9	1	1	4	**5**	20	**265**
05:15 PM	**13**	**99**	0	2	1	**115**	7	7	6	0	5	25	0	0	0	0	5	5	**2**	1	71	10	0	84	4	0	0	3	0	7	236
Total Volume	43	352	8	15	3	421	65	18	40	0	18	141	0	0	0	1	18	19	3	6	295	48	4	356	32	3	4	25	6	70	1007
% App. Total	10.2	83.6	1.9	3.6	0.7		46.1	12.8	28.4	0	12.8		0	0	0	5.3	94.7		0.8	1.7	82.9	13.5	1.1		45.7	4.3	5.7	35.7	8.6		
PHF	.827	.889	.400	.625	.750	.915	.707	.563	.714	.000	.643	.766	.000	.000	.000	.250	.643	.594	.375	.750	.922	.800	.333	.937	.667	.375	.333	.521	.300	.583	.950
Cars & Peds	43	347	8	15	3	416	65	18	40	0	18	141	0	0	0	1	18	19	3	6	289	45	4	347	31	3	4	24	6	68	991
% Cars & Peds	100	98.6	100	100	100	98.8	100	100	100	0	100	100	0	0	0	100	100	100	100	100	98.0	93.8	100	97.5	96.9	100	100	96.0	100	97.1	98.4
Trucks & Buses	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	0	6	1	0	0	0	0	1	12
% Trucks & Buses	0	1.4	0	0	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.4	4.2	0	1.7	3.1	0	0	0	0	1.4	1.2
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	0	0	0	1	0	1	4
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	2.1	0	0.8	0	0	0	4.0	0	1.4	0.4



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N/S: Washington Street
E: Fidelis Way
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716BB
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Washington Street From North			Fidelis Way From East			Washington Street From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:00 PM	80	5	0	8	1	7	5	75	0	181
04:15 PM	77	5	0	6	2	4	3	71	1	169
04:30 PM	95	7	0	5	3	2	3	77	0	192
04:45 PM	98	8	1	5	1	7	1	85	6	212
Total	350	25	1	24	7	20	12	308	7	754
05:00 PM	93	8	1	8	3	10	3	87	0	213
05:15 PM	99	9	0	5	2	9	5	78	2	209
05:30 PM	91	9	0	3	5	6	6	82	1	203
05:45 PM	90	12	0	10	1	11	4	82	3	213
Total	373	38	1	26	11	36	18	329	6	838
Grand Total	723	63	2	50	18	56	30	637	13	1592
Apprch %	91.8	8	0.3	40.3	14.5	45.2	4.4	93.7	1.9	
Total %	45.4	4	0.1	3.1	1.1	3.5	1.9	40	0.8	
Cars & Peds	711	62	2	49	18	56	29	613	13	1553
% Cars & Peds	98.3	98.4	100	98	100	100	96.7	96.2	100	97.6
Trucks & Buses	9	0	0	0	0	0	1	17	0	27
% Trucks & Buses	1.2	0	0	0	0	0	3.3	2.7	0	1.7
Bikes by Direction	3	1	0	1	0	0	0	7	0	12
% Bikes by Direction	0.4	1.6	0	2	0	0	0	1.1	0	0.8

	Washington Street From North				Fidelis Way From East				Washington Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	93	8	**1**	102	8	3	10	21	3	**87**	0	**90**	**213**
05:15 PM	**99**	9	0	**108**	5	2	9	16	5	78	2	85	209
05:30 PM	91	9	0	100	3	**5**	6	14	**6**	82	1	89	203
05:45 PM	90	**12**	0	102	**10**	1	**11**	**22**	4	82	**3**	89	213
Total Volume	373	38	1	412	26	11	36	73	18	329	6	353	838
% App. Total	90.5	9.2	0.2		35.6	15.1	49.3		5.1	93.2	1.7		
PHF	.942	.792	.250	.954	.650	.550	.818	.830	.750	.945	.500	.981	.984
Cars & Peds	366	37	1	404	26	11	36	73	17	316	6	339	816
% Cars & Peds	98.1	97.4	100	98.1	100	100	100	100	94.4	96.0	100	96.0	97.4
Trucks & Buses	5	0	0	5	0	0	0	0	1	9	0	10	15
% Trucks & Buses	1.3	0	0	1.2	0	0	0	0	5.6	2.7	0	2.8	1.8
Bikes by Direction	2	1	0	3	0	0	0	0	0	4	0	4	7
% Bikes by Direction	0.5	2.6	0	0.7	0	0	0	0	0	1.2	0	1.1	0.8

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N/S: Washington Street
E: Fidelis Way
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716BB
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Cars & Peds

	Washington Street From North			Fidelis Way From East			Washington Street From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:00 PM	80	5	0	8	1	7	5	73	0	179
04:15 PM	74	5	0	5	2	4	3	66	1	160
04:30 PM	94	7	0	5	3	2	3	75	0	189
04:45 PM	97	8	1	5	1	7	1	83	6	209
Total	345	25	1	23	7	20	12	297	7	737
05:00 PM	90	8	1	8	3	10	2	86	0	208
05:15 PM	98	8	0	5	2	9	5	73	2	202
05:30 PM	89	9	0	3	5	6	6	78	1	197
05:45 PM	89	12	0	10	1	11	4	79	3	209
Total	366	37	1	26	11	36	17	316	6	816
Grand Total	711	62	2	49	18	56	29	613	13	1553
Apprch %	91.7	8	0.3	39.8	14.6	45.5	4.4	93.6	2	
Total %	45.8	4	0.1	3.2	1.2	3.6	1.9	39.5	0.8	

	Washington Street From North				Fidelis Way From East				Washington Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	97	8	**1**	**106**	5	1	7	13	1	83	**6**	**90**	**209**
05:00 PM	90	8	1	99	**8**	3	**10**	**21**	2	**86**	0	88	208
05:15 PM	**98**	8	0	106	5	2	9	16	5	73	2	80	202
05:30 PM	89	**9**	0	98	3	**5**	6	14	**6**	78	1	85	197
Total Volume	374	33	2	409	21	11	32	64	14	320	9	343	816
% App. Total	91.4	8.1	0.5		32.8	17.2	50		4.1	93.3	2.6		
PHF	.954	.917	.500	.965	.656	.550	.800	.762	.583	.930	.375	.953	.976

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Client: Nelson Nygaard/A. Fletcher

File Name : 04716BB
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Trucks & Buses

	Washington Street From North			Fidelis Way From East			Washington Street From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	2	0	2
04:15 PM	2	0	0	0	0	0	0	4	0	6
04:30 PM	1	0	0	0	0	0	0	1	0	2
04:45 PM	1	0	0	0	0	0	0	1	0	2
Total	4	0	0	0	0	0	0	8	0	12
05:00 PM	3	0	0	0	0	0	1	1	0	5
05:15 PM	1	0	0	0	0	0	0	3	0	4
05:30 PM	0	0	0	0	0	0	0	3	0	3
05:45 PM	1	0	0	0	0	0	0	2	0	3
Total	5	0	0	0	0	0	1	9	0	15
Grand Total	9	0	0	0	0	0	1	17	0	27
Apprch %	100	0	0	0	0	0	5.6	94.4	0	
Total %	33.3	0	0	0	0	0	3.7	63	0	

	Washington Street From North				Fidelis Way From East				Washington Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:15 PM													
04:15 PM	2	0	0	2	0	0	0	0	0	**4**	0	**4**	**6**
04:30 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
04:45 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
05:00 PM	**3**	0	0	**3**	0	0	0	0	**1**	1	0	2	5
Total Volume	7	0	0	7	0	0	0	0	1	7	0	8	15
% App. Total	100	0	0		0	0	0		12.5	87.5	0		
PHF	.583	.000	.000	.583	.000	.000	.000	.000	.250	.438	.000	.500	.625

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File Name : 04716BB
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Bikes by Direction

	Washington Street From North			Fidelis Way From East			Washington Street From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	1	0	0	1	0	0	0	1	0	3
04:30 PM	0	0	0	0	0	0	0	1	0	1
04:45 PM	0	0	0	0	0	0	0	1	0	1
Total	1	0	0	1	0	0	0	3	0	5
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	0	0	0	0	0	2	0	3
05:30 PM	2	0	0	0	0	0	0	1	0	3
05:45 PM	0	0	0	0	0	0	0	1	0	1
Total	2	1	0	0	0	0	0	4	0	7
Grand Total	3	1	0	1	0	0	0	7	0	12
Apprch %	75	25	0	100	0	0	0	100	0	
Total %	25	8.3	0	8.3	0	0	0	58.3	0	

	Washington Street From North				Fidelis Way From East				Washington Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	**1**	0	1	0	0	0	0	0	**2**	0	**2**	**3**
05:30 PM	**2**	0	0	**2**	0	0	0	0	0	1	0	1	3
Total Volume	2	1	0	3	0	0	0	0	0	4	0	4	7
% App. Total	66.7	33.3	0		0	0	0		0	100	0		
PHF	.250	.250	.000	.375	.000	.000	.000	.000	.000	.500	.000	.500	.583

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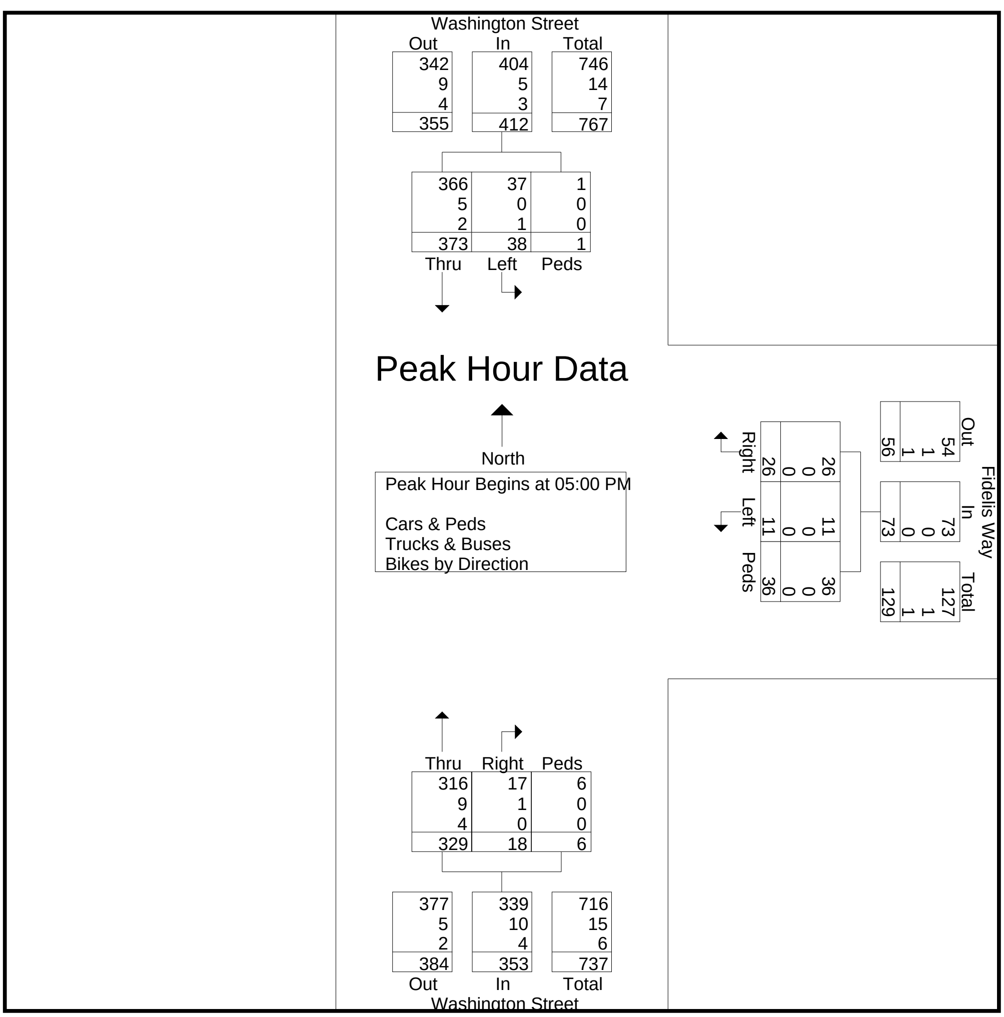
N/S: Washington Street	File Name : 04716BB
E: Fidelis Way	Site Code : 04716
City, State: Brighton, MA	Start Date : 4/6/2016
Client: Nelson Nygaard/A. Fletcher	Page No : 1

	Washington Street From North				Fidelis Way From East				Washington Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	93	8	**1**	102	8	3	10	21	3	**87**	0	**90**	**213**
05:15 PM	**99**	9	0	**108**	5	2	9	16	5	78	2	85	209
05:30 PM	91	9	0	100	3	**5**	6	14	**6**	82	1	89	203
05:45 PM	90	**12**	0	102	**10**	1	**11**	**22**	4	82	**3**	89	213
Total Volume	373	38	1	412	26	11	36	73	18	329	6	353	838
% App. Total	90.5	9.2	0.2		35.6	15.1	49.3		5.1	93.2	1.7		
PHF	.942	.792	.250	.954	.650	.550	.818	.830	.750	.945	.500	.981	.984
Cars & Peds	366	37	1	404	26	11	36	73	17	316	6	339	816
% Cars & Peds	98.1	97.4	100	98.1	100	100	100	100	94.4	96.0	100	96.0	97.4
Trucks & Buses	5	0	0	5	0	0	0	0	1	9	0	10	15
% Trucks & Buses	1.3	0	0	1.2	0	0	0	0	5.6	2.7	0	2.8	1.8
Bikes by Direction	2	1	0	3	0	0	0	0	0	4	0	4	7
% Bikes by Direction	0.5	2.6	0	0.7	0	0	0	0	0	1.2	0	1.1	0.8



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City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716CC
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Washington Street From North				Synagogue Driveway From East				Washington Street From South				Euston Road From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	80	1	2	0	0	0	4	1	72	0	2	11	0	7	1	181
04:15 PM	0	77	0	3	0	0	0	9	0	73	0	0	6	0	2	2	172
04:30 PM	0	97	0	4	0	0	0	15	0	76	0	0	10	0	6	6	214
04:45 PM	0	100	0	6	0	0	0	5	0	86	0	0	14	0	2	4	217
Total	0	354	1	15	0	0	0	33	1	307	0	2	41	0	17	13	784
05:00 PM	0	97	0	8	0	0	1	13	1	78	0	1	10	0	9	4	222
05:15 PM	0	102	0	5	0	0	0	19	0	78	0	2	8	0	6	15	235
05:30 PM	0	97	0	5	0	0	0	14	0	78	0	1	7	0	8	10	220
05:45 PM	0	91	0	7	0	0	0	15	0	79	0	0	6	0	6	13	217
Total	0	387	0	25	0	0	1	61	1	313	0	4	31	0	29	42	894
Grand Total	0	741	1	40	0	0	1	94	2	620	0	6	72	0	46	55	1678
Apprch %	0	94.8	0.1	5.1	0	0	1.1	98.9	0.3	98.7	0	1	41.6	0	26.6	31.8	
Total %	0	44.2	0.1	2.4	0	0	0.1	5.6	0.1	36.9	0	0.4	4.3	0	2.7	3.3	
Cars & Peds	0	729	1	40	0	0	1	94	2	595	0	6	71	0	46	55	1640
% Cars & Peds	0	98.4	100	100	0	0	100	100	100	96	0	100	98.6	0	100	100	97.7
Trucks & Buses	0	9	0	0	0	0	0	0	0	19	0	0	0	0	0	0	28
% Trucks & Buses	0	1.2	0	0	0	0	0	0	0	3.1	0	0	0	0	0	0	1.7
Bikes by Direction	0	3	0	0	0	0	0	0	0	6	0	0	1	0	0	0	10
% Bikes by Direction	0	0.4	0	0	0	0	0	0	0	1	0	0	1.4	0	0	0	0.6

	Washington Street From North					Synagogue Driveway From East					Washington Street From South					Euston Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	100	0	6	106	0	0	0	5	5	0	**86**	0	0	**86**	**14**	0	2	4	20	217
05:00 PM	0	97	0	**8**	105	0	0	**1**	13	14	**1**	78	0	1	80	10	0	**9**	4	23	222
05:15 PM	0	**102**	0	5	**107**	0	0	0	**19**	**19**	0	78	0	**2**	80	8	0	6	**15**	**29**	**235**
05:30 PM	0	97	0	5	102	0	0	0	14	14	0	78	0	1	79	7	0	8	10	25	220
Total Volume	0	396	0	24	420	0	0	1	51	52	1	320	0	4	325	39	0	25	33	97	894
% App. Total	0	94.3	0	5.7		0	0	1.9	98.1		0.3	98.5	0	1.2		40.2	0	25.8	34		
PHF	.000	.971	.000	.750	.981	.000	.000	.250	.671	.684	.250	.930	.000	.500	.945	.696	.000	.694	.550	.836	.951
Cars & Peds	0	389	0	24	413	0	0	1	51	52	1	307	0	4	312	38	0	25	33	96	873
% Cars & Peds	0	98.2	0	100	98.3	0	0	100	100	100	100	95.9	0	100	96.0	97.4	0	100	100	99.0	97.7
Trucks & Buses	0	5	0	0	5	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	15
% Trucks & Buses	0	1.3	0	0	1.2	0	0	0	0	0	0	3.1	0	0	3.1	0	0	0	0	0	1.7
Bikes by Direction	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	6
% Bikes by Direction	0	0.5	0	0	0.5	0	0	0	0	0	0	0.9	0	0	0.9	2.6	0	0	0	1.0	0.7

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File Name : 04716CC
Site Code : 04716
Start Date : 4/6/2016
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Groups Printed- Cars & Peds

	Washington Street From North				Synagogue Driveway From East				Washington Street From South				Euston Road From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	80	1	2	0	0	0	4	1	70	0	2	11	0	7	1	179
04:15 PM	0	74	0	3	0	0	0	9	0	68	0	0	6	0	2	2	164
04:30 PM	0	96	0	4	0	0	0	15	0	74	0	0	10	0	6	6	211
04:45 PM	0	99	0	6	0	0	0	5	0	84	0	0	13	0	2	4	213
Total	0	349	1	15	0	0	0	33	1	296	0	2	40	0	17	13	767
05:00 PM	0	94	0	8	0	0	1	13	1	75	0	1	10	0	9	4	216
05:15 PM	0	101	0	5	0	0	0	19	0	73	0	2	8	0	6	15	229
05:30 PM	0	95	0	5	0	0	0	14	0	75	0	1	7	0	8	10	215
05:45 PM	0	90	0	7	0	0	0	15	0	76	0	0	6	0	6	13	213
Total	0	380	0	25	0	0	1	61	1	299	0	4	31	0	29	42	873
Grand Total	0	729	1	40	0	0	1	94	2	595	0	6	71	0	46	55	1640
Apprch %	0	94.7	0.1	5.2	0	0	1.1	98.9	0.3	98.7	0	1	41.3	0	26.7	32	
Total %	0	44.5	0.1	2.4	0	0	0.1	5.7	0.1	36.3	0	0.4	4.3	0	2.8	3.4	

	Washington Street From North					Synagogue Driveway From East					Washington Street From South					Euston Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	99	0	6	105	0	0	0	5	5	0	**84**	0	0	**84**	**13**	0	2	4	19	213
05:00 PM	0	94	0	**8**	102	0	0	**1**	13	14	**1**	75	0	1	77	10	0	**9**	4	23	216
05:15 PM	0	**101**	0	5	**106**	0	0	0	**19**	**19**	0	73	0	**2**	75	8	0	6	**15**	**29**	**229**
05:30 PM	0	95	0	5	100	0	0	0	14	14	0	75	0	1	76	7	0	8	10	25	215
Total Volume	0	389	0	24	413	0	0	1	51	52	1	307	0	4	312	38	0	25	33	96	873
% App. Total	0	94.2	0	5.8		0	0	1.9	98.1		0.3	98.4	0	1.3		39.6	0	26	34.4		
PHF	.000	.963	.000	.750	.974	.000	.000	.250	.671	.684	.250	.914	.000	.500	.929	.731	.000	.694	.550	.828	.953

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Client: Nelson Nygaard/A. Fletcher

File Name : 04716CC
Site Code : 04716
Start Date : 4/6/2016

Groups Printed- Trucks & Buses

	Washington Street From North				Synagogue Driveway From East				Washington Street From South				Euston Road From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
04:15 PM	0	2	0	0	0	0	0	0	0	4	0	0	0	0	0	0	6
04:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
04:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Total	0	4	0	0	0	0	0	0	0	8	0	0	0	0	0	0	12
05:00 PM	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	6
05:15 PM	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4
05:30 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
05:45 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
Total	0	5	0	0	0	0	0	0	0	11	0	0	0	0	0	0	16
Grand Total	0	9	0	0	0	0	0	0	0	19	0	0	0	0	0	0	28
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	32.1	0	0	0	0	0	0	0	67.9	0	0	0	0	0	0	

	Washington Street From North					Synagogue Driveway From East					Washington Street From South					Euston Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	2	0	0	2	0	0	0	0	0	0	**4**	0	0	**4**	0	0	0	0	0	**6**
04:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
04:45 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
05:00 PM	0	**3**	0	0	**3**	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	6
Total Volume	0	7	0	0	7	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	16
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.583	.000	.000	.583	.000	.000	.000	.000	.000	.000	.563	.000	.000	.563	.000	.000	.000	.000	.000	.667

