1235-1237 VFW Parkway, West Roxbury, MA

Project Notification Form (PNF)

Submitted Pursuant to Article 80 of the Boston Zoning Code

Submitted by:

SOVAD LLC
94 Grayfield Avenue
West Roxbury, MA 02109

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

Prepared by:

Mitchell L. Fischman (MLF) Consulting LLC
41 Brush Hill Road
Newton, MA 02461

October 26, 2015

In Association with:

McDermott Quilty & Miller LLP
KHALSA DESIGN INC
CK Strategies
Blair Hines Design Associates
Howard Stein Hudson
McPhail Associates, LLC
Soden Sustainability Consulting
Tech Environmental, Inc.

MLF CONSULTING LLC

McDermott, Quilty & Miller LLP

McDermott, Quilty & Miller LLP
131 Oliver Street - 5th Floor
Boston, Massachusetts 02110

Telephone: 617-946-4600
Facsimile: 617-946-4624

October 26, 2015

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

Re: 1235-1237 VFW Parkway, West Roxbury
Residential Development
Project Notification Form (PNF)

Dear Director Golden:

As counsel to SOVAD LLC (the "Proponent"), I am pleased to submit this Project Notification Form ("PNF"), in accordance with the Article 80B-1 Large Project Review requirements of the Boston Zoning Code, for a new residential development of 104,588 gross square feet including 2-four-story, 84-unit multi-family buildings with 130 on-site (garage and surface) parking spaces, related landscape improvements, and new pedestrian and vehicular access (the "Proposed Project"). In furtherance of Mayor Martin J. Walsh's 2030 Housing Plan, the Proposed Project will also assist in addressing the shortage of market-rate and affordable housing units, while accommodating families with a majority of three- and two-bedrooms units (21 three-bedroom and 42 two-bedroom units) as well as 21 one-bedroom units. In addition to its market rate units, the Proposed Project will comply with the City's Inclusionary Development Policy for on-site affordable units.

In accordance with Boston Redevelopment Authority ("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.

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 September 24, 2015 (attached as **Appendix A** to this PNF).

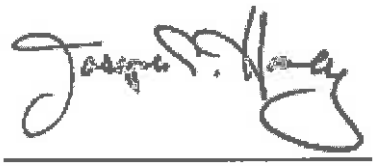
In support of the required Article 80 Large Project Review process, the Proponent has conducted, and will continue to conduct, community outreach with neighbors and abutters of the Site, including meetings and discussions with the elected representatives and officials from the area, and with the residents of the adjacent Gardner Street and Charles Park Road neighborhoods. The most recent meeting organized by SOVAD LLC was a September 23, 2015 meeting at a local restaurant near to the Project

The public notice for the PNF will appear in the October 29, 2015 edition of the *Boston Herald*.

On behalf of the entire project team, we would like to thank you and the BRA staff assigned to the 1235-1237 VFW Parkway Project, particularly Project Manager, Christopher Tracy, and Senior Architect, Michael Cannizzo, for invaluable assistance provided allowing the Project Proponent to achieve this comprehensive PNF filing.

We believe that the Proposed Project will be a significant positive addition to the West Roxbury neighborhood, by revitalizing this under-utilized site with much-needed housing with a thoughtfully-designed development, and we look forward to processing this PNF with the BRA, City officials, members of the Impact Advisory Committee and the overall community.

Sincerely,
ON BEHALF OF SOVAD LLC



Joseph Hanley, Esq. - Partner

Attachment: 1235-1237 VFW Parkway Project Notification Form
(10 Copies Plus CD Disk)

Cc: Peter v. Davos, SOVAD LLC
Mitchell Fischman, Mitchell L. Fischman (MLF) Consulting, LLC

Table of Contents

APPENDICES

List of Tables

List of Figures

1.0 EXECUTIVE SUMMARY

1.1 Introduction

SOVAD LLC (the "Proponent") is submitting, this Project Notification Form ("PNF") for the 1235-1237 VFW Parkway Development Project in the West Roxbury neighborhood in accordance with the Article 80 requirements of the Boston Zoning Code ("Code"). The Project proposes a 84-unit, multi-family, residential development with 104,588 gross square feet on four floors with 130 parking spaces including a 73 space below-level garage and 57 surface parking spaces (the "Proposed Project"). The proposed site includes 1.8 acres (79,572 sf) bounded to the north by the Home Depot Store Parking Lot; to the south by a day-care center and a restaurant; to the west by 159 Gardner Street, an ongoing plastics manufacturing operation, and beyond that a residential neighborhood; and to the east by the Veterans of Foreign Wars (VFW) Parkway. Please see **Figures 1-1** thru **1-6**.

A Letter of Intent to File a Project Notification Form was filed with the Boston Redevelopment Authority for the proposed mixed-use development project on September 24, 2015 (See **Appendix A**).

The nearby neighborhood is a mix of office, industrial and retail uses and includes the City of Boston's Millennium Park and the West Roxbury High School playing fields. The retail uses include a large Home Depot Store at Gardner Street and VFW Parkway. The Needham Branch MBTA commuter rail runs close by, with the nearest station in West Roxbury within a mile of the Project Site. The MBTA No. 36 bus route runs close to the Project site along Charles River Road, and provides connection between Charles River Loop or the Veterans Administration (VA) Hospital and Forest Hills Station via Belgrade Avenue and Centre Street.

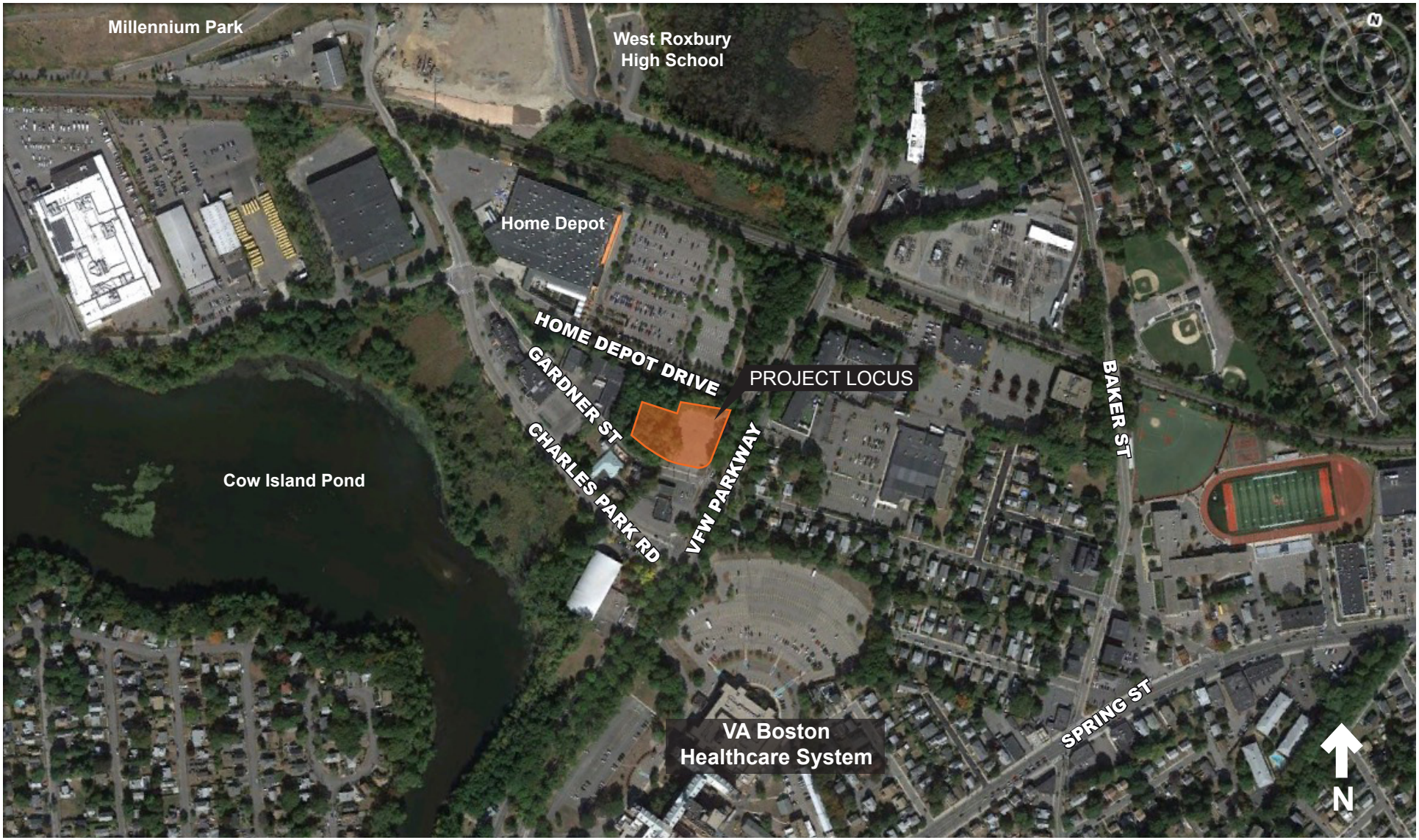


Figure 1 - 1
Locus Plan

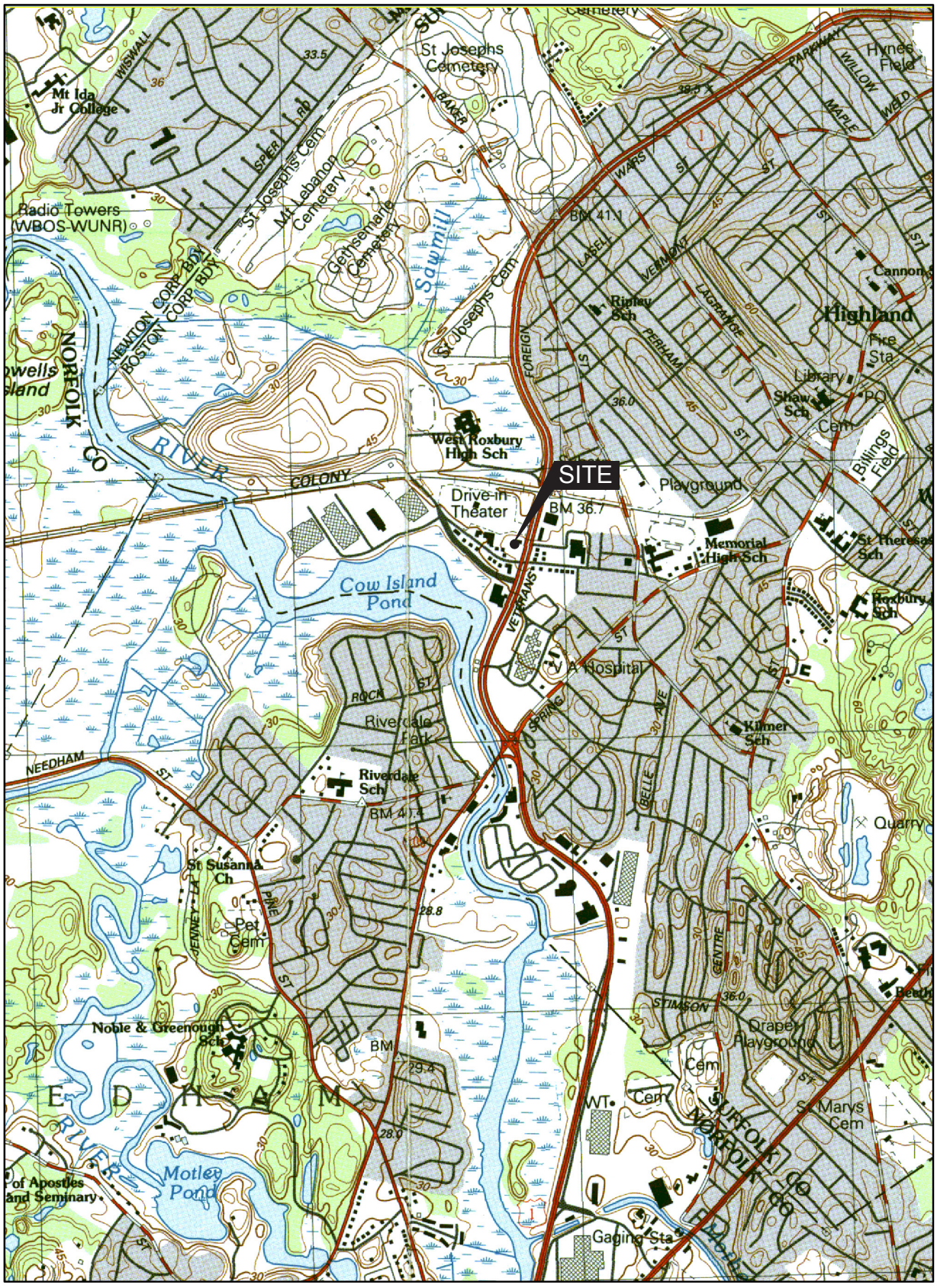


Figure 1-2
USGS Map

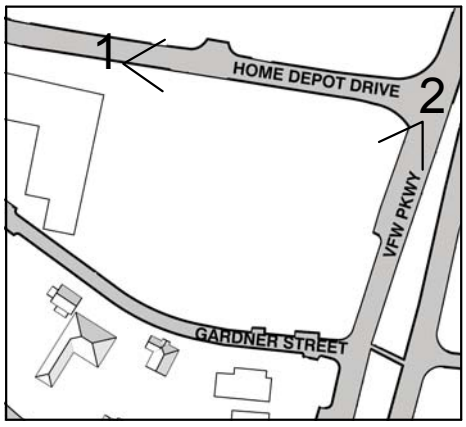


FIGURE 1-3

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

SOVAD LLC

West Roxbury Residences

1235-1237 V.F.W. Parkway
165, 175 Gardner street,
West Roxbury, MA 02132

EXISTING PHOTOS

Project Number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

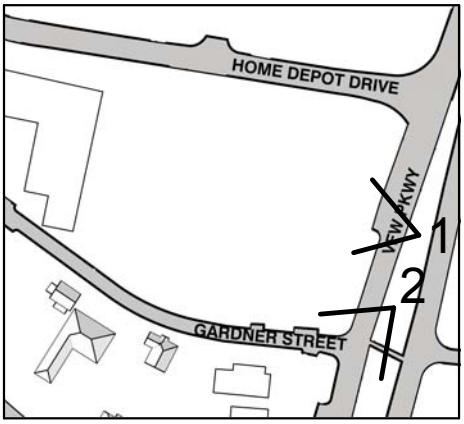


FIGURE 1-4

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
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SOVAD LLC

West Roxbury Residences

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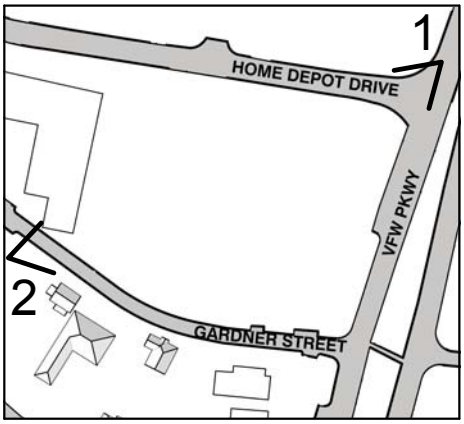

FIGURE 1-5

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
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SOVAD LLC

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Project Number	14099	
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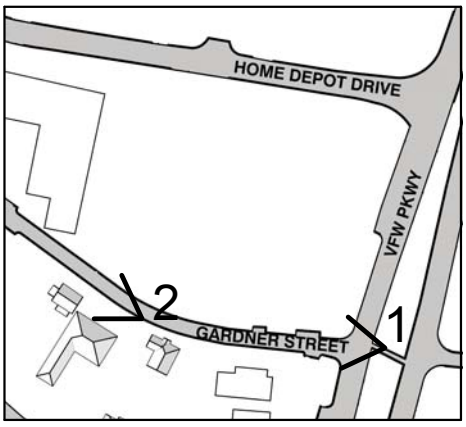


FIGURE 1-6

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

SOVAD LLC

West Roxbury Residences

1235-1237 V.F.W. Parkway
165, 175 Gardner street,
West Roxbury, MA 02132

EXISTING PHOTOS

Project Number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

1.2 Detailed Project Description

1.2.1 Existing Conditions Plan

The proposed site includes 1.8 acres (79,572 sf) bounded to the north by the Home Depot Store Parking Lot; to the south by a day-care center and a restaurant; to the west by159 Gardner Street, an ongoing plastics manufacturing operation, and beyond that a residential neighborhood; and to the east by the VFW Parkway (See **Figure 1-7**. Land Title Survey Plan)

1.2.2 Detailed Project Program

The Proposed Project consists of the construction of approximately 84-unit, multi-family, residential development with 104,588 gross square feet on four floors with 130 parking spaces including a 73-space below-level garage and 57 surface parking spaces (the "Proposed Project"). The proposed site is 1.8 acre (79,572 sf) bounded by VFW Parkway, Gardner Street, 159 Gardner Street, and the Home Depot West Roxbury Store (the "Proposed Site"). See Project Dimensions in **Table 1-1** below, and **Figure 1-8** Plot Plan.

Table 1-1. Approximate Project Dimensions of Proposed Project

Lot Area	1.8 acres / 79,572 square feet
Gross Building Footprint Area	26,490 sf
Gross Square Feet	104,588 +/- gross square feet
FAR	1.31
Floors	4
Height*	44.6 feet

*Height from Average Front Grade

The breakdown of residential units includes 21 one-bedroom units, 42 two-bedroom units, and 21 three-bedroom units, all totaling 168-bedrooms, as referenced in **Table 1-2** below.

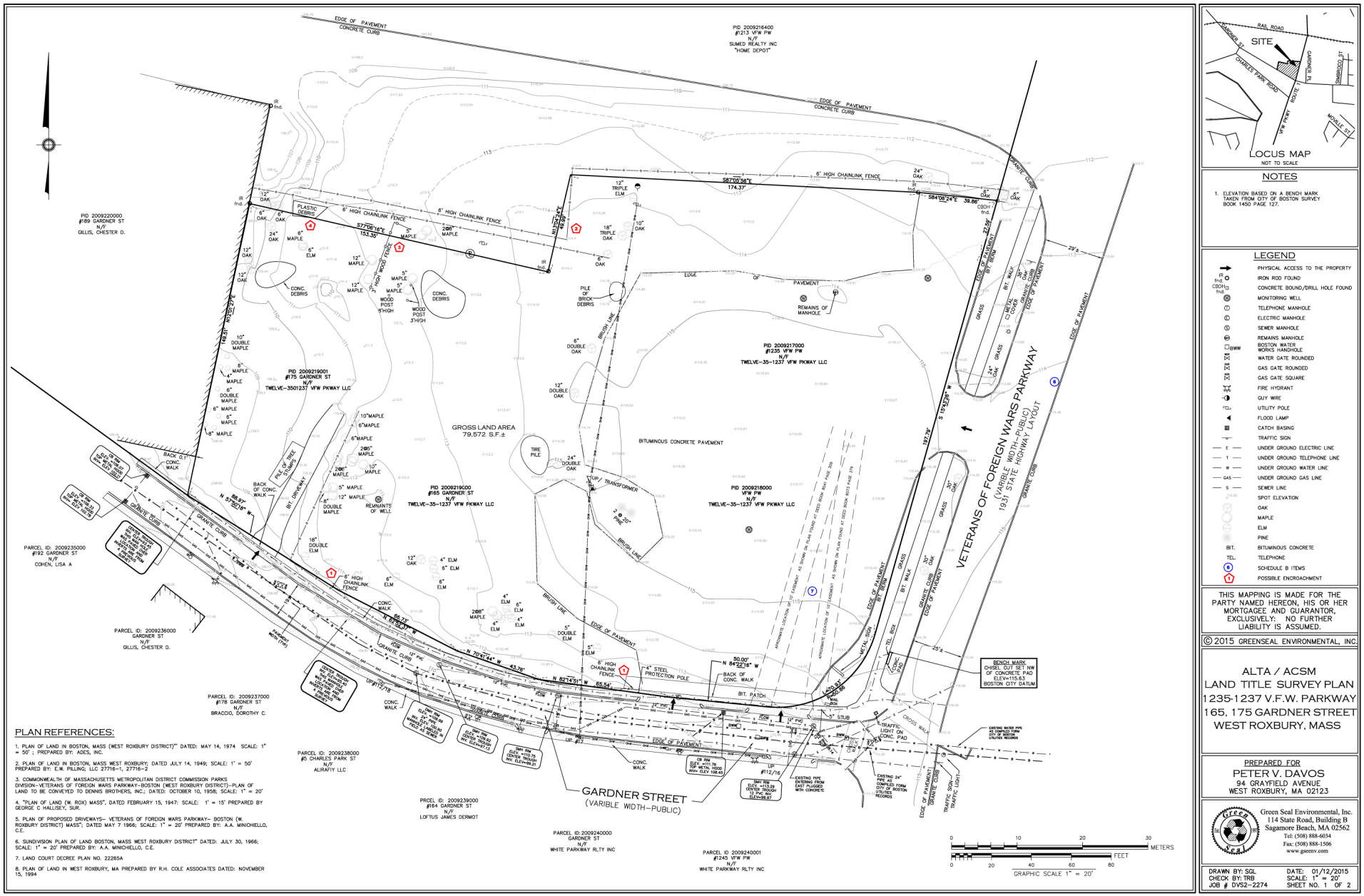
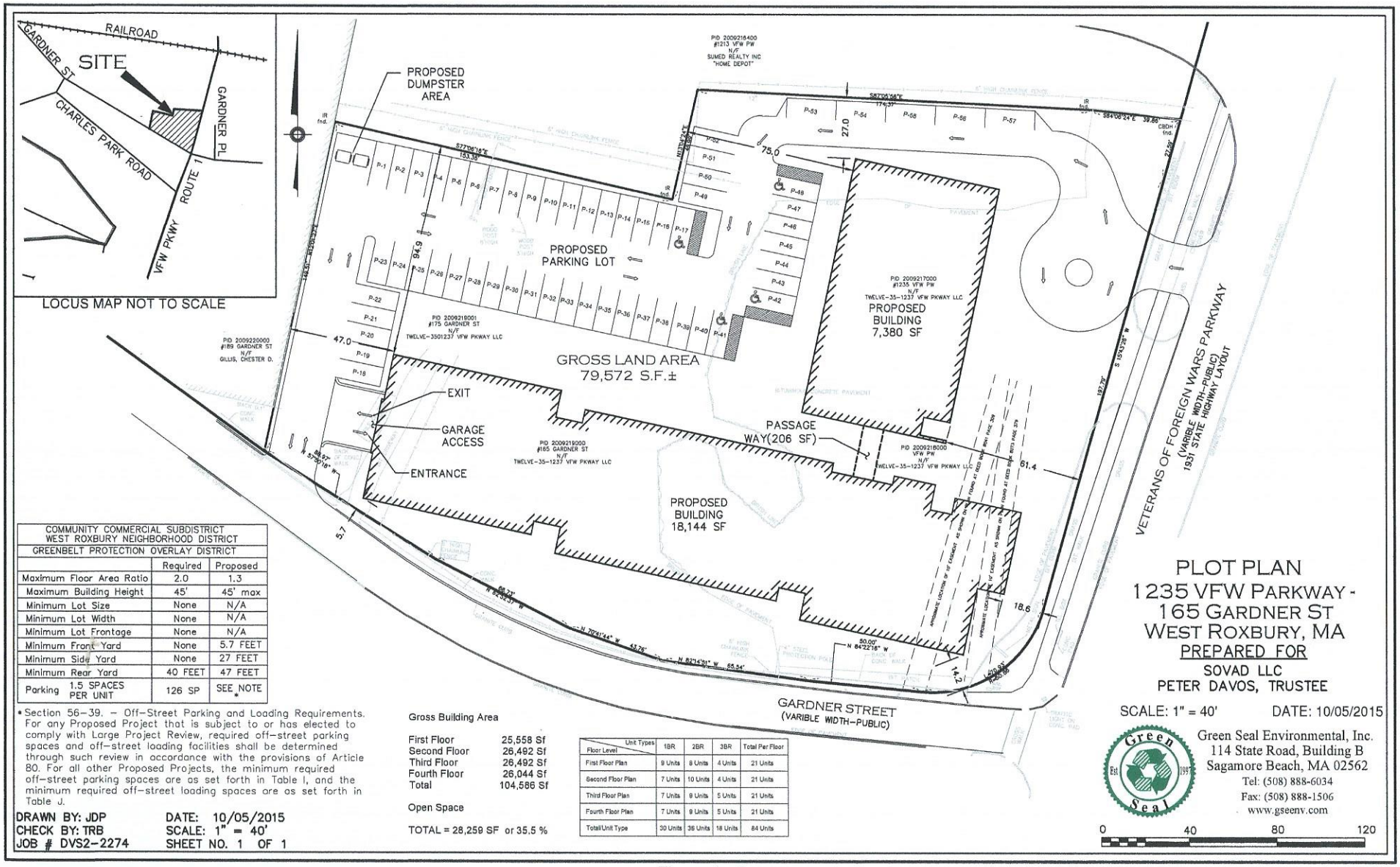


Figure 1 - 7
Land Title Survey Plan



COMMUNITY COMMERCIAL SUBDISTRICT WEST ROXBURY NEIGHBORHOOD DISTRICT GREENBELT PROTECTION OVERLAY DISTRICT		
	Required	Proposed
Maximum Floor Area Ratio	2.0	1.3
Maximum Building Height	45'	45' max
Minimum Lot Size	None	N/A
Minimum Lot Width	None	N/A
Minimum Lot Frontage	None	N/A
Minimum Front Yard	None	5.7 FEET
Minimum Side Yard	None	27 FEET
Minimum Rear Yard	40 FEET	47 FEET
Parking 1.5 SPACES PER UNIT	126 SP	SEE NOTE

• Section 56-39. – Off-Street Parking and Loading Requirements. For any Proposed Project that is subject to or has elected to comply with Large Project Review, required off-street parking spaces and off-street loading facilities shall be determined through such review in accordance with the provisions of Article 80. For all other Proposed Projects, the minimum required off-street parking spaces are as set forth in Table I, and the minimum required off-street loading spaces are as set forth in Table J.

DRAWN BY: JDP DATE: 10/05/2015
CHECK BY: TRB SCALE: 1" = 40'
JOB # DVS2-2274 SHEET NO. 1 OF 1

Gross Building Area

First Floor	25,558 Sf
Second Floor	26,492 Sf
Third Floor	26,492 Sf
Fourth Floor	26,044 Sf
Total	104,586 Sf

Open Space

TOTAL = 28,259 SF or 35.5 %

Unit Types / Floor Level	1BR	2BR	3BR	Total Per Floor
First Floor Plan	9 Units	8 Units	4 Units	21 Units
Second Floor Plan	7 Units	10 Units	4 Units	21 Units
Third Floor Plan	7 Units	9 Units	5 Units	21 Units
Fourth Floor Plan	7 Units	9 Units	5 Units	21 Units
Total/Unit Type	30 Units	36 Units	18 Units	84 Units

PLOT PLAN
1235 VFW PARKWAY - 165 GARDNER ST WEST ROXBURY, MA

PREPARED FOR
SOVAD LLC
PETER DAVOS, TRUSTEE

SCALE: 1" = 40' DATE: 10/05/2015

Green Seal Environmental, Inc.
114 State Road, Building B
Sagamore Beach, MA 02562
Tel: (508) 888-6034
Fax: (508) 888-1506
www.gseenv.com

0 40 80 120

Figure 1 - 8
Plot Plan

Table 1-2. Proposed Residential Units by Bedroom Type

Floor Level/ Unit Types	1-BR	2-BRS	3-BRS	Total Units Per Floor
1st Floor	9 Units	8 Units	4 Units	**21**
2nd Floor	4 Units	12 Units	5 Units	**21**
3rd Floor	4 Units	11 Units	6 Units	**21**
4th Floor	4 Units	11 Units	6 Units	**21**
Total	**21 Units**	**42 Units**	**21 Units**	**84 Units**

The Site circulation plan is designed to create a safe and pleasant entry to the Proposed Project from VFW Parkway with a front door vehicle drop off from the VFW. The surface parking and below level garage will be accessed both from the VFW Parkway and Gardner Street (which is two-ways along the property's edge from the VFW). Service vehicle access will be provided from Gardner Street.

1.3 Summary of Project Impacts and Mitigation

1.3.1 Urban Design

The proposed 1235-1237 VFW Parkway Project is a four-story residential apartment style building incorporating a total of approximately 84 units. In addition to the residences, the building includes community meeting rooms, tenant storage areas, outdoor terrace, and garaged and surface parking for bicycles and vehicles.

Playing a pivotal role in the continued urban transition of West Roxbury, the design of the Proposed Project requires an innovative design that is also financially feasible. Occupying a transitional site that mediates VFW Parkway, an older residential fabric, and an industrial and commercial area, the building's design is required to negotiate different scales and urban configurations.

The building design also addresses multiple scales and the different edge conditions of the surrounding neighborhood context, different ways of reacting to public space, and accompanying material and façade articulations to reinforce the scales of these interactions. The building is massed to appear as two buildings with a transparent bridge connection. They are treated as "brother / sister" buildings sharing similar detailing, but a variety of detailing. The 'front' façade along VFW Parkway has no parking and a highly developed pedestrian oriented landscape.

Located between Gardner Street and the Home Depot Store access road with its main facades along VFW Parkway, the Proposed Project's massing negotiates between the small-scale buildings of West Roxbury and the larger building context of The VA Hospital, Home Depot and the MA Department of Conservation and Recreation ice skating rink. The Proponent has already made a number of presentations of the Proposed Project's conceptual design to the neighborhood and Boston Redevelopment Authority as it has continued to complete modifications to its schematic design plans.

1.3.2 Sustainable Design

The Proponent and the Project design team are committed to an integrated design approach and are using the LEED for New Construction 2009 rating system and intend to meet certification as presented in **Figure 3-18** in **Section 3.0.** This rating will meet or likely exceed Boston's Green Building standard. Significant green features of the Project include increased water and energy efficiency, recycled content, improved indoor air quality, and innovative design and operations strategies. The project is currently tracking 51 points which puts us in the Silver level of Certifiability.