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File Name : 04716CC
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Start Date : 4/6/2016
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Groups Printed- Bikes by Direction

	Washington Street From North				Synagogue Driveway From East				Washington Street From South				Euston Road From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
04:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2
Total	0	1	0	0	0	0	0	0	0	3	0	0	1	0	0	0	5
05:00 PM	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	2	0	0	0	0	0	0	2
05:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	0	2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	5
Grand Total	0	3	0	0	0	0	0	0	0	6	0	0	1	0	0	0	10
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	100	0	0	0	
Total %	0	30	0	0	0	0	0	0	0	60	0	0	10	0	0	0	

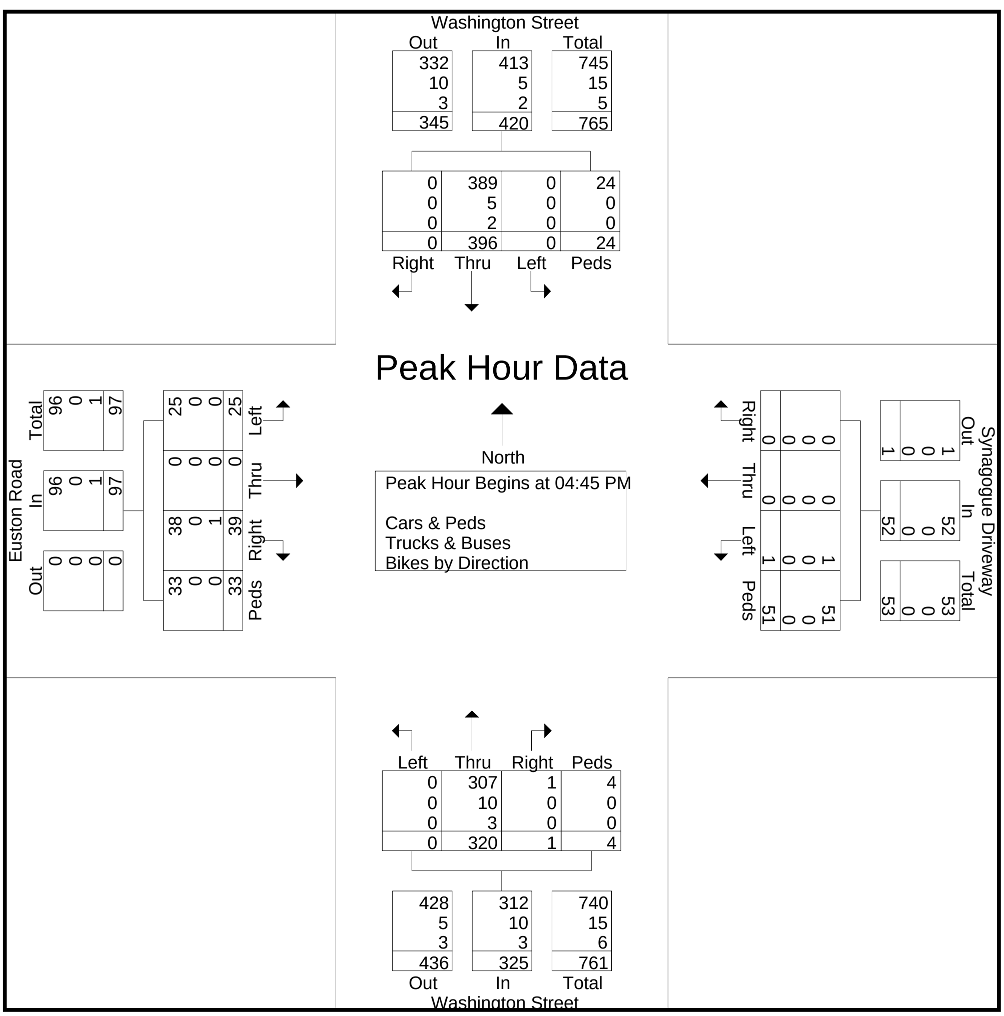
	Washington Street From North					Synagogue Driveway From East					Washington Street From South					Euston Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	**1**	0	0	0	**1**	**2**
05:00 PM	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	**2**	0	0	**2**	0	0	0	0	0	2
05:30 PM	0	**2**	0	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	6
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		100	0	0	0		
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.375	.000	.000	.375	.250	.000	.000	.000	.250	.750

Transportation Data Corporation
Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Washington Street
E/W: Synagogue Drive/Euston Road
City, State: Brighton, MA
Client: Nelson Nygaard/A. Fletcher

File Name : 04716CC
Site Code : 04716
Start Date : 4/6/2016
Page No : 1

	Washington Street From North					Synagogue Driveway From East					Washington Street From South					Euston Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	100	0	6	106	0	0	0	5	5	0	**86**	0	0	**86**	**14**	0	2	4	20	217
05:00 PM	0	97	0	**8**	105	0	0	**1**	13	14	**1**	78	0	1	80	10	0	**9**	4	23	222
05:15 PM	0	**102**	0	5	**107**	0	0	0	**19**	**19**	0	78	0	**2**	80	8	0	6	**15**	**29**	**235**
05:30 PM	0	97	0	5	102	0	0	0	14	14	0	78	0	1	79	7	0	8	10	25	220
Total Volume	0	396	0	24	420	0	0	1	51	52	1	320	0	4	325	39	0	25	33	97	894
% App. Total	0	94.3	0	5.7		0	0	1.9	98.1		0.3	98.5	0	1.2		40.2	0	25.8	34		
PHF	.000	.971	.000	.750	.981	.000	.000	.250	.671	.684	.250	.930	.000	.500	.945	.696	.000	.694	.550	.836	.951
Cars & Peds	0	389	0	24	413	0	0	1	51	52	1	307	0	4	312	38	0	25	33	96	873
% Cars & Peds	0	98.2	0	100	98.3	0	0	100	100	100	100	95.9	0	100	96.0	97.4	0	100	100	99.0	97.7
Trucks & Buses	0	5	0	0	5	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	15
% Trucks & Buses	0	1.3	0	0	1.2	0	0	0	0	0	0	3.1	0	0	3.1	0	0	0	0	0	1.7
Bikes by Direction	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	6
% Bikes by Direction	0	0.5	0	0	0.5	0	0	0	0	0	0	0.9	0	0	0.9	2.6	0	0	0	1.0	0.7



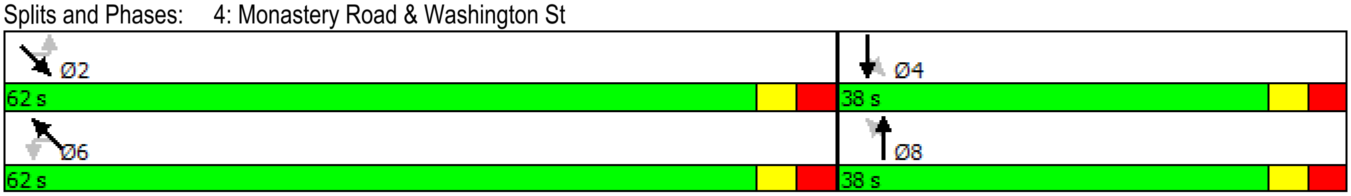
Synchro Work Sheets for 101-105 Washington Street

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	66	19	73	11	1	12	60	274	19	46	311	28
Future Volume (vph)	66	19	73	11	1	12	60	274	19	46	311	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.938			0.932			0.993			0.990	
Flt Protected		0.979			0.977			0.992			0.994	
Satd. Flow (prot)	0	1711	0	0	1696	0	0	1835	0	0	1833	0
Flt Permitted		0.852			0.864			0.876			0.920	
Satd. Flow (perm)	0	1489	0	0	1500	0	0	1620	0	0	1697	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)								5			6	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		271			242			188			258	
Travel Time (s)		7.4			6.6			5.1			7.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	21	79	12	1	13	65	298	21	50	338	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	0	0	26	0	0	384	0	0	418	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	24.5	24.5		24.5	24.5		24.5	24.5		24.5	24.5	
Total Split (s)	38.0	38.0		38.0	38.0		62.0	62.0		62.0	62.0	
Total Split (%)	38.0%	38.0%		38.0%	38.0%		62.0%	62.0%		62.0%	62.0%	
Maximum Green (s)	32.0	32.0		32.0	32.0		56.0	56.0		56.0	56.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		14.9			14.9			59.3			59.3	
Actuated g/C Ratio		0.17			0.17			0.69			0.69	
v/c Ratio		0.67			0.10			0.34			0.36	
Control Delay		45.5			28.6			7.2			7.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		45.5			28.6			7.2			7.2	
LOS		D			C			A			A	
Approach Delay		45.5			28.6			7.2			7.2	
Approach LOS		D			C			A			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 86.3	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 14.3	Intersection LOS: B
Intersection Capacity Utilization 49.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Monastery Road & Washington St



Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	20	62	0	0	0	325
Future Volume (vph)	20	62	0	0	0	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.898					
Flt Protected	0.988					
Satd. Flow (prot)	1653	0	1863	0	0	1863
Flt Permitted	0.988					
Satd. Flow (perm)	1653	0	1863	0	0	1863
Link Speed (mph)	25		25			25
Link Distance (ft)	338		89			110
Travel Time (s)	9.2		2.4			3.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	67	0	0	0	353
Shared Lane Traffic (%)						
Lane Group Flow (vph)	89	0	0	0	0	353
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 28.7%	ICU Level of Service A
Analysis Period (min) 15	

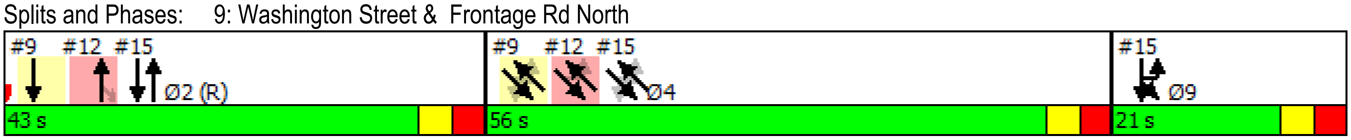
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	20	35	1	411	5	6	294	16
Future Volume (vph)	0	0	0	0	20	35	1	411	5	6	294	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.914			0.999			0.993	
Flt Protected											0.999	
Satd. Flow (prot)	0	0	0	0	1703	0	0	1861	0	0	1848	0
Flt Permitted											0.990	
Satd. Flow (perm)	0	0	0	0	1703	0	0	1861	0	0	1831	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					38			1			3	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		257			330			282			91	
Travel Time (s)		7.0			9.0			7.7			2.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	22	38	1	447	5	7	320	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	60	0	0	453	0	0	344	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2		1	2		1	2	
Detector Template					Thru		Left	Thru		Left	Thru	
Leading Detector (ft)					100		20	100		20	100	
Trailing Detector (ft)					0		0	0		0	0	
Detector 1 Position(ft)					0		0	0		0	0	
Detector 1 Size(ft)					6		20	6		20	6	
Detector 1 Type					Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)					0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)					0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)					0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type					NA		Perm	NA		Perm	NA	
Protected Phases					2			4			4	
Permitted Phases							4			4		
Detector Phase					2		4	4		4	4	
Switch Phase												
Minimum Initial (s)					5.0		5.0	5.0		5.0	5.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)					24.5		24.5	24.5		24.5	24.5	
Total Split (s)					43.0		56.0	56.0		56.0	56.0	
Total Split (%)					35.8%		46.7%	46.7%		46.7%	46.7%	
Maximum Green (s)					37.0		50.0	50.0		50.0	50.0	
Yellow Time (s)					3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)					3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0		3.0	3.0		3.0	3.0	
Recall Mode					C-Max		None	None		None	None	
Walk Time (s)					7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)					11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0		0	0	
Act Effct Green (s)					40.5			48.9			48.9	
Actuated g/C Ratio					0.34			0.41			0.41	
v/c Ratio					0.10			0.60			0.46	
Control Delay					14.2			31.4			3.2	
Queue Delay					0.0			0.2			0.0	
Total Delay					14.2			31.6			3.2	
LOS					B			C			A	
Approach Delay					14.2			31.6			3.2	
Approach LOS					B			C			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 37 (31%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 19.0	Intersection LOS: B
Intersection Capacity Utilization 36.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Washington Street & Frontage Rd North



Lane Group	Ø9
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	18%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

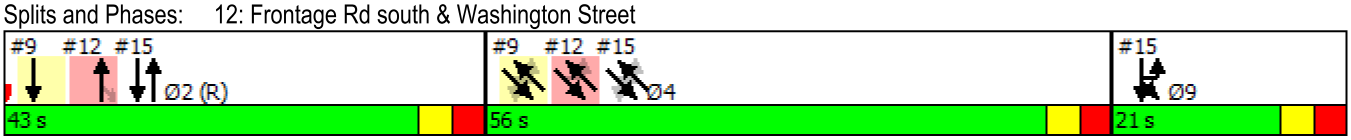
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	0	20	60	0	0	0	8	405	0	0	411	10
Future Volume (vph)	0	20	60	0	0	0	8	405	0	0	411	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.997	
Flt Protected								0.999				
Satd. Flow (prot)	0	1863	1583	0	0	0	0	1861	0	0	1857	0
Flt Permitted								0.989				
Satd. Flow (perm)	0	1863	1583	0	0	0	0	1842	0	0	1857	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82								1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		267			253			82			206	
Travel Time (s)		7.3			6.9			2.2			5.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	22	65	0	0	0	9	440	0	0	447	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	65	0	0	0	0	449	0	0	458	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1				1	2			2	
Detector Template		Thru	Right				Left	Thru			Thru	
Leading Detector (ft)		100	20				20	100			100	
Trailing Detector (ft)		0	0				0	0			0	
Detector 1 Position(ft)		0	0				0	0			0	
Detector 1 Size(ft)		6	20				20	6			6	
Detector 1 Type		Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0				0.0	0.0			0.0	
Detector 1 Queue (s)		0.0	0.0				0.0	0.0			0.0	
Detector 1 Delay (s)		0.0	0.0				0.0	0.0			0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type		NA	Perm				Perm	NA			NA	
Protected Phases		2						4			4	
Permitted Phases			2				4					
Detector Phase		2	2				4	4			4	
Switch Phase												
Minimum Initial (s)		5.0	5.0				5.0	5.0			5.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)		24.5	24.5				24.5	24.5			24.5	
Total Split (s)		43.0	43.0				56.0	56.0			56.0	
Total Split (%)		35.8%	35.8%				46.7%	46.7%			46.7%	
Maximum Green (s)		37.0	37.0				50.0	50.0			50.0	
Yellow Time (s)		3.0	3.0				3.0	3.0			3.0	
All-Red Time (s)		3.0	3.0				3.0	3.0			3.0	
Lost Time Adjust (s)		0.0	0.0					0.0			0.0	
Total Lost Time (s)		6.0	6.0					6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0				3.0	3.0			3.0	
Recall Mode		C-Max	C-Max				None	None			None	
Walk Time (s)		7.0	7.0				7.0	7.0			7.0	
Flash Dont Walk (s)		11.0	11.0				11.0	11.0			11.0	
Pedestrian Calls (#/hr)		0	0				0	0			0	
Act Effct Green (s)		40.5	40.5					48.9			48.9	
Actuated g/C Ratio		0.34	0.34					0.41			0.41	
v/c Ratio		0.03	0.11					0.60			0.60	
Control Delay		28.8	4.5					14.4			31.7	
Queue Delay		0.0	0.0					0.0			0.2	
Total Delay		28.8	4.5					14.4			31.9	
LOS		C	A					B			C	
Approach Delay		10.7						14.4			31.9	
Approach LOS		B						B			C	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 37 (31%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 22.2	Intersection LOS: C
Intersection Capacity Utilization 41.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 12: Frontage Rd south & Washington Street



Lane Group	Ø9
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	18%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT
Lane Configurations												
Traffic Volume (vph)	0	685	4	23	66	330	0	43	343	25	48	316
Future Volume (vph)	0	685	4	23	66	330	0	43	343	25	48	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0		150		0	0		0	0	
Storage Lanes	0		0		1		0	0		0	0	
Taper Length (ft)	25				25			25			25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999							0.992			0.985
Flt Protected					0.950				0.995			0.994
Satd. Flow (prot)	0	3536	0	0	1770	3539	0	0	1839	0	0	1824
Flt Permitted					0.950				0.904			0.886
Satd. Flow (perm)	0	3536	0	0	1770	3539	0	0	1670	0	0	1626
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)									3			7
Link Speed (mph)		30				30			25			25
Link Distance (ft)		322				430			91			82
Travel Time (s)		7.3				9.8			2.5			2.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	745	4	25	72	359	0	47	373	27	52	343
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	749	0	0	97	359	0	0	447	0	0	446
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)		12				12			0			0
Link Offset(ft)		0				0			0			0
Crosswalk Width(ft)		16				16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15		9	15		9	15	
Number of Detectors		2		1	1	2		1	2		1	2
Detector Template		Thru		Left	Left	Thru		Left	Thru		Left	Thru
Leading Detector (ft)		100		20	20	100		20	100		20	100
Trailing Detector (ft)		0		0	0	0		0	0		0	0
Detector 1 Position(ft)		0		0	0	0		0	0		0	0
Detector 1 Size(ft)		6		20	20	6		20	6		20	6
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94				94			94			94
Detector 2 Size(ft)		6				6			6			6
Detector 2 Type		Cl+Ex				Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0			0.0			0.0
Turn Type		NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases		2		9	9	2 9			4			4
Permitted Phases								4			4	

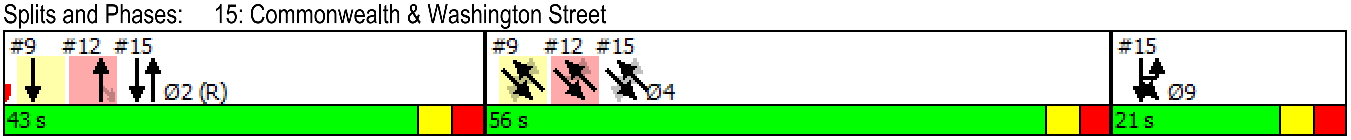
Lane Group	NWR
Lane Configurations	
Traffic Volume (vph)	47
Future Volume (vph)	47
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	51
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	

Lane Group	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT
Detector Phase		2		9	9	2 9		4	4		4	4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0			5.0	5.0		5.0	5.0
Minimum Split (s)		24.5		21.0	21.0			24.5	24.5		24.5	24.5
Total Split (s)		43.0		21.0	21.0			56.0	56.0		56.0	56.0
Total Split (%)		35.8%		17.5%	17.5%			46.7%	46.7%		46.7%	46.7%
Maximum Green (s)		37.0		15.0	15.0			50.0	50.0		50.0	50.0
Yellow Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
All-Red Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lost Time Adjust (s)		0.0			0.0				0.0			0.0
Total Lost Time (s)		6.0			6.0				6.0			6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
Recall Mode		C-Max		None	None			None	None		None	None
Walk Time (s)		7.0		7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)		40.5			12.5	59.1			48.9			48.9
Actuated g/C Ratio		0.34			0.10	0.49			0.41			0.41
v/c Ratio		0.63			0.53	0.21			0.66			0.67
Control Delay		36.9			61.0	17.9			6.4			6.5
Queue Delay		0.0			114.7	0.0			0.0			0.0
Total Delay		36.9			175.8	17.9			6.4			6.5
LOS		D			F	B			A			A
Approach Delay		36.9				51.5			6.4			6.5
Approach LOS		D				D			A			A

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 37 (31%), Referenced to phase 2:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 27.1 Intersection LOS: C
Intersection Capacity Utilization 69.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 15: Commonwealth & Washington Street



Lane Group	NWR
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	26	342	346	13	10	26
Future Volume (vph)	26	342	346	13	10	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.995		0.903	
Flt Protected		0.997			0.986	
Satd. Flow (prot)	0	1857	1853	0	1659	0
Flt Permitted		0.997			0.986	
Satd. Flow (perm)	0	1857	1853	0	1659	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		258	251		273	
Travel Time (s)		7.0	6.8		7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	372	376	14	11	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	400	390	0	39	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 49.4%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	346	345	1	3	2
Future Volume (vph)	0	346	345	1	3	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.946	
Flt Protected					0.971	
Satd. Flow (prot)	0	1863	1863	0	1711	0
Flt Permitted					0.971	
Satd. Flow (perm)	0	1863	1863	0	1711	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		251	89		156	
Travel Time (s)		6.8	2.4		4.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	376	375	1	3	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	376	376	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

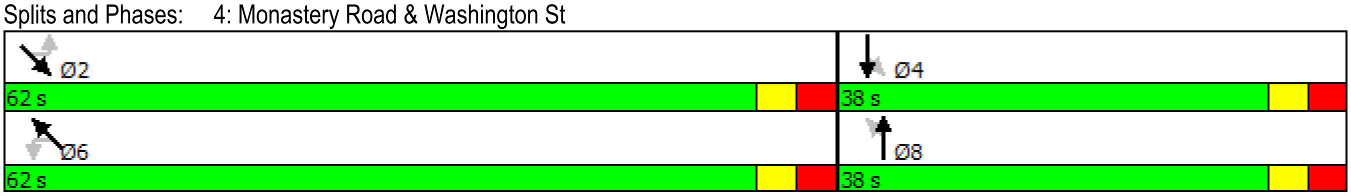
Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 28.2%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	24	4	35	40	18	65	15	360	43	47	293	6
Future Volume (vph)	24	4	35	40	18	65	15	360	43	47	293	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.925			0.928			0.986			0.997	
Flt Protected		0.981			0.984			0.998			0.993	
Satd. Flow (prot)	0	1690	0	0	1701	0	0	1833	0	0	1844	0
Flt Permitted		0.836			0.867			0.983			0.900	
Satd. Flow (perm)	0	1440	0	0	1499	0	0	1805	0	0	1671	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)								9			2	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		271			242			188			258	
Travel Time (s)		7.4			6.6			5.1			7.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	4	38	43	20	71	16	391	47	51	318	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	134	0	0	454	0	0	376	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	24.5	24.5		24.5	24.5		24.5	24.5		24.5	24.5	
Total Split (s)	38.0	38.0		38.0	38.0		62.0	62.0		62.0	62.0	
Total Split (%)	38.0%	38.0%		38.0%	38.0%		62.0%	62.0%		62.0%	62.0%	
Maximum Green (s)	32.0	32.0		32.0	32.0		56.0	56.0		56.0	56.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		12.5			12.5			59.3			59.3	
Actuated g/C Ratio		0.15			0.15			0.71			0.71	
v/c Ratio		0.32			0.60			0.35			0.32	
Control Delay		34.1			43.8			6.1			6.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		34.1			43.8			6.1			6.0	
LOS		C			D			A			A	
Approach Delay		34.1			43.8			6.1			6.0	
Approach LOS		C			D			A			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 83.8	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 12.8	Intersection LOS: B
Intersection Capacity Utilization 55.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Monastery Road & Washington St



Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	25	39	0	0	0	293
Future Volume (vph)	25	39	0	0	0	293
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.918					
Flt Protected	0.981					
Satd. Flow (prot)	1678	0	1863	0	0	1863
Flt Permitted	0.981					
Satd. Flow (perm)	1678	0	1863	0	0	1863
Link Speed (mph)	25		25			25
Link Distance (ft)	338		89			110
Travel Time (s)	9.2		2.4			3.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	42	0	0	0	318
Shared Lane Traffic (%)						
Lane Group Flow (vph)	69	0	0	0	0	318
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 25.9%	ICU Level of Service A
Analysis Period (min) 15	

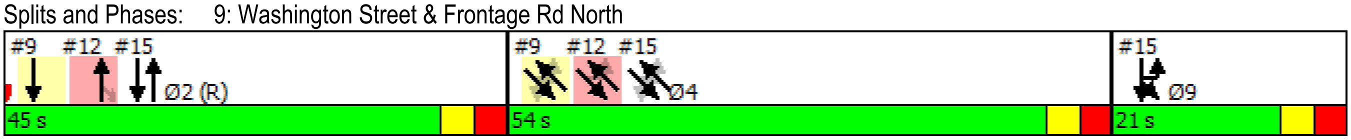
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	24	48	3	413	11	7	279	7
Future Volume (vph)	0	0	0	0	24	48	3	413	11	7	279	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.910			0.997			0.997	
Flt Protected											0.999	
Satd. Flow (prot)	0	0	0	0	1695	0	0	1857	0	0	1855	0
Flt Permitted								0.998			0.987	
Satd. Flow (perm)	0	0	0	0	1695	0	0	1853	0	0	1833	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					52			1			1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		257			330			282			91	
Travel Time (s)		7.0			9.0			7.7			2.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	26	52	3	449	12	8	303	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	78	0	0	464	0	0	319	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2		1	2		1	2	
Detector Template					Thru		Left	Thru		Left	Thru	
Leading Detector (ft)					100		20	100		20	100	
Trailing Detector (ft)					0		0	0		0	0	
Detector 1 Position(ft)					0		0	0		0	0	
Detector 1 Size(ft)					6		20	6		20	6	
Detector 1 Type					Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)					0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)					0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)					0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type					NA		Perm	NA		Perm	NA	
Protected Phases					2			4			4	
Permitted Phases							4			4		
Detector Phase					2		4	4		4	4	
Switch Phase												
Minimum Initial (s)					5.0		5.0	5.0		5.0	5.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)					24.5		24.5	24.5		24.5	24.5	
Total Split (s)					45.0		54.0	54.0		54.0	54.0	
Total Split (%)					37.5%		45.0%	45.0%		45.0%	45.0%	
Maximum Green (s)					39.0		48.0	48.0		48.0	48.0	
Yellow Time (s)					3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)					3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0		3.0	3.0		3.0	3.0	
Recall Mode					C-Max		None	None		None	None	
Walk Time (s)					7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)					11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0		0	0	
Act Effct Green (s)					39.0			48.0			48.0	
Actuated g/C Ratio					0.32			0.40			0.40	
v/c Ratio					0.13			0.63			0.44	
Control Delay					12.6			33.3			3.4	
Queue Delay					0.0			0.1			0.0	
Total Delay					12.6			33.5			3.4	
LOS					B			C			A	
Approach Delay					12.6			33.5			3.4	
Approach LOS					B			C			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 23 (19%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 20.4	Intersection LOS: C
Intersection Capacity Utilization 38.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Washington Street & Frontage Rd North



Lane Group	Ø9
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	18%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

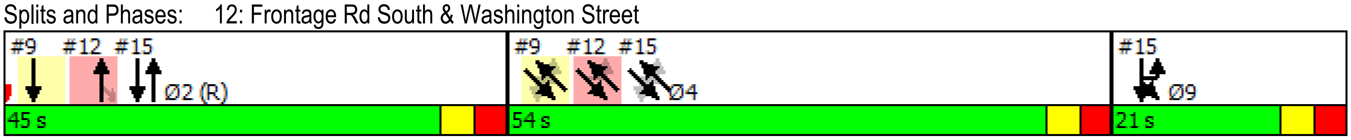
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	0	18	69	0	0	0	18	507	0	0	389	13
Future Volume (vph)	0	18	69	0	0	0	18	507	0	0	389	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.996	
Flt Protected								0.998				
Satd. Flow (prot)	0	1863	1583	0	0	0	0	1859	0	0	1855	0
Flt Permitted								0.976				
Satd. Flow (perm)	0	1863	1583	0	0	0	0	1818	0	0	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82								2	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		267			253			82			206	
Travel Time (s)		7.3			6.9			2.2			5.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	20	75	0	0	0	20	551	0	0	423	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	75	0	0	0	0	571	0	0	437	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1				1	2			2	
Detector Template		Thru	Right				Left	Thru			Thru	
Leading Detector (ft)		100	20				20	100			100	
Trailing Detector (ft)		0	0				0	0			0	
Detector 1 Position(ft)		0	0				0	0			0	
Detector 1 Size(ft)		6	20				20	6			6	
Detector 1 Type		Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0				0.0	0.0			0.0	
Detector 1 Queue (s)		0.0	0.0				0.0	0.0			0.0	
Detector 1 Delay (s)		0.0	0.0				0.0	0.0			0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type		NA	Perm				Perm	NA			NA	
Protected Phases		2						4			4	
Permitted Phases			2				4					
Detector Phase		2	2				4	4			4	
Switch Phase												
Minimum Initial (s)		5.0	5.0				5.0	5.0			5.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)		24.5	24.5				24.5	24.5			24.5	
Total Split (s)		45.0	45.0				54.0	54.0			54.0	
Total Split (%)		37.5%	37.5%				45.0%	45.0%			45.0%	
Maximum Green (s)		39.0	39.0				48.0	48.0			48.0	
Yellow Time (s)		3.0	3.0				3.0	3.0			3.0	
All-Red Time (s)		3.0	3.0				3.0	3.0			3.0	
Lost Time Adjust (s)		0.0	0.0					0.0			0.0	
Total Lost Time (s)		6.0	6.0					6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0				3.0	3.0			3.0	
Recall Mode		C-Max	C-Max				None	None			None	
Walk Time (s)		7.0	7.0				7.0	7.0			7.0	
Flash Dont Walk (s)		11.0	11.0				11.0	11.0			11.0	
Pedestrian Calls (#/hr)		0	0				0	0			0	
Act Effct Green (s)		39.0	39.0					48.0			48.0	
Actuated g/C Ratio		0.32	0.32					0.40			0.40	
v/c Ratio		0.03	0.13					0.79			0.59	
Control Delay		28.0	5.9					30.5			32.1	
Queue Delay		0.0	0.0					0.0			0.4	
Total Delay		28.0	5.9					30.5			32.5	
LOS		C	A					C			C	
Approach Delay		10.5						30.5			32.5	
Approach LOS		B						C			C	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 23 (19%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 29.6	Intersection LOS: C
Intersection Capacity Utilization 55.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 12: Frontage Rd South & Washington Street



Lane Group	Ø9
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	18%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

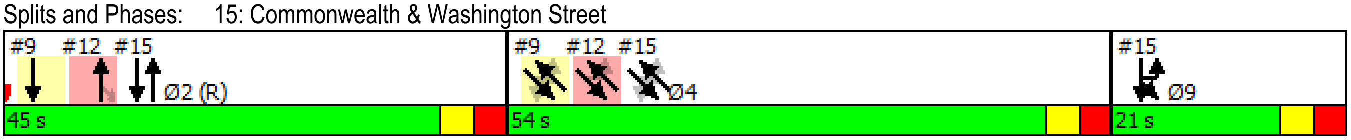
Lane Group	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT
Lane Configurations												
Traffic Volume (vph)	0	510	0	22	164	529	0	45	357	13	59	289
Future Volume (vph)	0	510	0	22	164	529	0	45	357	13	59	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0		150		0	0		0	0	
Storage Lanes	0		0		1		0	0		0	0	
Taper Length (ft)	25				25			25			25	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt									0.996			0.986
Flt Protected					0.950				0.995			0.992
Satd. Flow (prot)	0	3539	0	0	1770	3539	0	0	1846	0	0	1822
Flt Permitted					0.950				0.903			0.828
Satd. Flow (perm)	0	3539	0	0	1770	3539	0	0	1675	0	0	1521
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)									2			6
Link Speed (mph)		30				30			25			25
Link Distance (ft)		322				430			91			82
Travel Time (s)		7.3				9.8			2.5			2.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	554	0	24	178	575	0	49	388	14	64	314
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	554	0	0	202	575	0	0	451	0	0	423
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)		12				12			0			0
Link Offset(ft)		0				0			0			0
Crosswalk Width(ft)		16				16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15		9	15		9	15	
Number of Detectors		2		1	1	2		1	2		1	2
Detector Template		Thru		Left	Left	Thru		Left	Thru		Left	Thru
Leading Detector (ft)		100		20	20	100		20	100		20	100
Trailing Detector (ft)		0		0	0	0		0	0		0	0
Detector 1 Position(ft)		0		0	0	0		0	0		0	0
Detector 1 Size(ft)		6		20	20	6		20	6		20	6
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94				94			94			94
Detector 2 Size(ft)		6				6			6			6
Detector 2 Type		Cl+Ex				Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0			0.0			0.0
Turn Type		NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases		2		9	9	2 9			4			4
Permitted Phases								4			4	

Lane Group	NWR
Lane Configurations	
Traffic Volume (vph)	41
Future Volume (vph)	41
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	45
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	

Lane Group	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT
Detector Phase		2		9	9	2 9		4	4		4	4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0			5.0	5.0		5.0	5.0
Minimum Split (s)		24.5		21.0	21.0			24.5	24.5		24.5	24.5
Total Split (s)		45.0		21.0	21.0			54.0	54.0		54.0	54.0
Total Split (%)		37.5%		17.5%	17.5%			45.0%	45.0%		45.0%	45.0%
Maximum Green (s)		39.0		15.0	15.0			48.0	48.0		48.0	48.0
Yellow Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
All-Red Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lost Time Adjust (s)		0.0			0.0				0.0			0.0
Total Lost Time (s)		6.0			6.0				6.0			6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
Recall Mode		C-Max		None	None			None	None		None	None
Walk Time (s)		7.0		7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)		39.0			15.0	60.0			48.0			48.0
Actuated g/C Ratio		0.32			0.12	0.50			0.40			0.40
v/c Ratio		0.48			0.91	0.33			0.67			0.69
Control Delay		34.1			94.1	18.6			6.5			8.2
Queue Delay		0.0			114.8	0.0			0.0			0.0
Total Delay		34.1			208.9	18.6			6.6			8.2
LOS		C			F	B			A			A
Approach Delay		34.1				68.0			6.6			8.2
Approach LOS		C				E			A			A

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 23 (19%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 35.5	Intersection LOS: D
Intersection Capacity Utilization 70.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 15: Commonwealth & Washington Street



Lane Group	NWR
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	37	371	325	18	11	26
Future Volume (vph)	37	371	325	18	11	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993		0.905	
Flt Protected		0.996			0.985	
Satd. Flow (prot)	0	1855	1850	0	1660	0
Flt Permitted		0.996			0.985	
Satd. Flow (perm)	0	1855	1850	0	1660	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		258	251		273	
Travel Time (s)		7.0	6.8		7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	403	353	20	12	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	443	373	0	40	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 53.1%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	394	317	1	1	0
Future Volume (vph)	0	394	317	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1863	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1863	0	1770	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		251	89		156	
Travel Time (s)		6.8	2.4		4.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	428	345	1	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	428	346	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

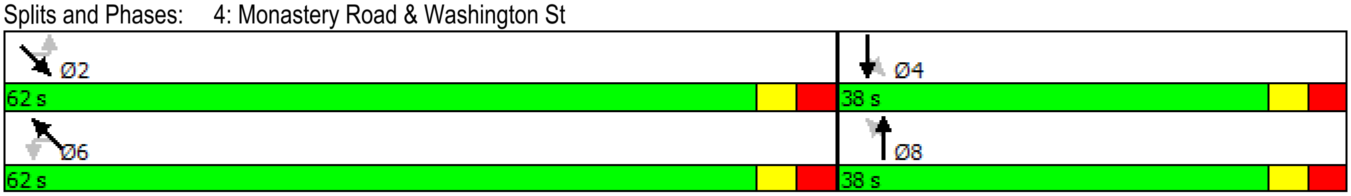
Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 30.7%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	66	19	73	11	1	12	60	280	19	46	324	28
Future Volume (vph)	66	19	73	11	1	12	60	280	19	46	324	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.938			0.932			0.993			0.991	
Flt Protected		0.979			0.977			0.992			0.994	
Satd. Flow (prot)	0	1711	0	0	1696	0	0	1835	0	0	1835	0
Flt Permitted		0.852			0.864			0.875			0.921	
Satd. Flow (perm)	0	1489	0	0	1500	0	0	1618	0	0	1700	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)								5			6	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		271			242			188			258	
Travel Time (s)		7.4			6.6			5.1			7.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	21	79	12	1	13	65	304	21	50	352	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	0	0	26	0	0	390	0	0	432	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	24.5	24.5		24.5	24.5		24.5	24.5		24.5	24.5	
Total Split (s)	38.0	38.0		38.0	38.0		62.0	62.0		62.0	62.0	
Total Split (%)	38.0%	38.0%		38.0%	38.0%		62.0%	62.0%		62.0%	62.0%	
Maximum Green (s)	32.0	32.0		32.0	32.0		56.0	56.0		56.0	56.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		14.9			14.9			59.3			59.3	
Actuated g/C Ratio		0.17			0.17			0.69			0.69	
v/c Ratio		0.67			0.10			0.35			0.37	
Control Delay		45.5			28.6			7.2			7.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		45.5			28.6			7.2			7.3	
LOS		D			C			A			A	
Approach Delay		45.5			28.6			7.2			7.3	
Approach LOS		D			C			A			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 86.3	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 14.3	Intersection LOS: B
Intersection Capacity Utilization 50.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Monastery Road & Washington St



Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	20	62	0	0	0	338
Future Volume (vph)	20	62	0	0	0	338
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.898					
Flt Protected	0.988					
Satd. Flow (prot)	1653	0	1863	0	0	1863
Flt Permitted	0.988					
Satd. Flow (perm)	1653	0	1863	0	0	1863
Link Speed (mph)	25		25			25
Link Distance (ft)	338		89			110
Travel Time (s)	9.2		2.4			3.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	67	0	0	0	367
Shared Lane Traffic (%)						
Lane Group Flow (vph)	89	0	0	0	0	367
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 29.4%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	20	39	2	416	5	6	303	16
Future Volume (vph)	0	0	0	0	20	39	2	416	5	6	303	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.911			0.999			0.993	
Flt Protected											0.999	
Satd. Flow (prot)	0	0	0	0	1697	0	0	1861	0	0	1848	0
Flt Permitted								0.999			0.990	
Satd. Flow (perm)	0	0	0	0	1697	0	0	1859	0	0	1831	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					42			1			3	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		257			330			282			91	
Travel Time (s)		7.0			9.0			7.7			2.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	22	42	2	452	5	7	329	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	64	0	0	459	0	0	353	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2		1	2		1	2	
Detector Template					Thru		Left	Thru		Left	Thru	
Leading Detector (ft)					100		20	100		20	100	
Trailing Detector (ft)					0		0	0		0	0	
Detector 1 Position(ft)					0		0	0		0	0	
Detector 1 Size(ft)					6		20	6		20	6	
Detector 1 Type					Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)					0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)					0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)					0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type					NA		Perm	NA		Perm	NA	
Protected Phases					2			4			4	
Permitted Phases							4			4		
Detector Phase					2		4	4		4	4	
Switch Phase												
Minimum Initial (s)					5.0		5.0	5.0		5.0	5.0	

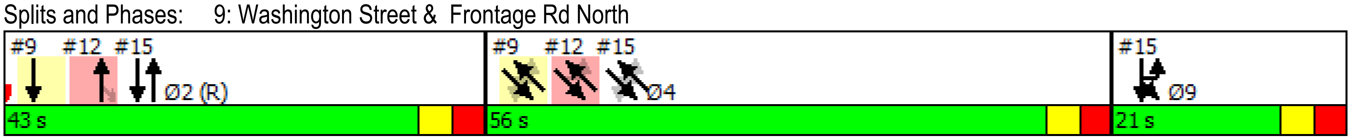
Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)					24.5		24.5	24.5		24.5	24.5	
Total Split (s)					43.0		56.0	56.0		56.0	56.0	
Total Split (%)					35.8%		46.7%	46.7%		46.7%	46.7%	
Maximum Green (s)					37.0		50.0	50.0		50.0	50.0	
Yellow Time (s)					3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)					3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0		3.0	3.0		3.0	3.0	
Recall Mode					C-Max		None	None		None	None	
Walk Time (s)					7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)					11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0		0	0	
Act Effct Green (s)					39.6			49.5			49.5	
Actuated g/C Ratio					0.33			0.41			0.41	
v/c Ratio					0.11			0.60			0.47	
Control Delay					13.8			31.3			3.0	
Queue Delay					0.0			0.2			0.0	
Total Delay					13.8			31.5			3.0	
LOS					B			C			A	
Approach Delay					13.8			31.5			3.0	
Approach LOS					B			C			A	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 37 (31%), Referenced to phase 2:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 18.7 Intersection LOS: B
Intersection Capacity Utilization 37.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Washington Street & Frontage Rd North



Lane Group	Ø9
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	18%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

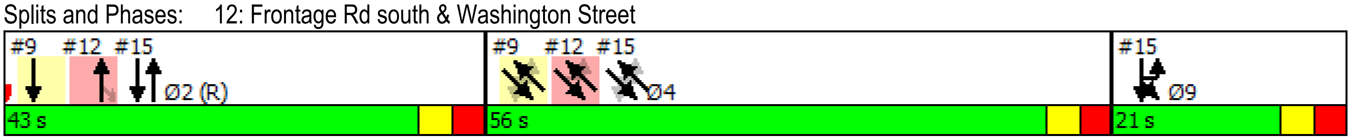
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	0	20	60	0	0	0	8	413	0	0	411	10
Future Volume (vph)	0	20	60	0	0	0	8	413	0	0	411	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.997	
Flt Protected								0.999				
Satd. Flow (prot)	0	1863	1583	0	0	0	0	1861	0	0	1857	0
Flt Permitted								0.990				
Satd. Flow (perm)	0	1863	1583	0	0	0	0	1844	0	0	1857	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82								1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		267			253			82			206	
Travel Time (s)		7.3			6.9			2.2			5.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	22	65	0	0	0	9	449	0	0	447	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	65	0	0	0	0	458	0	0	458	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1				1	2			2	
Detector Template		Thru	Right				Left	Thru			Thru	
Leading Detector (ft)		100	20				20	100			100	
Trailing Detector (ft)		0	0				0	0			0	
Detector 1 Position(ft)		0	0				0	0			0	
Detector 1 Size(ft)		6	20				20	6			6	
Detector 1 Type		Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0				0.0	0.0			0.0	
Detector 1 Queue (s)		0.0	0.0				0.0	0.0			0.0	
Detector 1 Delay (s)		0.0	0.0				0.0	0.0			0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type		NA	Perm				Perm	NA			NA	
Protected Phases		2						4			4	
Permitted Phases			2				4					
Detector Phase		2	2				4	4			4	
Switch Phase												
Minimum Initial (s)		5.0	5.0				5.0	5.0			5.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)		24.5	24.5				24.5	24.5			24.5	
Total Split (s)		43.0	43.0				56.0	56.0			56.0	
Total Split (%)		35.8%	35.8%				46.7%	46.7%			46.7%	
Maximum Green (s)		37.0	37.0				50.0	50.0			50.0	
Yellow Time (s)		3.0	3.0				3.0	3.0			3.0	
All-Red Time (s)		3.0	3.0				3.0	3.0			3.0	
Lost Time Adjust (s)		0.0	0.0					0.0			0.0	
Total Lost Time (s)		6.0	6.0					6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0				3.0	3.0			3.0	
Recall Mode		C-Max	C-Max				None	None			None	
Walk Time (s)		7.0	7.0				7.0	7.0			7.0	
Flash Dont Walk (s)		11.0	11.0				11.0	11.0			11.0	
Pedestrian Calls (#/hr)		0	0				0	0			0	
Act Effct Green (s)		39.6	39.6					49.5			49.5	
Actuated g/C Ratio		0.33	0.33					0.41			0.41	
v/c Ratio		0.04	0.11					0.60			0.60	
Control Delay		29.1	4.5					14.6			31.3	
Queue Delay		0.0	0.0					0.0			0.3	
Total Delay		29.1	4.5					14.6			31.6	
LOS		C	A					B			C	
Approach Delay		10.7						14.6			31.6	
Approach LOS		B						B			C	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 37 (31%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 22.0	Intersection LOS: C
Intersection Capacity Utilization 42.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 12: Frontage Rd south & Washington Street