1.3.3 Pedestrian Level Wind Conditions

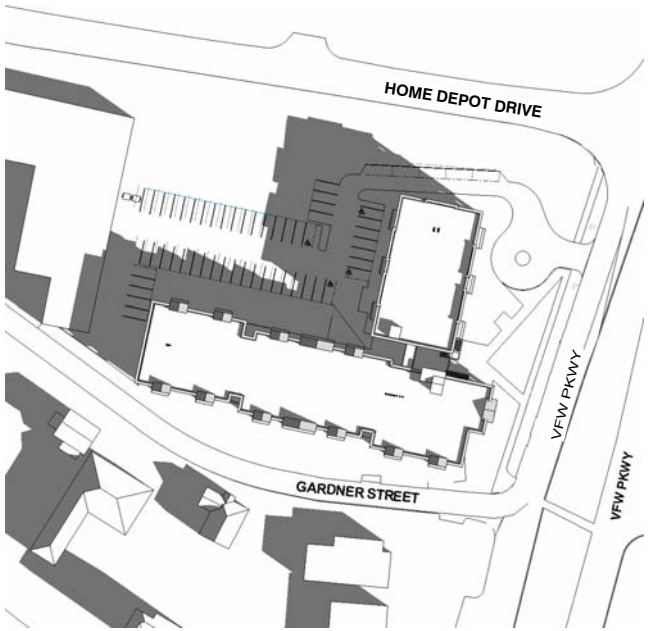
The height of the proposed structure will not exceed 45 feet. Wind conditions are expected to be similar to that of existing buildings along the VFW Parkway and Gardner Street where nearby buildings range from 2-3 floors.

1.3.4 Shadow Impact Analysis

Khalsa Design Inc., the Project's architect, prepared a shadow study to assess the potential shadow impacts of the Project on the surrounding neighborhood (with the shadows summarized on **Figures 1-9** thru **1-11**, and contained in detail in **Section 4.1**). Even with the proposed height of 4-floors, the Proposed Project's shadow impacts are generally not extensive. New shadow is generally limited to the streets surrounding the Site. Late afternoon and evening shadows will extend in an easterly/northeasterly direction toward Rivermoor Street and the Home Depot access driveway area and the VFW Parkway. Overall, the Project's shadow impacts will be consistent with current patterns and will not adversely impact the Project Site and surroundings.

1.3.5 Daylight Analysis

Although the Proposed Project would cause an increase in daylight obstruction when compared to the existing vacant site condition, the Proposed Project was designed to be of a similar massing to existing buildings along the VFW Parkway and Gardner Street. Although the building is higher along the rear of the property adjacent to Gardner Street, the location of the parking lot and setback mitigates possible daylight obstruction. As a result, daylight obstruction values from the Proposed Project are expected to be consistent with, and typical to, the surrounding neighborhood.



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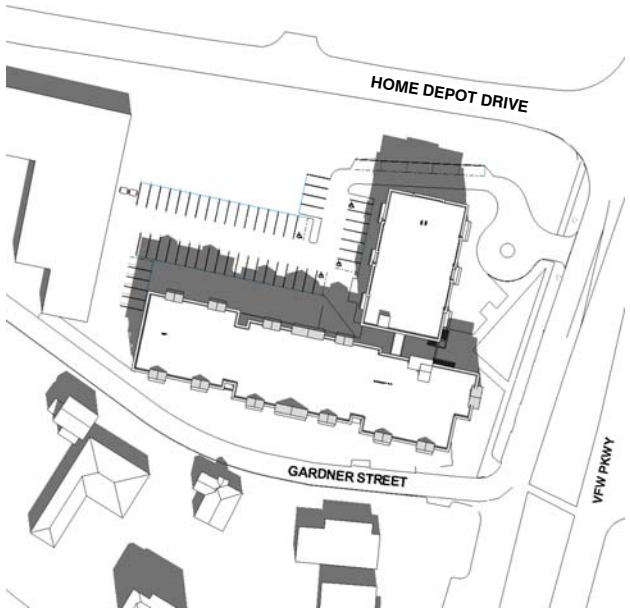

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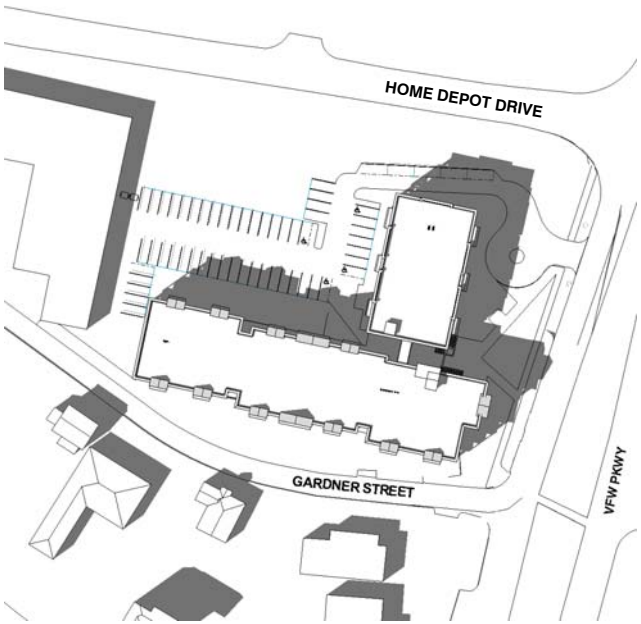

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FIGURE 1-9

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

SOVAD LLC

West Roxbury Residences
1235-1237 V.F.W. Parkway 165, 175 Gardner street,
West Roxbury, MA 02132

March-September 21st

Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

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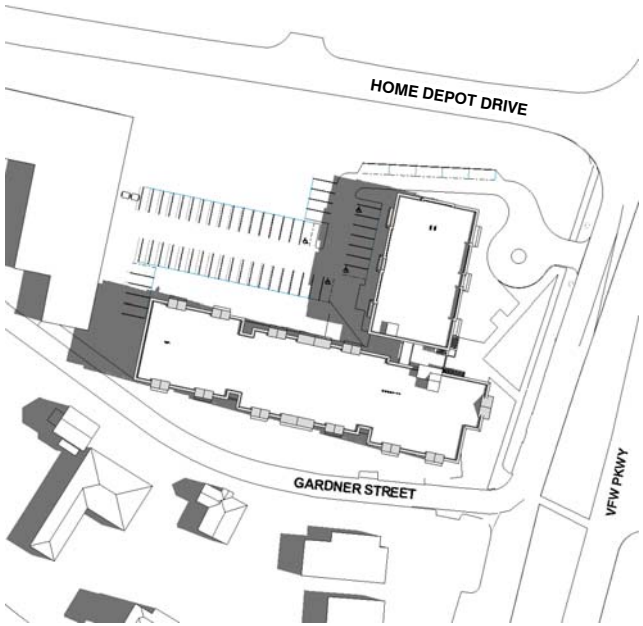

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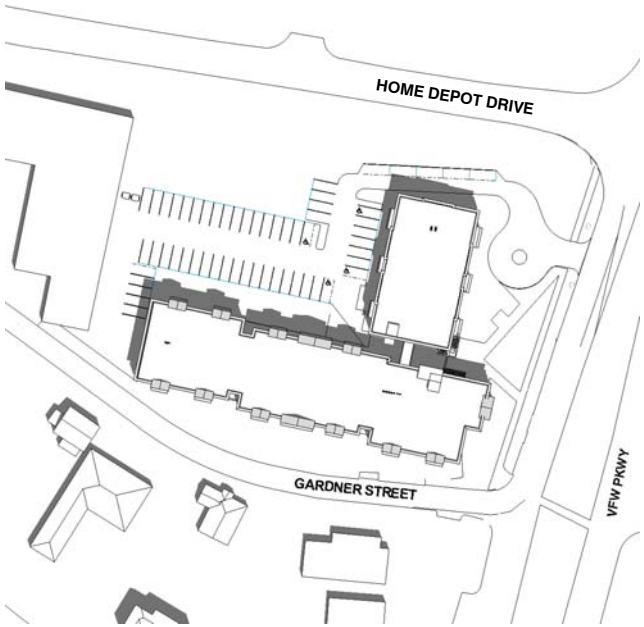

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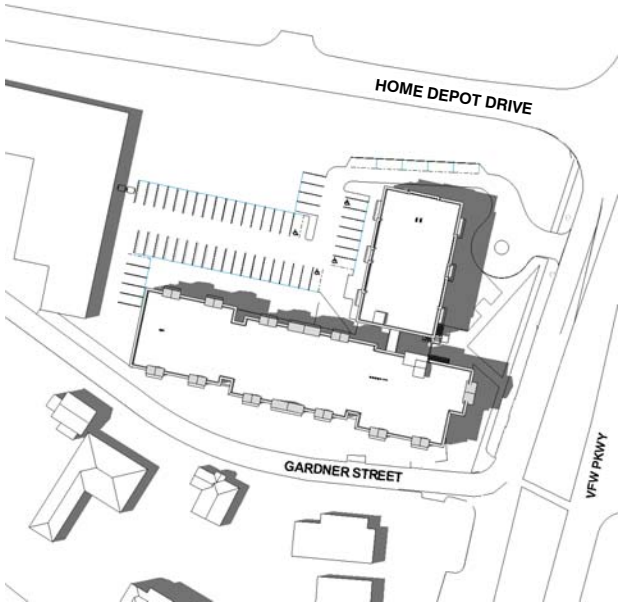

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N

FIGURE 1-10

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

SOVAD LLC

West Roxbury Residences
1235-1237 V.F.W. Parkway 165, 175 Gardner street,
West Roxbury, MA 02132

June 21st - Shadow Drawings - Summary

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Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

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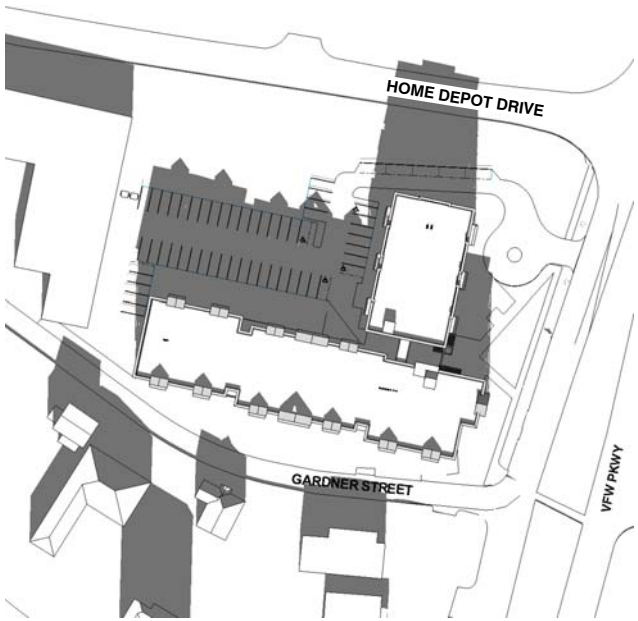

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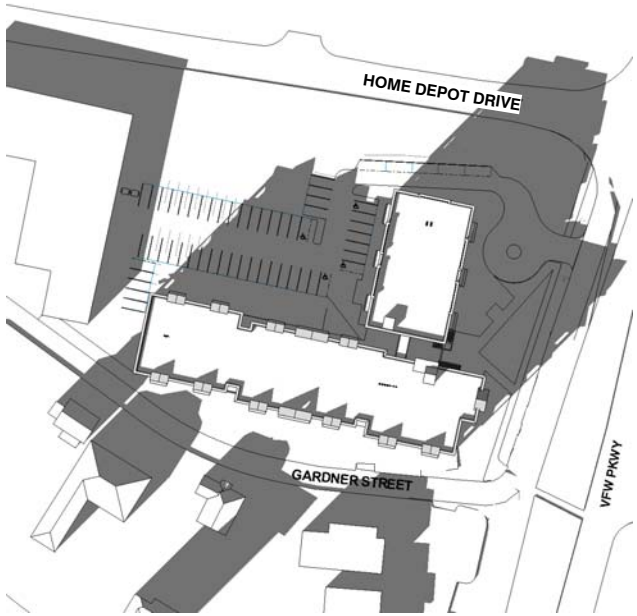

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N

FIGURE 1-11

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

SOVAD LLC

West Roxbury Residences
1235-1237 V.F.W. Parkway 165, 175 Gardner street,
West Roxbury, MA 02132

December 21st - Shadow Drawings - Summary

Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

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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 Analysis

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 fuel combustion equipment and enclosed 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 fuel combustion equipment and parking garage will not have an adverse impact on air quality. The maximum one-hour and eight-hour ambient CO impacts from the fuel combustion equipment and 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 the estimated Project trip generation having minimal impacts on the overall delays at the four 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. 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

Tech Environmental, Inc., the Project's noise consultant, conducted a noise study to determine whether 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) determination of 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 four locations deemed to be representative of the nearby residential areas, during the time period when human activity is at a minimum and any future noise would be most noticeable. The lowest nighttime L_{90} measured in the Project area was 43.6 dBA.

The potential significant sources of exterior sound from the Project have been identified as:

- Eighty-four (84) Rheem Model 13A-N rooftop condensing units.

The 1235-1237 VFW Parkway 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 is expected to substantially improve the water quality (See **Section 4.6**) and will meet the Boston Water and Sewer Commission (BWSC) Site Plan requirements. 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 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 deep sump catch basins and water quality treatment units. An operation and maintenance plan will be developed to support the long-term functionality of the proposed stormwater management system.

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

Based on the results of chemical testing of the fill and natural material performed at the site by McPhail Associates, LLC, as part of a Phase II Environmental Site Assessment, the fill and natural soil are anticipated to be Unregulated in accordance with the provisions of the Massachusetts Contingency Plan (310 CMR 40.0000).

The Proponent will retain a Licensed Site Professional (LSP) to manage the environmental aspects of the project, including proper management and/or off-site disposal of contaminated soil and groundwater encountered during construction. If necessary, the LSP will also prepare the required Massachusetts Contingency Plan (MCP) (310 CMR 40.0000) regulatory submittals. Additional information is presented in **Section 4.6.2.**

1.3.11 Geotechnical/Groundwater Impacts Analysis

Based on the results of the explorations performed at the subject site by McPhail Associates, LLC, the ground surface across the site is generally underlain by a fill layer that ranges from about 0.5 to 3 feet below the existing ground surface. It is noted that within southeast corner of the site, the fill layer was observed to extend to depths ranging from 3 to 9 feet below the existing ground surface. The fill layer is underlain by a natural sand deposit.

During our subsurface exploration program, groundwater was observed to be located at depths ranging from about 16 to 19 feet below the existing ground surface.

Based on the anticipated soil conditions described above, foundation support for the proposed building will consist of conventional spread footings. The lowest level floor slab will consist of a soil supported slab-on-grade. The footings will bear directly on the underlying natural sand deposit. Perimeter foundation and underslab drainage will be installed to protect the below grade areas against groundwater intrusion. Temporary earth support along the perimeter of the site is not anticipated to be required or foundation construction.

Excavation for construction of the building foundations and below grade level is anticipated to extend to depths ranging from 10 to 12 feet below the ground surface. Therefore, based on the results of our subsurface exploration program which indicates groundwater to be present at depths ranging from about 16 to 19 feet below the existing ground surface, groundwater dewatering during excavation is not anticipated. However, should groundwater be encountered during excavation of the building foundations, construction dewatering will consist of localized sumps in conjunction with on-site recharge of the groundwater. Furthermore, construction of the proposed below grade level is not expected to have adverse short or long-term impact on the existing groundwater conditions. A groundwater recharge system will be installed as part the development of the site. See **Section 4.7** for additional information.

1.3.12 Construction Impacts Analysis

Section 4.7 describes impacts likely to result from the Proposed Project's construction and the steps that will be taken to avoid or minimize environmental and transportation-related impacts. The Proponent will employ a construction manager that will be responsible for developing a construction phasing and staging plan and for coordinating construction activities with all appropriate regulatory agencies. The Project's geotechnical consultant will provide consulting services associated with foundation design recommendations, prepare geotechnical specifications, and review the construction contractor's proposed procedures.

Construction is expected to commence in the 2nd quarter 2016 and will require approximately 18 months to complete.

The Proponent will comply with applicable state and local regulations governing construction of the Project. The Proponent will require that the general contractor 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 construction manager will be bound by the CMP, which will establish the guidelines for the duration of the Project and will include specific mitigation measures and staging plans to minimize impacts on abutters.

Most construction activities will be accommodated within the current site boundaries. Details of the overall construction schedule, working hours, number of construction workers, worker transportation and parking, number of construction vehicles, and routes will be addressed in detail in a Construction Management Plan to be filed with BTD in accordance with the City's transportation maintenance plan requirements. To minimize transportation impacts during the construction period, there will be limited construction worker parking on-site, carpooling will be encouraged, secure on-site spaces will be provided for workers' supplies and tools so they do not have to be brought to the site each day, and subsidies for MBTA passes will be considered. The Construction Management Plan to be executed with the City prior to commencement of construction will document all committed measures.

1.3.13 Wetlands/Flood Hazard Zone

The existing Project Site is not a part of a wetland resource area regulated by the Massachusetts Wetland Protection Act. Based on the Preliminary Flood Insurance Rate Maps (FIRM) for Suffolk County, the Project site is not located in a special flood hazard area, floodway area, or other flood area.

1.3.14 Historic Resources Component

According to files at the Massachusetts Historical Commission, there are no structures listed in the National or State Register of Historic Places, or the Inventory of Historical and

Archaeological Assets of the Commonwealth on-site. It is not expected that the Project will cause adverse impacts on the historic or architectural elements of nearby historic resources outside the Project Site (see **Section 5.0**).

1.3.15 Infrastructure Systems Component

An infrastructure system's analysis (**Section 6.0**) was completed by Howard Stein Hudson Associates ("HSH"), the Project's Civil Engineer. The existing infrastructure surrounding the site appears sufficient to service the needs of the Proposed Project. This section describes the existing sewer, water, and drainage systems surrounding the site and explains how these systems will service the development. This analysis also discusses any anticipated Project-related impacts on the utilities and identifies mitigation measures to address these potential impacts.

1.3.16 Transportation Component

Section 7.0 presents the comprehensive transportation study completed by HSH for the proposed Project in conformance with the BTD Transportation Access Plan Guidelines (2001). The study analyzes existing conditions within the Project study area, as well as conditions forecast to be in place under the five-year planning horizon of 2020.

Access to the Site will be provided by two curb cuts, one driveway will be located along the VFW Parkway allowing right turn in movements only, and the other driveway will be located along Gardner Street towards the west of the site allowing right in and right out movements only. The existing VFW Parkway Driveway will be relocated to the north, while both of the existing curb cuts will be closed and the Gardner Street Driveway will be located towards the west of the site. Both driveways will only allow right in and right out movements. Adjacent to the driveway along the VFW Parkway, will be a turn-around loop for quick drop-off and pick-up.

The analysis employs mode use data for the area surrounding the Project site based on 2000 U.S. Census data and BTD data for Area 19, and identifies the number of trips generated by the Project. The Project will add up to 460 vehicle trips on a daily basis, with 32 trips during the a.m. Peak Hour (7 entering/25 exiting) and 39 trips during the p.m. Peak Hour (25 entering/14 exiting).

The Project will contain 130 parking spaces. This results in a parking ratio of approximately1.5 parking spaces per dwelling units, consistent with the BTD maximum parking goals. Loading and service operations will occur on-site, however a designated loading area will not be provided. Residential move-in/move-out activity will take place within the site on the surface lot.

The Proponent is committed to implementing a transportation demand management ("TDM") program that supports the City's efforts to reduce dependency on the automobile by encouraging alternatives to driving alone, especially during peak travel periods. Proposed measures include, but are not limited to, providing transit information (schedules, maps, and fare information) to

guests and visitors and on-site bicycle storage, providing a guaranteed ride home program to employees, and providing a transit pass program to the employees. The transportation coordinator will oversee all transportation issues including managing vehicular and valet operations, service and loading, valet parking, and TDM programs.

1.3.17 Response to Climate Change Questionnaire

Please see **Appendix E** for the Proponent's Response to the City of Boston's Climate Change Questionnaire.

1.3.18 Response to City of Boston Access Guidelines

Please see **Appendix F** for the Proponent's Response to the City of Boston's Access Guidelines.

2.0 GENERAL INFORMATION

2.1 Applicant Information

2.1.1 Project Proponent

The Project Proponent, SOVAD LLC, includes principal Peter V. Davos and his family members. As a life-long West Roxbury resident, Mr. Davos is an experienced and respected local real estate developer and property manager. With over 60 years of experience, he is a third generation builder, and he and his family have developed over 100 units of quality residential housing in Boston. They currently manage over 140,000 square feet of residential and commercial property in the Metro Boston area. As a community and neighborhood-minded developer committed to quality design and craftsmanship, two of Mr. Davos' recent real estate developments in the City earned him neighborhood praise and industry accolades, including the BRAGB Prism award for a 26-unit residential development in 2007 on Bigelow Street in Boston's Brighton neighborhood and an additional BRAGB Prism award for the development of two-single family homes in Boston's West Roxbury neighborhood.

Project Name	1235-1237 VFW Parkway
Property Owner / Developer	**SOVAD LLC** 94 Grayfield Avenue West Roxbury, MA SovadLLCWestRoxbury@Gmail.com Peter V. Davos Tel: 617-719-8668
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** 131 Oliver Street, 5th Floor Boston, MA 02110 Tel: 617-946-4600 Joseph Hanley, Esq. - Partner jhanley@mqmllp.com Nicholas J. Zozula, Esq. nzozula@mqmllp.com

Public Strategy Support	**CK Strategies** 233 Haverhill Street No. Reading, MA 01864 Chris Keohan ckeohan@ckstrategies.com Cell: 617-892-2765
Architect	**KHALSA DESIGN INC.** 17 Ivaloo Street, Suite 400 Somerville, MA 02143 Jai Khalsa JkHalsa@tkgeast.com Tel: 617-591-8682
Landscape Architect	**Blair Hines Design Associates** 318 Harvard Avenue, Suite 25 Brookline, MA 02446 Blair Hines bh@bhdassociates.com Tel: 617-478-0611
Transportation Planner / Engineer	**Howard Stein Hudson** 11 Beacon Street, Suite 1010 Boston, MA 02108 Brian J. Beisel, PTP bbeisel@hasassoc.com Tel: 617-482-7080
Civil Engineer	**Howard Stein Hudson** 11 Beacon Street, Suite 1010 Boston, MA 02108 Tel: 617-482-7080 Rick Latini, P.E. rlatini@hshassoc.com Hilary Holmes, P.E. hholmes@hshassoc.com

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
Noise and Air Consultant	**Tech Environmental, Inc.** Hobbs Brook Office Park 303 Wyman Street, Suite 295 Waltham, MA 02451 Marc C. Wallace mwallace@techenv.com Tel: 781-890-2220 x30
Geotechnical/ Environmental / 21E Engineer	**McPhail Associates, LLC** 2269 Massachusetts Avenue Cambridge, MA 02140 Harry Berlis HJB@mcphailgeo.com Tel: 617-868-1420
Surveyor	**Green Seal Environmental, Inc.** 114 State Road, Building B Sagamore Beach, MA 02652 www.gseenv.com Tel: 508-888-6034
Construction Commencement	2nd Quarter 2016
Construction Completion	4th Quarter 2017
Status of Project Design	Schematic

2.1.2 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 is no current or past history of tax arrears on property owned by the Proponent.

Nature and Extent of Any and All Public Easements:

The Site is bounded by utility easements for sewer, electric, telephone and gas. Additionally, there are utilities that cross the Site.

2.2 Public Benefits

The Proposed Project will provide substantial public benefits to the City of Boston and the West Roxbury neighborhood in particular. The Proposed Project provides for:

- Creating 84 units of much-needed residential rental housing of which 11 will be affordable in accordance with the City's Inclusionary Development Policy (IDP);
- Introducing residents who will provide support to the local community and utilize local businesses;
- Encouraging other alternative modes of transport such as the use of bikes and Zip Cars;
- Replacing a blighted open and long under-utilized lot currently used for parking and storage, improving the safety and visual appearance of the area, and improving environmental conditions on the existing site;
- Introducing street trees, widened sidewalks and other streetscape amenities to improve and enhance the pedestrian landscape and experience;
- Establishing a premier example of sustainable construction and development;
- Creating additional construction job;
- Closing one (1) existing curb cut along the VFW Parkway; and
- Adding new annual property taxes for the City of Boston

2.3 Regulatory Controls and Permits

2.3.1 Zoning Overview

The Project Site is located within the Route 1 Community Commercial (CC) sub-district of the West Roxbury Neighborhood District which is subject to Article 56 of the Code. As a result, the Proposed Project therefore requires a Conditional Use Permit for the proposed multi-family dwelling residential Use from the Boston Zoning Board of Appeal (ZBA). The Proposed Project Site is also subject to review as it is located within a Greenbelt Protection Overlay District (GPOD), which is found in Article 29 of the

Code. The GPOD requiresthe Proponent to submit plans to the City of Boston Parks Commission for review, and additional approval of a Conditional Use Permit from the ZBA. The determination of off-street parking and loading for the Proposed Project will be reviewed by the BRA as stipulated by Article 80 and Article 56, Section 56-39 of the Code pertaining to the West Roxbury Neighborhood District . The Proposed Project is presently designed in conformance with the dimensional requirements of the Code.

2.3.2 Boston Zoning Code – Use Requirements

The Proposed Project will include residential space and accessory uses thereto. The proposed Multi-Family dwelling residential Use is a Conditional Use within the Community Commercial (CC) Neighborhood Business Subdistrict of the West Roxbury Neighborhood District. Additionally, any "accessory offices" to the residential use are Allowed Uses within the CC Subdistrict.

2.3.3 Boston Zoning Code – Dimensional Requirements

The Proposed Project will include approximately 104,588 gross square feet of floor area. As referenced above, the Proposed Project is located within the Route 1 Community Commercial (CC) Subdistrict of the West Roxbury Neighborhood District. The CC Subdistrict allows for a maximum building height of 45 feet, a rear yard minimum setback of 40 feet, and a Maximum Floor Area Ratio (FAR) of 2.0 pursuant to Article 56 -Table F of the Code. The Proposed Project's building height will not exceed the maximum allowed height of 45 feet, includes a rear yard setback of 47 feet and a proposed FAR of 1.31, which are in accordance with those dimensional requirements permitted by the Code. In addition, the CC Subdistrict requires no Minimum Lot Size, Minimum Lot Width, Minimum Lot Frontage, Minimum Front Yard (other than conformance with Section 56-36.1, Street Wall Continuity, which does not apply to a proposed project for a residential use, such as the Proposed Project), or Minimum Side Yard. The Proposed Project shall therefore comply with the dimensional regulations and requirements as set forth in Article 56 of the Code.

For a project that is subject to Article 80 Large Project Review, required off-street parking spaces and off-street loading facilities are expected to be determined as a part of the Large Project Review in accordance with the provisions of Article 80 of the Boston Zoning Code. While the parking for the Proposed Project will be determined by Article 80 Large Project Review, the Proposed Project will provide 130 garage and surface parking spaces, which is in excess of the required parking spaces per Dwelling Unit as stated in Article 56–Table I- West Roxbury Neighborhood District - Off-Street Parking Requirements. Design elements of the Proposed Project will also be reviewed pursuant to Large Project Review.

Table 2-1. Route 1 Community Commercial (CC) Subdistrict- Dimensional Requirements

Dimensional Element	Community Commercial (CC) Subdistrict	Proposed Project (1)	Conditional Use Permits/ Variance(s) Required?
Minimum Lot Size	None	79,572 sf	No
Max. Floor Area Ratio	2.0	1.31	No
Max. Building Height	45 feet	45 feet maximum	No
Min. Usable Open Space per DU	N/A	346 sf per DU (29,070 SF total)	No
Min. Lot Width	None	N/A	No
Min. Lot Frontage	None	N/A	No
Min. Front Yard	None (2)	5.7 feet	No
Min. Side Yard	None (2)	27 feet	No
Min. Rear Yard	40 feet (2)	47 feet	No
Min. Number of Parking Spaces	(3)	130 spaces	(3)

1. The Proposed Project dimensions described in this above table may change as the Proposed Project undergoes design review with the BRA.
2. No part of a building or structure shall be located closer to the Charles River than the greater of: (a) forty (40) feet, measured from the top of the riverbank as defined by the Commonwealth of Massachusetts Wetlands Protection Act (M.G.L. Chapter 131, Section 40, as amended) and regulations issued thereunder by the Commonwealth of Massachusetts and the City of Boston Conservation Commission; or (b) any setback distance required by an Order of Conditions issued by the City of Boston Conservation Commission.
3. Required off-street parking spaces shall be determined through Art. 80's BRA's Large Project Review process.

N/A= Not Applicable

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

Agency Name	Permit or Action*
Federal or State Agencies	
U.S. Environmental Protection Agency	Notice of Intent for EPA Construction Activities General Discharge Permit with associated SWPPP, If Required
MA Department of Conservation and Recreation	Possible Sidewalk Repair Plan; Curb-Cut Permit; Street/Sidewalk Occupancy Permit; Permit for Street Opening
MA Department of Environmental Protection, Division of Water Pollution Control	Sewer Connection Self Certification
MA Department of Environmental Protection, Division of Air Quality Control	Fossil Fuel Permit, If Required; Notice of Asbestos Removal; Notice of Commencement of Demolition and Construction.
Local Agencies	
Boston Redevelopment Authority	Article 80 Review and Execution of Related Agreements; Section 80B-6 Certificate of Compliance; BRA Board Authorization
Boston Parks Commission	Proposed Project within 100 feet of Greenbelt Overlay District or Land Subject to Parks Commission Review
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; Discontinuances
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 Civic Design Commission	Design Review
Boston Department of Inspectional Services	Building Permits; Certificates of Occupancy; Site Cleanliness Permit; Other Construction-Related Permits

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

2.4 Public Review Process and Agency Coordination

In support of the required Article 80 Large Project Review process, the Proponent has conducted, and will continue to conduct, community outreach with neighbors and abutters of the Site, including meetings and discussions with the elected representatives and officials from the area, and with the residents of the adjacent Gardner Street and Charles Park Road neighborhoods. The most recent meeting organized by the Proponent, SOVAD LLC, was a September 21, 2015 meeting at a local restaurant near to the Project Site to present plans and discuss the public review required by the BRA for the Proposed Project.

The Proponent has also discussed the Proposed Project with representatives of the Boston Redevelopment Authority ("BRA") prior to filing this Project Notification Form in order to identify issues/concerns as well as design requirements related to the Project.

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

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.

2.5 Development Impact Payment ("DIP") Status

Based on current schematic design plans, it is <u>not</u> anticipated that Development Impact Payments ("DIP"), in accordance with Article 80B-7 of the Code, will be required as the Proposed Project is expected to be below the 100,000 gsf threshold for non-residential uses where DIP is required.

3.0 URBAN DESIGN AND SUSTAINABILITY COMPONENT

3.1 Urban Design Overview

Playing a pivotal role in the continued urban transition of West Roxbury, the design of the proposed Residences requires an innovative design that is also financially feasible. Occupying a transitional site that mediates VFW Parkway, an older residential fabric, and an industrial and commercial area, the building's design is required to negotiate different scales and urban configurations. To the north, the Residences face the Home Depot Parking Lot. To the south, the Residences face a day-care center and a restaurant. To the west, the Residences face an ongoing plastics manufacturing operation, and beyond that a residential neighborhood. To the east, it faces the VFW Parkway.

The building design addresses multiple scales and the different edge conditions of the surrounding neighborhood context, different ways of reacting to public space, and accompanying material and façade articulations to reinforce the scales of these interactions. The building is massed to appear as two buildings with a transparent bridge connection. They are treated as brother / sister building sharing similar detailing, but a variety of detailing. The 'front' façade along VFW Parkway has no parking and highly developed pedestrian oriented landscape.

In order to maximize ceiling heights, large windows, and open floor plans, the economic ramifications of various structural systems were assessed in close collaboration with contractors and consultant members of the team. This effort resulted in a straightforward, wood frame construction over an underground parking structure of steel and concrete. The mechanical solution avoids ventilation louvers on the exterior facades and the plumbing stacks are aligned vertically addressing the necessary economy and efficiency of this building type. The efficiency of the building design not only provides a larger budget for interesting architectural elements, but also sets aside funds for addressing sustainable design within the building.

The Urban Design and Sustainability figures, including the 2009 LEED Checklist, are included at the end of this section (**Figures 3-1** thru **3-18**).

3.2 Building Design

The proposed 1235-1237 VFW Parkway Project is a four-story residential apartment style building incorporating a total of 84units. In addition to the residences, the building includes community meeting rooms, tenant storage areas, outdoor terrace, and garaged and surface parking for bicycles and vehicles.
The Proponent has already made a number of presentations of the Project's conceptual design to the neighborhood and BRA as part of the refinements for its schematic design drawings.

The circular drop-off driveway entrance to the Residences mitigates further vehicle congestion along with the one way entrance only from VFW Parkway. The tall, open entrance will be landscaped to create a pleasant environment for guests and an attractive feature for pedestrians in the neighborhood. The ground

surface and ceiling materials will extend through to the interior court open space. The vehicle entrance and the two pedestrian entrances will help to animate the street level area with arrivals/departures of residents and visitors. Existing street trees and landscape also add to the pedestrian-friendly nature of the interior driveway.

The Proponent is committed to adopting materials that are consistent with the surrounding context. The concept of 'two' buildings on the site connected with a transparent bridge structure on the upper floors and a walk thru landscaped court on the ground floor reduces the apparent scale of the project.

3.3 Landscape Design

The tall, open entrance at the front of the building along the VFW Parkway will be landscaped to create a pleasant environment for guests and an attractive feature for pedestrians in the neighborhood. The ground surface and ceiling materials will extend through to the interior court open space. Existing street trees and landscape also add to the pedestrian-friendly nature of the interior driveway.

As indicated on the Illustrative Landscape Plan (**Figure 3-3)**, street trees along the Parkway will include retention of the four (4) existing oak trees and the introduction of ornamental trees and grasses to frame the pedestrian entrance and the planting of a central flowerbed in the drop off circle at the automobile entrance from the VFW Parkway. In addition, evergreen trees and ornamental grasses will be introduced on the buffer bank along Gardner Street, and a trellis with vines will be installed along the edge of the drive at the west property line. New trees will be planted along surface parking area along the Home Depot Store edge, and additional trees and landscaping will be planted to further buffer the surface parking area.

3.4 Sustainable Design/Energy Conservation

3.4.1 Introduction

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

The Proponent and the Project design team are committed to an integrated design approach and are using the LEED for New Construction 2009 rating system and intend to meet certification as presented in **Figure 3-18** at the end of this section. This rating will meet or exceed Boston's Green Building standard. 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.

3.4.2 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 Needham line is within 0.7 miles and the 36 bus within 0.1 mile and on-site bike storage/rental will offer environmentally sound transportation alternatives. Coupled with alternative parking options, the Project will try to reduce parking capacity below zoning requirements. Through these approaches, the Project also achieves many of the Alternative Transportation credits.

The planted gardens interspersed on the ground help to limit stormwater runoff to assist in meeting Stormwater Design- Quantity credit. 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.

3.4.3 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.

3.4.4 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. The HVAC system will incorporate a multi variable refrigerant volume (VRV) split HVAC system, which utilizes energy recovery units and VRV heat pumps to maximize the building's energy performance. 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.

3.4.5 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.

3.4.6 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.

3.4.7 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

3.5 Urban Design Drawings

Urban design drawings and renderings depicting the Proposed Project and the LEED 2009 Checklist include:

Figure 3-1: Proposed Development Aerial View
Figure 3-2: Proposed Site- Plan View
Figure 3-3: Landscape Plan
Figure 3-4: Garage Plan
Figure 3-5: First Floor Plan
Figure 3-6: Second Floor Plan
Figure 3-7: Third Floor Plan
Figure 3-8: Fourth Floor
Figure 3-9: Elevation from VFW Parkway
Figure 3-10: Elevation From Gardner Street and Rear of Site
Figure 3-11: Elevation View from Home Depot Drive
Figure 3-12: Building Sections
Figure 3-13: Perspective of Front Entrance
Figure 3-14: Perspective From VFW Parkway
Figure 3-15: Perspective From Backyard Parking

FIGURE 3-1

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

SOVAD LLC

West Roxbury Residences

1235-1237 V.F.W. Parkway 165, 175 Gardner street,
West Roxbury, MA 02132

PROPOSED DEVELOPMENT AERIAL VIEW

Project number	14099	
Date	07-02-2015	
Drawn by	NA-IL	
Checked by	JSK	Scale

7/30/2015 3:35:44 PM

FIGURE 3-2

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

SOVAD LLC

West Roxbury Residences

1235-1237 V.F.W. Parkway 165, 175 Gardner street,
West Roxbury, MA 02132

PROPOSED SITE - PLAN VIEW

Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

7/30/2015 3:35:50 PM

Blair Hines Design Associates
LANDSCAPE ARCHITECTS

VFW - WEST ROXBURY

Illustrative Landscape Plan

Scale: 1" = 20'-0"

July 1, 2015

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
TELEPHONE 617-591-8682 FAX: 617-591-2086

FIGURE 3-3

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

SOVAD LLC

West Roxbury Residences
1235-1237 V.F.W. Parkway 165, 175 Gardner street,
West Roxbury, MA 02132

LANDSCAPE PLAN		
Project number	14099	
Date	07-02-2015	
Drawn by	Author	
Checked by	JSK	Scale

Scheme 1 Legend

- BIKE STORAGE
- BLDG. SUPP.
- PARKING

FIGURE 3-4

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
TEL: 617-591-8682
FAX: 617-591-2086

SOVAD LLC

W Roxbury Residences

1235-1237 V.F.W. Parkway 165, 175 Gardner street,
West Roxbury, MA 02132

GARAGE PLAN

Project number	14099		
Date	07-06-2015		
Drawn by	Author		
Checked by	Checker	Scale	As indicated

7/21/2015 10:26:51 AM

FIGURE 3-5

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
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FAX: 617-591-2086

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W Roxbury Residences

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West Roxbury, MA 02132

FIRST FLOOR PLAN

Project number	14099		
Date	07-06-2015		
Drawn by	Author		
Checked by	Checker	Scale	As indicated

10/14/2015 2:51:15 PM

Scheme 1 Legend

- 1 BED
- 2 BED
- 3 BED
- CORRIDOR

FIGURE 3-6

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
TEL: 617-591-8682
FAX: 617-591-2086

SOVAD LLC

W Roxbury Residences

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SECOND FLOOR PLAN

Project number	14099		
Date	07-06-2015		
Drawn by	Author		
Checked by	Checker	Scale	As indicated

10/14/2015 2:51:54 PM

Scheme 1 Legend

- 1 BED
- 2 BED
- 3 BED
- CORRIDOR

FIGURE 3-7

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
TEL: 617-591-8682
FAX: 617-591-2086

SOVAD LLC

W Roxbury Residences

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West Roxbury, MA 02132

THIRD FLOOR PLAN

Project number	14099		
Date	07-06-2015		
Drawn by	Author		
Checked by	Checker	Scale	As indicated

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Scheme 1 Legend

- 1 BED
- 2 BED
- 3 BED
- CORRIDOR

FIGURE 3-8

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
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FOURTH FLOOR PLAN

Project number	14099		
Date	07-06-2015		
Drawn by	Author		
Checked by	Checker	Scale	As indicated

10/14/2015 2:52:41 PM

FIGURE 3-9

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
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1235-1237 V.F.W. Parkway 165, 175 Gardner street,
West Roxbury, MA 02132

ELEVATION FROM V.F.W. PARKWAY

Project number	14099	
Date	07-02-2015	
Drawn by	Author	
Checked by	Checker	Scale

1-GARDNER STREET ELEVATION

2 - REAR ELEVATION

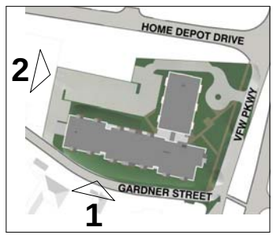

FIGURE 3-10

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

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West Roxbury Residences

1235-1237 V.F.W. Parkway 165, 175 Gardner street,
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ELEVATION FROM GARDNER ST. & REAR ELEVATION

Project number	14099	
Date	07-02-2015	
Drawn by	Author	
Checked by	Checker	Scale

10/15/2015 2:47:13 PM

FIGURE 3-11

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
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ELEVATION VIEW FROM HOME DEPOT DRIVE

Project number	14099	
Date	07-02-2015	
Drawn by	NA-IL	
Checked by	JSK	Scale

SECTION A-A

SECTION B-B

FIGURE 3-12

KHALSA DESIGN INC.
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BUILDING SECTIONS

Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

10/15/2015 1:34:39 PM

FIGURE 3-13

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
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West Roxbury, MA 02132

PERSPECTIVE OF FRONT ENTRANCE

Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

FIGURE 3-14

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
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PERSPECTIVE FROM VFW PKWY

Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

7/30/2015 3:36:45 PM

FIGURE 3-15

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
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West Roxbury, MA 02132

PERSPECTIVE FROM BACKYARD PARKING

Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

FIGURE 3-16

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
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FAX: 617-591-2086

SOVAD LLC

West Roxbury Residences

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West Roxbury, MA 02132

PERSPECTIVE OF GARDNER STREET SIDE

Project number	14099
Date	07-02-2015
Drawn by	NA
Checked by	JSK

Scale

FIGURE 3-17

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
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PERSPECTIVE VIEWING BACKYARD PARKING

Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

7/30/2015 3:37:05 PM

LEED 2009 for New Construction and Major Renovations

Figure 3-18 VFW Parkway

Project Checklist

Sustainable Sites — Possible Points: 26

Y	?	N			
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

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

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	
4	3	12	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

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

Y	?	N			
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

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

Innovation and Design Process — Possible Points: 6

1			Credit 1.1	Innovation in Design: Exemplary Perf SS 5.2	1
1			Credit 1.2	Innovation in Design: Exemplary Perf WEc3	1
1			Credit 1.3	Innovation in Design: Green Housekeeping	1
1			Credit 1.4	Innovation in Design: Energy Star Appliances	1
1			Credit 1.5	Innovation in Design:Education Plan	1
1			Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

1			Credit 1.1	Regional Priority: SS c3	1
1			Credit 1.2	Regional Priority:Heat Island 7.1-Non- Roof	1
1			Credit 1.3	Regional Priority:Heat Island 7.2 Roof	1
1			Credit 1.4	Regional Priority: SS 6.1 Stormwater Quantity	1

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 study describes and graphically depicts anticipated new shadow impacts from the Project compared to shadows from existing buildings. The study presents the existing and built conditions for the proposed Project for the hours 9:00 AM, 12:00 Noon, and 3:00 PM for the vernal equinox, summer solstice, autumnal equinox, and winter solstice. In addition, shadows are depicted for 6:00 PM during the summer solstice and autumnal equinox.

4.1.2 Vernal Equinox (March 21)

Figures 4-1 through **4-3** depict shadows on March 21.

At 9:00 AM, shadows are cast in a westerly direction onto portions of the projects parking lot and the adjacent plastics manufacturing business on Gardner Street.

At 12:00 Noon, new shadow is cast in a northerly direction totally contained in the open space of the project site or the Rivermoor Street and the Home Depot access driveway area.

At 3:00 PM, new shadow from the Project is cast in a northeasterly direction mostly onto the open space of the project site or the Rivermoor Street and the Home Depot access driveway area and minor amount into the front yard on VFW Parkway.

4.1.3 Summer Solstice (June 21)

Figures 4-4 through **4-7** depict shadow impacts on June 21.

At 9:00 AM, shadows are cast in a westerly direction onto portions of the project's parking lot and the adjacent plastics manufacturing business on Gardner Street.

At 12:00 Noon, new shadow is cast in a northerly direction totally contained in the open space of the project site.

At 3:00 PM, new shadow from the Project is cast in a northeasterly direction totally contained in the open space of the project site.

At 6:00 PM, new shadow from the Project is cast in an easterly direction onto the open space of the project site and minor amount into the front yard on VFW Parkway

4.1.4 Autumnal Equinox (September 21)

Figures 4-8 through **4-11** depict shadow impacts on September 21.

At 9:00 AM, shadows are cast in a westerly direction onto portions of the projects parking lot and the adjacent plastic manufacturing business on Gardner Street.

At 12:00 Noon, new shadow is cast in a northerly direction totally contained in the open space of the project site or the Rivermoor Street and the Home Depot access driveway area.

At 3:00 PM, new shadow from the Project is cast in a northeasterly direction mostly onto the open space of the project site or the Rivermoor Street and the Home Depot access driveway area and minor amount into the front yard on VFW Parkway.

4.1.5 Winter Solstice (December 21)

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

At 9:00 AM, are cast in a westerly direction onto portions of the projects parking lot and the adjacent manufacturing plastics business on Gardner Street and additionally onto Rivermoor Street and the Home Depot access driveway area.

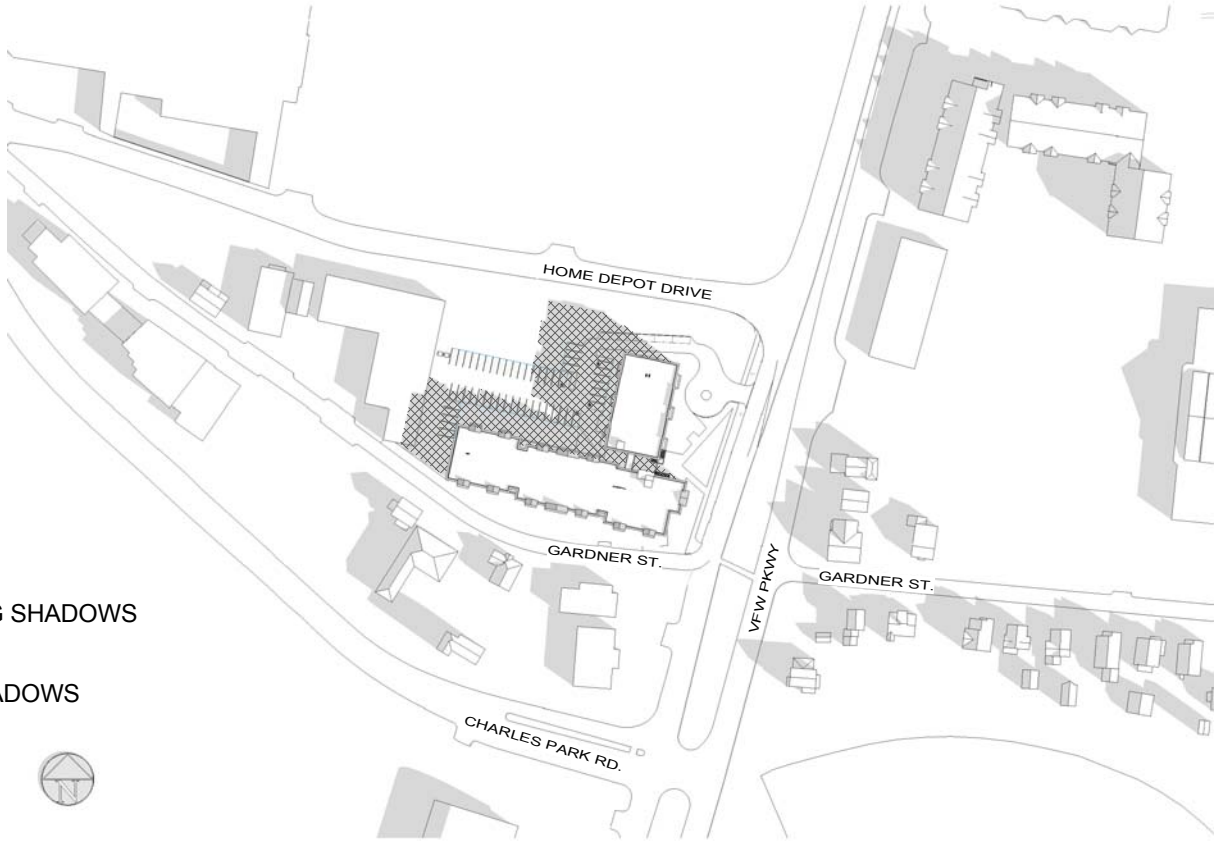
At 12:00 Noon, new shadow is cast in a northerly direction onto the project site parking lot and Rivermoor Street and the Home Depot access driveway area.

At 3:00 PM, new shadow from the Project is cast in a northeasterly direction mostly Rivermoor Street and the Home Depot access driveway area and the VFW Parkway.

4.1.6 Summary

Even with the proposed height of 4-floors, the Proposed Project's shadow impacts are generally not extensive. New shadow is generally limited to the streets surrounding the Site. Late afternoon and evening shadows will extend in an easterly/northeasterly direction toward the Rivermoor Street and the Home Depot access driveway area and the VFW Parkway. Overall, the Project's shadow impacts will be consistent with current patterns and will not adversely impact the Project Site and surroundings.

NO BUILD



EXISTING SHADOWS

NEW SHADOWS

BUILD

AZIMUTH 125.7 - ALTITUDE 33

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
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617-591-8682
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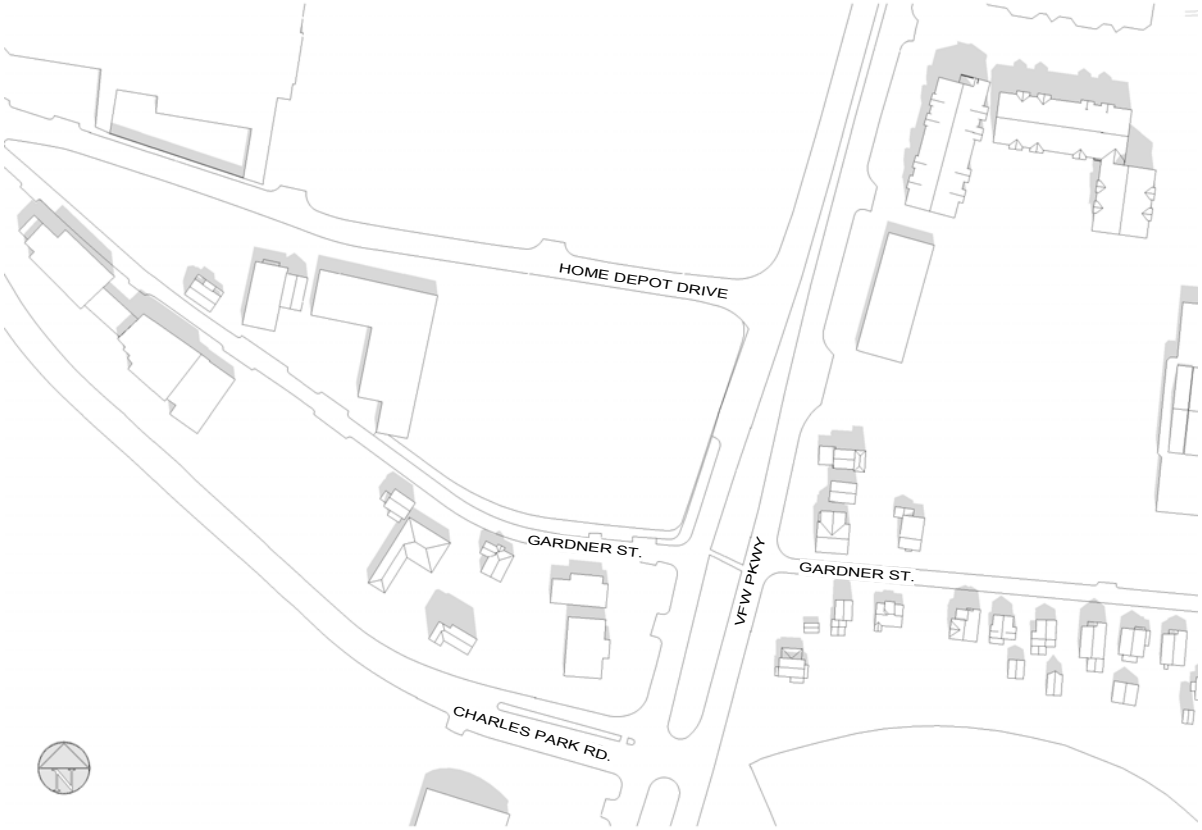
SOVAD LLC

West Roxbury Residences

1235-1237 V.F.W. Parkway
165, 175 Gardner street,
West Roxbury, MA 02132

FIGURE 4-1	MARCH 21 - 9 AM	
Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

7/28/2015 3:05:08 PM



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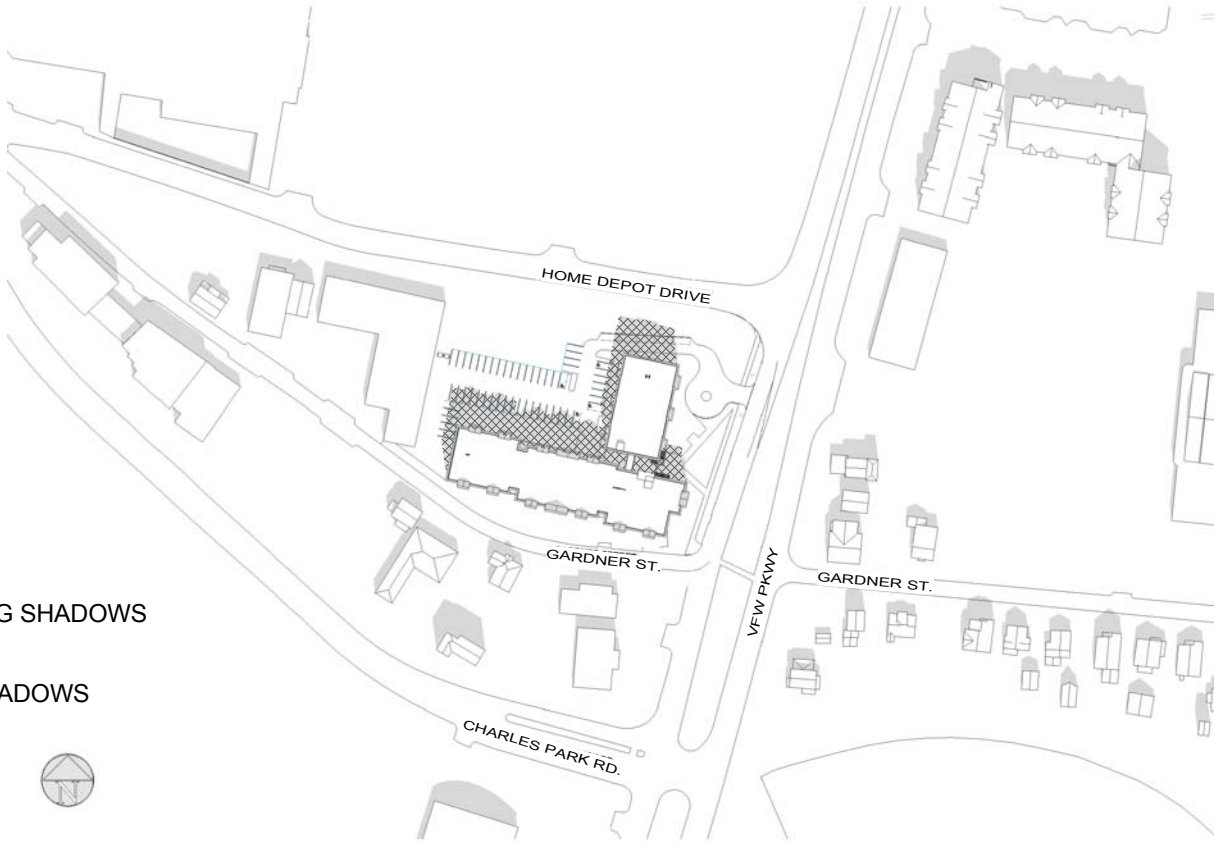

EXISTING SHADOWS

NEW SHADOWS

BUILD

AZIMUTH -176.9 - ALTITUDE 48.0

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17 IVALOO STREET SUITE 400
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West Roxbury, MA 02132

FIGURE 4-2	MARCH 21-12 PM
Project number	14099
Date	07-02-2015
Drawn by	NA
Checked by	JSK

Scale

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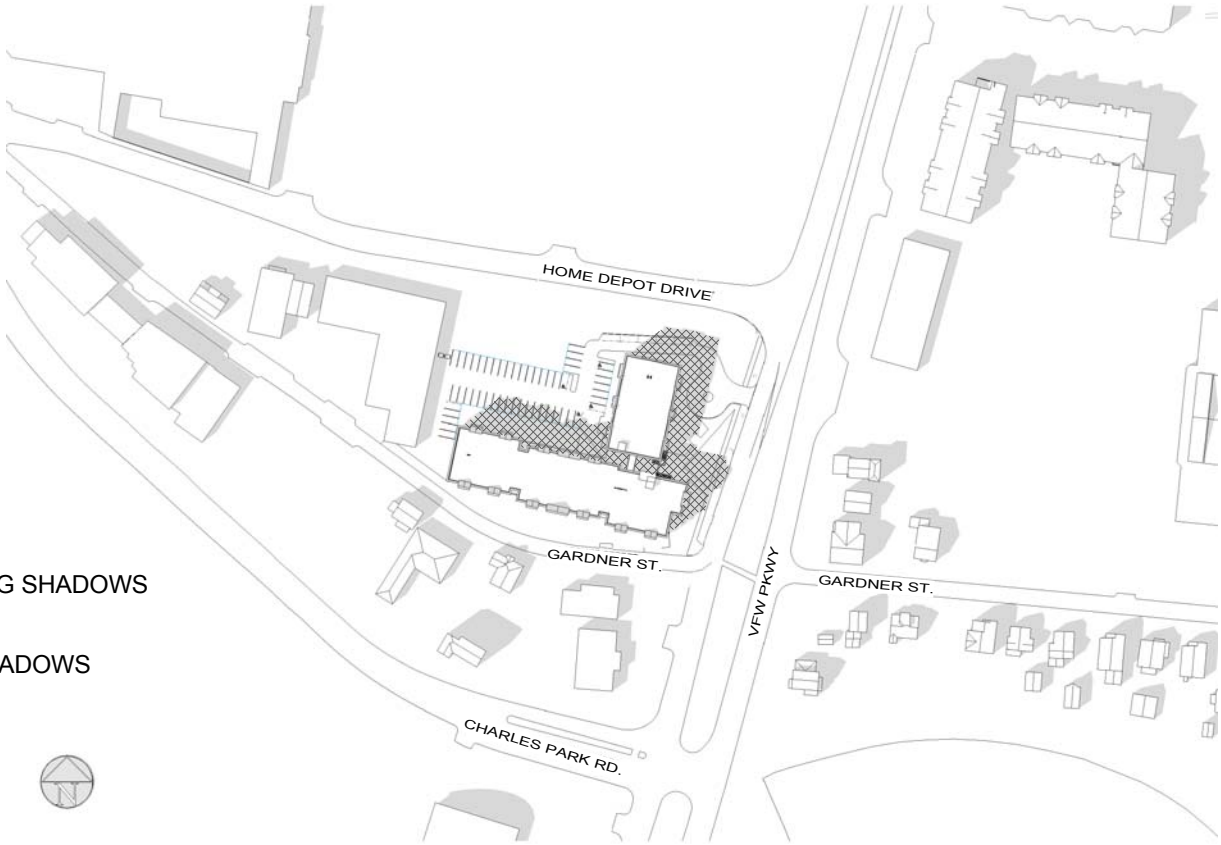

EXISTING SHADOWS

NEW SHADOWS

BUILD

AZIMUTH -121.8 - ALTITUDE 30.5

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17 IVALOO STREET SUITE 400
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West Roxbury, MA 02132

FIGURE 4-3	MARCH 21 - 3 PM	
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Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