Lane Group	Ø9
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	18%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

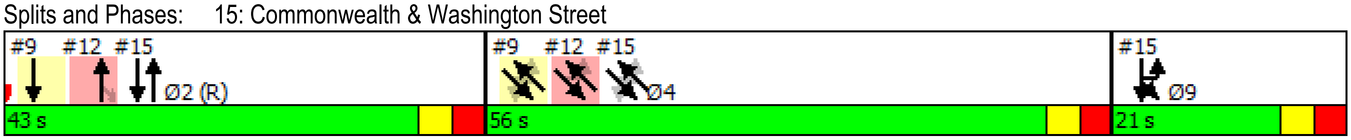
Lane Group	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT
Lane Configurations												
Traffic Volume (vph)	0	686	0	30	69	337	0	43	348	25	53	325
Future Volume (vph)	0	686	0	30	69	337	0	43	348	25	53	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0		150		0	0		0	0	
Storage Lanes	0		0		1		0	0		0	0	
Taper Length (ft)	25				25			25			25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt									0.992			0.984
Flt Protected					0.950				0.995			0.994
Satd. Flow (prot)	0	3539	0	0	1770	3539	0	0	1839	0	0	1822
Flt Permitted					0.950				0.902			0.869
Satd. Flow (perm)	0	3539	0	0	1770	3539	0	0	1667	0	0	1593
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)									3			7
Link Speed (mph)		30				30			25			25
Link Distance (ft)		322				430			91			82
Travel Time (s)		7.3				9.8			2.5			2.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	746	0	33	75	366	0	47	378	27	58	353
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	746	0	0	108	366	0	0	452	0	0	466
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)		12				12			0			0
Link Offset(ft)		0				0			0			0
Crosswalk Width(ft)		16				16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15		9	15		9	15	
Number of Detectors		2		1	1	2		1	2		1	2
Detector Template		Thru		Left	Left	Thru		Left	Thru		Left	Thru
Leading Detector (ft)		100		20	20	100		20	100		20	100
Trailing Detector (ft)		0		0	0	0		0	0		0	0
Detector 1 Position(ft)		0		0	0	0		0	0		0	0
Detector 1 Size(ft)		6		20	20	6		20	6		20	6
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94				94			94			94
Detector 2 Size(ft)		6				6			6			6
Detector 2 Type		Cl+Ex				Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0			0.0			0.0
Turn Type		NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases		2		9	9	2 9			4			4
Permitted Phases								4			4	

Lane Group	NWR
Lane Configurations	
Traffic Volume (vph)	51
Future Volume (vph)	51
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	55
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	

Lane Group	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT
Detector Phase		2		9	9	2 9		4	4		4	4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0			5.0	5.0		5.0	5.0
Minimum Split (s)		24.5		21.0	21.0			24.5	24.5		24.5	24.5
Total Split (s)		43.0		21.0	21.0			56.0	56.0		56.0	56.0
Total Split (%)		35.8%		17.5%	17.5%			46.7%	46.7%		46.7%	46.7%
Maximum Green (s)		37.0		15.0	15.0			50.0	50.0		50.0	50.0
Yellow Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
All-Red Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lost Time Adjust (s)		0.0			0.0				0.0			0.0
Total Lost Time (s)		6.0			6.0				6.0			6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
Recall Mode		C-Max		None	None			None	None		None	None
Walk Time (s)		7.0		7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)		39.6			12.9	58.5			49.5			49.5
Actuated g/C Ratio		0.33			0.11	0.49			0.41			0.41
v/c Ratio		0.64			0.57	0.21			0.66			0.70
Control Delay		37.7			62.4	18.1			6.3			8.6
Queue Delay		0.0			111.7	0.0			0.0			0.0
Total Delay		37.7			174.1	18.1			6.3			8.6
LOS		D			F	B			A			A
Approach Delay		37.7				53.7			6.3			8.6
Approach LOS		D				D			A			A

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 37 (31%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 28.3	Intersection LOS: C
Intersection Capacity Utilization 71.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 15: Commonwealth & Washington Street



Lane Group	NWR
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	26	348	359	13	10	26
Future Volume (vph)	26	348	359	13	10	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.995		0.903	
Flt Protected		0.997			0.986	
Satd. Flow (prot)	0	1857	1853	0	1659	0
Flt Permitted		0.997			0.986	
Satd. Flow (perm)	0	1857	1853	0	1659	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		258	251		273	
Travel Time (s)		7.0	6.8		7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	378	390	14	11	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	406	404	0	39	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 49.7%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	352	358	1	3	2
Future Volume (vph)	0	352	358	1	3	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.946	
Flt Protected					0.971	
Satd. Flow (prot)	0	1863	1863	0	1711	0
Flt Permitted					0.971	
Satd. Flow (perm)	0	1863	1863	0	1711	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		251	89		156	
Travel Time (s)		6.8	2.4		4.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	383	389	1	3	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	383	390	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

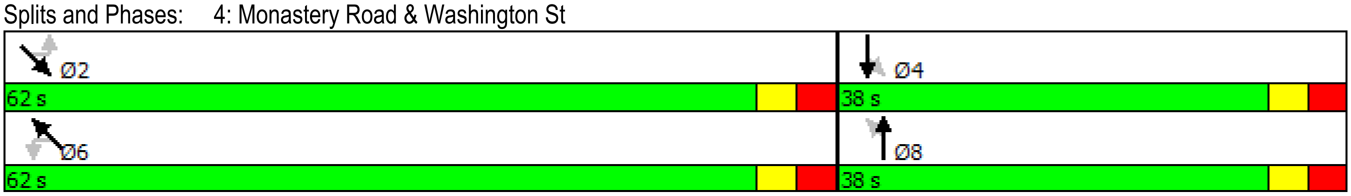
Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 28.9%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	24	4	35	40	18	65	15	380	43	47	307	6
Future Volume (vph)	24	4	35	40	18	65	15	380	43	47	307	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.925			0.928			0.987			0.998	
Flt Protected		0.981			0.984			0.998			0.994	
Satd. Flow (prot)	0	1690	0	0	1701	0	0	1835	0	0	1848	0
Flt Permitted		0.836			0.867			0.984			0.900	
Satd. Flow (perm)	0	1440	0	0	1499	0	0	1809	0	0	1673	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)								9			1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		271			242			188			258	
Travel Time (s)		7.4			6.6			5.1			7.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	4	38	43	20	71	16	413	47	51	334	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	134	0	0	476	0	0	392	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	24.5	24.5		24.5	24.5		24.5	24.5		24.5	24.5	
Total Split (s)	38.0	38.0		38.0	38.0		62.0	62.0		62.0	62.0	
Total Split (%)	38.0%	38.0%		38.0%	38.0%		62.0%	62.0%		62.0%	62.0%	
Maximum Green (s)	32.0	32.0		32.0	32.0		56.0	56.0		56.0	56.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		12.5			12.5			59.3			59.3	
Actuated g/C Ratio		0.15			0.15			0.71			0.71	
v/c Ratio		0.32			0.60			0.37			0.33	
Control Delay		34.1			43.8			6.3			6.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		34.1			43.8			6.3			6.1	
LOS		C			D			A			A	
Approach Delay		34.1			43.8			6.3			6.1	
Approach LOS		C			D			A			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 83.8	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 56.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Monastery Road & Washington St



Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	25	39	0	0	0	306
Future Volume (vph)	25	39	0	0	0	306
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.918					
Flt Protected	0.981					
Satd. Flow (prot)	1678	0	1863	0	0	1863
Flt Permitted	0.981					
Satd. Flow (perm)	1678	0	1863	0	0	1863
Link Speed (mph)	25		25			25
Link Distance (ft)	338		89			110
Travel Time (s)	9.2		2.4			3.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	42	0	0	0	333
Shared Lane Traffic (%)						
Lane Group Flow (vph)	69	0	0	0	0	333
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 26.6%	ICU Level of Service A
Analysis Period (min) 15	

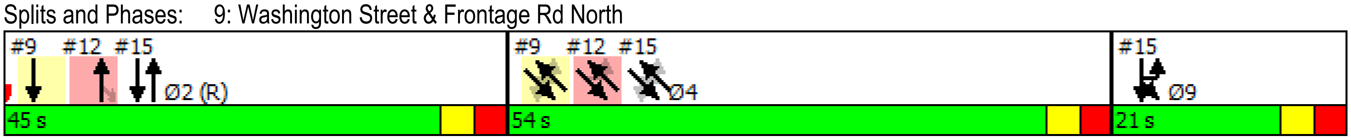
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	24	50	7	429	11	7	291	8
Future Volume (vph)	0	0	0	0	24	50	7	429	11	7	291	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.909			0.997			0.996	
Flt Protected								0.999			0.999	
Satd. Flow (prot)	0	0	0	0	1693	0	0	1855	0	0	1853	0
Flt Permitted								0.993			0.987	
Satd. Flow (perm)	0	0	0	0	1693	0	0	1844	0	0	1831	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					54			1			1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		257			330			282			91	
Travel Time (s)		7.0			9.0			7.7			2.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	26	54	8	466	12	8	316	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	80	0	0	486	0	0	333	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2		1	2		1	2	
Detector Template					Thru		Left	Thru		Left	Thru	
Leading Detector (ft)					100		20	100		20	100	
Trailing Detector (ft)					0		0	0		0	0	
Detector 1 Position(ft)					0		0	0		0	0	
Detector 1 Size(ft)					6		20	6		20	6	
Detector 1 Type					Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)					0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)					0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)					0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type					NA		Perm	NA		Perm	NA	
Protected Phases					2			4			4	
Permitted Phases							4			4		
Detector Phase					2		4	4		4	4	
Switch Phase												
Minimum Initial (s)					5.0		5.0	5.0		5.0	5.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)					24.5		24.5	24.5		24.5	24.5	
Total Split (s)					45.0		54.0	54.0		54.0	54.0	
Total Split (%)					37.5%		45.0%	45.0%		45.0%	45.0%	
Maximum Green (s)					39.0		48.0	48.0		48.0	48.0	
Yellow Time (s)					3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)					3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0		3.0	3.0		3.0	3.0	
Recall Mode					C-Max		None	None		None	None	
Walk Time (s)					7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)					11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0		0	0	
Act Effct Green (s)					39.0			48.0			48.0	
Actuated g/C Ratio					0.32			0.40			0.40	
v/c Ratio					0.14			0.66			0.45	
Control Delay					12.4			34.5			3.8	
Queue Delay					0.0			0.1			0.0	
Total Delay					12.4			34.6			3.8	
LOS					B			C			A	
Approach Delay					12.4			34.6			3.8	
Approach LOS					B			C			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 23 (19%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 21.2	Intersection LOS: C
Intersection Capacity Utilization 40.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Washington Street & Frontage Rd North



Lane Group	Ø9
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	18%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

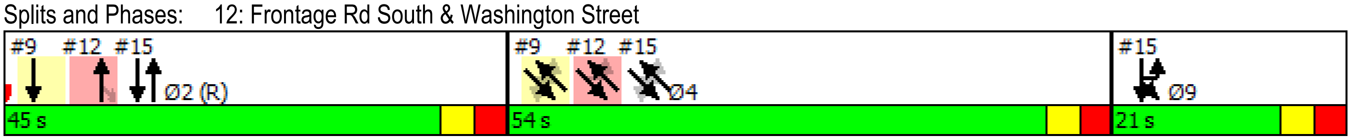
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	0	18	69	0	0	0	19	530	0	0	414	13
Future Volume (vph)	0	18	69	0	0	0	19	530	0	0	414	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.996	
Flt Protected								0.998				
Satd. Flow (prot)	0	1863	1583	0	0	0	0	1859	0	0	1855	0
Flt Permitted								0.957				
Satd. Flow (perm)	0	1863	1583	0	0	0	0	1783	0	0	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82								2	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		267			253			82			206	
Travel Time (s)		7.3			6.9			2.2			5.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	20	75	0	0	0	21	576	0	0	450	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	75	0	0	0	0	597	0	0	464	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1				1	2			2	
Detector Template		Thru	Right				Left	Thru			Thru	
Leading Detector (ft)		100	20				20	100			100	
Trailing Detector (ft)		0	0				0	0			0	
Detector 1 Position(ft)		0	0				0	0			0	
Detector 1 Size(ft)		6	20				20	6			6	
Detector 1 Type		Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0				0.0	0.0			0.0	
Detector 1 Queue (s)		0.0	0.0				0.0	0.0			0.0	
Detector 1 Delay (s)		0.0	0.0				0.0	0.0			0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type		NA	Perm				Perm	NA			NA	
Protected Phases		2						4			4	
Permitted Phases			2				4					
Detector Phase		2	2				4	4			4	
Switch Phase												
Minimum Initial (s)		5.0	5.0				5.0	5.0			5.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)		24.5	24.5				24.5	24.5			24.5	
Total Split (s)		45.0	45.0				54.0	54.0			54.0	
Total Split (%)		37.5%	37.5%				45.0%	45.0%			45.0%	
Maximum Green (s)		39.0	39.0				48.0	48.0			48.0	
Yellow Time (s)		3.0	3.0				3.0	3.0			3.0	
All-Red Time (s)		3.0	3.0				3.0	3.0			3.0	
Lost Time Adjust (s)		0.0	0.0					0.0			0.0	
Total Lost Time (s)		6.0	6.0					6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0				3.0	3.0			3.0	
Recall Mode		C-Max	C-Max				None	None			None	
Walk Time (s)		7.0	7.0				7.0	7.0			7.0	
Flash Dont Walk (s)		11.0	11.0				11.0	11.0			11.0	
Pedestrian Calls (#/hr)		0	0				0	0			0	
Act Effct Green (s)		39.0	39.0					48.0			48.0	
Actuated g/C Ratio		0.32	0.32					0.40			0.40	
v/c Ratio		0.03	0.13					0.84			0.62	
Control Delay		28.0	5.9					33.0			33.2	
Queue Delay		0.0	0.0					0.0			0.8	
Total Delay		28.0	5.9					33.0			34.0	
LOS		C	A					C			C	
Approach Delay		10.5						33.0			34.0	
Approach LOS		B						C			C	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 23 (19%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 31.5	Intersection LOS: C
Intersection Capacity Utilization 57.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 12: Frontage Rd South & Washington Street



Lane Group	Ø9
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	18%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

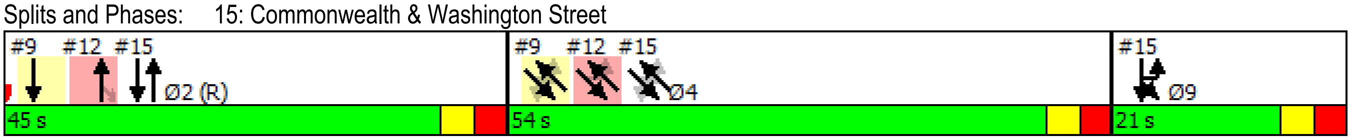
Lane Group	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT
Lane Configurations												
Traffic Volume (vph)	0	514	0	26	172	541	0	45	373	13	66	303
Future Volume (vph)	0	514	0	26	172	541	0	45	373	13	66	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0		150		0	0		0	0	
Storage Lanes	0		0		1		0	0		0	0	
Taper Length (ft)	25				25			25			25	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt									0.996			0.985
Flt Protected					0.950				0.995			0.992
Satd. Flow (prot)	0	3539	0	0	1770	3539	0	0	1846	0	0	1820
Flt Permitted					0.950				0.899			0.797
Satd. Flow (perm)	0	3539	0	0	1770	3539	0	0	1668	0	0	1462
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)									2			6
Link Speed (mph)		30				30			25			25
Link Distance (ft)		322				430			91			82
Travel Time (s)		7.3				9.8			2.5			2.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	559	0	28	187	588	0	49	405	14	72	329
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	559	0	0	215	588	0	0	468	0	0	451
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)		12				12			0			0
Link Offset(ft)		0				0			0			0
Crosswalk Width(ft)		16				16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15		9	15		9	15	
Number of Detectors		2		1	1	2		1	2		1	2
Detector Template		Thru		Left	Left	Thru		Left	Thru		Left	Thru
Leading Detector (ft)		100		20	20	100		20	100		20	100
Trailing Detector (ft)		0		0	0	0		0	0		0	0
Detector 1 Position(ft)		0		0	0	0		0	0		0	0
Detector 1 Size(ft)		6		20	20	6		20	6		20	6
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94				94			94			94
Detector 2 Size(ft)		6				6			6			6
Detector 2 Type		Cl+Ex				Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0			0.0			0.0
Turn Type		NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases		2		9	9	2 9			4			4
Permitted Phases								4			4	

Lane Group	NWR
Lane Configurations	
Traffic Volume (vph)	46
Future Volume (vph)	46
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	50
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	

Lane Group	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT
Detector Phase		2		9	9	2 9		4	4		4	4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0			5.0	5.0		5.0	5.0
Minimum Split (s)		24.5		21.0	21.0			24.5	24.5		24.5	24.5
Total Split (s)		45.0		21.0	21.0			54.0	54.0		54.0	54.0
Total Split (%)		37.5%		17.5%	17.5%			45.0%	45.0%		45.0%	45.0%
Maximum Green (s)		39.0		15.0	15.0			48.0	48.0		48.0	48.0
Yellow Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
All-Red Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lost Time Adjust (s)		0.0			0.0				0.0			0.0
Total Lost Time (s)		6.0			6.0				6.0			6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
Recall Mode		C-Max		None	None			None	None		None	None
Walk Time (s)		7.0		7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)		39.0			15.0	60.0			48.0			48.0
Actuated g/C Ratio		0.32			0.12	0.50			0.40			0.40
v/c Ratio		0.49			0.97	0.33			0.70			0.77
Control Delay		34.2			106.7	18.7			6.9			12.0
Queue Delay		0.0			105.5	0.0			0.0			0.0
Total Delay		34.2			212.1	18.7			6.9			12.0
LOS		C			F	B			A			B
Approach Delay		34.2				70.5			6.9			12.0
Approach LOS		C				E			A			B

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 23 (19%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 37.0	Intersection LOS: D
Intersection Capacity Utilization 74.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 15: Commonwealth & Washington Street



Lane Group	NWR
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	37	391	339	18	11	26
Future Volume (vph)	37	391	339	18	11	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993		0.905	
Flt Protected		0.996			0.985	
Satd. Flow (prot)	0	1855	1850	0	1660	0
Flt Permitted		0.996			0.985	
Satd. Flow (perm)	0	1855	1850	0	1660	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		258	251		273	
Travel Time (s)		7.0	6.8		7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	425	368	20	12	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	465	388	0	40	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 54.9%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	0	414	331	1	1	0
Future Volume (vph)	0	414	331	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	1863	0	1805	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	1863	0	1805	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		251	89		156	
Travel Time (s)		6.8	2.4		4.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	0	450	360	1	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	450	361	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

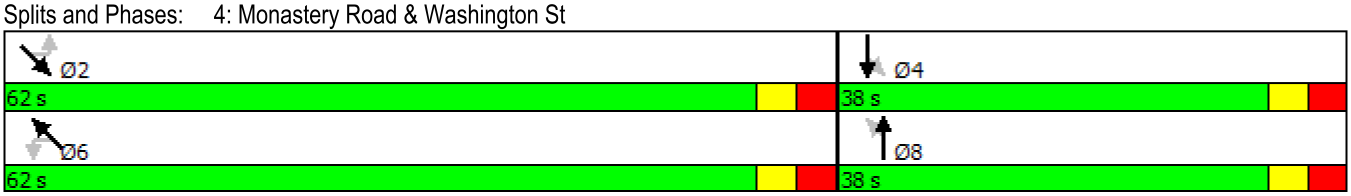
Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 31.8%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	66	19	73	11	1	12	60	283	19	47	332	28
Future Volume (vph)	66	19	73	11	1	12	60	283	19	47	332	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.938			0.932			0.993			0.991	
Flt Protected		0.979			0.977			0.992			0.994	
Satd. Flow (prot)	0	1711	0	0	1696	0	0	1835	0	0	1835	0
Flt Permitted		0.852			0.864			0.874			0.921	
Satd. Flow (perm)	0	1489	0	0	1500	0	0	1617	0	0	1700	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)								5			6	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		271			242			188			258	
Travel Time (s)		7.4			6.6			5.1			7.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	21	79	12	1	13	65	308	21	51	361	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	0	0	26	0	0	394	0	0	442	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	24.5	24.5		24.5	24.5		24.5	24.5		24.5	24.5	
Total Split (s)	38.0	38.0		38.0	38.0		62.0	62.0		62.0	62.0	
Total Split (%)	38.0%	38.0%		38.0%	38.0%		62.0%	62.0%		62.0%	62.0%	
Maximum Green (s)	32.0	32.0		32.0	32.0		56.0	56.0		56.0	56.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		14.9			14.9			59.3			59.3	
Actuated g/C Ratio		0.17			0.17			0.69			0.69	
v/c Ratio		0.67			0.10			0.35			0.38	
Control Delay		45.5			28.6			7.3			7.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		45.5			28.6			7.3			7.4	
LOS		D			C			A			A	
Approach Delay		45.5			28.6			7.3			7.4	
Approach LOS		D			C			A			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 86.3	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 14.2	Intersection LOS: B
Intersection Capacity Utilization 50.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Monastery Road & Washington St



Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	20	62	0	0	0	340
Future Volume (vph)	20	62	0	0	0	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.898					
Flt Protected	0.988					
Satd. Flow (prot)	1653	0	1863	0	0	1863
Flt Permitted	0.988					
Satd. Flow (perm)	1653	0	1863	0	0	1863
Link Speed (mph)	25		25			25
Link Distance (ft)	338		89			110
Travel Time (s)	9.2		2.4			3.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	67	0	0	0	370
Shared Lane Traffic (%)						
Lane Group Flow (vph)	89	0	0	0	0	370
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 29.5%	ICU Level of Service A
Analysis Period (min) 15	

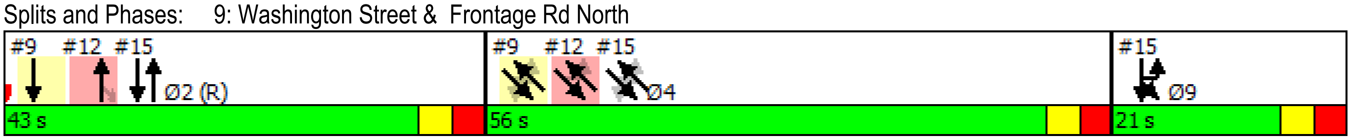
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	20	39	3	421	7	6	304	16
Future Volume (vph)	0	0	0	0	20	39	3	421	7	6	304	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.911			0.998			0.994	
Flt Protected											0.999	
Satd. Flow (prot)	0	0	0	0	1697	0	0	1859	0	0	1850	0
Flt Permitted								0.998			0.990	
Satd. Flow (perm)	0	0	0	0	1697	0	0	1855	0	0	1833	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					42			1			3	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		257			330			282			91	
Travel Time (s)		7.0			9.0			7.7			2.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	22	42	3	458	8	7	330	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	64	0	0	469	0	0	354	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2		1	2		1	2	
Detector Template					Thru		Left	Thru		Left	Thru	
Leading Detector (ft)					100		20	100		20	100	
Trailing Detector (ft)					0		0	0		0	0	
Detector 1 Position(ft)					0		0	0		0	0	
Detector 1 Size(ft)					6		20	6		20	6	
Detector 1 Type					Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)					0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)					0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)					0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type					NA		Perm	NA		Perm	NA	
Protected Phases					2			4			4	
Permitted Phases							4			4		
Detector Phase					2		4	4		4	4	
Switch Phase												
Minimum Initial (s)					5.0		5.0	5.0		5.0	5.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)					24.5		24.5	24.5		24.5	24.5	
Total Split (s)					43.0		56.0	56.0		56.0	56.0	
Total Split (%)					35.8%		46.7%	46.7%		46.7%	46.7%	
Maximum Green (s)					37.0		50.0	50.0		50.0	50.0	
Yellow Time (s)					3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)					3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0		3.0	3.0		3.0	3.0	
Recall Mode					C-Max		None	None		None	None	
Walk Time (s)					7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)					11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0		0	0	
Act Effct Green (s)					39.6			49.5			49.5	
Actuated g/C Ratio					0.33			0.41			0.41	
v/c Ratio					0.11			0.61			0.47	
Control Delay					13.8			31.7			3.1	
Queue Delay					0.0			0.2			0.0	
Total Delay					13.8			31.9			3.1	
LOS					B			C			A	
Approach Delay					13.8			31.9			3.1	
Approach LOS					B			C			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 37 (31%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 19.1	Intersection LOS: B
Intersection Capacity Utilization 38.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Washington Street & Frontage Rd North



Lane Group	Ø9
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	18%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

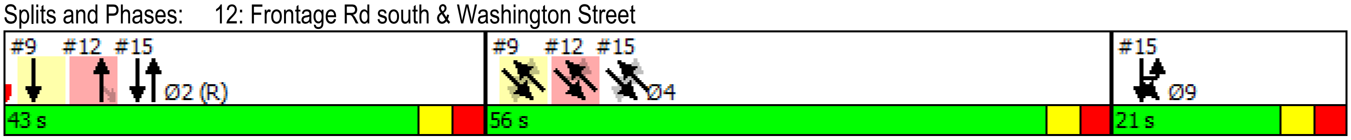
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	0	20	60	0	0	0	8	416	0	0	412	10
Future Volume (vph)	0	20	60	0	0	0	8	416	0	0	412	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.997	
Flt Protected								0.999				
Satd. Flow (prot)	0	1863	1583	0	0	0	0	1861	0	0	1857	0
Flt Permitted								0.990				
Satd. Flow (perm)	0	1863	1583	0	0	0	0	1844	0	0	1857	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82								1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		267			253			82			206	
Travel Time (s)		7.3			6.9			2.2			5.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	22	65	0	0	0	9	452	0	0	448	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	65	0	0	0	0	461	0	0	459	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1				1	2			2	
Detector Template		Thru	Right				Left	Thru			Thru	
Leading Detector (ft)		100	20				20	100			100	
Trailing Detector (ft)		0	0				0	0			0	
Detector 1 Position(ft)		0	0				0	0			0	
Detector 1 Size(ft)		6	20				20	6			6	
Detector 1 Type		Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0				0.0	0.0			0.0	
Detector 1 Queue (s)		0.0	0.0				0.0	0.0			0.0	
Detector 1 Delay (s)		0.0	0.0				0.0	0.0			0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type		NA	Perm				Perm	NA			NA	
Protected Phases		2						4			4	
Permitted Phases			2				4					
Detector Phase		2	2				4	4			4	
Switch Phase												
Minimum Initial (s)		5.0	5.0				5.0	5.0			5.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)		24.5	24.5				24.5	24.5			24.5	
Total Split (s)		43.0	43.0				56.0	56.0			56.0	
Total Split (%)		35.8%	35.8%				46.7%	46.7%			46.7%	
Maximum Green (s)		37.0	37.0				50.0	50.0			50.0	
Yellow Time (s)		3.0	3.0				3.0	3.0			3.0	
All-Red Time (s)		3.0	3.0				3.0	3.0			3.0	
Lost Time Adjust (s)		0.0	0.0					0.0			0.0	
Total Lost Time (s)		6.0	6.0					6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0				3.0	3.0			3.0	
Recall Mode		C-Max	C-Max				None	None			None	
Walk Time (s)		7.0	7.0				7.0	7.0			7.0	
Flash Dont Walk (s)		11.0	11.0				11.0	11.0			11.0	
Pedestrian Calls (#/hr)		0	0				0	0			0	
Act Effct Green (s)		39.6	39.6					49.5			49.5	
Actuated g/C Ratio		0.33	0.33					0.41			0.41	
v/c Ratio		0.04	0.11					0.61			0.60	
Control Delay		29.1	4.5					14.4			31.3	
Queue Delay		0.0	0.0					0.0			0.3	
Total Delay		29.1	4.5					14.4			31.6	
LOS		C	A					B			C	
Approach Delay		10.7						14.4			31.6	
Approach LOS		B						B			C	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 37 (31%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 22.0	Intersection LOS: C
Intersection Capacity Utilization 42.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 12: Frontage Rd south & Washington Street



Lane Group	Ø9
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	18%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

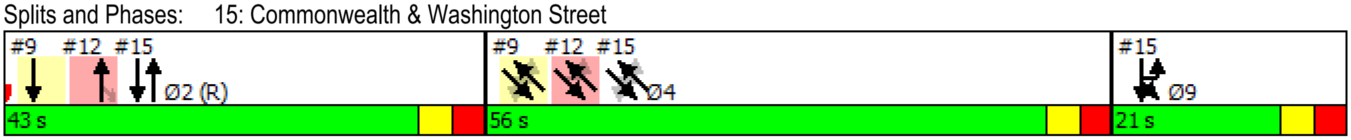
Lane Group	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT
Lane Configurations												
Traffic Volume (vph)	0	686	0	30	69	337	0	44	351	27	53	325
Future Volume (vph)	0	686	0	30	69	337	0	44	351	27	53	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0		150		0	0		0	0	
Storage Lanes	0		0		1		0	0		0	0	
Taper Length (ft)	25				25			25			25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt									0.991			0.984
Flt Protected					0.950				0.995			0.994
Satd. Flow (prot)	0	3539	0	0	1770	3539	0	0	1837	0	0	1822
Flt Permitted					0.950				0.900			0.866
Satd. Flow (perm)	0	3539	0	0	1770	3539	0	0	1661	0	0	1587
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)									3			7
Link Speed (mph)		30				30			25			25
Link Distance (ft)		322				430			91			82
Travel Time (s)		7.3				9.8			2.5			2.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	746	0	33	75	366	0	48	382	29	58	353
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	746	0	0	108	366	0	0	459	0	0	466
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)		12				12			0			0
Link Offset(ft)		0				0			0			0
Crosswalk Width(ft)		16				16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15		9	15		9	15	
Number of Detectors		2		1	1	2		1	2		1	2
Detector Template		Thru		Left	Left	Thru		Left	Thru		Left	Thru
Leading Detector (ft)		100		20	20	100		20	100		20	100
Trailing Detector (ft)		0		0	0	0		0	0		0	0
Detector 1 Position(ft)		0		0	0	0		0	0		0	0
Detector 1 Size(ft)		6		20	20	6		20	6		20	6
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94				94			94			94
Detector 2 Size(ft)		6				6			6			6
Detector 2 Type		Cl+Ex				Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0			0.0			0.0
Turn Type		NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases		2		9	9	2 9			4			4
Permitted Phases								4			4	

Lane Group	NWR
Lane Configurations	
Traffic Volume (vph)	51
Future Volume (vph)	51
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	55
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	

Lane Group	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT
Detector Phase		2		9	9	2 9		4	4		4	4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0			5.0	5.0		5.0	5.0
Minimum Split (s)		24.5		21.0	21.0			24.5	24.5		24.5	24.5
Total Split (s)		43.0		21.0	21.0			56.0	56.0		56.0	56.0
Total Split (%)		35.8%		17.5%	17.5%			46.7%	46.7%		46.7%	46.7%
Maximum Green (s)		37.0		15.0	15.0			50.0	50.0		50.0	50.0
Yellow Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
All-Red Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lost Time Adjust (s)		0.0			0.0				0.0			0.0
Total Lost Time (s)		6.0			6.0				6.0			6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
Recall Mode		C-Max		None	None			None	None		None	None
Walk Time (s)		7.0		7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)		39.6			12.9	58.5			49.5			49.5
Actuated g/C Ratio		0.33			0.11	0.49			0.41			0.41
v/c Ratio		0.64			0.57	0.21			0.67			0.71
Control Delay		37.7			62.4	18.1			6.5			8.7
Queue Delay		0.0			110.4	0.0			0.0			0.0
Total Delay		37.7			172.8	18.1			6.5			8.7
LOS		D			F	B			A			A
Approach Delay		37.7				53.4			6.5			8.7
Approach LOS		D				D			A			A

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 37 (31%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 28.2	Intersection LOS: C
Intersection Capacity Utilization 71.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 15: Commonwealth & Washington Street



Lane Group	NWR
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	26	351	368	13	10	26
Future Volume (vph)	26	351	368	13	10	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.995		0.903	
Flt Protected		0.997			0.986	
Satd. Flow (prot)	0	1857	1853	0	1659	0
Flt Permitted		0.997			0.986	
Satd. Flow (perm)	0	1857	1853	0	1659	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		258	251		273	
Travel Time (s)		7.0	6.8		7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	382	400	14	11	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	410	414	0	39	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 49.9%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	3	352	358	2	9	11
Future Volume (vph)	3	352	358	2	9	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.926	
Flt Protected		0.999			0.978	
Satd. Flow (prot)	0	1861	1861	0	1721	0
Flt Permitted		0.999			0.978	
Satd. Flow (perm)	0	1861	1861	0	1721	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		251	89		156	
Travel Time (s)		6.8	2.4		4.3	
Peak Hour Factor	0.50	0.92	0.92	0.50	0.50	0.50
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	6	383	389	4	18	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	389	393	0	40	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

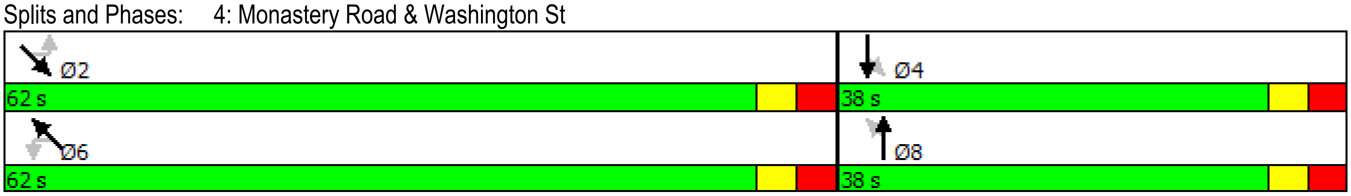
Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 30.9%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	24	4	35	40	18	65	15	387	43	48	311	6
Future Volume (vph)	24	4	35	40	18	65	15	387	43	48	311	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.925			0.928			0.987			0.998	
Flt Protected		0.981			0.984			0.998			0.993	
Satd. Flow (prot)	0	1690	0	0	1701	0	0	1835	0	0	1846	0
Flt Permitted		0.836			0.867			0.984			0.897	
Satd. Flow (perm)	0	1440	0	0	1499	0	0	1809	0	0	1668	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)								9			1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		271			242			188			258	
Travel Time (s)		7.4			6.6			5.1			7.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	4	38	43	20	71	16	421	47	52	338	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	134	0	0	484	0	0	397	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Detector Phase	8	8		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)	24.5	24.5		24.5	24.5		24.5	24.5		24.5	24.5	
Total Split (s)	38.0	38.0		38.0	38.0		62.0	62.0		62.0	62.0	
Total Split (%)	38.0%	38.0%		38.0%	38.0%		62.0%	62.0%		62.0%	62.0%	
Maximum Green (s)	32.0	32.0		32.0	32.0		56.0	56.0		56.0	56.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		12.5			12.5			59.3			59.3	
Actuated g/C Ratio		0.15			0.15			0.71			0.71	
v/c Ratio		0.32			0.60			0.38			0.34	
Control Delay		34.1			43.8			6.3			6.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		34.1			43.8			6.3			6.2	
LOS		C			D			A			A	
Approach Delay		34.1			43.8			6.3			6.2	
Approach LOS		C			D			A			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 83.8	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 12.6	Intersection LOS: B
Intersection Capacity Utilization 57.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Monastery Road & Washington St



Lane Group	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	28	39	0	0	0	313
Future Volume (vph)	28	39	0	0	0	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.921					
Flt Protected	0.980					
Satd. Flow (prot)	1681	0	1863	0	0	1863
Flt Permitted	0.980					
Satd. Flow (perm)	1681	0	1863	0	0	1863
Link Speed (mph)	25		25			25
Link Distance (ft)	338		89			110
Travel Time (s)	9.2		2.4			3.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	42	0	0	0	340
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	0	0	0	0	340
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 27.1% ICU Level of Service A
Analysis Period (min) 15

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	24	51	8	431	12	7	296	8
Future Volume (vph)	0	0	0	0	24	51	8	431	12	7	296	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.908			0.996			0.996	
Flt Protected								0.999			0.999	
Satd. Flow (prot)	0	0	0	0	1691	0	0	1853	0	0	1853	0
Flt Permitted								0.992			0.987	
Satd. Flow (perm)	0	0	0	0	1691	0	0	1840	0	0	1831	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					55			1			1	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		257			330			282			91	
Travel Time (s)		7.0			9.0			7.7			2.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	26	55	9	468	13	8	322	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	81	0	0	490	0	0	339	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors					2		1	2		1	2	
Detector Template					Thru		Left	Thru		Left	Thru	
Leading Detector (ft)					100		20	100		20	100	
Trailing Detector (ft)					0		0	0		0	0	
Detector 1 Position(ft)					0		0	0		0	0	
Detector 1 Size(ft)					6		20	6		20	6	
Detector 1 Type					Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)					0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)					0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)					0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type					NA		Perm	NA		Perm	NA	
Protected Phases					2			4			4	
Permitted Phases							4			4		
Detector Phase					2		4	4		4	4	
Switch Phase												
Minimum Initial (s)					5.0		5.0	5.0		5.0	5.0	

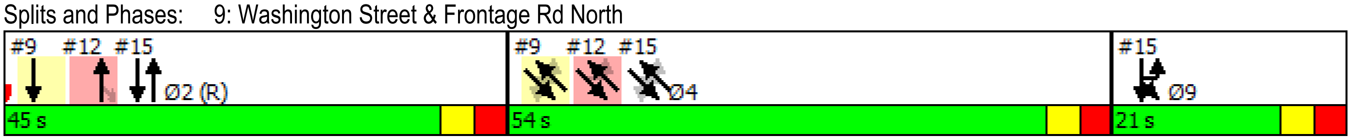
Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)					24.5		24.5	24.5		24.5	24.5	
Total Split (s)					45.0		54.0	54.0		54.0	54.0	
Total Split (%)					37.5%		45.0%	45.0%		45.0%	45.0%	
Maximum Green (s)					39.0		48.0	48.0		48.0	48.0	
Yellow Time (s)					3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)					3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					3.0		3.0	3.0		3.0	3.0	
Recall Mode					C-Max		None	None		None	None	
Walk Time (s)					7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)					11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)					0		0	0		0	0	
Act Effct Green (s)					39.0			48.0			48.0	
Actuated g/C Ratio					0.32			0.40			0.40	
v/c Ratio					0.14			0.67			0.46	
Control Delay					12.2			34.8			4.2	
Queue Delay					0.0			0.1			0.0	
Total Delay					12.2			34.9			4.2	
LOS					B			C			A	
Approach Delay					12.2			34.9			4.3	
Approach LOS					B			C			A	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 23 (19%), Referenced to phase 2:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 21.4 Intersection LOS: C
Intersection Capacity Utilization 41.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Washington Street & Frontage Rd North



Lane Group	Ø9
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	18%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

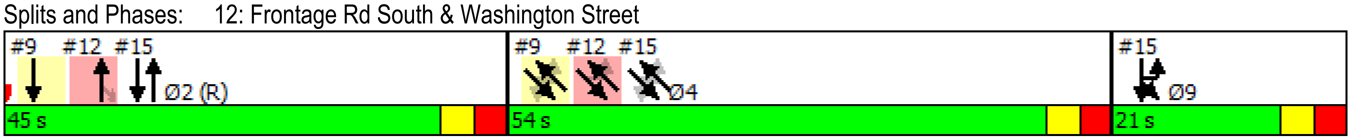
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	0	18	69	0	0	0	19	531	0	0	417	13
Future Volume (vph)	0	18	69	0	0	0	19	531	0	0	417	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850								0.996	
Flt Protected								0.998				
Satd. Flow (prot)	0	1863	1583	0	0	0	0	1859	0	0	1855	0
Flt Permitted								0.953				
Satd. Flow (perm)	0	1863	1583	0	0	0	0	1775	0	0	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82								2	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		267			253			82			206	
Travel Time (s)		7.3			6.9			2.2			5.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	20	75	0	0	0	21	577	0	0	453	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	75	0	0	0	0	598	0	0	467	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1				1	2			2	
Detector Template		Thru	Right				Left	Thru			Thru	
Leading Detector (ft)		100	20				20	100			100	
Trailing Detector (ft)		0	0				0	0			0	
Detector 1 Position(ft)		0	0				0	0			0	
Detector 1 Size(ft)		6	20				20	6			6	
Detector 1 Type		Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0				0.0	0.0			0.0	
Detector 1 Queue (s)		0.0	0.0				0.0	0.0			0.0	
Detector 1 Delay (s)		0.0	0.0				0.0	0.0			0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type		NA	Perm				Perm	NA			NA	
Protected Phases		2						4			4	
Permitted Phases			2				4					
Detector Phase		2	2				4	4			4	
Switch Phase												
Minimum Initial (s)		5.0	5.0				5.0	5.0			5.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)		24.5	24.5				24.5	24.5			24.5	
Total Split (s)		45.0	45.0				54.0	54.0			54.0	
Total Split (%)		37.5%	37.5%				45.0%	45.0%			45.0%	
Maximum Green (s)		39.0	39.0				48.0	48.0			48.0	
Yellow Time (s)		3.0	3.0				3.0	3.0			3.0	
All-Red Time (s)		3.0	3.0				3.0	3.0			3.0	
Lost Time Adjust (s)		0.0	0.0					0.0			0.0	
Total Lost Time (s)		6.0	6.0					6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0				3.0	3.0			3.0	
Recall Mode		C-Max	C-Max				None	None			None	
Walk Time (s)		7.0	7.0				7.0	7.0			7.0	
Flash Dont Walk (s)		11.0	11.0				11.0	11.0			11.0	
Pedestrian Calls (#/hr)		0	0				0	0			0	
Act Effct Green (s)		39.0	39.0					48.0			48.0	
Actuated g/C Ratio		0.32	0.32					0.40			0.40	
v/c Ratio		0.03	0.13					0.84			0.63	
Control Delay		28.0	5.9					33.1			33.4	
Queue Delay		0.0	0.0					0.0			0.8	
Total Delay		28.0	5.9					33.1			34.1	
LOS		C	A					C			C	
Approach Delay		10.5						33.1			34.1	
Approach LOS		B						C			C	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 23 (19%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 31.7	Intersection LOS: C
Intersection Capacity Utilization 57.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 12: Frontage Rd South & Washington Street