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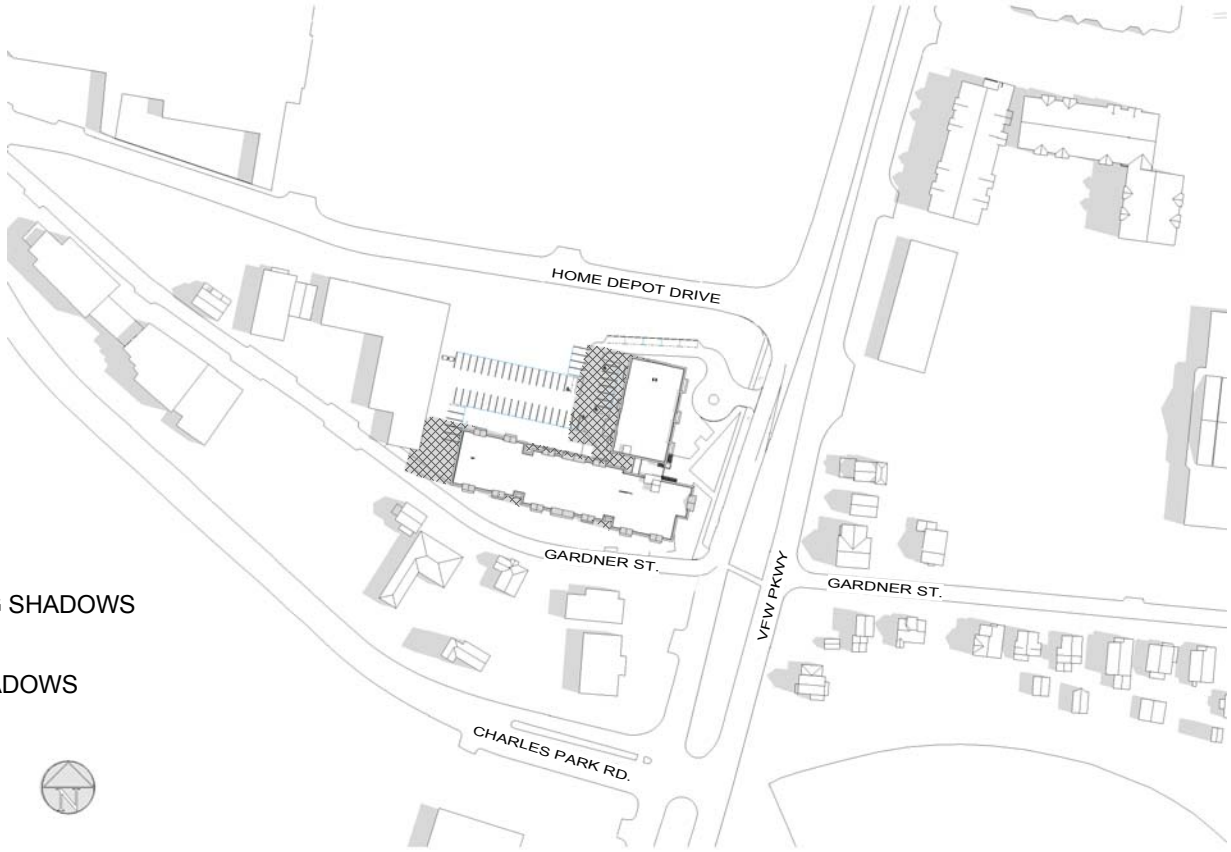

EXISTING SHADOWS

NEW SHADOWS

BUILD

AZIMUTH 93.5 - ALTITUDE 39.9

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FIGURE 4-4		JUNE 21 - 9 AM
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Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

7/28/2015 3:05:15 PM

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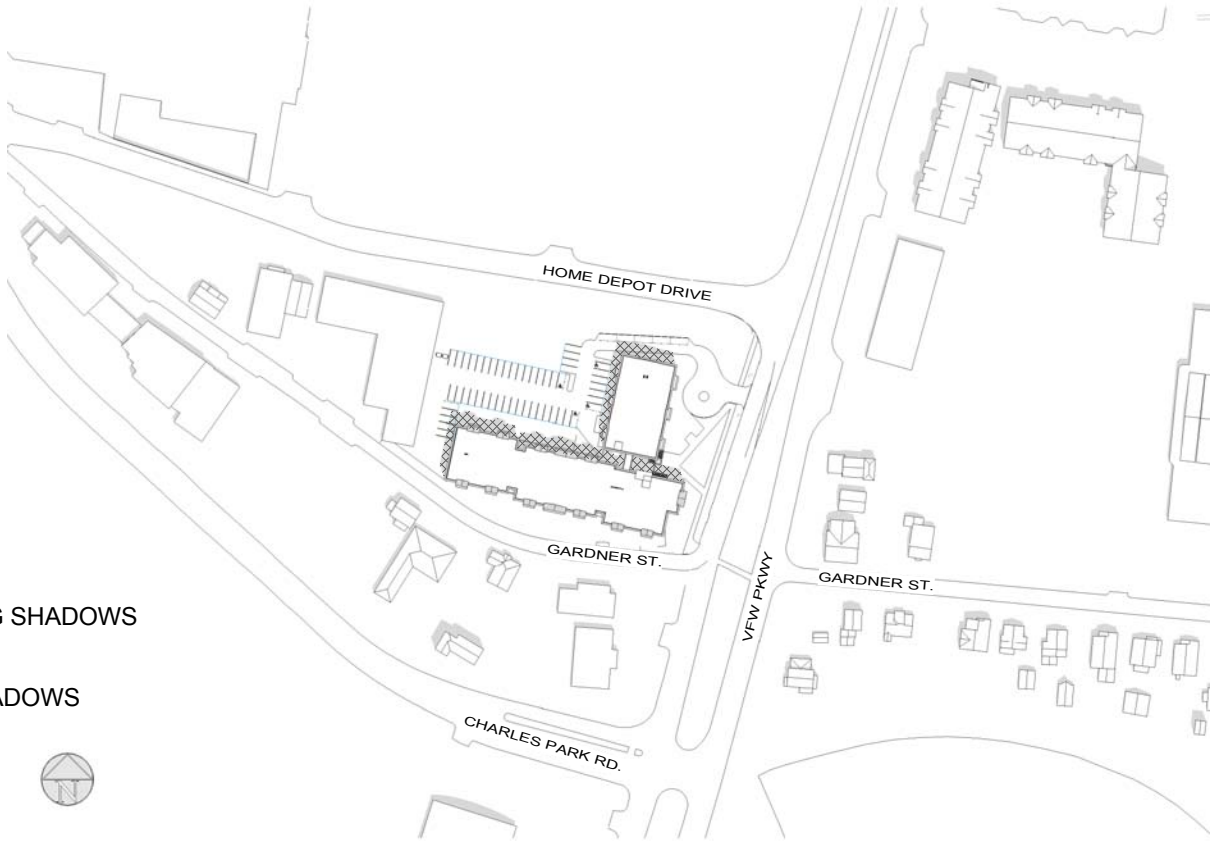

EXISTING SHADOWS

NEW SHADOWS

BUILD

AZIMUTH 149.4 - ALTITUDE 68.8

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17 IVALOO STREET SUITE 400
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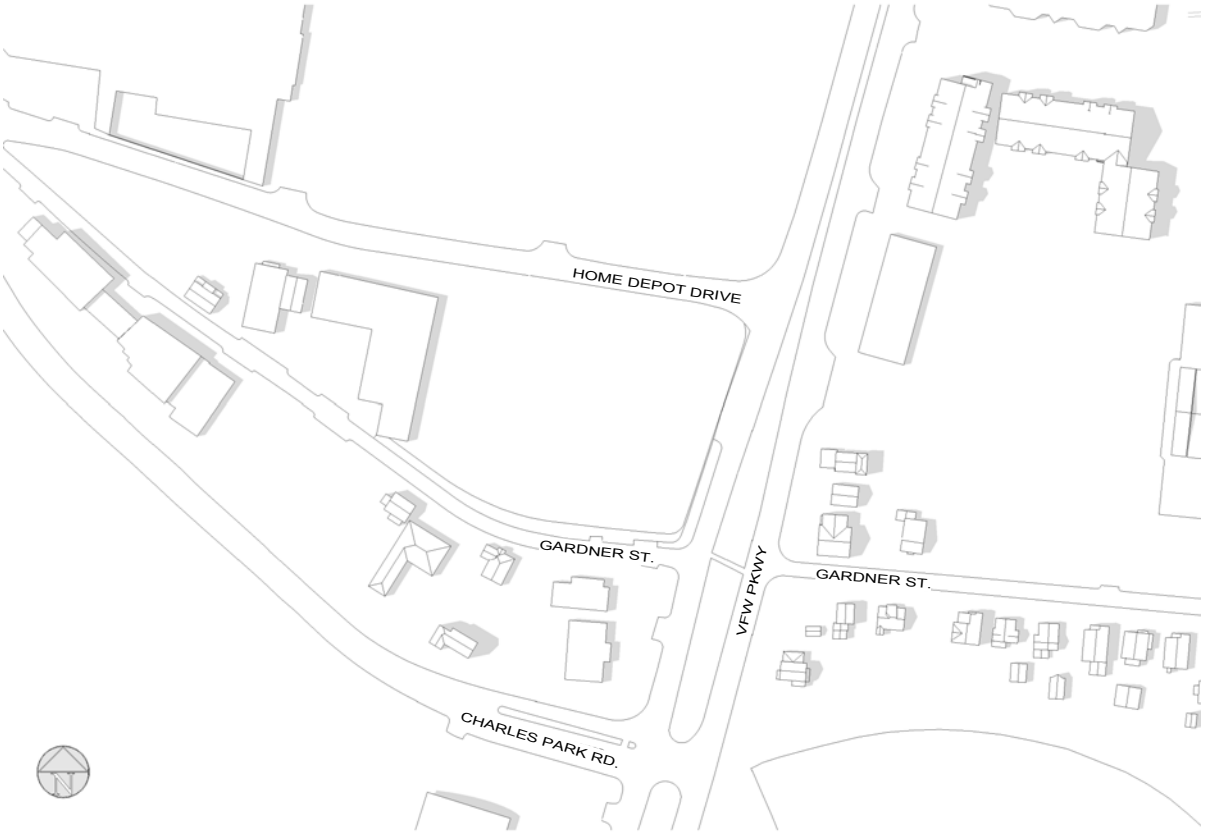
West Roxbury, MA 02132

FIGURE 4-5		JUNE 21 - 12 PM
Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

7/28/2015 3:05:18 PM



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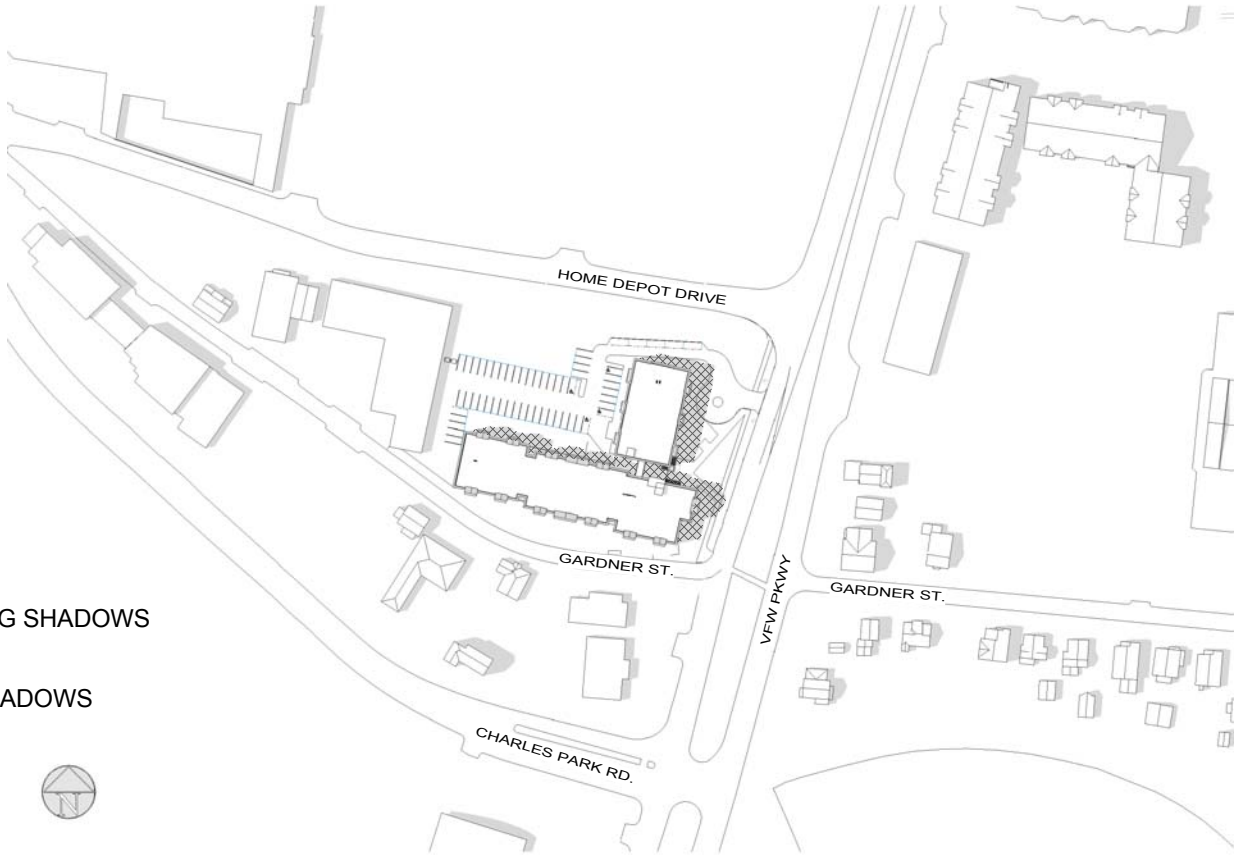

EXISTING SHADOWS

NEW SHADOWS

BUILD

AZIMUTH -113.7 - ALTITUDE 56.5

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17 IVALOO STREET SUITE 400
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West Roxbury, MA 02132

FIGURE 4-6		JUNE 21 - 3 PM
Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

7/28/2015 3:05:20 PM

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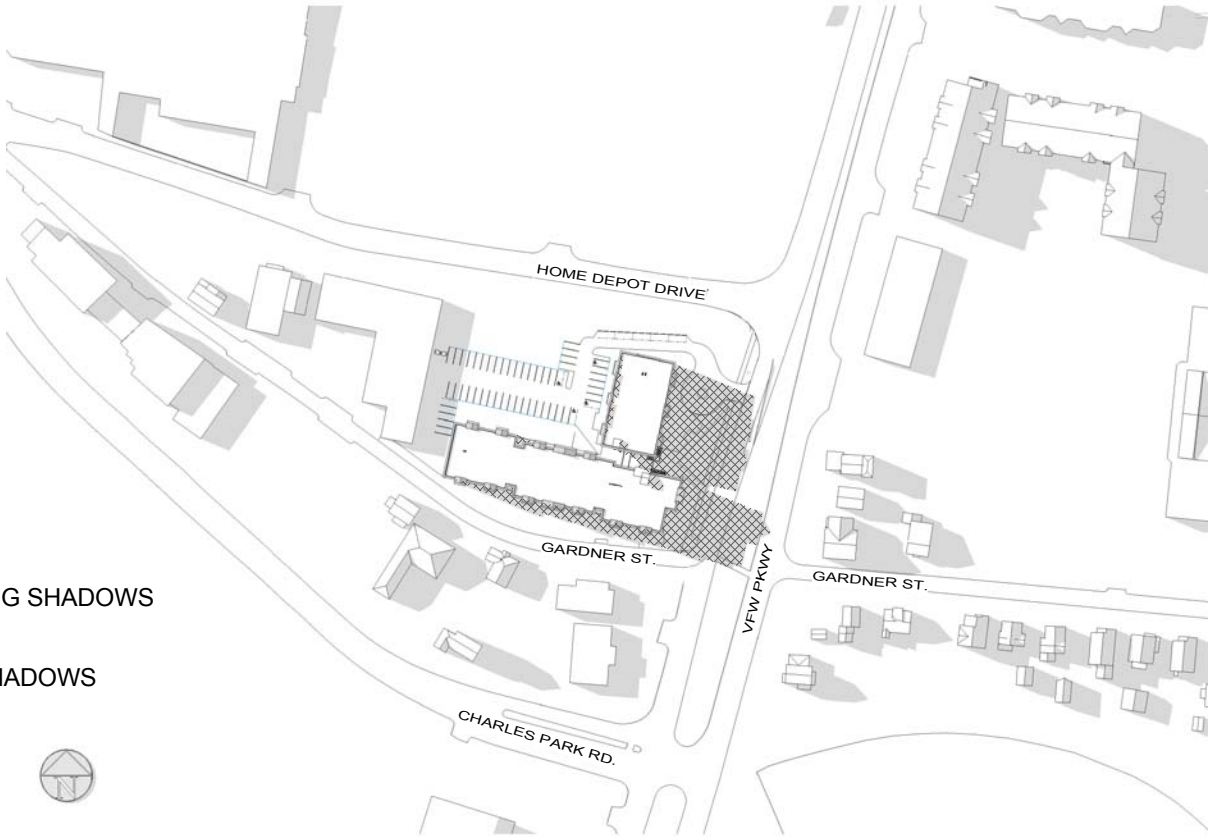

EXISTING SHADOWS

NEW SHADOWS

BUILD

AZIMUTH -79.3 - ALTITUDE 23.9

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
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West Roxbury Residences

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165, 175 Gardner street,
West Roxbury, MA 02132

FIGURE 4-7		JUNE 21 - 6 PM
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Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

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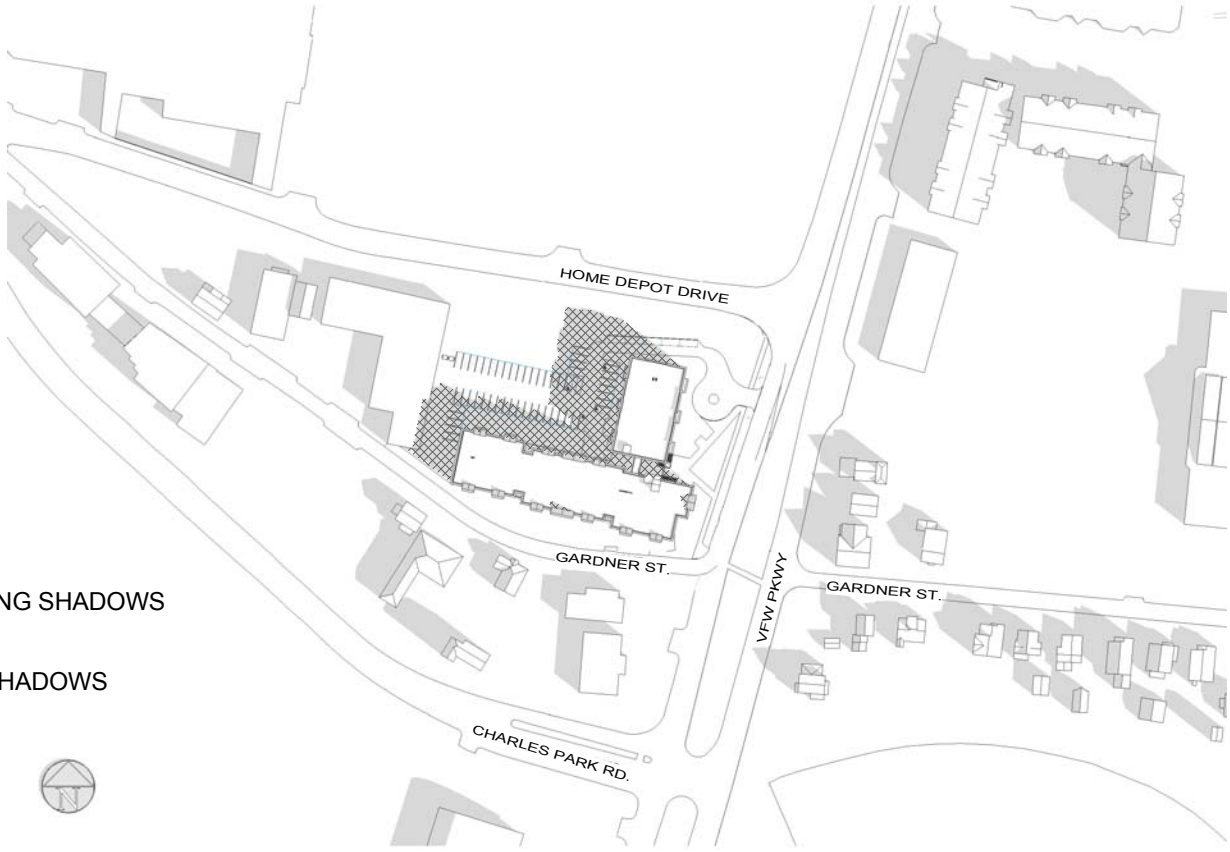

EXISTING SHADOWS

NEW SHADOWS

BUILD

AZIMUTH 115.3 - ALTITUDE 25.9

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17 IVALOO STREET SUITE 400
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FIGURE 4-8	SEPTEMBER 21 - 9 AM	
Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

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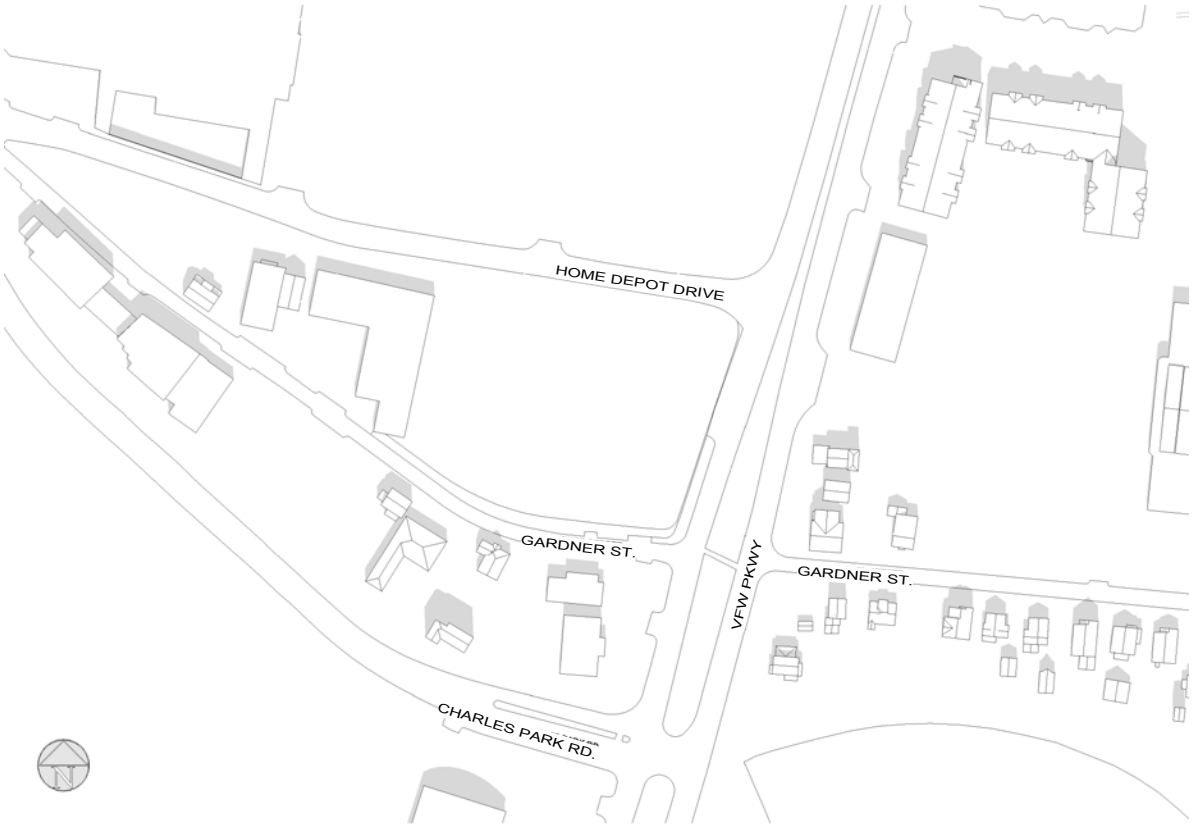

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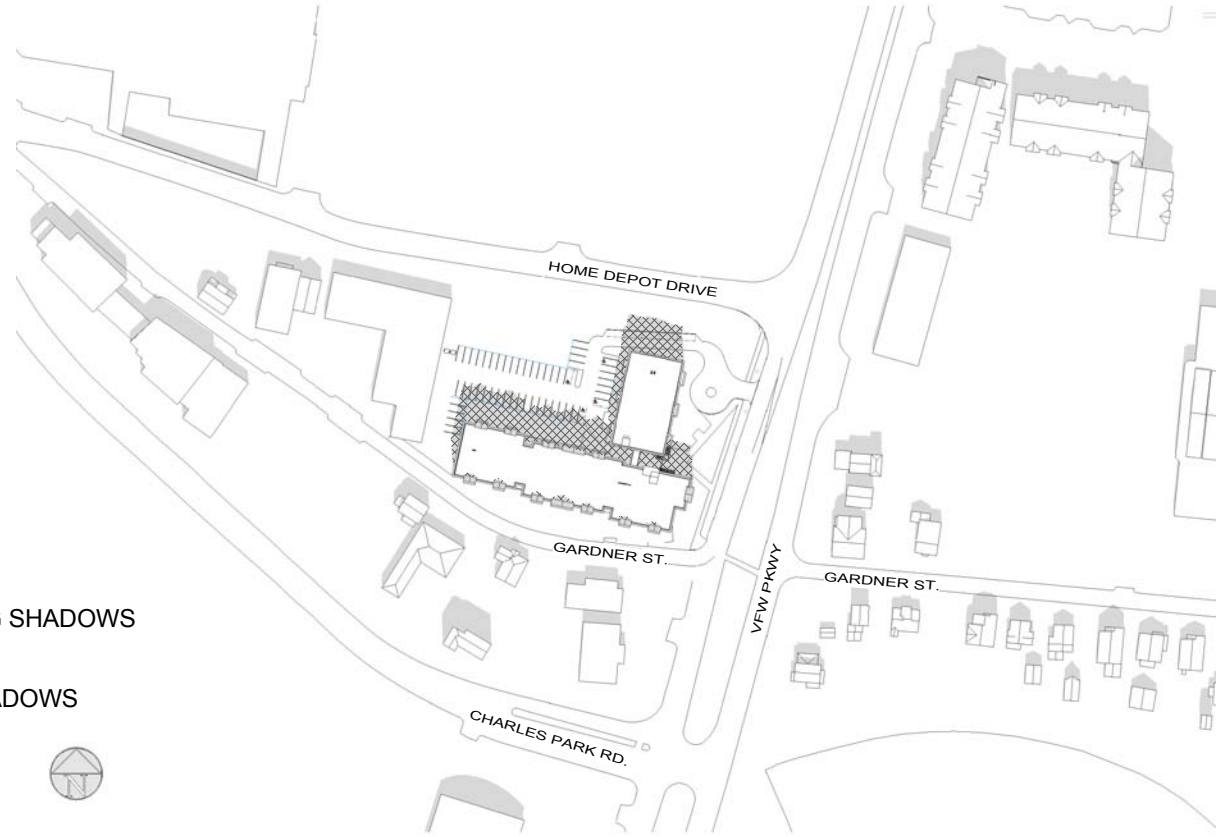


EXISTING SHADOWS

NEW SHADOWS

BUILD

AZIMUTH 166.0 - ALTITUDE 47.4

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

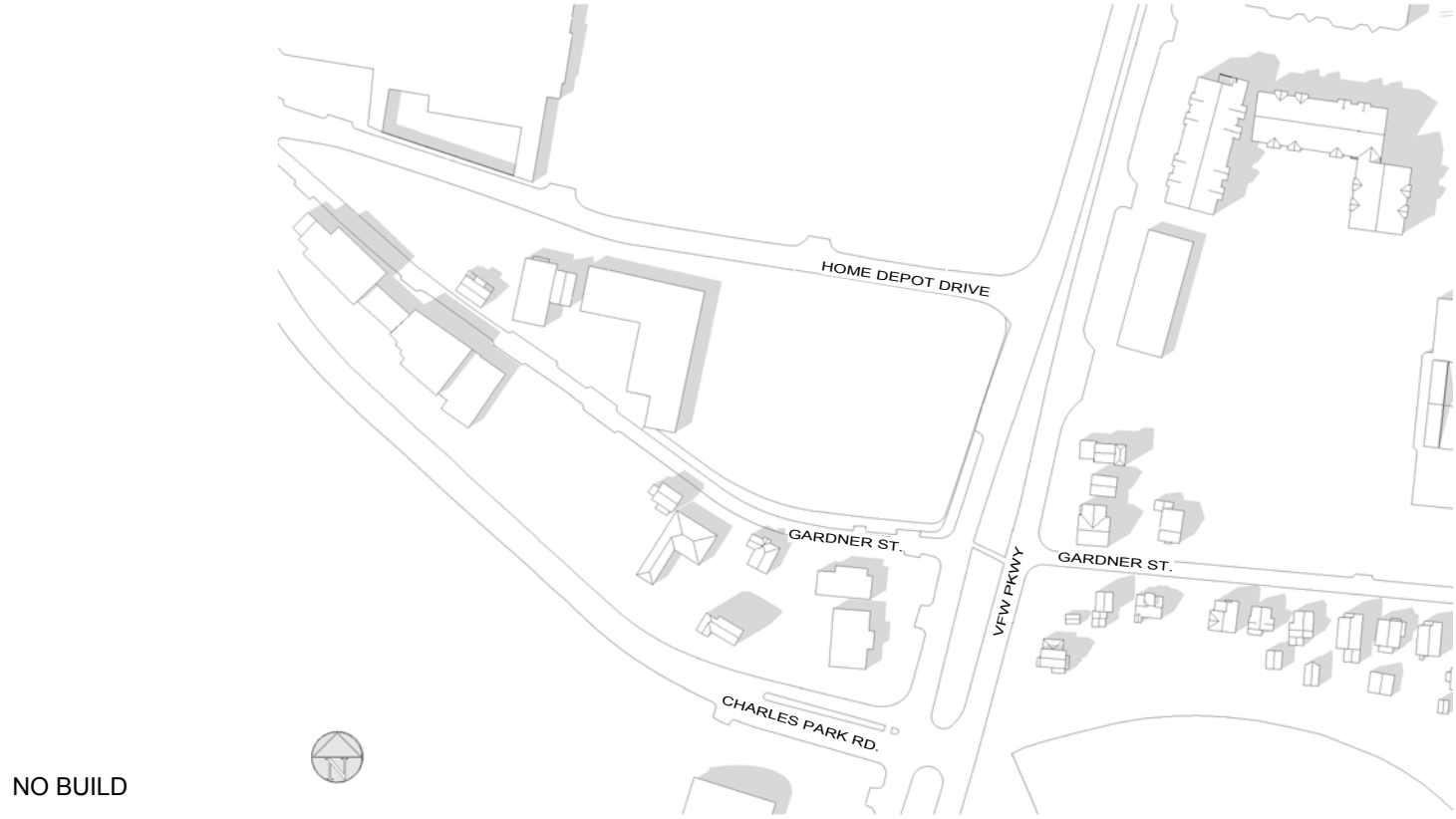
SOVAD LLC

West Roxbury Residences

1235-1237 V.F.W. Parkway
165, 175 Gardner street,
West Roxbury, MA 02132

FIGURE 4-9	SEPTEMBER 21 - 12 PM	
Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

7/28/2015 3:05:29 PM



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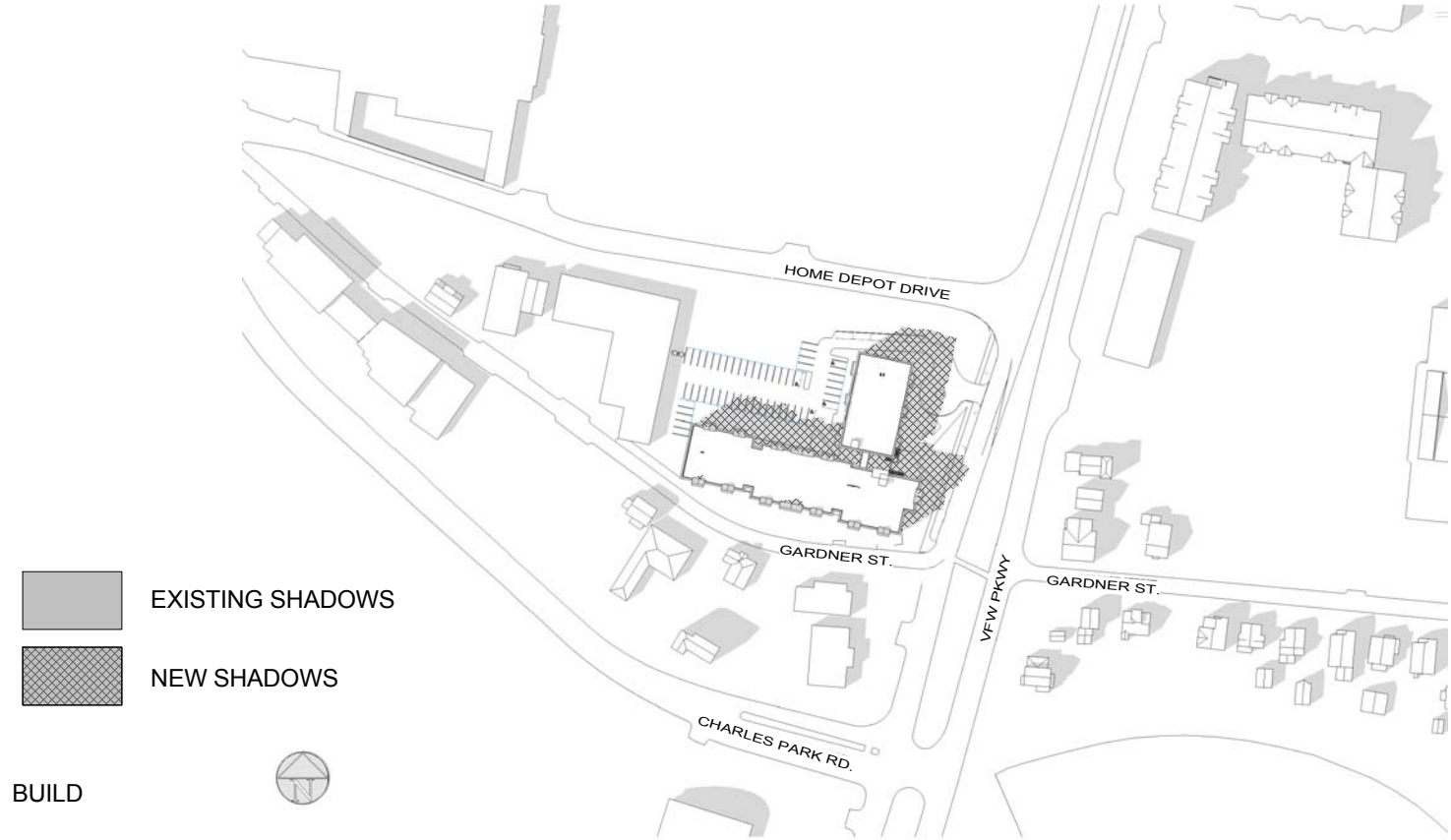


EXISTING SHADOWS

NEW SHADOWS

BUILD

AZIMUTH -132.9 - ALTITUDE 37.4

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

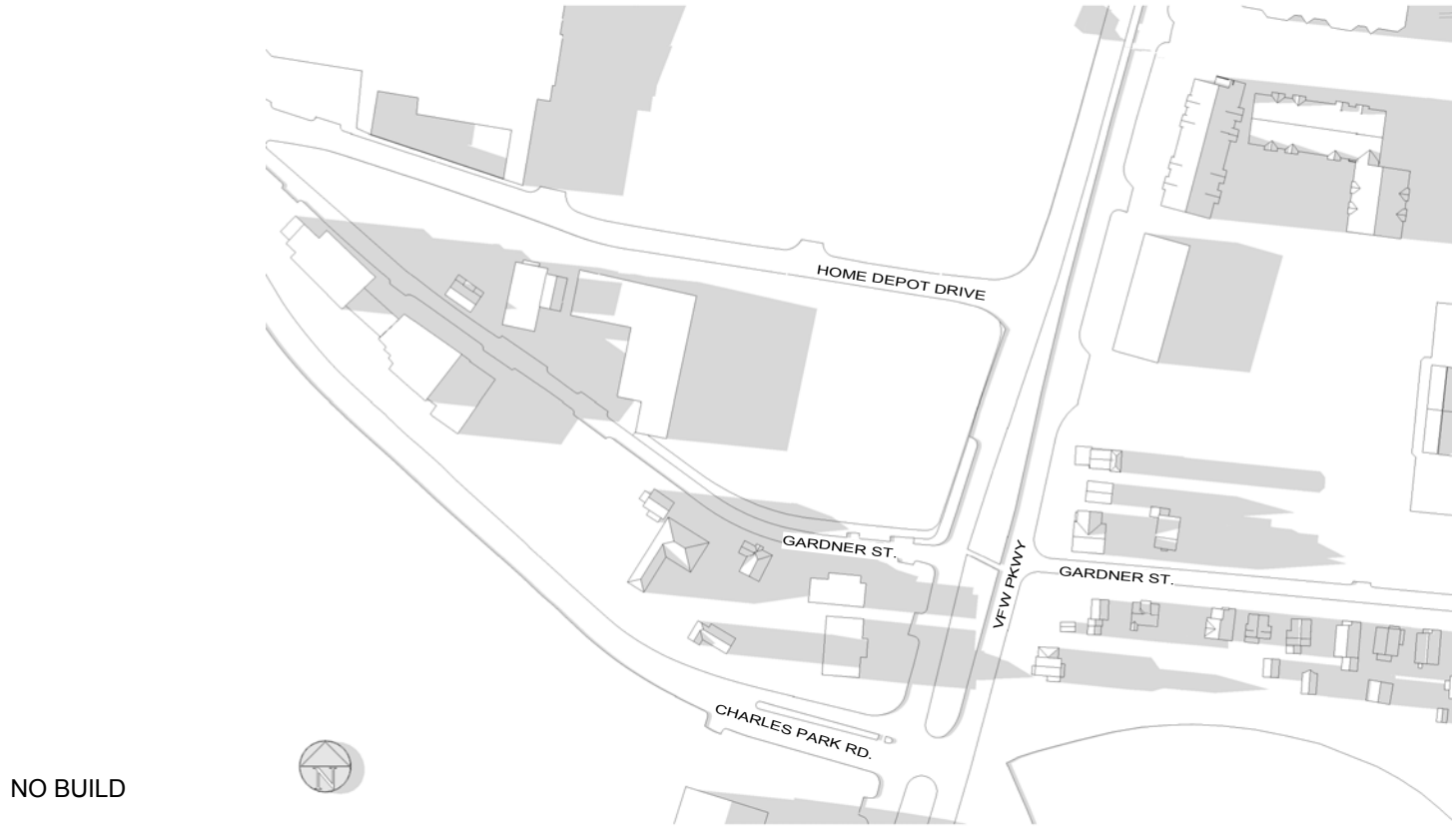
SOVAD LLC

West Roxbury Residences

1235-1237 V.F.W. Parkway
165, 175 Gardner street,
West Roxbury, MA 02132

FIGURE 4-10	SEPTERMBER 21 - 3 PM	
Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

7/28/2015 3:05:32 PM



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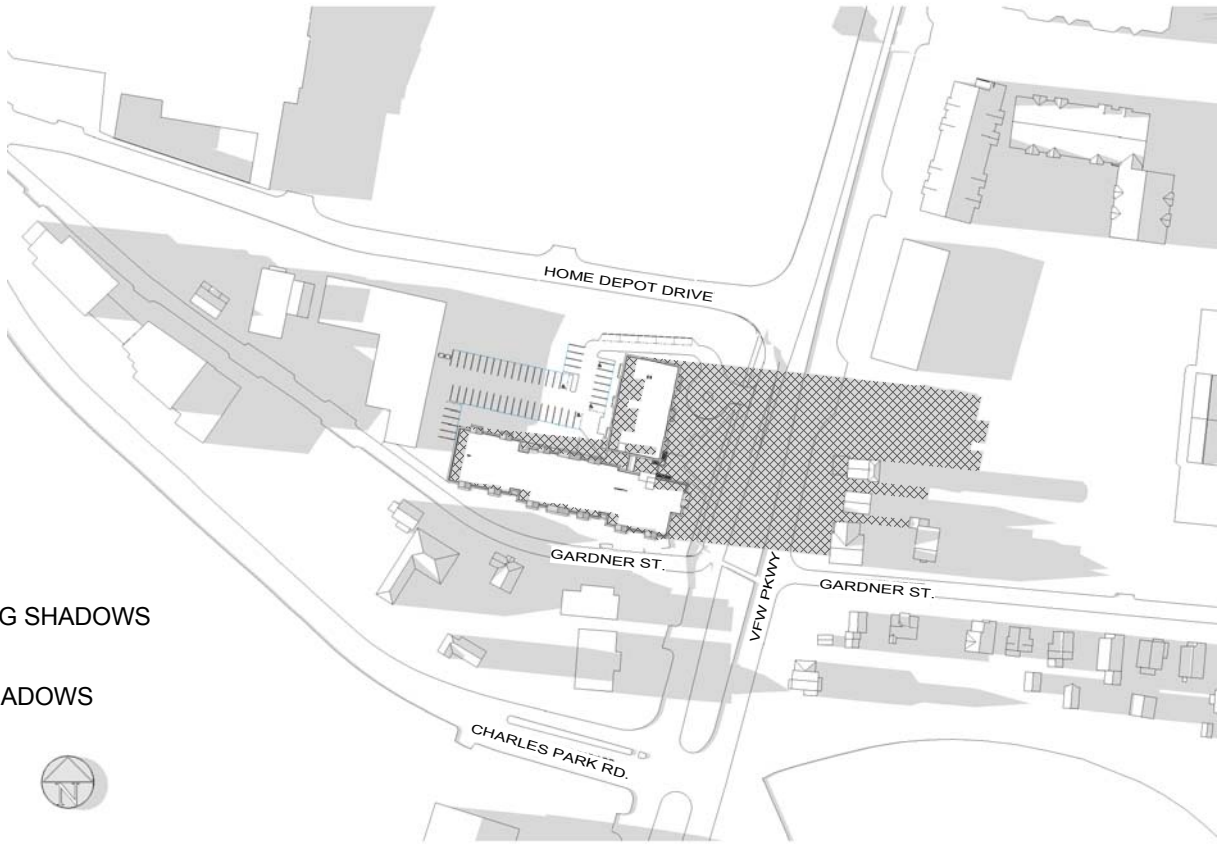

EXISTING SHADOWS

NEW SHADOWS

BUILD

AZIMUTH -96.0 - ALTITUDE 7.3

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

SOVAD LLC

West Roxbury Residences

1235-1237 V.F.W. Parkway
165, 175 Gardner street,
West Roxbury, MA 02132

FIGURE 4-11	SEPTEMBER 21 - 6 PM	
Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

7/28/2015 3:05:43 PM

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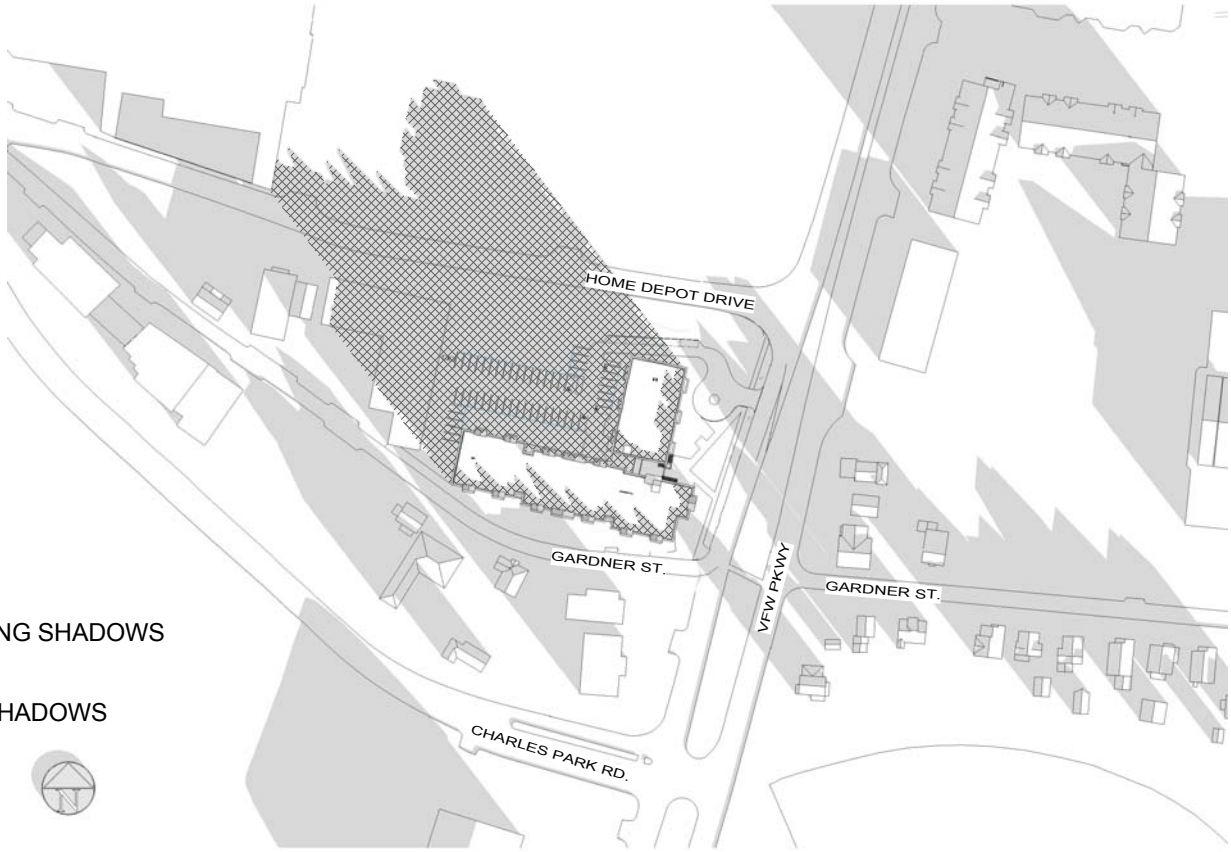


EXISTING SHADOWS

NEW SHADOWS

BUILD

AZIMUTH 141.9 - ALTITUDE 14.2

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

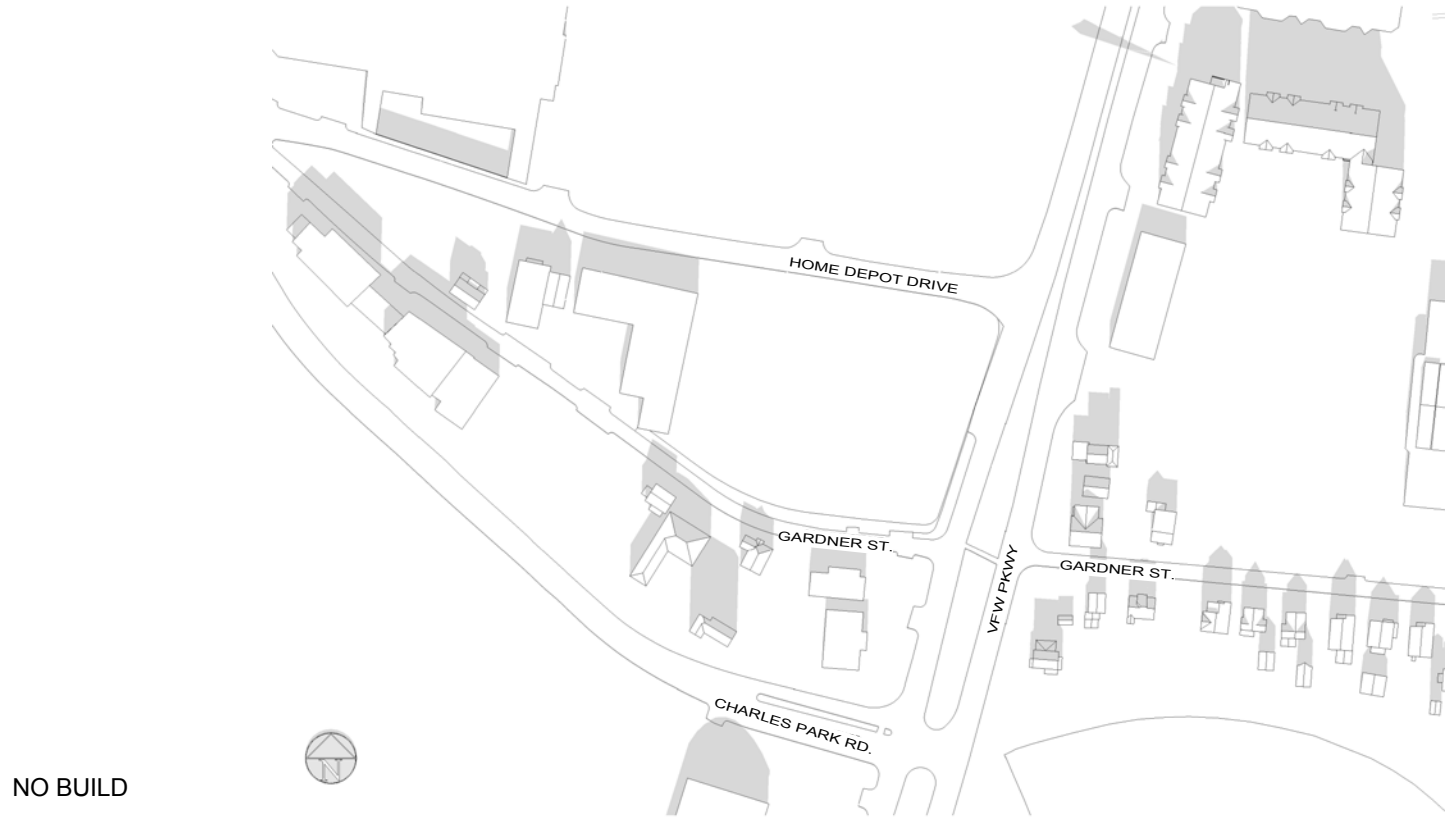
SOVAD LLC

West Roxbury Residences

1235-1237 V.F.W. Parkway
165, 175 Gardner street,
West Roxbury, MA 02132

FIGURE 4-12	DECEMBER 21 - 9 AM	
Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

7/28/2015 3:05:46 PM



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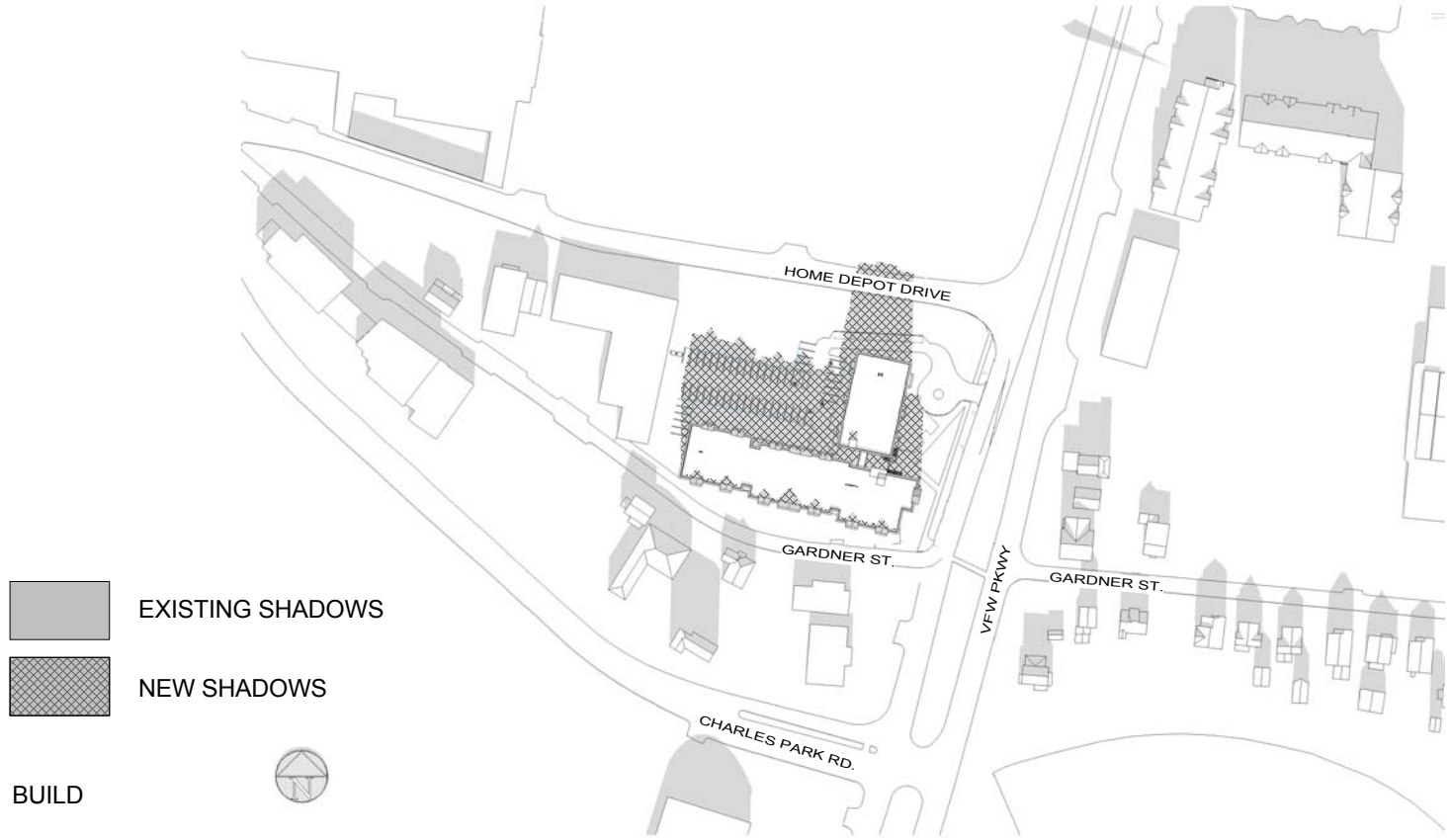

EXISTING SHADOWS

NEW SHADOWS

BUILD

AZIMUTH -175.6 - ALTITUDE 24.1

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

SOVAD LLC

West Roxbury Residences

1235-1237 V.F.W. Parkway
165, 175 Gardner street,
West Roxbury, MA 02132

FIGURE 4-13	DECEMBER 21- 12 PM	
Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

NO BUILD

EXISTING SHADOWS

NEW SHADOWS

BUILD

AZIMUTH -135.1 - ALTITUDE 10.0

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143TEL:
617-591-8682
FAX: 617-591-2086

SOVAD LLC

West Roxbury Residences

1235-1237 V.F.W. Parkway
165, 175 Gardner street,
West Roxbury, MA 02132

FIGURE 4-14	DECEMBER 21- 3 PM	
Project number	14099	
Date	07-02-2015	
Drawn by	NA	
Checked by	JSK	Scale

4.2 Air Quality

Tech Environmental, Inc. performed air quality analyses for the Proposed Project (the "Project") to be located at 1235-1237 VFW Parkway in West Roxbury, 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 heating system and 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 4.3-2 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 4.3-2** 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 (µg/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$^{P/S}$	147[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 0.075 ppm (147 ug/m^3) (effective May 27, 2008) 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 (□g/m^3)	NAAQS (□g/m^3)	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	147	85%
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 Impacts from Fuel Combustion Equipment and Parking Garage

The Project will include fuel combustion equipment that will emit air pollutants to the atmosphere when operating. Fuel combustion equipment for the Project will include gas-fired heating equipment. Heating will be accomplished with gas-fired hot-water furnaces.

The Project also includes a parking garage designed to provide parking spaces for 74 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

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

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 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.

Building Heating CO Emission Rate

The Project will include fuel combustion equipment that will emit air pollutants to the atmosphere when operating. Fuel combustion equipment for the Project will include gas-fired hot water furnaces for space heating system.

EPA's AP-42 document was used to determine the uncontrolled CO emission rate for the gas-fired equipment. The total equipment heat input capacity for the hotel was conservatively estimated to be approximately 0.4 million Btu per hour (MMBtu/hour). Assuming a heating value of 1,020 Btu/cubic foot of natural gas this translates to approximately 408 cubic feet of natural gas burned per hour. Using a CO emission factor of 0.084 lb/MMBtu,[2] the maximum total CO emissions from the Project's heating equipment will be 0.033 lb/hour (0.0042 gram/sec). This calculation conservatively assumes that all of the gas-fired fuel combustion equipment is operating simultaneously at its full design capacity.

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 25,900 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 exhausts will likely be located at two side vents.

[2] US EPA, "Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition Volume I: Stationary Point and Area Sources", Table 1.4-1, January 1995 (revised July 1998).

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	15	8	23

Source: Howard-Stein Hudson, 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 2020. 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 for the morning peak hour and 0.20 grams per minute 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 0.13 parts of CO per million parts of air (ppm) for the morning peak hour and 0.16 ppm for the afternoon peak hour. Therefore, the peak one-hour CO concentration inside the garage will be 0.16 ppm with a peak one-hour emission rate of 0.20 grams/minute (0.0033 grams/second), corresponding to the

afternoon peak period. 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 (Version14134) 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 the fuel combustion equipment and parking garage emissions as volume sources 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 building heating system and 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 the fuel combustion equipment and parking garage will be 0.015 ppm (17.50 $\mu g/m^3$). 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 0.014 ppm (0.015 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 fuel combustion equipment and 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 Fuel Burning Equipment and 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)	1.82**	35 (NAAQS)	1.52**	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 four intersections. The Project will generate approximately 32 motor vehicle trips during the morning peak traffic hour and approximately 39 motor vehicle trips during the afternoon traffic hour. Under the Build scenario, the overall LOS will be the same or better during the morning peak traffic hour for all intersections. Under the Build scenario, the overall LOS will be the same or better during the afternoon peak traffic hour for all intersections, , except for the VFW Parkway/Gardner Street intersection where the overall LOS degrades from C to D. However, the increase in traffic at this intersection is less than 10%. **Table 4.2-4** shows a comparison of the Existing (2015) and Build (2020) LOS at the four 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?
VFW Parkway/Charles Park Road – signalized	C/D	C/D	NO
VFW Parkway/Gardner Street – signalized	A/A	A/A	NO
VFW Parkway/Gardner Street - unsignalized	C/C	C/D	NO*
Gardner Street/Charles Park Road/Rivermoor Street/Home	A/A	C/C	NO

The LOS shown represents the overall delay at each signalized intersection and the worst approach at the unsignalized intersection. Percentages shown for LOS D are percent increase in traffic from the Project.
*Project does not contribute to reduction in level of service.

Source: Howard/Stein-Hudson 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 fuel combustion equipment and underground 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.[3]

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, nature noises such as insects, tree frogs, small animals, 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 4.4-2**.

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

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

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 11:00 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 the Figure 1 in the **Appendix C**):

Monitoring Location #1: 178 Gardner Street

Monitoring Location #2: 164 Gardner Street

Monitoring Location #3: 1240 VFW Parkway

Monitoring Location #4: 3 Gardner Place (along the VFW Parkway)

Broadband (dBA) and octave band sound level measurements were made with a Bruel and Kjaer (B&K) Model 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 Thursday night, August 6, into Friday morning, August 7, 2015. Weather conditions during the sound survey were conducive to accurate sound level monitoring: the temperature was 64^{o}F, the skies were partly cloudy, and the winds were 0 to 3 mph, from the northwest. 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 an urban 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, crickets and other insects/animals and aircraft over-flights.

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 43.6 dBA at Location #1, 49.1 dBA at Location #2, 46.0 at Location #3, and 45.0 dBA at Location #4. 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, August 6-7, 2015

Sound Level Measurement	(Location #1) 178 Gardner Street 11:00 p.m. - 11:30 p.m.	(Location #2) 164 Gardner Street 11:31 p.m.- 12:01 a.m.	(Location #3) 1240 VFW Parkway 12:03 a.m. - 12:33 a.m.	(Location #4) 3 Gardner Place 12:35 a.m. - 1:05 a.m.
Broadband (dBA)				
Background (L_{90})	43.6	49.1	46.0	45.0
Octave Band L_{90} (dB)				
16 Hz	49.3	51.5	52.0	49.7
32 Hz	52.5	53.7	54.1	51.7
63 Hz	51.9	55.5	54.5	53.8
125 Hz	46.8	50.3	50.0	50.8
250 Hz	40.2	45.6	44.9	45.3
500 Hz	38.4	46.4	41.5	41.5
1000 Hz	37.8	44.1	41.5	39.7
2000 Hz	37.4	41.7	37.9	35.5
4000 Hz	25.4	32.2	31.7	28.8
8000 Hz	17.1	21.6	19.9	19.9
16000 Hz	12.2	13.2	12.4	13.0
Pure Tone?	No	No	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:

- Eighty-four (84) Rheem Model 13A-N rooftop condensing units.