Lane Group	Ø9
Minimum Split (s)	21.0
Total Split (s)	21.0
Total Split (%)	18%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

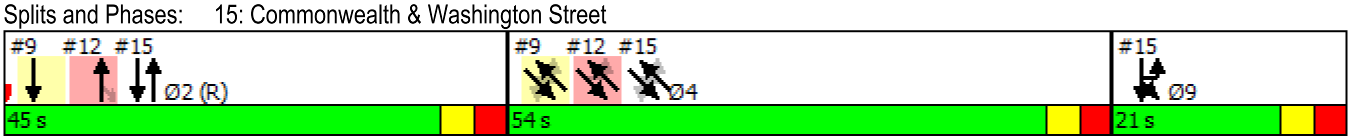
Lane Group	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT
Lane Configurations												
Traffic Volume (vph)	0	514	0	26	172	541	0	46	374	14	66	303
Future Volume (vph)	0	514	0	26	172	541	0	46	374	14	66	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0		150		0	0		0	0	
Storage Lanes	0		0		1		0	0		0	0	
Taper Length (ft)	25				25			25			25	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt									0.996			0.985
Flt Protected					0.950				0.995			0.992
Satd. Flow (prot)	0	3539	0	0	1770	3539	0	0	1846	0	0	1820
Flt Permitted					0.950				0.896			0.796
Satd. Flow (perm)	0	3539	0	0	1770	3539	0	0	1662	0	0	1461
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)									2			6
Link Speed (mph)		30				30			25			25
Link Distance (ft)		322				430			91			82
Travel Time (s)		7.3				9.8			2.5			2.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	559	0	28	187	588	0	50	407	15	72	329
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	559	0	0	215	588	0	0	472	0	0	451
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)		12				12			0			0
Link Offset(ft)		0				0			0			0
Crosswalk Width(ft)		16				16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	9	15		9	15		9	15	
Number of Detectors		2		1	1	2		1	2		1	2
Detector Template		Thru		Left	Left	Thru		Left	Thru		Left	Thru
Leading Detector (ft)		100		20	20	100		20	100		20	100
Trailing Detector (ft)		0		0	0	0		0	0		0	0
Detector 1 Position(ft)		0		0	0	0		0	0		0	0
Detector 1 Size(ft)		6		20	20	6		20	6		20	6
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94				94			94			94
Detector 2 Size(ft)		6				6			6			6
Detector 2 Type		Cl+Ex				Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0			0.0			0.0
Turn Type		NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases		2		9	9	2 9			4			4
Permitted Phases								4			4	

Lane Group	NWR
Lane Configurations	
Traffic Volume (vph)	46
Future Volume (vph)	46
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	50
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.00
Turning Speed (mph)	9
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	

Lane Group	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT
Detector Phase		2		9	9	2 9		4	4		4	4
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0			5.0	5.0		5.0	5.0
Minimum Split (s)		24.5		21.0	21.0			24.5	24.5		24.5	24.5
Total Split (s)		45.0		21.0	21.0			54.0	54.0		54.0	54.0
Total Split (%)		37.5%		17.5%	17.5%			45.0%	45.0%		45.0%	45.0%
Maximum Green (s)		39.0		15.0	15.0			48.0	48.0		48.0	48.0
Yellow Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
All-Red Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lost Time Adjust (s)		0.0			0.0				0.0			0.0
Total Lost Time (s)		6.0			6.0				6.0			6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	3.0
Recall Mode		C-Max		None	None			None	None		None	None
Walk Time (s)		7.0		7.0	7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0		11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)		39.0			15.0	60.0			48.0			48.0
Actuated g/C Ratio		0.32			0.12	0.50			0.40			0.40
v/c Ratio		0.49			0.97	0.33			0.71			0.77
Control Delay		34.2			106.7	18.7			7.1			12.0
Queue Delay		0.0			105.5	0.0			0.0			0.0
Total Delay		34.2			212.1	18.7			7.1			12.0
LOS		C			F	B			A			B
Approach Delay		34.2				70.5			7.1			12.0
Approach LOS		C				E			A			B

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 23 (19%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 37.0	Intersection LOS: D
Intersection Capacity Utilization 74.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 15: Commonwealth & Washington Street



Lane Group	NWR
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	37	398	344	18	11	26
Future Volume (vph)	37	398	344	18	11	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993		0.905	
Flt Protected		0.996			0.985	
Satd. Flow (prot)	0	1855	1850	0	1660	0
Flt Permitted		0.996			0.985	
Satd. Flow (perm)	0	1855	1850	0	1660	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		258	251		273	
Travel Time (s)		7.0	6.8		7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	433	374	20	12	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	473	394	0	40	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 55.5%	ICU Level of Service B
Analysis Period (min) 15	

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	7	414	331	10	4	5
Future Volume (vph)	7	414	331	10	4	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993		0.925	
Flt Protected		0.998			0.978	
Satd. Flow (prot)	0	1860	1852	0	1719	0
Flt Permitted		0.998			0.978	
Satd. Flow (perm)	0	1860	1852	0	1719	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		251	89		156	
Travel Time (s)		6.8	2.4		4.3	
Peak Hour Factor	0.50	0.92	0.92	0.50	0.50	0.50
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	14	450	360	20	8	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	464	380	0	18	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 37.4%	ICU Level of Service A
Analysis Period (min) 15	

APPENDIX E - CLIMATE CHANGE RESILIENCY AND ADAPTABILITY QUESTIONNAIRE

Climate Change Preparedness and Resiliency Checklist for New Construction

In November 2013, in conformance with the Mayor's 2011 Climate Action Leadership Committee's recommendations, the Boston Redevelopment Authority adopted policy for all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding project resiliency, preparedness, and to mitigate any identified adverse impacts that might arise under future climate conditions.

For more information about the City of Boston's climate policies and practices, and the 2011 update of the climate action plan, *A Climate of Progress*, please see the City's climate action web pages at http://www.cityofboston.gov/climate

In advance we thank you for your time and assistance in advancing best practices in Boston.

Climate Change Analysis and Information Sources:

1. Northeast Climate Impacts Assessment (www.climatechoices.org/ne/)
2. USGCRP 2009 (http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/)
3. Army Corps of Engineers guidance on sea level rise (http://planning.usace.army.mil/toolbox/library/ECs/EC11652212Nov2011.pdf)
4. Proceeding of the National Academy of Science, "Global sea level rise linked to global temperature", Vermeer and Rahmstorf, 2009 (http://www.pnas.org/content/early/2009/12/04/0907765106.full.pdf)
5. "Hotspot of accelerated sea-level rise on the Atlantic coast of North America", Asbury H. Sallenger Jr*, Kara S. Doran and Peter A. Howd, 2012 (http://www.bostonredevelopmentauthority.org/planning/Hotspot of Accelerated Sea-level Rise 2012.pdf)
6. "Building Resilience in Boston": Best Practices for Climate Change Adaptation and Resilience for Existing Buildings, Linnean Solutions, The Built Environment Coalition, The Resilient Design Institute, 2103 (http://www.greenribboncommission.org/downloads/Building_Resilience_in_Boston_SML.pdf)

Checklist

Please respond to all of the checklist questions to the fullest extent possible. For projects that respond "Yes" to any of the D.1 – Sea-Level Rise and Storms, Location Description and Classification questions, please respond to all of the remaining Section D questions.

Checklist responses are due at the time of initial project filing or Notice of Project Change and final filings just prior seeking Final BRA Approval. A PDF of your response to the Checklist should be submitted to the Boston Redevelopment Authority via your project manager.

Please Note: When initiating a new project, please visit the BRA web site for the most current Climate Change Preparedness & Resiliency Checklist.

A.1 - Project Information

Project Name:	105 Washington
Project Address Primary:	105 Washington Street, Brighton, MA 02135
Project Address Additional:	101 Washington Street, Brighton, MA 02135 103 Washington Street, Brighton, MA 02135
Project Contact (name / Title / Company / email / phone):	105 Washington LLC Jeff Feuerman 93 Fisher Ave Brookline, MA 02445 617-733-5455 Jeff@bdcorp.biz

A.2 - Team Description

Owner / Developer:	105 Washington LLC
Architect:	RODE Architects, Inc.
Engineer (building systems):	BLW Engineers
Sustainability / LEED:	Soden Sustainability
Permitting:	MLF Consulting LLC
Construction Management:	- -
Climate Change Expert:	Soden Sustainability

A.3 - Project Permitting and Phase

At what phase is the project – most recent completed submission at the time of this response?

PNF / Expanded PNF Submission	Draft / Final Project Impact Report Submission	BRA Board Approved	Notice of Project Change
Planned Development Area	BRA Final Design Approved	Under Construction	Construction just completed:

A.4 - Building Classification and Description

List the principal Building Uses:	101 Washington: Religious 103 Washington: Religious 105 Washington: Residential with subgrade parking
List the First Floor Uses:	101 Washington: Religious 103 Washington: Religious 105 Washington: Lobby, bike storage, mechanical room and utilities, trash storage, residential units

What is the principal Construction Type – select most appropriate type?

101 Washington:	**Wood Frame**	Masonry	Steel Frame	Concrete
103 Washington:	**Wood Frame**	Masonry	Steel Frame	Concrete
105 Washington:	Wood Frame	Masonry	**Steel Frame**	Concrete

Describe the building?

101 Washington Street

Site Area:	*5,372 SF*	Building Area:	*9,285 SF*
Building Height:	*23 Ft.* *per Zoning* *" Ft. Per IMP*	Number of Stories:	*2 stories above grade*
First Floor Elevation (reference Boston City Base):	*+167.0'* *Elev.*	Are there below grade spaces/levels, if yes how many:	*Yes* *1 level below-grade*

103 Washington Street

Site Area:	*4,861 SF*	Building Area:	*5,030 SF*
Building Height:	*23 Ft.* *per Zoning* *" Ft. Per IMP*	Number of Stories:	*2 stories above grade*
First Floor Elevation (reference Boston City Base):	*+167.5'* *Elev.*	Are there below grade spaces/levels, if yes how many:	*Yes* *1 level below-grade*

105 Washington Street

Site Area:	*25,539 SF*	Building Area:	*85,330 SF*
Building Height:	*69.8 Ft.* *per Zoning* *" Ft. Per IMP*	Number of Stories:	*7 stories above grade*
First Floor Elevation (reference Boston City Base):	*+168.0'* *Elev.*	Are there below grade spaces/levels, if yes how many:	*Yes* *1 level below-grade*

A.5 - Green Building

Which LEED Rating System(s) and version has or will your project use (by area for multiple rating systems)?

Select by Primary Use:	**New Construction**	Core & Shell	Healthcare	Schools
	Retail	Homes Midrise	Homes	Other
Select LEED Outcome:	Certified	**Silver**	Gold	Platinum

Will the project be USGBC Registered and / or USGBC Certified?

Registered:	No	Certified:	No

A.6 - Building Energy

What are the base and peak operating energy loads for the building?

Electric:	*(kW)*	Heating:	*(MMBtu/hr)*
What is the planned building Energy Use Intensity:	*(kbut/SF or kWh/SF)*	Cooling:	*(Tons/hr)*

What are the peak energy demands of your critical systems in the event of a service interruption?

Electric:	*(kW)*	Heating:	*(MMBtu/hr)*
		Cooling:	*(Tons/hr)*

What is nature and source of your back-up / emergency generators?

Electrical Generation:	*(kW)*	Fuel Source:	

System Type and Number of Units:	Combustion Engine	Gas Turbine	Combine Heat and Power	*(Units)*

B - Extreme Weather and Heat Events

Climate change will result in more extreme weather events including higher year round average temperatures, higher peak temperatures, and more periods of extended peak temperatures. The section explores how a project responds to higher temperatures and heat waves.

B.1 - Analysis

What is the full expected life of the project?

Select most appropriate:	10 Years	25 Years	**50 Years**	75 Years

What is the full expected operational life of key building systems (e.g. heating, cooling, ventilation)?

Select most appropriate:	10 Years	**25 Years**	50 Years	75 Years

What time span of future Climate Conditions was considered?

Select most appropriate:	10 Years	25 Years	50 Years	75 Years

Analysis Conditions - What range of temperatures will be used for project planning – Low/High?

Deg.

What Extreme Heat Event characteristics will be used for project planning – Peak High, Duration, and Frequency?

Deg.	*Days*	*Events / yr.*

What Drought characteristics will be used for project planning – Duration and Frequency?

Days	*Events / yr.*

What Extreme Rain Event characteristics will be used for project planning – Seasonal Rain Fall, Peak Rain Fall, and Frequency of Events per year?

Inches / yr.	*Inches*	*Events / yr.*

What Extreme Wind Storm Event characteristics will be used for project planning – Peak Wind Speed, Duration of Storm Event, and Frequency of Events per year?

mph Peak Wind	*Hours*	*Events / yr.*

B.2 - Mitigation Strategies

What will be the overall energy performance, based on use, of the project and how will performance be determined?

Building energy use below code:	%
How is performance determined:	

What specific measures will the project employ to reduce building energy consumption?

Select all appropriate:	High performance building envelope	High performance lighting & controls	Building day lighting	EnergyStar equip. / appliances
	High performance HVAC equipment	Energy recovery ventilation	No active cooling	No active heating

Describe any added measures:	

What are the insulation (R) values for building envelope elements?

Roof:	*R* = **25 continuous insulation**	Walls / Curtain Wall Assembly:	*R* = **13+7.5 continuous insulation**
Foundation:	*R* = **7.5 continuous insulation**	Basement / Slab:	*R* = ***12*.5 continuous insulation**
Windows:	*R* = / *U* = **0.35**	Doors:	*R* = / *U* = **0.37**

What specific measures will the project employ to reduce building energy demands on the utilities and infrastructure?

	On-site clean energy / CHP system(s)	Building-wide power dimming	Thermal energy storage systems	Ground source heat pump
	On-site Solar PV	On-site Solar Thermal	Wind power	None
Describe any added measures:				

Will the project employ Distributed Energy / Smart Grid Infrastructure and /or Systems?

Select all appropriate:	Connected to local distributed electrical	Building will be Smart Grid ready	Connected to distributed steam, hot, chilled water	Distributed thermal energy ready

Will the building remain operable without utility power for an extended period?

	Yes / No	If yes, for how long:	*Days*
If Yes, is building "Islandable?			
If Yes, describe strategies:			

Describe any non-mechanical strategies that will support building functionality and use during an extended interruption(s) of utility services and infrastructure:

Select all appropriate:	Solar oriented – longer south walls	Prevailing winds oriented	External shading devices	Tuned glazing,
	Building cool zones	Operable windows	Natural ventilation	Building shading
	Potable water for drinking / food preparation	Potable water for sinks / sanitary systems	Waste water storage capacity	High Performance Building Envelope
Describe any added measures:				

What measures will the project employ to reduce urban heat-island effect?

Select all appropriate:	**High reflective paving materials**	**Shade trees & shrubs**	High reflective roof materials	**Vegetated roofs**
Describe other strategies:				

What measures will the project employ to accommodate rain events and more rain fall?

Select all appropriate:	**On-site retention systems & ponds**	**Infiltration galleries & areas**	**vegetated water capture systems**	**Vegetated roofs**
Describe other strategies:				

What measures will the project employ to accommodate extreme storm events and high winds?

Select all appropriate:	Hardened building structure & elements	Buried utilities & hardened infrastructure	Hazard removal & protective landscapes	**Soft & permeable surfaces (water infiltration)**
Describe other strategies:				

C - Sea-Level Rise and Storms

Rising Sea-Levels and more frequent Extreme Storms increase the probability of coastal and river flooding and enlarging the extent of the 100 Year Flood Plain. This section explores if a project is or might be subject to Sea-Level Rise and Storm impacts.

C.1 - Location Description and Classification:

Do you believe the building to susceptible to flooding now or during the full expected life of the building?

Yes / No

Describe site conditions?

Site Elevation – Low/High Points:	*Boston City Base* (+166.3' / +⁺170.4')
Building Proximity to Water:	*3,500 Ft.*

Is the site or building located in any of the following?

Coastal Zone:	*Yes / No*	Velocity Zone:	*Yes / No*
Flood Zone:	*Yes / No*	Area Prone to Flooding:	*Yes / No*

Will the 2013 Preliminary FEMA Flood Insurance Rate Maps or future floodplain delineation updates due to Climate Change result in a change of the classification of the site or building location?

2013 FEMA Prelim. FIRMs:	*Yes / No*	Future floodplain delineation updates:	*Yes / No*

What is the project or building proximity to nearest Coastal, Velocity or Flood Zone or Area Prone to Flooding?

5,280 Ft.

If you answered YES to any of the above Location Description and Classification questions, please complete the following questions. Otherwise you have completed the questionnaire; thank you!

C - Sea-Level Rise and Storms

This section explores how a project responds to Sea-Level Rise and / or increase in storm frequency or severity.

C.2 - Analysis

How were impacts from higher sea levels and more frequent and extreme storm events analyzed:

Sea Level Rise:	*Ft.*	Frequency of storms:	*per year*

C.3 - Building Flood Proofing

Describe any strategies to limit storm and flood damage and to maintain functionality during an extended periods of disruption.

What will be the Building Flood Proof Elevation and First Floor Elevation:

Flood Proof Elevation:	*Boston City Base Elev.(Ft.)*	First Floor Elevation:	*Boston City Base Elev. (Ft.)*

Will the project employ temporary measures to prevent building flooding (e.g. barricades, flood gates):

	Yes / No	If Yes, to what elevation	*Boston City Base Elev. (Ft.)*
If Yes, describe:			

What measures will be taken to ensure the integrity of critical building systems during a flood or severe storm event:

Systems located above 1st Floor.	Water tight utility conduits	Waste water back flow prevention	Storm water back flow prevention

Were the differing effects of fresh water and salt water flooding considered:

Yes / No

Will the project site / building(s) be accessible during periods of inundation or limited access to transportation:

	Yes / No	If yes, to what height above 100 Year Floodplain:	*Boston City Base Elev. (Ft.)*

Will the project employ hard and / or soft landscape elements as velocity barriers to reduce wind or wave impacts?

	Yes / No
If Yes, describe:	

Will the building remain occupiable without utility power during an extended period of inundation:

	Yes / No	If Yes, for how long:	*days*

Describe any additional strategies to addressing sea level rise and or sever storm impacts:

C.4 - Building Resilience and Adaptability

Describe any strategies that would support rapid recovery after a weather event and accommodate future building changes that respond to climate change:

Will the building be able to withstand severe storm impacts and endure temporary inundation?

Select appropriate:	*Yes / No*	Hardened / Resilient Ground Floor Construction	Temporary shutters and or barricades	Resilient site design, materials and construction

Can the site and building be reasonably modified to increase Building Flood Proof Elevation?

Select appropriate:	*Yes / No*	Surrounding site elevation can be raised	Building ground floor can be raised	Construction been engineered
Describe additional strategies:				

Has the building been planned and designed to accommodate future resiliency enhancements?

Select appropriate:	*Yes / No*	Solar PV	Solar Thermal	Clean Energy /

				CHP System(s)
		Potable water storage	Wastewater storage	Back up energy systems & fuel
Describe any specific or additional strategies:				

Thank you for completing the Boston Climate Change Resilience and Preparedness Checklist!

For questions or comments about this checklist or Climate Change Resiliency and Preparedness best practices, please contact: John.Dalzell.BRA@cityofboston.gov

APPENDIX F –RESPONSE TO ACCESSIBILITY GUIDELINES

Accessibility Checklist
(to be added to the BRA Development Review Guidelines)

In 2009, a nine-member Advisory Board was appointed to the Commission for Persons with Disabilities in an effort to reduce architectural, procedural, attitudinal, and communication barriers affecting persons with disabilities in the City of Boston. These efforts were instituted to work toward creating universal access in the built environment.

In line with these priorities, the Accessibility Checklist aims to support the inclusion of people with disabilities. In order to complete the Checklist, you must provide specific detail, including descriptions, diagrams and data, of the universal access elements that will ensure all individuals have an equal experience that includes full participation in the built environment throughout the proposed buildings and open space.

In conformance with this directive, all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding the following:

- improvements for pedestrian and vehicular circulation and access;
- encourage new buildings and public spaces to be designed to enhance and preserve Boston's system of parks, squares, walkways, and active shopping streets;
- ensure that persons with disabilities have full access to buildings open to the public;
- afford such persons the educational, employment, and recreational opportunities available to all citizens; and
- preserve and increase the supply of living space accessible to persons with disabilities.