The equipment listed above, which will be located on the building rooftop, 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 design evolves, the sound generation for the actual equipment selected may differ from the values that were utilized for the analysis.

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.[4] 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 east of the project area at 3 Gardner Place. 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 east (1 Gardner Place & 137 Gardner Street), southeast (130 Gardner Street & 1240 VFW Parkway), south (164 Gardner Street), and southwest (178 Gardner 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 4.4-5** through

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

4.4-11. 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.

City of Boston Noise Standards

The noise impact analysis results, presented in **Tables 4.3-5** through **4.3-11**, reveal that the sound level impact at the upper floors of the closest residences will be between 31.3 and 37.0 dBA. The smallest sound level impact of 31.3 dBA is predicted to occur at 178 Gardner Place. The largest sound level impact of 37.0 dBA is predicted to occur at 3 Gardner Place. 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 **4.3-11**, the Project is predicted to produce a less than 2 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, 3 Gardner Place (Closest/Worst Case Residence) – Location R1

Octave Bands	Residential Nighttime	Maximum Predicted Sound Levels*
32 Hz	68	18
63 Hz	67	18
125 Hz	61	18
250 Hz	52	33
500 Hz	46	33
1000 Hz	40	33
2000 Hz	33	30
4000 Hz	28	23
8000 Hz	26	10
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 #4)	45.0
1236-1237 VFW Parkway Project*	37.0
Calculated Combined Future Sound Level	45.6
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 4.3-6. Estimated Future Sound Level Impacts – Anytime, 1 Gardner Place – Location R2

Octave Bands	Residential Nighttime	Maximum Predicted Sound Levels*
32 Hz	68	18
63 Hz	67	18
125 Hz	61	17
250 Hz	52	33
500 Hz	46	33
1000 Hz	40	33
2000 Hz	33	29
4000 Hz	28	22
8000 Hz	26	10
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 #4)	45.0
1236-1237 VFW Parkway Project*	36.3
Calculated Combined Future Sound Level	45.5
Calculated Incremental Increase	+0.5
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 4.3-7. Estimated Future Sound Level Impacts – Anytime, 137 Gardner Street – Location R3

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	19
63 Hz	67	18
125 Hz	61	17
250 Hz	52	32
500 Hz	46	32
1000 Hz	40	32
2000 Hz	33	28
4000 Hz	28	19
8000 Hz	26	7
Broadband (dBA)	**50**	**35**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #4)	45.0
1236-1237 VFW Parkway Project*	35.1
Calculated Combined Future Sound Level	45.4
Calculated Incremental Increase	+0.4
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 4.3-8. Estimated Future Sound Level Impacts – Anytime, 130 Gardner Street – Location R4

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	18
63 Hz	67	17
125 Hz	61	16
250 Hz	52	32
500 Hz	46	31
1000 Hz	40	31
2000 Hz	33	27
4000 Hz	28	19
8000 Hz	26	5
Broadband (dBA)	**50**	**35**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #3)	46.0
1236-1237 VFW Parkway Project*	34.8
Calculated Combined Future Sound Level	46.3
Calculated Incremental Increase	+0.3
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.

Table 4.3-9. Estimated Future Sound Level Impacts – Anytime, 1240 VFW Parkway – Location R5

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	18
63 Hz	67	18
125 Hz	61	17
250 Hz	52	32
500 Hz	46	32
1000 Hz	40	31
2000 Hz	33	27
4000 Hz	28	18
8000 Hz	26	2
Broadband (dBA)	**50**	**35**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #3)	46.0
1236-1237 VFW Parkway Project*	34.6
Calculated Combined Future Sound Level	46.3
Calculated Incremental Increase	+0.3
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.

Table 4.3-10. Estimated Future Sound Level Impacts – Anytime, 164 Gardner Street – Location R6

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	24
63 Hz	67	23
125 Hz	61	21
250 Hz	52	36
500 Hz	46	34
1000 Hz	40	33
2000 Hz	33	27
4000 Hz	28	18
8000 Hz	26	7
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)	49.1
1236-1237 VFW Parkway Project*	36.4
Calculated Combined Future Sound Level	49.3
Calculated Incremental Increase	+0.2
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.

Table 4.3-11. Estimated Future Sound Level Impacts – Anytime, 178 Gardner Street – Location R7

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	22
63 Hz	67	21
125 Hz	61	18
250 Hz	52	32
500 Hz	46	29
1000 Hz	40	27
2000 Hz	33	22
4000 Hz	28	14
8000 Hz	26	4
Broadband (dBA)	**50**	**31**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #1)	43.6
1236-1237 VFW Parkway Project*	31.3
Calculated Combined Future Sound Level	43.8
Calculated Incremental Increase	+0.2
Compliance with DEP Noise Policy?	Yes

*Assumes full-load operation of all mechanical equipment.

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

The Proposed Project is expected to substantially improve the water quality (See Section 4.6) 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 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 deep sump catch basins and water quality treatment units. An operation and maintenance plan will be developed to support the long-term functionality of the proposed stormwater management system.

Erosion and sediment controls will be used during construction to protect adjacent properties, the municipal storm drain system and the on-site storm drain system. A pollution prevention plan, if required, will be prepared for use during construction including during demolition activity.

4.5 Solid and Hazardous Waste Materials

4.5.1 Solid Waste

During the preparation of the Site, debris from the parking lot 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 Project is estimated to generate approximately 118 tons of solid waste per year, based on the assumption that each of the 84 units will each generate approximately 1.4 tons per year. A significant portion of the waste will be recycled. 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. 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

The construction of the proposed building foundations will require the removal of the site soils to a depth ranging up to about 10 to 12 feet below existing grade. It is estimated that construction for the below grade will generate about 2,000 cubic yards (cy) of excess fill and 9,000 cy of excess natural soil to be disposed off-site.

Based on the results of chemical testing of the fill and natural material performed at the site by McPhail as part of a Phase II Environmental Site Assessment, the fill and natural soil are anticipated to be Unregulated in accordance with the provisions of the Massachusetts Contingency Plan (310 CMR 40.0000).

The project proponent will retain a Licensed Site Professional (LSP) to manage the environmental aspects of the project, including proper management and/or off-site disposal of contaminated soil and groundwater encountered during construction. If necessary, the LSP will also prepare the required Massachusetts Contingency Plan (MCP) (310 CMR 40.0000) regulatory submittals.

Evidence of a release of oil or hazardous materials has not been detected at the site. Should evidence of a release be encountered during redevelopment, response actions will be performed in accordance with the provisions of the MCP.

4.6 Geotechnical/Groundwater Impacts Analysis

Fronting onto VFW Parkway to the east, the proposed site is bounded by Gardner Street to the south and commercial property to the north and west. The subject site consists of four (4) contiguous parcels of vacant land that occupy approximately 1.81 acres. The subject site addresses include 1235 and 1237 VFW Parkway and 165 and 175 Gardner Street. Historically, the subject site was occupied by a restaurant, a residential structure and a landscape nursery center. The eastern portion of the subject site consists of an asphalt paved surface and the western portion the subject site generally consists of a moderately wooded area. The ground surface across the site slopes gradually downward from east to west from about Elevation +115 along the VFW Parkway to about Elevation +109 along the western perimeter of the site.

The proposed redevelopment includes the construction of an approximate 26,500 square-foot (plan area), L-Shaped, four-story, wood-framed building that extends one level below grade corresponding to about 10 feet below the existing ground surface.

Based on the results of the explorations performed at the subject site, the ground surface across the site is generally underlain by a fill layer that ranges from about 0.5 to 3 feet below the existing ground surface. It is noted that within southeast corner of the site, the fill layer was observed to extend to depths ranging from 3 to 9 feet below the existing ground surface. The fill layer is underlain by a natural sand deposit.

During our subsurface exploration program, groundwater was observed to be located at depths ranging from about 16 to 19 feet below the existing ground surface.

Based on the anticipated soil conditions described above, foundation support for the proposed building will consist of conventional spread footings. The lowest level floor slab will consist of a soil supported slab-on-grade. The footings will bear directly on the underlying natural sand deposit. Perimeter foundation and underslab drainage will be installed to protect the below grade areas against groundwater

intrusion. Temporary earth support along the perimeter of the site is not anticipated to be required or foundation construction.

Groundwater and Temporary Construction Dewatering Considerations

The project site is not located within the Groundwater Conservation Overlay District (GCOD) as outlined in Article 32 of the City of Boston Zoning Code.

Excavation for construction of the building foundations and below grade level is anticipated to extend to depths ranging from 10 to 12 feet below the ground surface. Therefore, based on the results of our subsurface exploration program which indicates groundwater to be present at depths ranging from about 16 to 19 feet below the existing ground surface, groundwater dewatering during excavation is not anticipated. However, should groundwater be encountered during excavation of the building foundations, construction dewatering will consist of localized sumps in conjunction with on-site recharge of the groundwater. Furthermore, construction of the proposed below grade level is not expected to have adverse short or long-term impact on the existing groundwater conditions.

A groundwater recharge system will be installed as part the development of the site.

4.7 Construction Impact

The following section describes impacts likely to result from the 1235-1237 VFW Proposed Project construction and the steps that will be taken to avoid or minimize environmental and transportation-related impacts. The Proponent will employ a construction manager that will be responsible for developing a construction phasing and staging plan and for coordinating construction activities with all appropriate regulatory agencies. The Project's geotechnical consultant will 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 require that the general contractor 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 construction manager will be bound by the CMP, which will establish the guidelines for the duration of the Project and will include specific mitigation measures and staging plans to minimize impacts on abutters.

Proper pre-construction planning with the neighborhood will be essential to the successful construction of this Project. Construction methodologies that will ensure safety will be employed, signage will include construction manager contact information with emergency contact numbers.

The Proponent will also coordinate construction with other ongoing projects in the neighborhood.

4.7.2 Proposed Construction Program

Construction Activity Schedule

The construction period for the Proposed Project is expected to last approximately 18 months, beginning in the 2ND Quarter 2016 and reaching completion in the 4TH Quarter 2017. 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.

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. If 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 and lighted to ensure pedestrian safety.

Proper signage will be placed at every corner of the 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

Estimated truck deliveries and routes are identified in at the end of this section. Specific truck routes will be established with BTD through the CMP. These established truck routes will prohibit travel on any 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 via the VFW Parkway direct to the site, not passing through any residential areas.

Construction Worker Parking

The number of workers required for construction of the Project will vary during the construction period. 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, public transit use will be encouraged with the Proponent and construction manager working to ensure the construction

workers are informed of the public transportation options serving the area. Terms and conditions related to worker parking will be written into each subcontractor's contract. The contractor will provide a weekly orientation with all new personnel to ensure enforcement of this policy.

Pedestrian Traffic

The Site abuts sidewalks on two streets. Pedestrian traffic may be temporarily impacted in these areas. The Construction Manager will minimize the impact the construction of the proposed building will have and the adjacent sidewalks. The contractor will implement a plan 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 safety officer; and
- Wheel-washing trucks before they leave the Project Site during the excavation phase.

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 impact;
- 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 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 to operate lifts of refrigeration units;
- Locating noisy equipment at locations that protect sensitive locations and neighborhoods through shielding or distance;
- Installing a site barricade at certain locations;
- Identifying and maintaining truck routes to minimize traffic and noise throughout the project;
- Replacing specific construction techniques by less noisy ones where feasible-e.g., using vibration pile driving instead of impact driving if practical and mixing concrete off-site instead of on-site; and
- 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 is required for issuance of any building permits. During construction, rodent control service visits will be made by a certified rodent control firm to monitor the situation.

4.7.6 Utility Protection During Construction

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.

5.0 HISTORIC RESOURCES COMPONENT

This section provides a discussion of the history of the Project Site and the historic resources/ districts in the Project vicinity.

5.1 Historic Resources on the Project Site and Property History

Based on the historical records completed by McPhail Associates for the environmental analysis, in an earlier period (1989- 2002), the 125-1237 VFW Parkway site had been occupied by a store at the northern portion of the property and a parking lot at the southern half of the property; a vacant store with an attached greenhouse existed on the former 171 Gardner Street portion of the site, and a dwelling and an apartment existed on the 175 Gardner Street portion of the site. Earlier maps noted in the McPhail report indicated that before 1950 there were tracks located to the north of the site labeled "spur track to ice house", and that a pattern makers shop has existed to the west of the site in the 1950 Sanborn Map. In addition, the site was occupied by the International House of Pancakes from around 1975 to 1995, and by Alice's Wonderful Kitchen in 1970.

According to files at the Massachusetts Historical Commission, no on-site structures are listed in the National or State Register of Historic Places, or the Inventory of Historical and Archaeological Assets of the Commonwealth. It is not expected that the Project will cause adverse impacts on any historic or architectural elements of nearby historic resources outside the Project Site (see **Figure 5-1** for identifications of historic resources in the Project vicinity).

5.2 Historic Districts and Resources

The Project Site is not within, nor does it directly abut, any listed historic districts or resources. However, the Veterans of Foreign Wars (VFW) Parkway, a National Historic Register District, is within one-quarter-mile radius of the Proposed Project. This parkway, designed by Charles Eliot and the Olmsted Brothers, stretches from Washington Street in Dedham to Centre Street in West Roxbury.

The area directly surrounding the Project Site is characterized by mostly residential with commercial and industrial uses. On the other side of the VFW Parkway, Gardner Street between Spring Street and the VFW Parkway retains the greatest concentration of residential buildings in this area of West Roxbury, which catered primarily to industrial uses from the late 19th to the early 20th centuries. Gardner Street was laid out from Spring Street west to Baker Street in 1871, and from Baker Street west to Cow Island in 1876. Construction of the VFW Parkway in the early 1930s severed the eastern end of the street from the western end near Cow Island Pond and the Charles River. Increasing industrial use of the land between Baker Street and the Charles River in the late 19th century, as well as the construction of the Needham Branch railroad (ca. 1906) to the north, contributed fragmentation and decline of the mid-19th century community in the Gardner Street vicinity. Later development on Gardner Street is primarily 20th century infill construction.

The historic resources within one-quarter-mile radius of the Proposed Project are summarized in **Table 5-1** that follows.

Table 5.1. Historic Resources in the Vicinity of the Project Site

Key to Historic Resources Figure (Figure 5-1)	**Historic Resource**	**Address/Description**
National Register Historic District		
1	VFW Parkway	Parkway stretching from Washington Street in Dedham to Centre Street, near the Arnold Arboretum in Jamaica Plain

The Proposed Project is not expected to have effects on any of the listed historically significant resources in **Table 5-1.**

5.3 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.

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. 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. In addition, a Storm Water Pollution Prevention Plan will be submitted specifying best management measures for protecting the BWSC drainage systems during construction.

A Drainage Discharge Permit Application is required from BWSC for any construction dewatering. The appropriate approvals from the Massachusetts Water Resource Authority (MWRA), Massachusetts Department of Environmental Protection (MassDEP), and the U.S. Environmental Protection Agency (EPA) will also be sought.

6.1 Sanitary Sewer System

6.1.1 Existing Sewer System

The Boston Water and Sewer Commission owns and maintains the sanitary sewer system adjacent to the site on Gardner Street (See **Figure 6-1**). BWSC record drawings indicate an existing 12-inch sanitary sewer line as it runs westerly along Gardner Street to the south of the Project. Records also indicate a 36-inch MWRA Upper Neponset Valley Sewer on the east side of VFW Parkway. An existing 10-inch BWSC sewer is located to the east of the MWRA sewer and it runs in a southerly direction. The existing site consists of a surface parking lot and presently does not have a sanitary sewer connection.

6.1.2 Project-Generated Sewage Flow

The existing Project Site consists of a surface parking lot and therefore there are no existing sanitary flows generated. The Proposed Project will generate an estimated 18,480 gallons per day (gpd) based on design sewer flows provided in 310 CMR 15.000-The State Environmental Code, Title 5 and the proposed building program as summarized in **Table 6-1**.

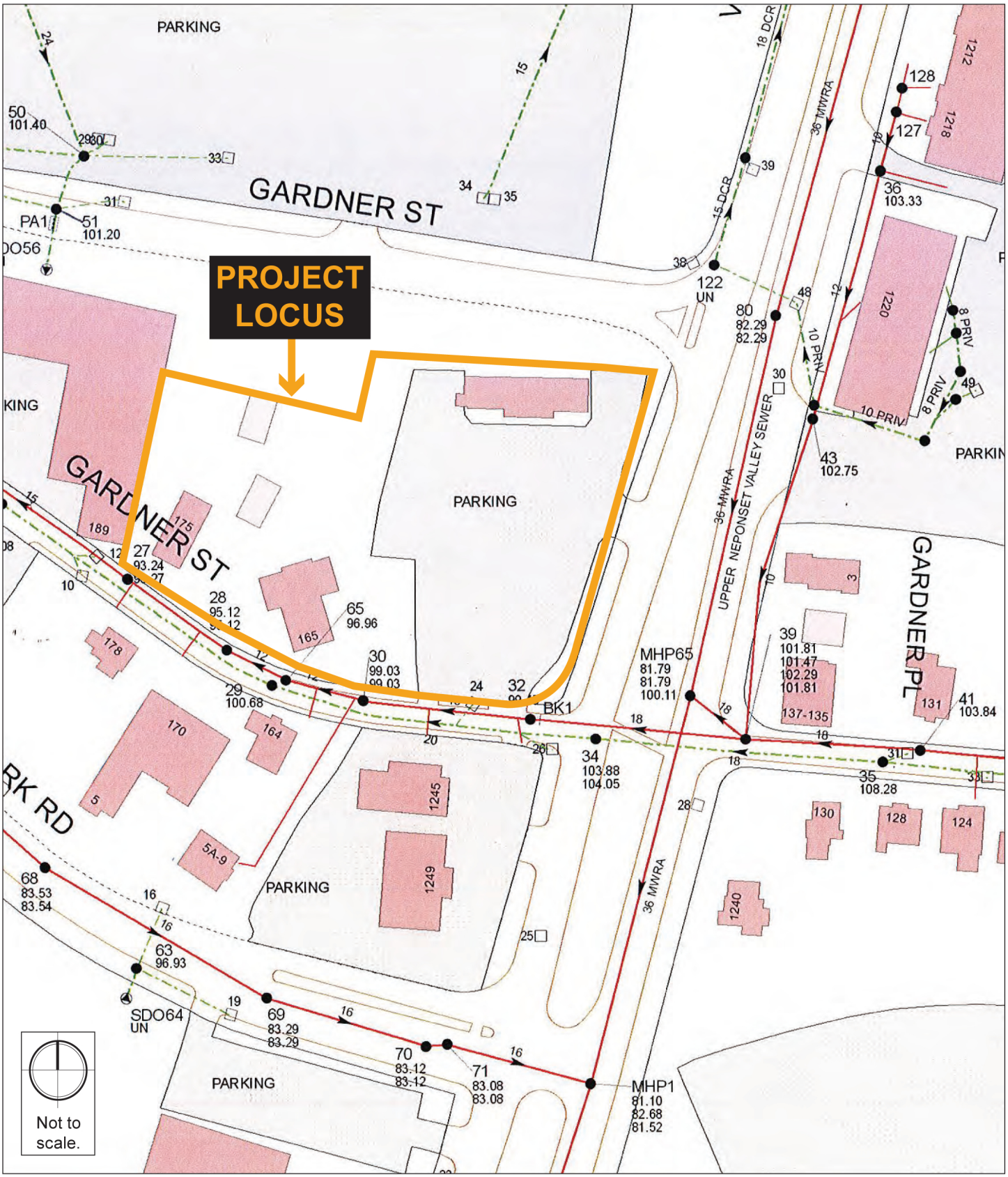

Figure 6-1.
BWSC Sewer System Map

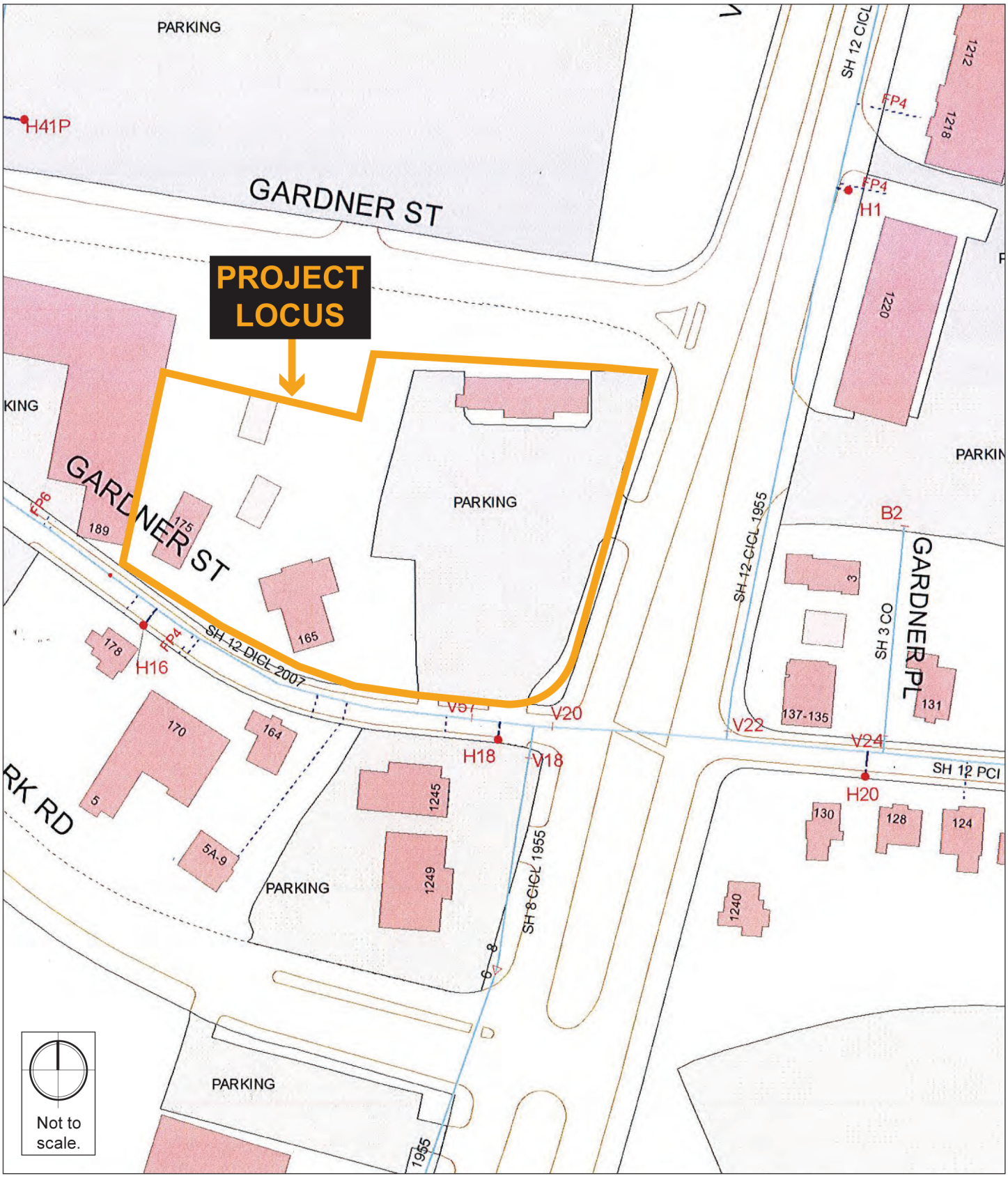

Figure 6-2.
BWSC Water System Map

Table 6-1. Projected Sanitary Sewer Flows

Use	Quantity	Unit Flow Rate	Estimated Maximum Daily Flow (gpd)
Residential	168 beds	110 gpd/bedroom	18,480 gpd
Total			**18,480 gpd**

6.1.3 Sanitary Sewage Connection

It is anticipated that the proposed building's sanitary services will tie into the 12-inch sanitary sewer main in Gardner Street. It is expected that the building will have one 8-inch sanitary services. Parking garage floor drains will be routed through an oil and sand trap in accordance with the BWSC's Requirements for Site Plans, prior to discharge to the BWSC sanitary sewer system

The Proponent will submit a Site Plan to the BWSC for review and approval. Based on the proposed estimated sanitary flow, which is greater than 15,000 gpd, BWSC will require the removal of infiltration/inflow (I/I) at a minimum ratio minimum 4:1 ratio of I/I removed to wastewater generated.

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

The water mains in the vicinity of the Project Site are owned and maintained by BWSC (see **Figure 6-2**). BWSC record drawings indicate there is an existing 12-inch DICL installed in 2007 in Gardner Street and an existing 12-inch CICL installed in 1955 on the far east side of VFW Parkway. The water mains are part of the Southern High service network. The existing site currently does have existing water services.

The site is within the service radius of several hydrants. There are two hydrants (H18 and H16) across the street to the south of the site on Garner Street. 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.

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 to account for consumption, system losses, and other usages to estimate an average water demand. The total estimated water demand is 20,330 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 directly tapped from the 12-inch water main in Gardner 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.

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

The existing site is approximately half vegetated with grass, trees, and brush with the remaining half paved with bituminous asphalt. Stormwater runoff from the paved area flows overland to the adjacent catch basins in Gardner Street and VFW Parkway. Stormwater runoff from the

vegetated area flows overland towards the northwest towards the neighboring Home Depot property and to the southwest to the catch basins in Gardner Street.

The BWSC owns and maintains the storm sewer systems adjacent to the site (See **Figure 6-1**). There is an existing 20-inch storm drain main in Gardner Street.

6.4.2 Proposed Drainage Systems

The Proposed Project is expected to substantially 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 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 deep sump catch basins and water quality treatment units. An operation and maintenance plan will be developed to support the long-term functionality of the proposed stormwater management system.

6.5 Water Quality

The Proposed Project will improve the quality of stormwater leaving the site through the installation of an on-site infiltration system 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 EPA and 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. There is existing overhead service in the Project Area. It is expected that electrical service 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 for each phase 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 12-inch, carbon steel gas main in Gardner Street and VFW Parkway. 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

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.

7.0 TRANSPORTATION COMPONENT

7.1 Introduction

Howard Stein Hudson (HSH) has conducted an evaluation of the transportation impacts of a proposed residential development to be located at 1235-1237 V.F.W. Parkway and 165-175 Gardner Street (the "Project" and/or "Site"), in Boston's West Roxbury neighborhood. This transportation study adheres to the Boston Transportation Department (BTD) Transportation Access Plan Guidelines and the Boston Redevelopment Authority's Article 80 development review process. The study includes an evaluation of existing conditions, future conditions with and without the Project, projected parking demand, transit services, and pedestrian and bicycle activity.

7.1.1 Project Description

The Project site is located on the west side of the Veterans of Foreign Wars Parkway (VFW) Parkway between the Home Depot Driveway and Gardner Street. The site is currently vacant paved surface with three existing curb cuts (two along Gardner Street and one along the VFW Parkway).

The Project will include the construction of approximately 84 residential units, with approximately 130 parking spaces, consisting of 73 below-grade spaces and 57 surface spaces. Vehicular access will be provided via two of the three existing driveways.

7.1.2 Study Area

The transportation study area is generally bounded by the VFW Parkway to the east, Charles Park Road to the south, Rivermoor Street to the west, and the Home Depot Driveway to the north. The study area includes the following four intersections:

- VFW Parkway/Charles Park Road (signalized);
- VFW Parkway/Garner Street (signalized);
- VFW Parkway/Home Depot Driveway (unsignalized); and
- Gardner Street/Charles Park Road/Rivermoor Street/Home Depot Driveway (unsignalized).

The study area is shown in Figure 7-1.

7.1.3 Study Methodology

The Existing (2015) Condition analysis includes an inventory of the existing transportation conditions such as traffic characteristics, parking, curb usage, transit, pedestrian circulation,

Figure 7-1.
Study Area Intersections

bicycle facilities, loading, and site conditions. Existing counts for vehicles, bicycles, and pedestrians were collected at the study area intersections. A traffic data collection effort forms the basis for the transportation analysis conducted as part of this evaluation.

The future transportation conditions analysis evaluates potential transportation impacts associated with the Project. Long-term impacts are evaluated for the year 2020, based on a five-year horizon from the year of the filing of this traffic study.

The No-Build (2020) Condition includes both general background traffic growth, traffic growth associated with specific developments (not including this Project) and transportation improvements that are planned in the vicinity of the Project site.

The Build (2020) Condition includes a net increase in traffic volume due to the addition of Project-generated trip estimates to the traffic volumes developed as part of the No-Build (2020) Condition. Expected roadway, parking, transit, pedestrian, and bicycle accommodations, as well as loading capabilities and deficiencies are identified.

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

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

7.2 Existing (2015) Condition

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

7.2.1 Existing Roadway Conditions

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

VFW Parkway is a two-way, four lane roadway located adjacent to the east of the Project site. The VFW Parkway is classified as a principal arterial roadway under DCR jurisdiction and runs in a predominately north-south direction between Centre Street in Jamaica Plain to the north and High Street in Dedham to the south. There is a median that divides the northbound and southbound travelway and breaks in the median that allow for left turns and u-turns. In the vicinity of the site on-street parking is not provided on either side of the roadway, and sidewalks are provided on both sides of the roadway.

Charles Park Road is a two-way, two lane roadway located to the south of the Project site. Charles Park Road is classified as a local road under BTD jurisdiction and runs in a predominately east-west direction between Rivermoor Street in the west and the VFW Parkway in the east. In the vicinity of the site on-street parking is not provided on either side of the roadway, and sidewalks are provided on the southern side of the roadway.

Gardner Street is a one-way, one-lane roadway located adjacent to the south of the Project site. Gardner Street runs one-way eastbound to the west of the VFW Parkway. Gardner Street is classified as a local roadway under BTD jurisdiction and runs in a predominately east-west direction between Millennium Park to the west and the Baker Street to the east. In the vicinity of the site on-street parking is provided on the south side of the roadway, and sidewalks are provided on both sides of the roadway.

The **Home Depot Driveway** is a two-way, two lane roadway located adjacent to the north of the Project site. The Home Depot Driveway a privately owned roadway and runs in a predominately east-west direction between Charles Park Road to the west and the VFW Parkway to the east. In the vicinity of the site on-street parking is not provided on either side of the roadway, and sidewalks are provided on both sides of the roadway.

7.2.2 Existing Intersection Conditions

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

VFW Parkway/Charles Park Road is a three legged, signalized intersection located to the south of the project site. The Charles Park Road eastbound approach consists of three lanes, two left-turn only lanes and one right-turn only lane. VFW Parkway northbound approach consists of three lanes, a shared u-turn/left-turn lane and two through lanes. The VFW Parkway southbound approach consists of three lanes, a shared right-turn/through lane, a through lane and a u-turn only lane. On-street parking is restricted along all approaches to the intersection. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across the west side of the intersection.

VFW Parkway/Gardner Street is a four legged, signalized intersection with four approaches, however, VFW is separated by a median that does not allow crossing traffic. The intersection is located adjacent to the southeast of the Project site. The Gardner Street eastbound approach consists of one right-turn only lane and operates under yield control. The Garner Street westbound approach consists of one right-turn only lane and operates under stop control. The VFW Parkway northbound approach consists of two through lanes and operates under signalized control. The VFW Parkway southbound approach consists of two lanes, a shared right-turn/through lane and a through lane and operates under signalized control. On-street parking is permitted on the Gardner Street westbound approach. Crosswalks and wheelchair ramps are

provided across all approaches to the intersection. Pedestrian movements are allowed across the median and accommodations are provided via pedestrian signal equipment.

VFW Parkway/Home Depot Driveway is a three legged, unsignalized intersection with two approaches, located adjacent to the northeast of the Project site. The Home Depot Driveway eastbound approach consists of one channelized right-turn only lane and operates under yield control. The VFW Parkway southbound approach consists of two lanes, a shared right-turn/through lane and a through lane that operates under free control. On Street parking is restricted along all approaches. Crosswalks and wheelchair ramps are provided across the west side of the intersection.

Gardner Street/Charles Park Road/Rivermoor Street/Home Depot Driveway is a four legged, unsignalized intersection with four approaches, located to the west of the Project site. All four approaches consist of a shared left-turn/right-turn/through lane and are stop controlled. Parking is restricted along each approach. Crosswalks and wheelchair ramps are provided along the north, south, and west legs of the intersection.

7.2.3 Existing Parking and Curb Use

An inventory of the on-street parking in the vicinity of the Project was collected. On-street parking is generally not provided in the area. All parcels provide sufficient parking on-site. One section of Gardner Street supplies two residential on street spaces. The on-street parking regulations within the study area are shown in **Figure 7-2**.

7.2.4 Car Sharing Services

Car sharing enables easy access to short term vehicular transportation. Vehicles are rented on an hourly or daily basis, and all vehicle costs (gas, maintenance, insurance, and parking) are included in the rental fee. Vehicles are checked out for a specific time period and returned to their designated location.

Car sharing, predominantly served by Zipcar in the Boston area, provides easy access to vehicular transportation for those who do not own cars. The nearby car sharing locations within a half-mile of the Project site are shown in **Figure 7-3.**

7.2.5 Existing Traffic Data

Traffic volume data was collected in the study area intersections in May and June of 2015. Automatic Traffic Recorders (ATRs) were utilized to collect daily traffic volumes and Turning Movement Counts (TMCs) were conducted during the weekday a.m. and weekday p.m. peak periods (7:00 – 9:00 a.m. and 4:00 – 6:00 p.m., respectively) at the study area intersections.

Figure 7-2.
On-Street Parking Regulations

Figure 7-3.
Car Sharing Location

Automatic Traffic Recorder

Automatic Traffic Recorders (ATRs) collected 24 hour continuous traffic data along VFW Parkway northbound and southbound between the Home Depot Driveway and Gardner Street. The ATRs data was collected on June 24, 2015. The Average Daily Traffic (ADT) recorded was approximately 36,660 vehicles.

Turning Movement Counts

Turning Movement Counts (TMCs) were conducted during the weekday a.m. and p.m. peak periods (7:00 – 9:00 a.m. and 4:00 – 6:00 p.m., respectively). The counts were conducted on May 5, 2015 at the intersection of VFW Parkway Northbound/Gardner Street and concurrent with the ATR data on June 24, 2015 at all of the remaining study area intersections. The TMCs included traffic classification including car, heavy vehicle, pedestrian, and bicycle movements.

Based on the TMC data, the vehicular traffic peak hours for the study area intersection are 7:15 a.m. – 8:15 a.m. and 4:45 p.m. – 5:45 p.m. The detailed traffic counts are provided in **Appendix D.**

Seasonal Adjustment

In order to account for seasonal variation in traffic volumes throughout the year, data provided by MassDOT were reviewed. The most recent (2011) MassDOT Weekday Seasonal Factors were used to determine the need for seasonal adjustments to the May and June 2015 TMCs. The seasonal adjustment factor for roadways similar to the study area (Group 6) during the months of May and June are 0.91 and 0.90, respectively. This indicates that average month traffic volumes are approximately ten percent less than the traffic volumes that were collected. The traffic counts were not adjusted downward to reflect average month conditions in order to provide a conservatively high analysis consistent with the peak season traffic volumes. The MassDOT 2011 Weekday Seasonal Factors table is provided in Appendix D.

7.2.6 Existing (2015) Traffic Volumes

Existing traffic volumes were collected to develop the 2015 Existing Condition vehicular traffic volumes. The 2015 Existing Condition weekday a.m. Peak Hour and weekday p.m. Peak Hour traffic volumes are shown in **Figure 7-4** and **Figure 7-5**, respectively. The hourly traffic volume breakdown collected by the ATR is graphed in **Figure 7-6**.

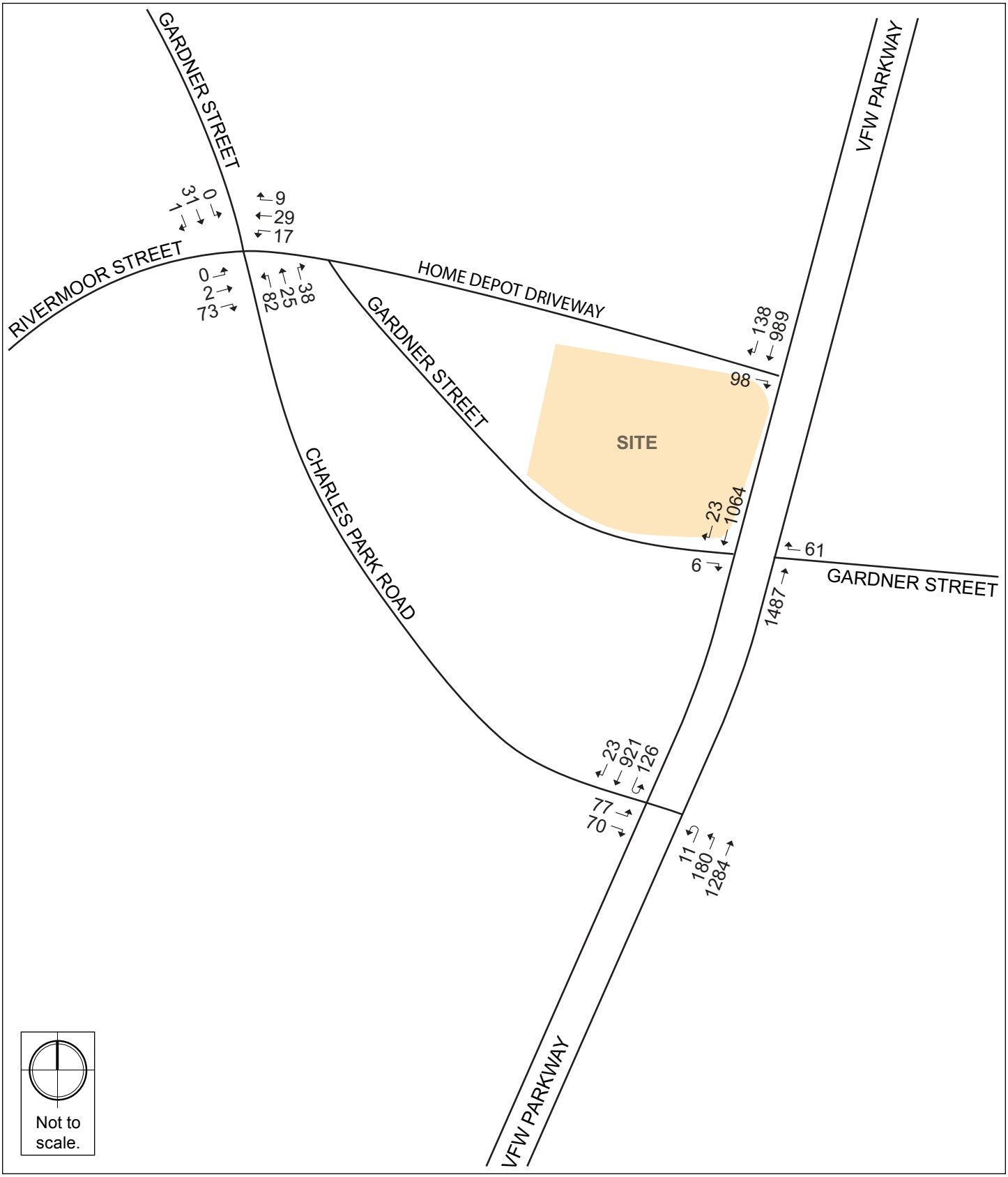

Figure 7-4.
Existing (2015) Condition Traffic Volumes, Weekday a.m. Peak Hour

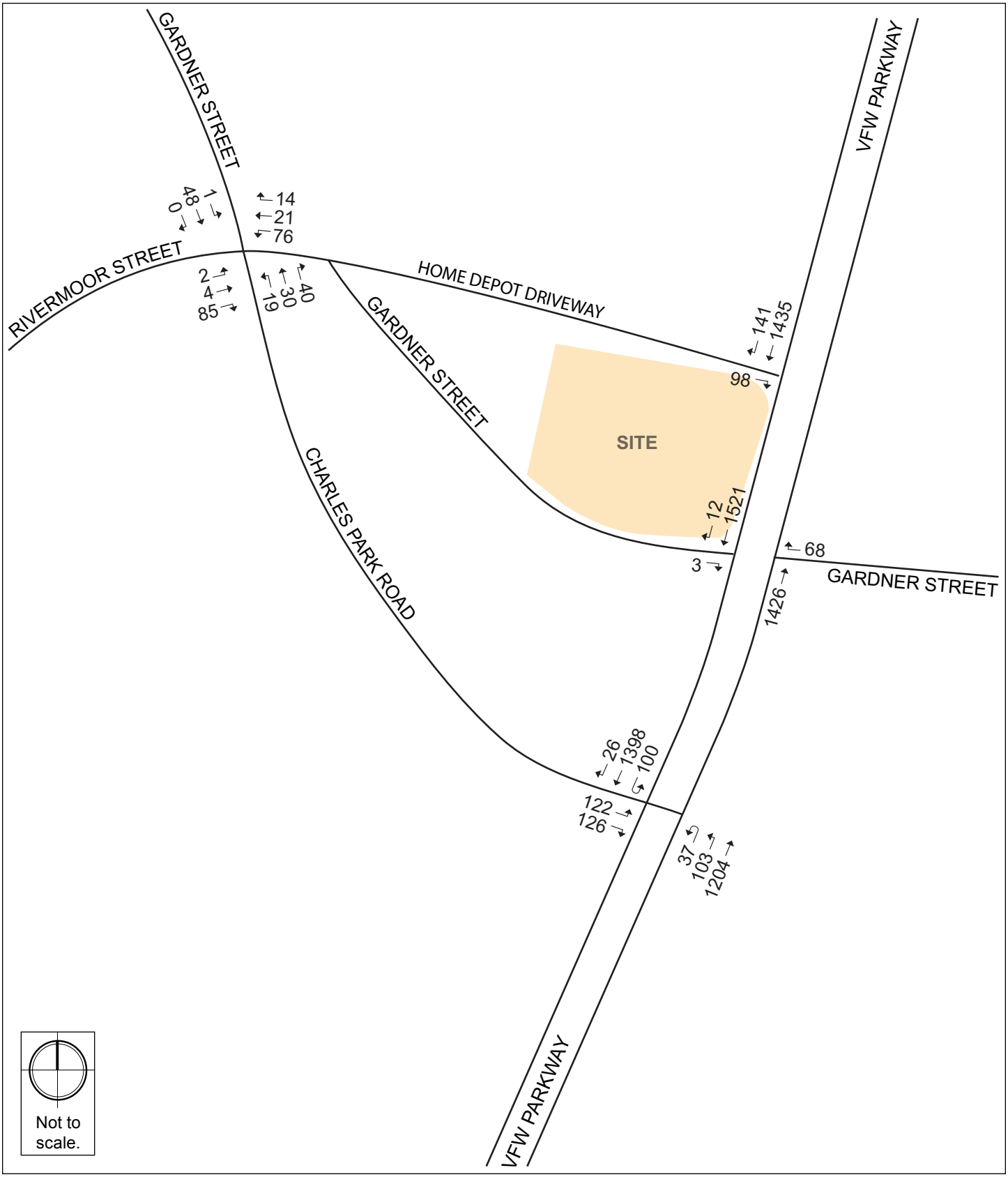

Figure 7-5.
Existing (2015) Condition Traffic Volumes, Weekday p.m. Peak Hour

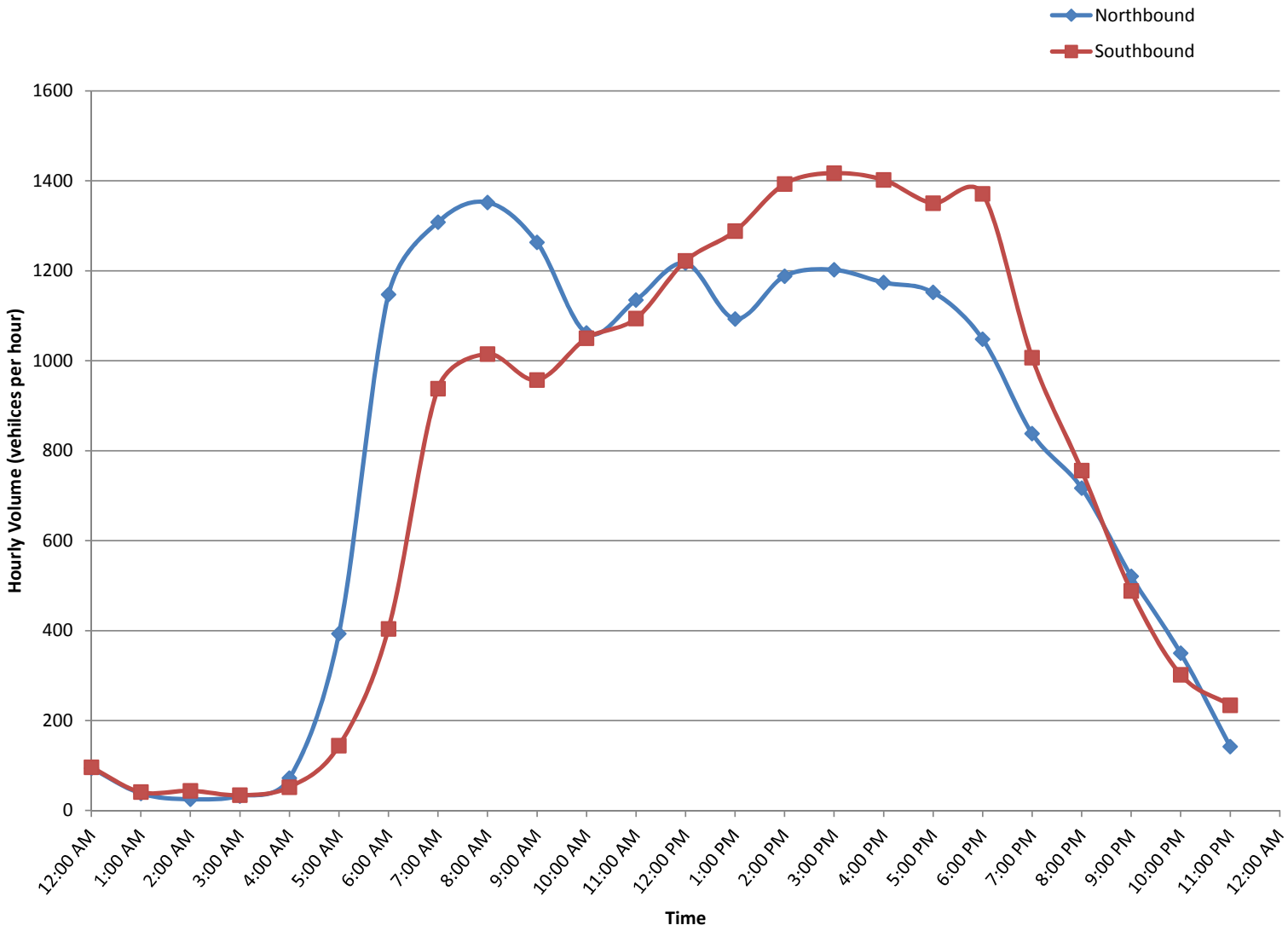

Figure 7-6.
VFW Parkway Hourly Traffic Volume

7.2.7 Existing Pedestrian Conditions

In general, the sidewalks that are provided along the roadways are in good condition. There are several areas without sidewalks, specifically the north side of Charles Park Road and both sides of the Home Depot Driveway. Crosswalks are provided at most study area intersections with the exception that there are not any crosswalks provided to cross VFW Parkway at the intersection of the VFW Parkway/Charles Park Road, , and at the intersection of Charles Park Road/Gardner Street/Rivermoor Street/Home Depot Driveway there is not a crosswalk provided to cross the Home Depot Driveway. Pedestrian signal equipment is provided at both of the signalized study area intersections.

To determine the amount of pedestrian activity within the study area, pedestrian counts were conducted concurrent with the TMCs at the study area intersection. The weekday a.m. Peak Hour and weekday p.m. Peak Hour pedestrian volumes are presented in **Figure 7-7**.

7.2.8 Existing Pedestrian Bicycle Conditions

In recent years, bicycle use has increased dramatically throughout the City of Boston. The Project site is conveniently located in close proximity to several bicycle facilities. The City of Boston's "Bike Routes of Boston" map indicates that the VFW Parkway is designated as advanced routes suitable for more traffic-confident cyclists. Bike lanes are not provided on the VFW Parkway, although it has a wide shoulder giving cyclists a place to bike.

Bicycle volumes were collected during the TMCs. The weekday a.m. Peak Hour and weekday p.m. Peak Hour bicycle volumes are presented in **Figure 7-8**.

7.2.9 Existing Public Transportation

The Project is located near the MBTA Commuter Rail Needham Line and several bus routes. The following describes each public transportation route located in the vicinity of the Project site. The nearby public transit services are shown in **Figure 7-9** and summarized in **Table 7-1**.

Commuter Rail Needham Line

The Needham Line of the MBTA commuter rail system stops at West Roxbury Station is approximately one mile from the Project site. The Needham Line runs between South Station in Boston to the east and Needham Heights in Needham to the west. The Needham Line operates with weekday service from 6:05 a.m. to 11:10 p.m. with approximately 30 minute peak hour headways. Weekend service runs from 7:10 a.m. to 12:00 a.m. with 120 minute headways.

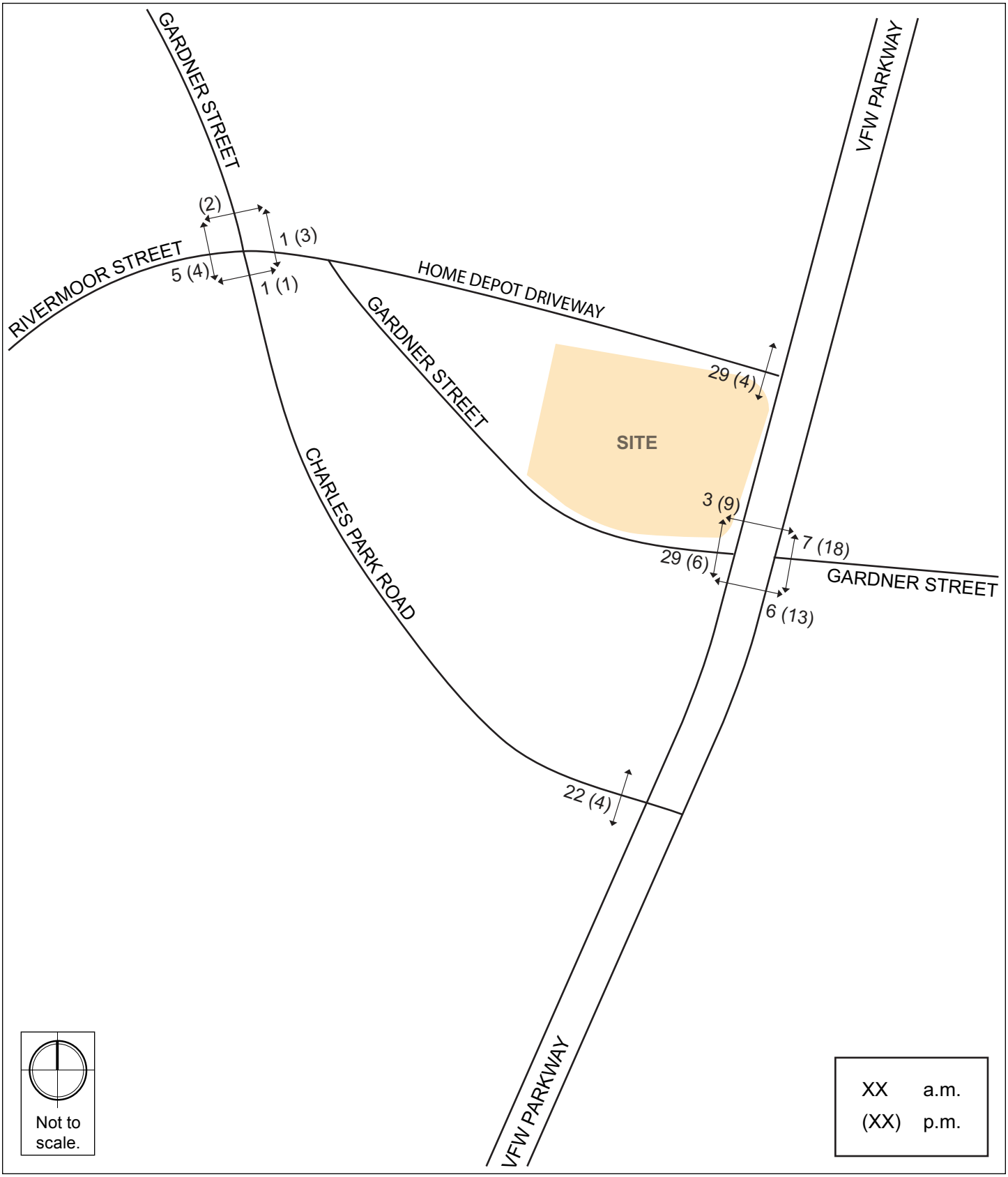

Figure 7-7.
Existing (2015) Condition Pedestrian Volumes, Weekday a.m. and p.m. Peak Hours

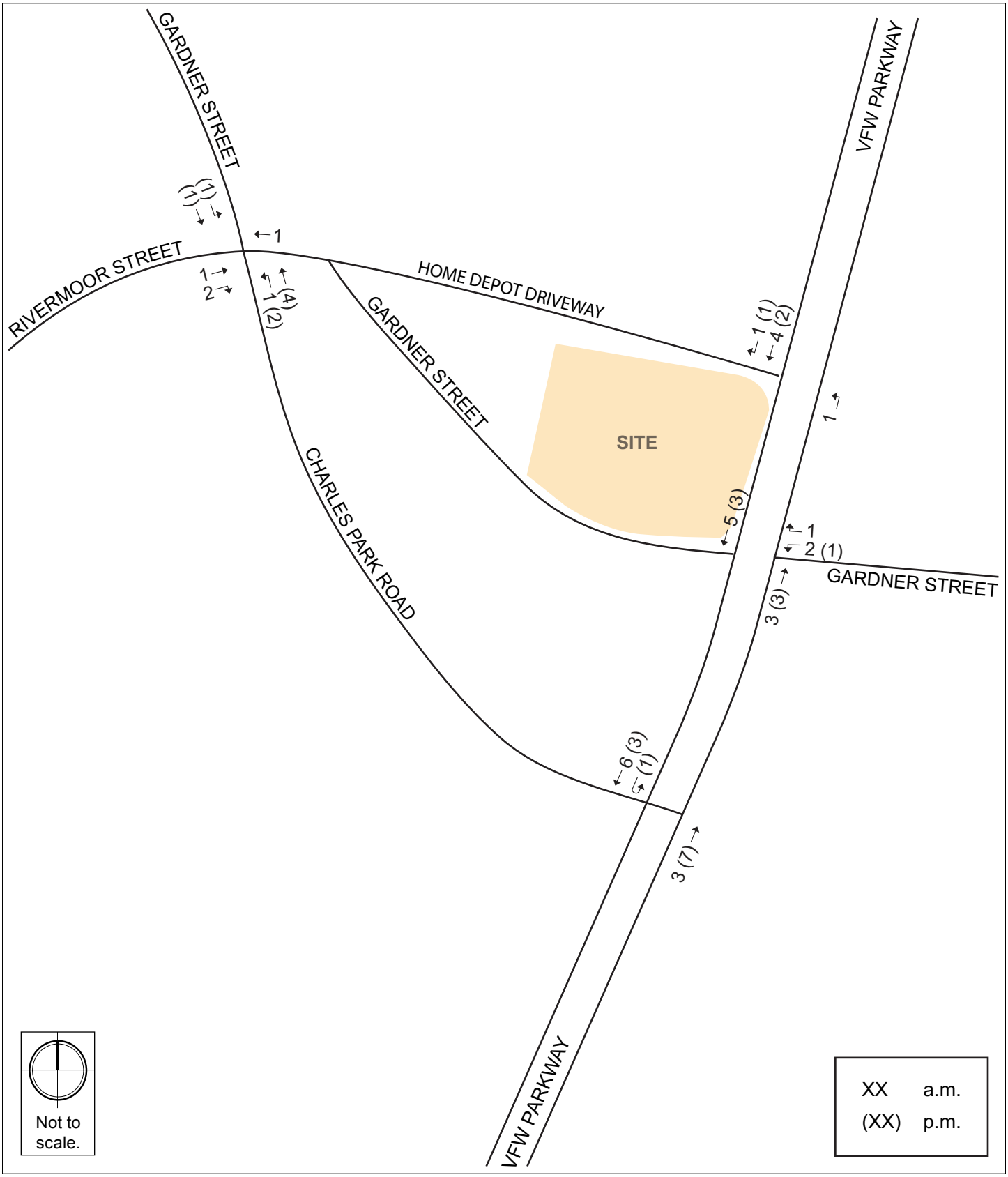

Figure 7-8.
Existing (2015) Condition Bicycle Volumes, Weekday a.m. and p.m. Peak Hours

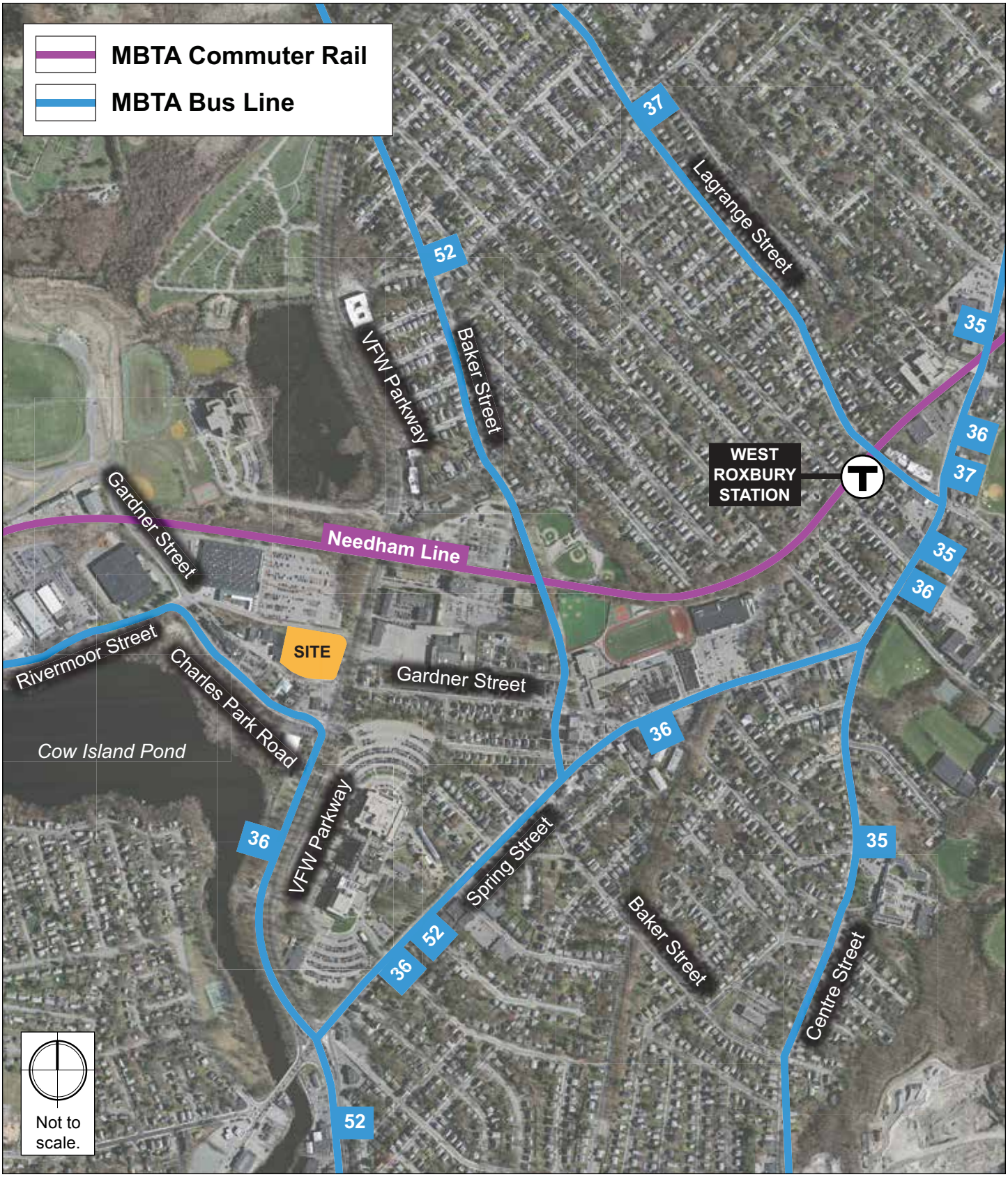

Figure 7-9.
Existing Public Transportation

MBTA Bus Routes

There are four bus lines that stop within one mile of the Project site. The 36 Route travels adjacent to the site, the 52 Route travels less than a half a mile from the site, and 35 Route and 37 Route are within a mile of the site.