We would like to thank you in advance for your time and effort in advancing best practices and progressive approaches to expand accessibility throughout Boston's built environment.

Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
   a. http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
   a. http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Boston Complete Street Guidelines
   a. http://bostoncompletestreets.org/
4. City of Boston Mayors Commission for Persons with Disabilities Advisory Board
   a. http://www.cityofboston.gov/Disability
5. City of Boston – Public Works Sidewalk Reconstruction Policy
   a. http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
6. Massachusetts Office On Disability Accessible Parking Requirements
   a. www.mass.gov/anf/docs/mod/hp-parking-regulations-mod.doc
7. MBTA Fixed Route Accessible Transit Stations
   a. http://www.mbta.com/about_the_mbta/accessibility/

Project Information

Project Name:	105 Washington
Project Address Primary:	105 Washington Street, Brighton, MA 02135
Project Address Additional:	101 Washington Street, Brighton, MA 02135 103 Washington Street, Brighton, MA 02135
Project Contact (name / Title / Company / email / phone):	105 Washington LLC Jeff Feuerman 93 Fisher Ave Brookline, MA 02445 617-733-5455 Jeff@bdcorp.biz

Team Description

Owner / Developer:	105 Washington LLC
Architect:	RODE Architects, Inc
Engineer (building systems):	The Proponent does not have engineering on the team as of this date, but will follow up with an update as soon as possible.
Sustainability / LEED:	Soden Sustainability
Permitting:	MLF Consulting LLC
Construction Management:	- -

Project Permitting and Phase

At what phase is the project – at time of this questionnaire?

☑ PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BRA Board Approved
BRA Design Approved	Under Construction	Construction just completed:

Building Classification and Description

What are the principal Building Uses - select all appropriate uses?

Residential – One to Three Unit	☑ Residential - Multi-unit, Four +	Institutional	Education
Commercial	Office	Retail	☑ Assembly (religious)
Laboratory / Medical	Manufacturing / Industrial	Mercantile	☑ Storage, Utility and Other

First Floor Uses (List)

101 Washington: religious
103 Washington: religious
105 Washington: lobby, bike storage, mechanical room and utilities, trash storage, residential units

What is the Construction Type – select most appropriate type?

101 Washington:	☑ **Wood Frame**	Masonry	Steel Frame	Concrete
103 Washington:	☑ **Wood Frame**	Masonry	Steel Frame	Concrete
105 Washington:	Wood Frame	Masonry	☑ **Steel Frame**	Concrete

Describe the building?

<u>101 Washington Street</u>

Site Area:	**5,372 SF**	Building Area:	**9,285 SF**
Building Height:	**34 Ft**. per Zoning	Number of Stories:	**2 stories above grade**
First Floor Elevation (reference Boston City Base):	**167'-0"** Elev.	Are there below grade spaces/levels, if yes how many:	**Yes** **1** level below-grade

<u>103 Washington Street</u>

Site Area:	**4,861 SF**	Building Area:	**5,030 SF**
Building Height:	**24'-6"** per Zoning	Number of Stories:	**2 stories above grade**
First Floor Elevation (reference Boston City Base):	**167'-6"** Elev.	Are there below grade spaces/levels, if yes how many:	**Yes** **1** level below-grade

<u>105 Washington Street</u>

Site Area:	**25,539 SF**	Building Area:	**85,330 SF**
Building Height:	**69'-8" Ft**. per	Number of Stories:	**7 stories**

	Zoning		**above grade**
First Floor Elevation (reference Boston City Base):	**168'-0"** Elev.	Are there below grade spaces/levels, if yes how many:	**Yes** **1** level below-grade

Assessment of Existing Infrastructure for Accessibility:

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

Provide a description of the development neighborhood and identifying characteristics.	105 Washington is located just north of Commonwealth Avenue and south of Brighton Center, near the Aberdeen and Corey Hill residential neighborhoods of Brighton. The site and its immediate surroundings are a mix of residential – including 1- and 2-family dwellings and up to 7-story multi-family buildings – and institutional uses – including medical centers and religious institutions. The site fronts onto Washington Street, a street that makes connections across Boston and Brookline from Brighton Center to Brookline Village and enhanced by MBTA bus route 65. The 105 Washington Street project serves the Brighton Community at large, partnering with and revitalizing two long-standing institutions that serve the neighborhood's Jewish population. The addition of 73 residential units works to meet the City's housing demand, providing new residents for the vibrant Brighton neighborhood.
List the surrounding ADA compliant MBTA transit lines and the proximity to the development site: Commuter rail, subway, bus, etc.	• MBTA Subway – Green Line, B branch: Washington Street Station (accessible). 0.1 miles away; one block south along Washington Street to the intersection with Commonwealth Avenue. • MBTA Bus lines: Route 65 follows Washington Street, directly adjacent to the site. Routes 57 and 86 operate through Brighton Center, 0.5 miles northwest of the site. All MBTA Bus Routes are accessible
List the surrounding institutions: hospitals, public housing and elderly and disabled housing developments, educational facilities, etc.	**Affordable/Public Housing:** 91-95 Washington, Federal Family 35 Fidelis Way, Federal Family 20 Washington Street, Federal Elderly Disabled **Assisted Living:** Welch Healthcare, 170 Corey Rd **School:** Boston Public: Early Ed / Elementary – Baldwin ELPA / Winship; Jackson/Mann K-8, Horace Mann K-12; Brighton HS, Boston Green Academy, Another Course to College **Police:** Boston Police District D-14, Station 0.4 miles **Fire:** District 11; Engine Co.'s 29 & 41

	Hospitals: St Elizabeth's Medical Center, 0.5miles; Kindred Hospital, 0.4 miles; Ambulance Districts 9 & 14
Is the proposed development on a priority accessible route to a key public use facility? List the surrounding: government buildings, libraries, community centers and recreational facilities and other related facilities.	**Recreation/Open Space:** Commonwealth Tenants Association Community Gardens, Fidelis Way Park, Brian Honan Park, Our Lady of Fatima Shrine, Joyce Playground **Public Library:** Boston Public Library Brighton Branch – 0.6 miles **Community Center:** Jackson Mann, 500 Cambridge St Boston College Neighborhood Center, 480 Washington St. **Transit:** Site is located (0.1 miles) to the Washington Street B-line station connecting the site to major Boston public facilities.

Surrounding Site Conditions – Existing:

This section identifies the current condition of the sidewalks and pedestrian ramps around the development site.

Are there sidewalks and pedestrian ramps existing at the development site?	Yes
If yes above, list the existing sidewalk and pedestrian ramp materials and physical condition at the development site.	The existing sidewalk material is concrete with granite curbing. The physical condition of the existing concrete sidewalk and pedestrian ramps are good.
Are the sidewalks and pedestrian ramps existing-to-remain? If yes, have the sidewalks and pedestrian ramps been verified as compliant? If yes, please provide surveyors report.	Yes, sidewalks and pedestrian ramps to remain. Where curb cuts are new or to be removed, the final conditions will be brought into compliance. No, the existing sidewalks and pedestrian ramps have not been verified as being in compliance at this time but will be verified during the project design.
Is the development site within a historic district? If yes, please identify.	The development team is not aware of the project site being located within an historic district. The Aberdeen Historic District extends to include 1607 Commonwealth Ave at the nearest, approximately 285' to the southeast of the site.

Surrounding Site Conditions – Proposed

This section identifies the proposed condition of the walkways and pedestrian ramps in and around the development site. The width of the sidewalk contributes to the degree of comfort and enjoyment of 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. Typically, a five foot wide Pedestrian Zone supports two people walking side by side or two wheelchairs passing each other. An eight foot wide Pedestrian Zone allows two pairs of people to comfortably pass each other, and a ten foot or wider Pedestrian Zone can support high volumes of pedestrians.

Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? See: www.bostoncompletestreets.org	Yes (pending confirmation of existing cross slopes and clearances).
If yes above, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, Boulevard.	Washington Street: Neighborhood Connector
What is the total width of the proposed sidewalk? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone.	(@ 101 Washington): 19'-6" to 19'-9" Greenspace/Furnishing Zone + Curb: 4'-6" Pedestrian Zone: 5'-3" to 5'-6" Frontage Zone: 9'-6" to 9'-9" (@ 105 Washington): The foremost building face permits a width of 20'-0", ranging up to 39'-6". Greenspace/Furnishing Zone + Curb: 4'-6" Pedestrian Zone: 5'-3" Frontage Zone: 9'-0" to 30'
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?	Curb Zone: stone curbs, typical Greenscape Zone: landscaped tree beds alternating with poured-in-place scored concrete and/or permeable unit pavers. Street furniture, City of Boston signage, street lights, bicycle parking, etc. Pedestrian Zone: varies Typical: poured-in-place scored concrete Frontage Zone: varies Multi-Family Residential Building (105 Washington): landscaped lawn and groundcover with occasional shrubs; decks/patios and hardscaped entry plaza for Lobby Synagogue (101 Washington): planting bed and occasional tree; hardscape entry plaza for Synagogue
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the City of Boston Public Improvement Commission?	*N/A*
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way?	No
If yes above, what are the proposed	*N/A*

dimensions of the sidewalk café or furnishings and what will the right-of-way clearance be?	

Proposed 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 Handicap Parking Regulations.

What is the total number of parking spaces provided at the development site parking lot or garage?	76 spaces total - 12 spaces at grade within the project site All 12 spaces will be shared between the Mikvah and Synagogue - 64 spaces in the basement parking garage Of the 64 spaces in the basement parking garage, 4 spaces will be shared between the Mikvah and Synagogue Of the 64 spaces in the basement parking garage, 60 spaces will be dedicated to the residential units
What is the total number of accessible spaces provided at the development site?	4 total accessible spaces - 1 Van accessible parking space at grade (Van Accessible) - 3 Accessible parking spaces in the basement parking garage, including 1 Van accessible
Will any on street accessible parking spaces be required? If yes, has the proponent contacted the Commission for Persons with Disabilities and City of Boston Transportation Department regarding this need?	All accessible parking requirements are met on site, in the parking garage and in the at grade parking area
Where is accessible visitor parking located?	Accessible parking spaces are located in the parking garage on the basement level of the residential building, closest to the elevator core. These parking spaces can be designated for visitors as required.
Has a drop-off area been identified? If yes, will it be accessible?	While a drop-off area has not yet been identified, drop-off areas will be provided at the street. All provided drop-off areas will be accessible.
Include a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations. Please include route distances.	See attached figures F1 through F7

Circulation and Accessible Routes:

The primary objective in designing smooth and continuous paths of travel is to accommodate persons of all abilities that allow for universal access to entryways, common spaces and the visit-ability* of neighbors.

**Visit-ability – Neighbors ability to access and visit with neighbors without architectural barrier limitations*

Provide a diagram of the accessible route connections through the site.	See figures F1 & F3
Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.	Main entries for 101, 103, and 105 Washington will be a Flush Condition.
Are the accessible entrance and the standard entrance integrated?	Yes
If no above, what is the reason?	-
Will there be a roof deck or outdoor courtyard space? If yes, include diagram of the accessible route.	Roof deck will be accessible. See F1, F3 and F7
Has an accessible routes way-finding and signage package been developed? If yes, please describe.	No, signage has not been developed. All future way-finding signage will be developed to meet Building Code and Accessibility Board Requirements

Accessible Units: (If applicable)

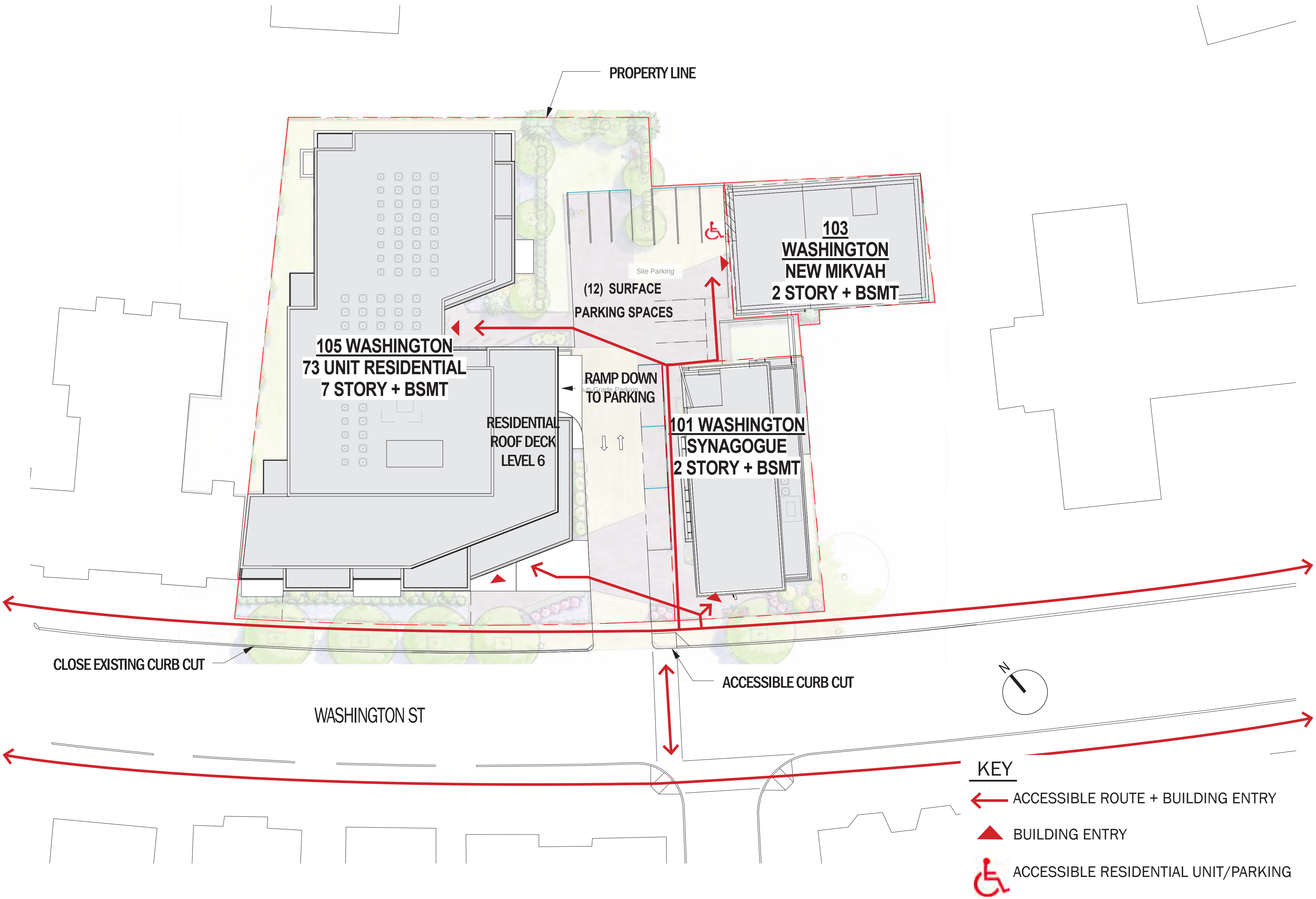
In order to facilitate access to housing opportunities this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing choice.

What is the total number of proposed units for the development?	73 Units
How many units are for sale; how many are for rent? What is the market value vs. affordable breakdown?	All 73 units are rental apartments The development will include affordable units in compliance with the City of Boston's Inclusionary Housing Policy.
How many accessible units are being proposed?	4 rental units will be provided in full compliance with MAAB Group-2A regulations
Please provide plan and diagram of	See attached drawings, F2-F7

the accessible units.	
How many accessible units will also be affordable? If none, please describe reason.	Accessible units will include a mix of affordable and market rate units, in a proportion similar to the overall composition of units. Final breakdown to be determined.
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs at entry or step to balcony. If yes, please provide reason.	No
Has the proponent reviewed or presented the proposed plan to the City of Boston Mayor's Commission for Persons with Disabilities Advisory Board?	No
Did the Advisory Board vote to support this project? If no, what recommendations did the Advisory Board give to make this project more accessible?	Decision Pending

Thank you for completing the Accessibility Checklist!
For questions or comments about this checklist or accessibility practices, please contact:

kathryn.quigley@boston.gov | Mayors Commission for Persons with Disabilities

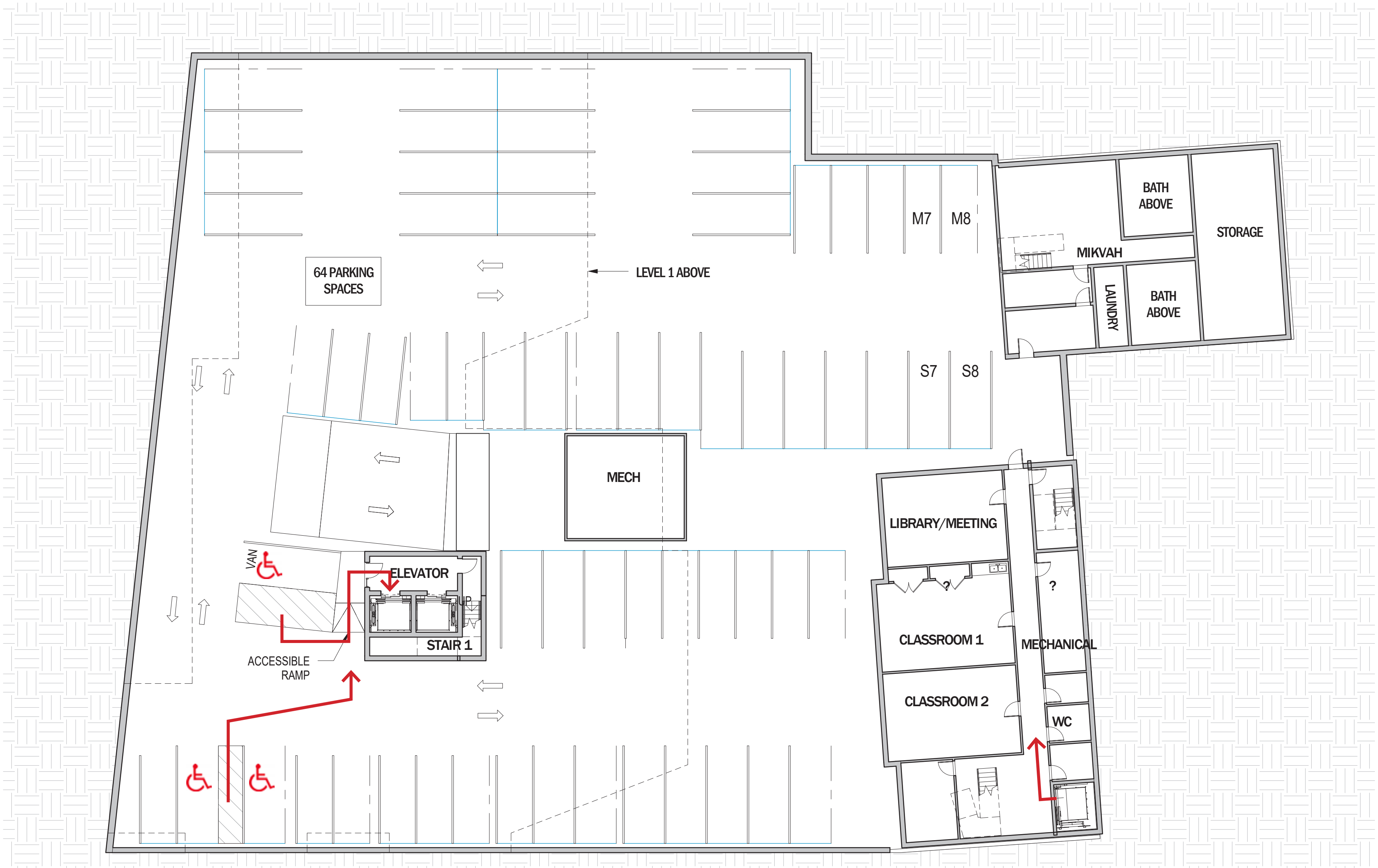


RODE

PROJECT SITE PLAN
105 WASHINGTON

1:40 0' 20' 40' 80' N

Figure F1



KEY

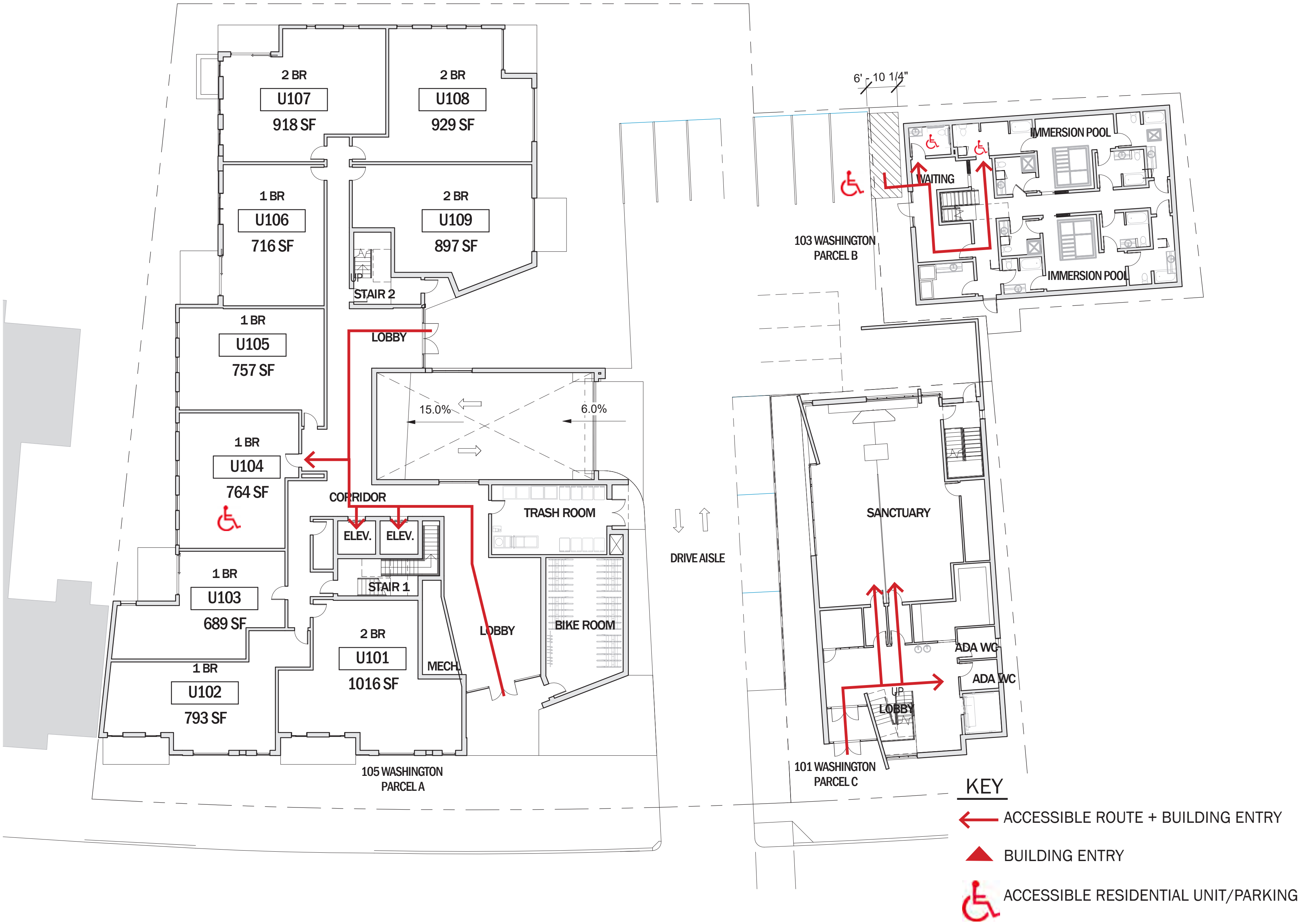
- ACCESSIBLE ROUTE + BUILDING ENTRY
- BUILDING ENTRY
- ACCESSIBLE RESIDENTIAL UNIT/PARKING

RODE

BASEMENT PARKING LEVEL
105 WASHINGTON

1:30 — 0' 25' 50' — N

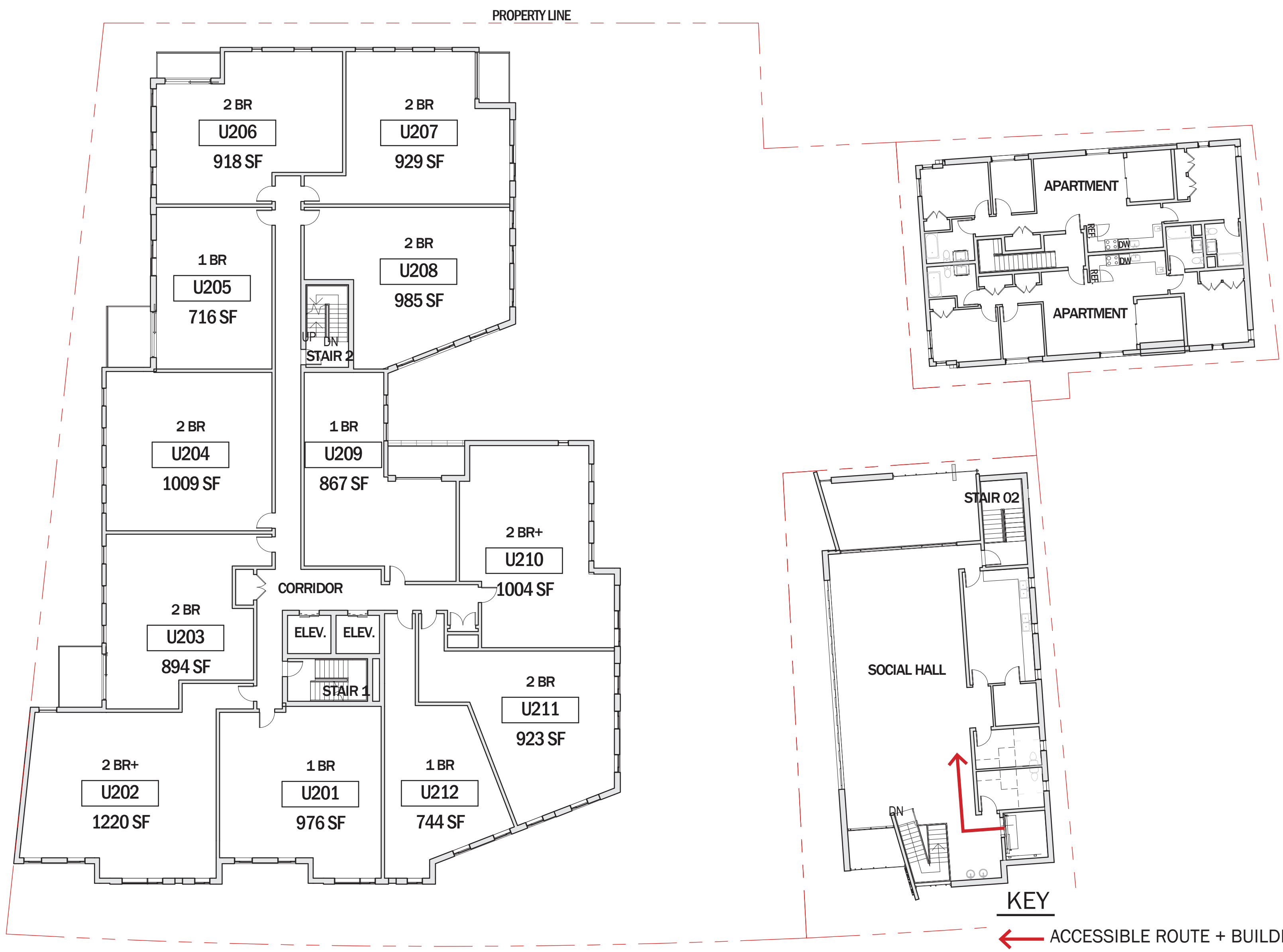
Figure F2



RODE

FIRST LEVEL
105 WASHINGTON

Figure F3



KEY

ACCESSIBLE ROUTE + BUILDING ENTRY

BUILDING ENTRY

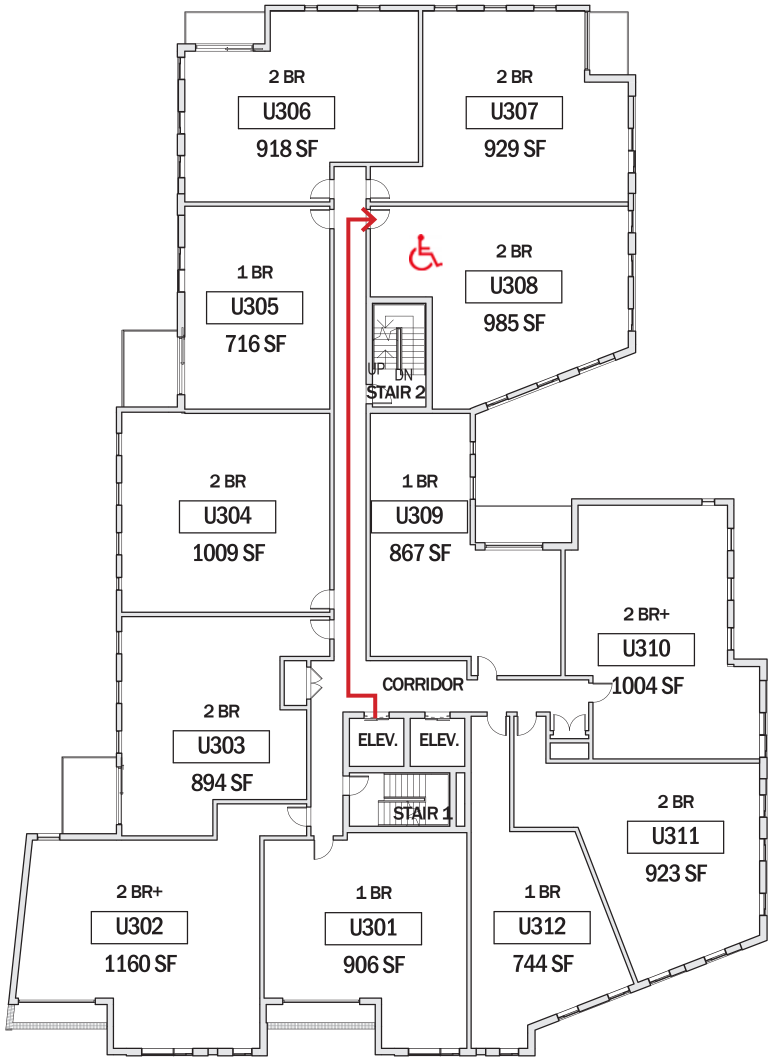
ACCESSIBLE RESIDENTIAL UNIT/PARKING

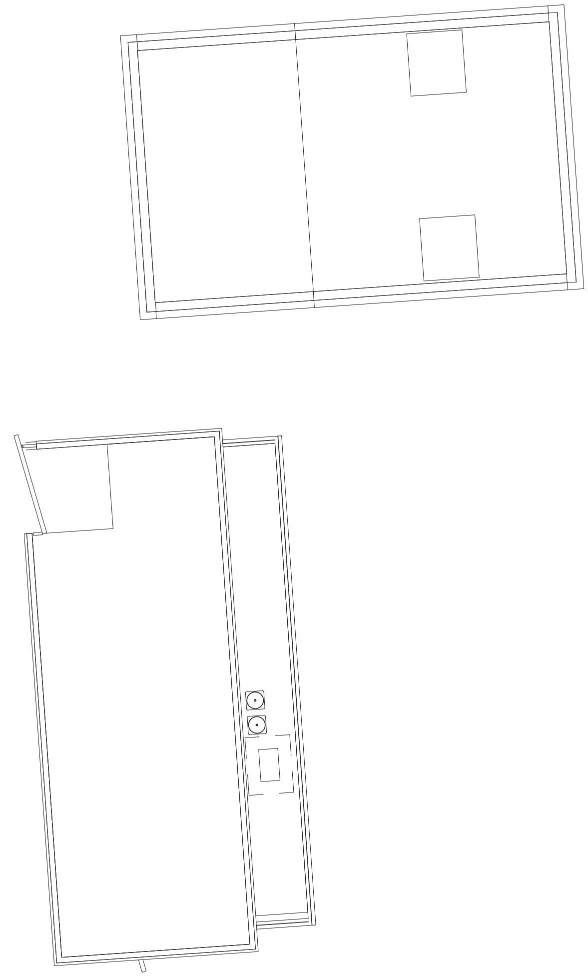
RODE

SECOND LEVEL
105 WASHINGTON

1:30 0' 25' 50' N

Figure F4



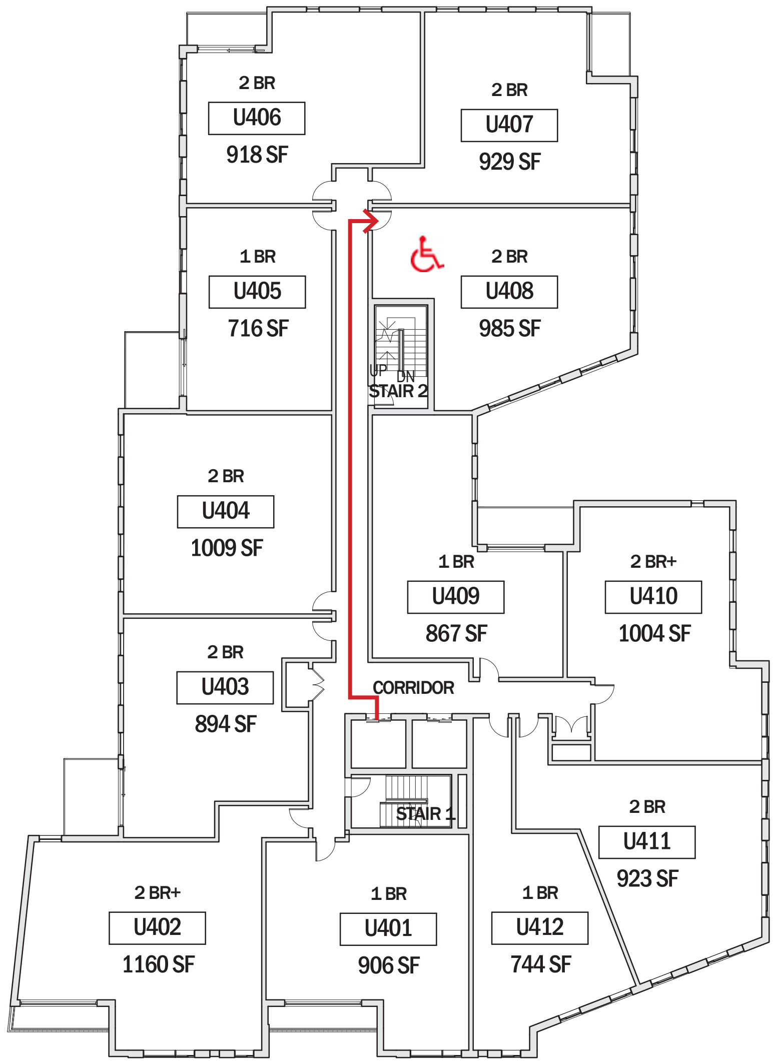


KEY

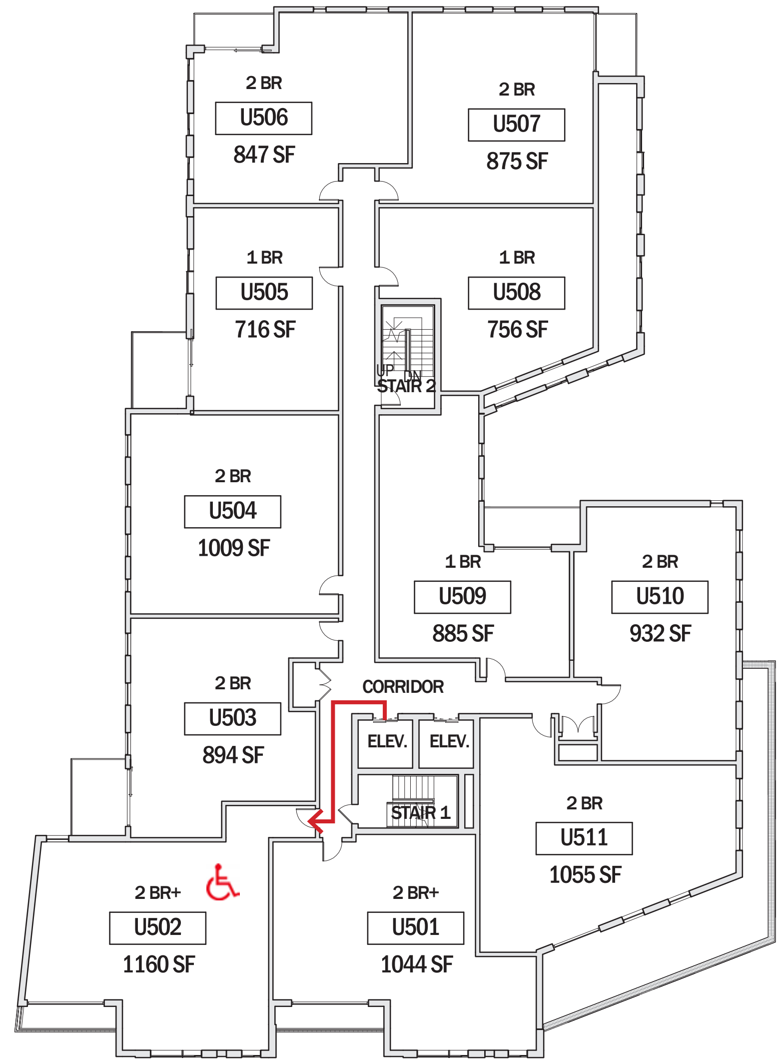
ACCESSIBLE ROUTE + BUILDING ENTRY

BUILDING ENTRY

ACCESSIBLE RESIDENTIAL UNIT/PARKING



LEVEL 4



LEVEL 5

KEY

ACCESSIBLE ROUTE + BUILDING ENTRY

BUILDING ENTRY

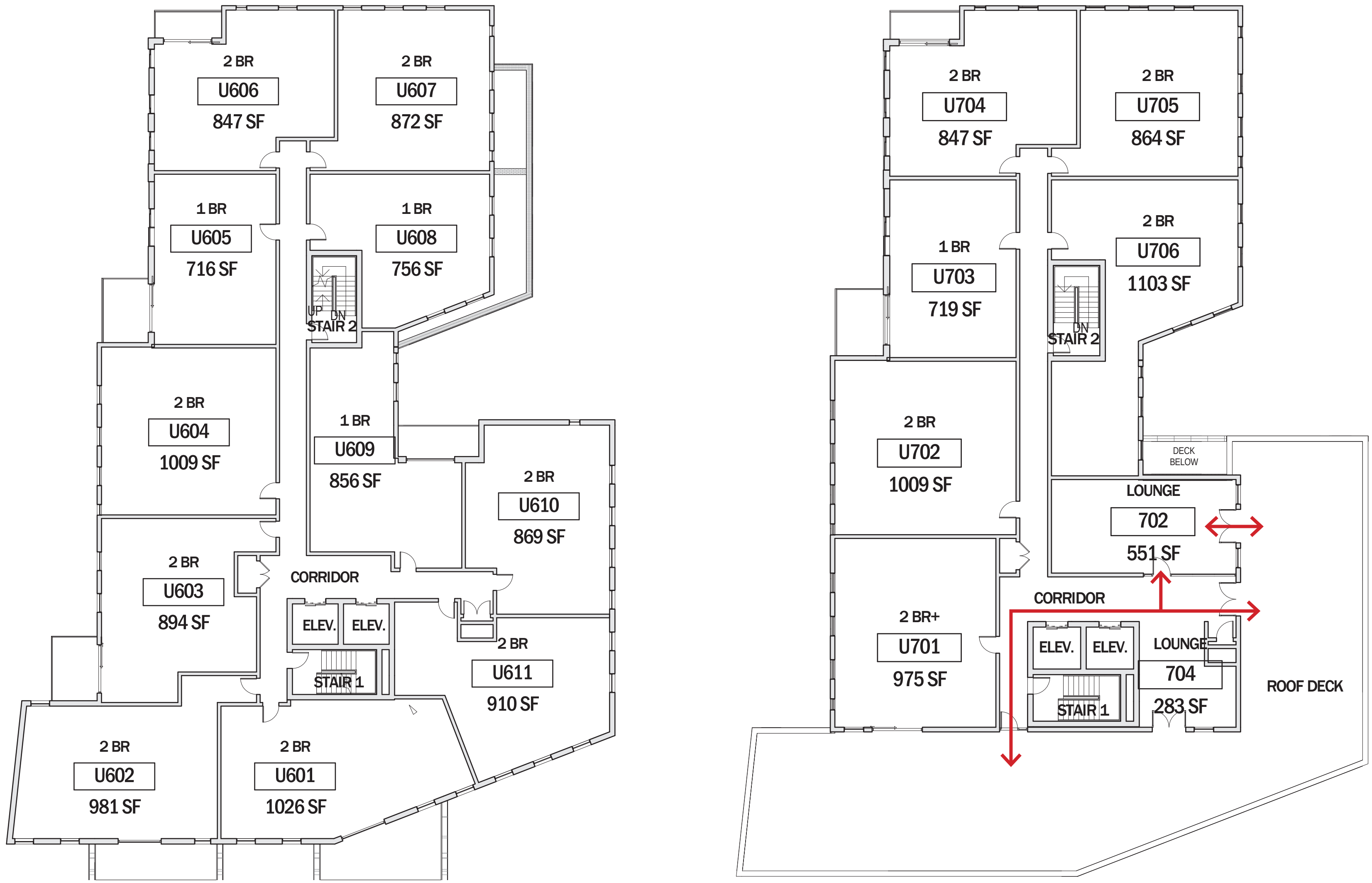
ACCESSIBLE RESIDENTIAL UNIT/PARKING

RODE

LEVELS FOUR & FIVE
105 WASHINGTON

1:30 0' 25' 50' N

Figure F6



KEY

ACCESSIBLE ROUTE + BUILDING ENTRY

BUILDING ENTRY

ACCESSIBLE RESIDENTIAL UNIT/PARKING

RODE

LEVELS SIX & SEVEN
105 WASHINGTON

1:30 0' 25' 50' N

Figure F7

RODE ARCHITECTS INC

McDermott, Quilty & Miller LLP

MLF CONSULTING LLC