Table 7-1. Existing Public Transportation

Route	Description	Peak-hour Headway (mins)*	Weekday Service Duration*	Saturday Service Duration*
Commuter Rail				
Needham Line		30	6:05 a.m. – 11:10 p.m.	7:10 a.m. – 12:00 a.m.
Local Bus Routes				
35	Dedham Mall/Stimson Street - Forest Hills Station via Belgrade Avenue & Centre Street	15-20	5:25 a.m. – 9:42 p.m.	5:20 a.m. – 9:38 p.m.
36	Charles River Loop or VA Hospital - Forrest Hills Station	20	4:37 a.m. – 1:44 a.m.	4:37 a.m. – 1:40 a.m.
37	Baker & Vermont Streets - Forest Hills Station via Belgrade Avenue & Centre Street	10	5:35 a.m. – 8:01 p.m.	5:30 a.m. – 8:03 p.m.
52	Dedham Mall or Charles River Loop – Watertown Yard via Oak Hill & Newton Centre	20	6:15 a.m. – 7:57 p.m.	No Weekend Service

* Source: MBTA.com, December 2014. Headway varies.

7.2.10 Traffic Operations Analysis

Trafficware's Synchro (version 9) software package was used to calculate average delay and associated LOS at the study area intersections. This software is based on the traffic operational analysis methodology of the Transportation Research Board's 2000 Highway Capacity Manual (HCM).

LOS designations are based on average delay per vehicle for all vehicles entering an intersection. **Table 7-2** displays the intersection LOS criteria. LOS A indicates the most favorable condition, with minimum traffic delay, while LOS F represents the worst condition, with significant traffic delay. LOS D or better is typically considered acceptable in an urban area. However, LOS E or F is often typical for a stop controlled minor street that intersects a major roadway.

Table 7-2. Vehicle Level of Service Criteria

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

Source: 2000 Highway Capacity Manual, Transportation Research Board.

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

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

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

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

7.2.11 Existing (2015) Condition Traffic Operations Analysis

Table 7-3 and **Table 7-4** summarize the Existing (2015) Condition capacity analysis for the study area intersection during the weekday a.m. Peak Hour and the weekday p.m. Peak Hour. The detailed analysis sheets are provided in **Appendix D.**

Table 7-3. Existing (2015) Condition Capacity Analysis Summary, Weekday a.m. Peak Hour

Intersection/Approach	LOS	Delay (s)	V/C Ratio	50th Percentile Queue (ft)	95th Percentile Queue (ft)
Signalized Intersections					
VFW Parkway/Charles Park Road	**C**	**29.1**	**-**	**-**	**-**
Charles Park Road eastbound left|left	E	70.7	0.53	42	62
Charles Park Road eastbound right	C	21.8	0.51	0	39
VFW Parkway northbound u-turn/left	E	75.1	0.79	172	245
VFW Parkway northbound thru|thru	B	16.4	0.63	337	515
VFW Parkway southbound u-turn	E	58.9	0.51	107	163
VFW Parkway southbound thru|thru/right	C	29.8	0.53	307	444
VFW Parkway/Gardner Street	**A**	**3.1**	**-**	**-**	**-**
Gardner Street eastbound right	A	0. 0	0.01	0	0
Gardner Street westbound right	A	0.1	0.05	0	0
VFW Parkway northbound thru|thru	A	3.0	0.55	0	300
VFW Parkway southbound thru|thru/right	A	3.5	0.39	0	243
Unsignalized Intersections					
VFW Parkway/Home Depot Driveway	**-**	**-**	**-**	**-**	**-**
Home Depot Driveway eastbound right	C	17.9	0.28	-	28
VFW Parkway southbound thru|thru/right	A	0	0.42	-	0
Gardner Street/Charles Park Road/Rivermoor Street/Home Depot Driveway	-	-	-	-	-
Rivermoor Street eastbound left/thru/right	A	7.4	0.11	-	10
Home Depot Driveway westbound left/thru/right	A	8.3	0.14	-	13
Charles Park Road northbound left/thru/right	A	8.6	0.21	-	20
Gardner Street southbound left/thru/right	A	7.9	0.06	-	5

Grey shading indicates LOS E or F.

Table 7-4. Existing (2015) Condition Capacity Analysis Summary, Weekday p.m. Peak Hour

Intersection/Approach	LOS	Delay (s)	V/C Ratio	50th Percentile Queue (ft)	95th Percentile Queue (ft)
Signalized Intersections					
VFW Parkway/Charles Park Road	**D**	**45.4**	**-**	**-**	**-**
Charles Park Road eastbound left|left	E	69.4	0.60	67	90
Charles Park Road eastbound right	B	18.8	0.60	0	46
VFW Parkway northbound u-turn/left	E	73.2	0.71	130	197
VFW Parkway northbound thru|thru	B	14.4	0.60	298	457
VFW Parkway southbound u-turn	E	60.4	0.47	85	138
VFW Parkway southbound thru|thru/right	E	69.4	0.71	365	#841
VFW Parkway/Gardner Street	**A**	**40.3**	**-**	**-**	**-**
Gardner Street eastbound right	A	0.0	0.01	0	0
Gardner Street westbound right	A	0.1	0.06	0	0
VFW Parkway northbound thru|thru	A	4.3	0.53	0	254
VFW Parkway southbound thru|thru/right	A	8.3	0.58	0	418
Unsignalized Intersections					
VFW Parkway/Home Depot Driveway	**-**	**-**	**-**	**-**	**-**
Home Depot Driveway eastbound right	C	23.2	0.36	-	40
VFW Parkway southbound thru|thru/right	A	0.0	0.60	-	0
Gardner Street/Charles Park Road/Rivermoor Street/Home Depot Driveway	**-**	**-**	**-**	**-**	**-**
Rivermoor Street eastbound left/thru/right	A	9.1	0.21	-	20
Home Depot Driveway westbound left/thru/right	A	8.7	0.19	-	18
Charles Park Road northbound left/thru/right	A	8.5	0.14	-	13
Gardner Street southbound left/thru/right	A	8.3	0.10	-	8

95th percentile volume exceeds capacity. Queue may be longer. Queue shown is the maximum after two cycles.
Grey shading indicates LOS E or F.

The signalized intersection of VFW Parkway/Charles Park Road currently operates at LOS C during the weekday a.m. peak hour and LOS D during the weekday p.m. peak hour under the Existing Condition. During the a.m. peak hour the Charles Park Road eastbound left|left approach, the VFW Parkway northbound u-turn/left-turn approach and the VFW southbound u-turn approach operate at LOS E. During the p.m. peak hour the Charles Park Road eastbound left-turn approach, the VFW Parkway northbound u-turn/left-turn approach, and the VFW Parkway southbound u-turn approach and thru|thru/right-turn approach operate at LOS E. The longest queues at the intersection occur in the VFW Parkway northbound thru|thru lane during the a.m.

peak hour and in the VFW Parkway southbound thru|thru/right-turn lane during the p.m. peak hour.

The signalized intersection of VFW Parkway/Gardner Street currently operates at LOS A during both the weekday a.m. and p.m. peak hours under the Existing Condition. The longest queues at the intersection occur at the VFW Parkway northbound approach during the a.m. peak hour and the VFW Parkway southbound approach during the p.m. peak hour.

At the unsignalized intersection of VFW Parkway/Home Depot Driveway, the VFW Parkway southbound approach operates at LOS A during the weekday a.m. and p.m. peak hours and the Home Depot Driveway eastbound approach operates at LOS C during the a.m. and p.m. peak hours. The longest queues at the intersection occur at the Home Depot Driveway eastbound approach during both the a.m. and p.m. peak hours.

At the unsignalized intersection of Gardner Street/Charles Park Road/Rivermoor Street/Home Depot Driveway, all approaches operate at LOS A during the weekday a.m. and p.m. peak hours. The longest queues at the intersection occur at the Charles Park Road northbound approach during the a.m. peak hour and the Home Depot Driveway westbound approach during the p.m. peak hour.

7.3 No-Build (2020) Condition

The No-Build (2020) Condition reflects a future scenario that incorporates anticipated traffic volume changes associated with background traffic growth independent of any specific project, traffic associated with other planned specific developments, and planned infrastructure improvements that will affect travel patterns throughout the study area. The No-Build (2020) Condition does not include the impact of the Project. These infrastructure improvements include roadway, public transportation, pedestrian and bicycle improvements.

7.3.1 Background Traffic Growth

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

7.3.2 Specific Development Traffic Growth

Traffic volumes associated with the larger or closer known development projects can affect traffic patterns throughout the study area within the future analysis time horizon. One such project was specifically accounted for in the future traffic. **99 Rivermoor Street (Cubesmart) –** This project is located to the west of the project site and calls for the rehabilitation of the existing warehouse

structure into a high-quality self-storage facility, with accessory uses. This project has been approved by the BRA.

7.3.3 Proposed Infrastructure Improvements

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

7.3.4 No-Build (2020) Condition Traffic Volumes

The one percent per year annual growth rate was applied to the Existing (2015) Condition traffic volumes, then the traffic volumes associated with the background development project listed above was added to develop the No-Build (2020) Condition traffic volumes. The No-Build (2020) weekday a.m. Peak Hour and weekday p.m. Peak Hour traffic volumes are shown on **Figure 7-10** and **Figure 7-11**, respectively.

7.3.5 No-Build (2020) Condition Traffic Operations Analysis

The No-Build (2020) Condition capacity analysis uses the same methodology as the Existing (2015) Condition capacity analysis. **Table 7-5** and **Table 7-6** present the No-Build (2020) Condition capacity analysis for the a.m. and p.m. peak hours, respectively. The shaded cells in the tables indicate a worsening in LOS between the Existing (2015) Condition and the No-Build (2020) Condition. The detailed analysis sheets are provided in **Appendix D**.

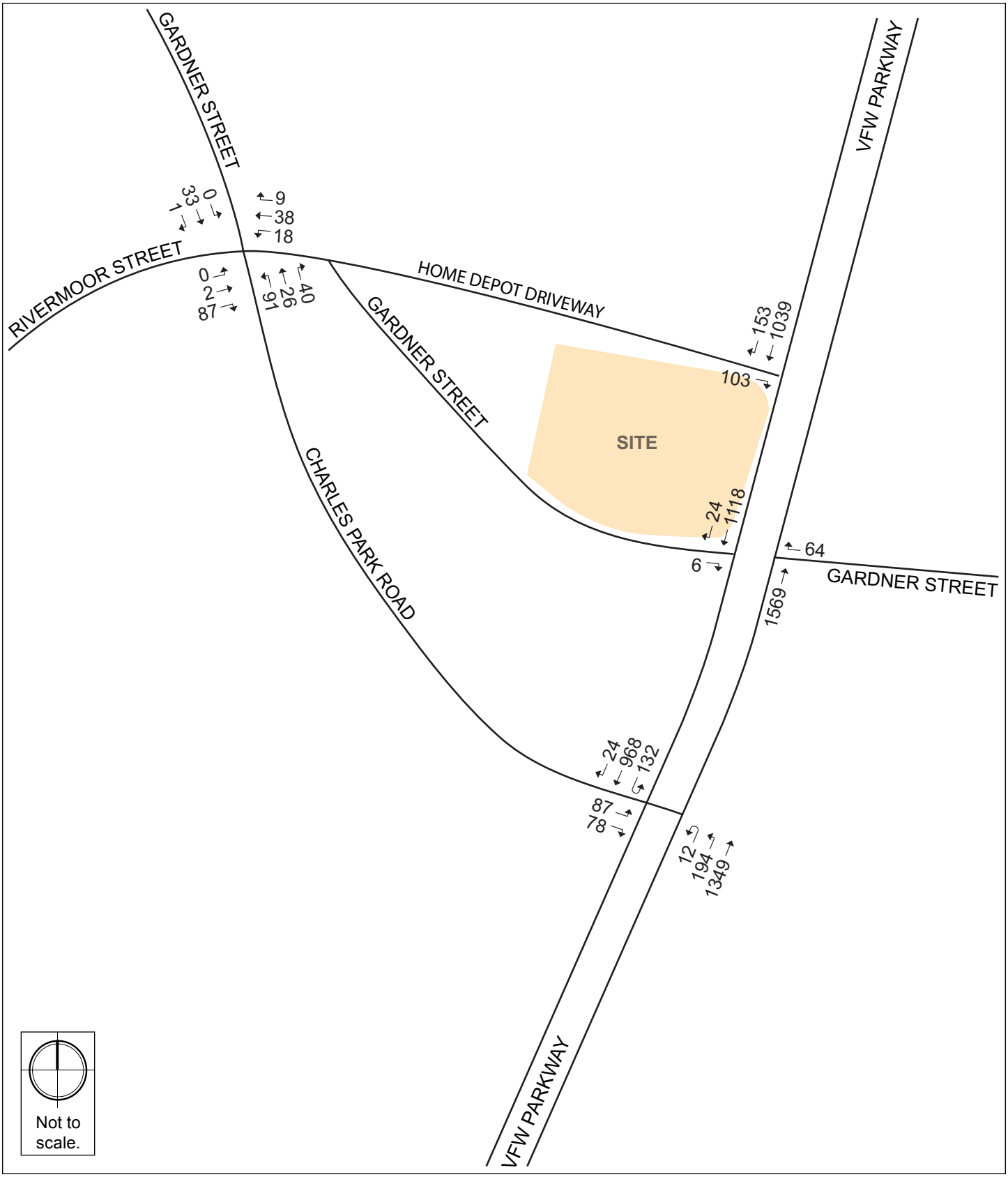

Figure 7-10.
No-Build (2020) Condition Traffic Volumes, Weekday a.m. Peak Hour

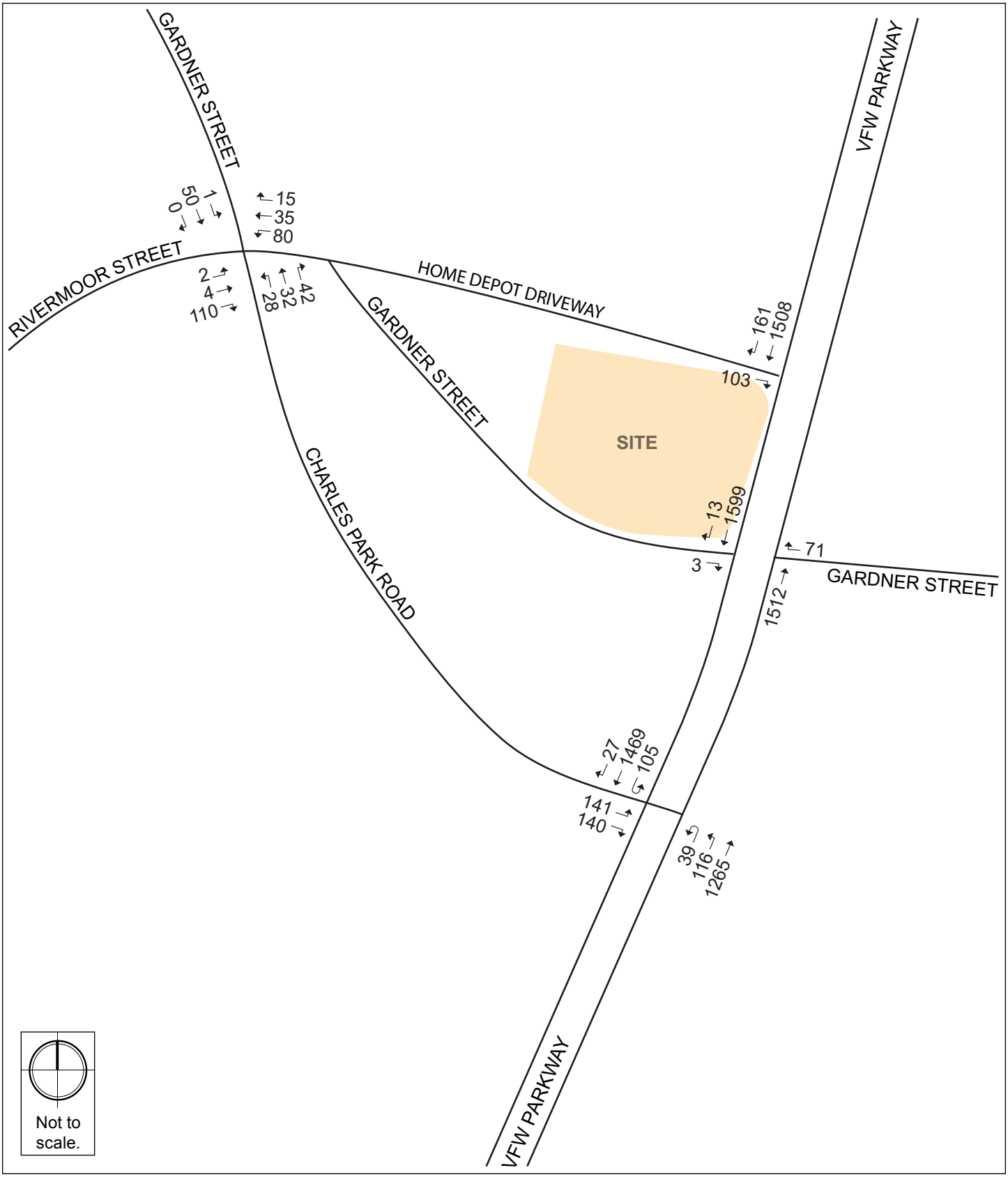

Figure 7-11.
No-Build (2020) Condition Traffic Volumes, Weekday p.m. Peak Hour

Table 7-5. No-Build (2020) Condition Capacity Analysis Summary, Weekday a.m. Peak Hour

Intersection/Approach	LOS	Delay (s)	V/C Ratio	50th Percentile Queue (ft)	95th Percentile Queue (ft)
Signalized Intersections					
VFW Parkway/Charles Park Road	**C**	**33.0**	**-**	**-**	**-**
Charles Park Road eastbound left|left	E	70.9	0.56	4 8	69
Charles Park Road eastbound right	C	20.8	0.52	0	40
VFW Parkway northbound left	E	75.8	0.81	185	261
VFW Parkway northbound thru|thru	B	18.6	0.68	385	589
VFW Parkway southbound u-turn	E	58.1	0.51	111	169
VFW Parkway southbound thru|thru/right	D	37.5	0.57	342	493
VFW Parkway/Gardner Street	**A**	**3.3**	**-**	**-**	**-**
Gardner Street eastbound right	A	0.0	0.01	0	0
Gardner Street westbound right	A	0.1	0.06	0	0
VFW Parkway northbound thru|thru	A	3.3	0.58	0	338
VFW Parkway southbound thru|thru/right	A	3.7	0.41	0	263
Unsignalized Intersections					
VFW Parkway/Home Depot Driveway	**-**	**-**	**-**	**-**	**-**
Home Depot Driveway eastbound right	C	19.2	0.31	-	32
VFW Parkway southbound thru|thru/right	A	0.0	0.44	-	0
Gardner Street/Charles Park Road/Rivermoor Street/Home Depot Driveway	-	-	-	-	-
Rivermoor Street eastbound left/thru/right	A	7.6	0.13	-	13
Home Depot Driveway westbound left/thru/right	A	8.6	0.16	-	15
Charles Park Road northbound left/thru/right	A	8.9	0.23	-	23
Gardner Street southbound left/thru/right	A	8.1	0.06	-	5

= 95th percentile volume exceeds capacity, queue may be longer. Queue shown is the maximum after two cycles.

Gray shading indicates decrease in LOS from Existing Condition below LOS E or LOS F.

Table 7-6. No-Build (2020) Condition Capacity Analysis Summary, Weekday p.m. Peak Hour

Intersection/Approach	LOS	Delay (s)	V/C Ratio	50th Percentile Queue (ft)	95th Percentile Queue (ft)
Signalized Intersections					
VFW Parkway/Charles Park Road	**D**	**47.3**	**-**	**-**	**-**
Charles Park Road eastbound left|left	E	69.6	0.63	77	101
Charles Park Road eastbound right	B	17.6	0.61	0	48
VFW Parkway northbound left	E	74.1	0.74	144	212
VFW Parkway northbound thru|thru	B	16.6	0.64	344	527
VFW Parkway southbound u-turn	E	59.1	0.47	89	141
VFW Parkway southbound thru|thru/right	E	71.7	0.76	425	#947
VFW Parkway/Gardner Street	**A**	**6.7**	**-**	**-**	**-**
Gardner Street eastbound right	A	0.0	0.01	0	0
Gardner Street westbound right	A	0.1	0.06	0	0
VFW Parkway northbound thru|thru	A	4.7	0.57	0	286
VFW Parkway southbound thru|thru/right	A	9.1	0.61	0	465
Unsignalized Intersections					
VFW Parkway/Home Depot Driveway	**-**	**-**	**-**	**-**	**-**
Home Depot Driveway eastbound right	D	26.1	0.41	-	48
VFW Parkway southbound thru|thru/right	A	0.0	0.63	-	0
Gardner Street/Charles Park Road/Rivermoor Street/Home Depot Driveway	-	-	-	-	-
Rivermoor Street eastbound left/thru/right	A	9.7	0.27	-	28
Home Depot Driveway westbound left/thru/right	A	9.1	0.23	-	23
Charles Park Road northbound left/thru/right	A	8.9	0.17	-	15
Gardner Street southbound left/thru/right	A	8.6	0.10	-	8

~ = 50th percentile volume exceeds capacity, queue may be longer. Queue shown is the maximum after two cycles.

= 95th percentile volume exceeds capacity, queue may be longer. Queue shown is the maximum after two cycles.

Gray shading indicates decrease in LOS from Existing Condition below LOS E or LOS F.

The signalized intersection of VFW Parkway/Charles Park Road will continue to operate at LOS C during the weekday a.m. peak hour and LOS D during the weekday p.m. peak hour under the No-Build Condition. The longest queues at the intersection will continue to occur in the VFW Parkway northbound thru|thru lane during the a.m. peak hour and the VFW southbound thru|thru/right-turn lane during the p.m. peak hour.

The signalized intersection of VFW Parkway/Gardner Street will continue to operate at LOS A during the weekday a.m. and p.m. peak hours under the No-Build Condition. The longest queues at the intersection will continue to occur at the VFW Parkway northbound approach during the a.m. peak hour and the VFW Parkway southbound approach during the p.m. peak hour.

At the unsignalized intersection of VFW Parkway/Home Depot Driveway, the VFW Parkway southbound approach will continue to operate at LOS A during the weekday a.m. and p.m. peak hours and the Home Depot Driveway eastbound approach will continue to operate at LOS C during the a.m. peak hour and decrease to LOS D during the p.m. peak hour. The longest queues at the intersection will continue to occur at the Home Depot Driveway eastbound approach during the a.m. and p.m. peak hours.

At the unsignalized intersection of Gardner Street/Charles Park Road/Rivermoor Street/Home Depot Driveway, all approaches will continue to operate at LOS A during the weekday a.m. and p.m. peak hours. The longest queues at the intersection will continue to occur at the Charles Park Road northbound approach during the a.m. peak hour and the Home Depot Driveway westbound approach during the p.m. peak hour.

7.4 Build (2020) Condition

As previously summarized, The Project will include the construction of approximately 84 residential units, with approximately 130 parking spaces, consisting of 73 below-grade spaces and 53 surface spaces. Vehicular access will be provided via two of the three existing driveways serving the site.

7.4.1 Vehicle Site Access and Circulation

As shown in the Project site plan in **Figure 7-12**, vehicular access to the Site will be provided by two curb cuts, one driveway will be located along the VFW Parkway allowing right turn in movements only, and the other driveway will be located along Gardner Street towards the west of the site allowing right in and right out movements only. The existing VFW Parkway Driveway will be relocated to the north, while both of the existing curb cuts will be closed and the Gardner Street Driveway will be located towards the west of the site. Both driveways will only allow right in and right out movements. Adjacent to the driveway along the VFW Parkway, will be a turn-around loop for quick drop-off and pick-up.

Figure 7-12.
Site Access Plan

7.4.2 Parking

This section presents the Project's parking supply and an evaluation of the Project's parking demand. As previously mentioned, the Project will contain 130 parking spaces. This results in a parking ratio of approximately 1.5 parking spaces per dwelling units, consistent with the BTD maximum parking goals.

7.4.3 Loading and Service Accommodations

Loading and service operations will occur on-site, however a designated loading area will not be provided. Residential move-in/move-out activity will take place within the site on the surface lot.

Truck trip estimates for the residential element of the Project are based on data provided in the Truck Trip Generation Rates by Land Use in the Central Artery/Tunnel Project Study Area report[5]. Deliveries to the Project site will likely be SU-36 trucks and smaller delivery vehicles. Residential units primarily generate delivery trips related to small packages and prepared food. Based on the CTPS report, the Project is expected to generate one light truck trip per day to the Site.

7.4.4 Bicycle Accommodations

BTD has established guidelines requiring projects subject to Transportation Access Plan Agreements to provide secure bicycle parking for residents and short-term bicycle racks for visitors. Based on BTD guidelines, the Project will supply a minimum of 84 secure bicycle parking/storage spaces within the parking garage.

7.4.5 Trip Generation Methodology

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

To estimate the number of trips expected to be generated by the Project, data published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual*[6] were used. ITE provides data to estimate the total number of unadjusted vehicular trips associated with the Project. In an urban setting well-served by transit, adjustments are necessary to account for other travel mode shares such as walking, bicycling, and transit.

5 Truck Trip Generation Rates by Land Use in the Central Artery/Tunnel Project Study Area; Central Transportation Planning Staff; September 1993.

6 Trip Generation Manual, 9th Edition; Institute of Transportation Engineers; Washington, D.C.; 2012.

To estimate the unadjusted number of vehicular trips for the Project, the following ITE land use code (LUCs) was used:

Land Use Code 220 – Apartment. This land use code refers to dwelling units located within the same building with at least three other dwelling units. Calculation of the number of trips uses ITE's average rate per dwelling unit.

7.4.6 Mode Share

BTD provides vehicle, transit, and walking mode split rates for different areas of Boston. Project is located within designated Area 19 – West Roxbury. The unadjusted vehicular trips were converted to person trips by using vehicle occupancy rates published by the Federal Highway Administration (FHWA)[7]. The person trips were then distributed to different modes according to the mode shares shown in **Table 7-7**.

Table 7-7. Travel Mode Shares

Time Period		Vehicle Occupancy Rate[a]	Walk/Bike Share[b]	Transit Share[b]	Vehicle Share[b]
Daily	In	1.13	11%	7%	82%
	Out	1.13	11%	7%	82%
a.m. Peak Hour	In	1.13	13%	7%	80%
	Out	1.13	9%	18%	73%
p.m. Peak Hour	In	1.78	9%	18%	73%
	Out	1.78	13%	7%	80%

a 2009 National Household Travel Survey.
b Based on rates published by the Boston Transportation Department for Area 19 – West Roxbury.

7.4.7 Project Trip Generation

The mode share percentages shown in **Table 7-7** were applied to the number of person trips to develop walk/bicycle, transit, and vehicle trip generation estimates. The trip generation for the Project by mode is shown in **Table 7-8**. The detailed trip generation information is provided in **Appendix D**.

7 *Summary of Travel Trends: 2009 National Household Travel Survey*; FHWA; Washington, D.C.; June 2011.

Table 7-8. Trip Generation Summary

Time Period		Walk/Bicycle Trips	Transit Trips	Primary Vehicle Trips
Daily				
Apartment [a]	In	35	22	229
	Out	35	22	229
	Total	**70**	**44**	**458**
a.m. Peak Hour				
Apartment	In	1	1	7
	Out	3	7	25
	Total	**4**	**8**	**32**
p.m. Peak Hour				
Apartment	In	3	7	25
	Out	3	1	14
	Total	**6**	**8**	**39**

a Based on ITE LUC 220 – 84 Apartment units, average rate.

7.4.8 Trip Distribution

The trip distribution identifies the various travel paths for vehicles arriving and leaving the Project site. Trip distribution patterns for the Project were based on BTD's origin-destination data for Area 19 – West Roxbury and trip distribution patterns presented in traffic studies for nearby projects. The trip distribution patterns for the Project are illustrated in **Figure 7-13**.

7.4.9 Build (2020) Traffic Volumes

The vehicle trips were distributed through the study area. The project-generated trips for the weekday a.m. Peak Hour and weekday p.m. Peak Hour are shown in **Figure 7-14** and **Figure 7-15**, respectively. The trip assignments were added to the No-Build (2020) Condition vehicular traffic volumes to develop the Build (2020) Condition vehicular traffic volumes. The Build (2020) weekday a.m. Peak Hour and weekday p.m. Peak Hour traffic volumes are shown on **Figure 7-16** and **Figure 7-17**, respectively.

7.4.10 Build (2020) Condition Traffic Operations Analysis

The Build (2020) Condition capacity analysis uses the same methodology as the Existing (2015) Condition capacity analysis and the No-Build (2020) Condition capacity analysis. **Table 7-9** and **Table 7-10** present the Build (2020) Condition capacity analysis for the weekday a.m. Peak Hour and weekday p.m. Peak Hour, respectively. The shaded cells in the tables indicate a worsening of LOS between the No-Build (2020) Condition and the Build (2020) Condition. The detailed analysis sheets are provided in **Appendix D**.

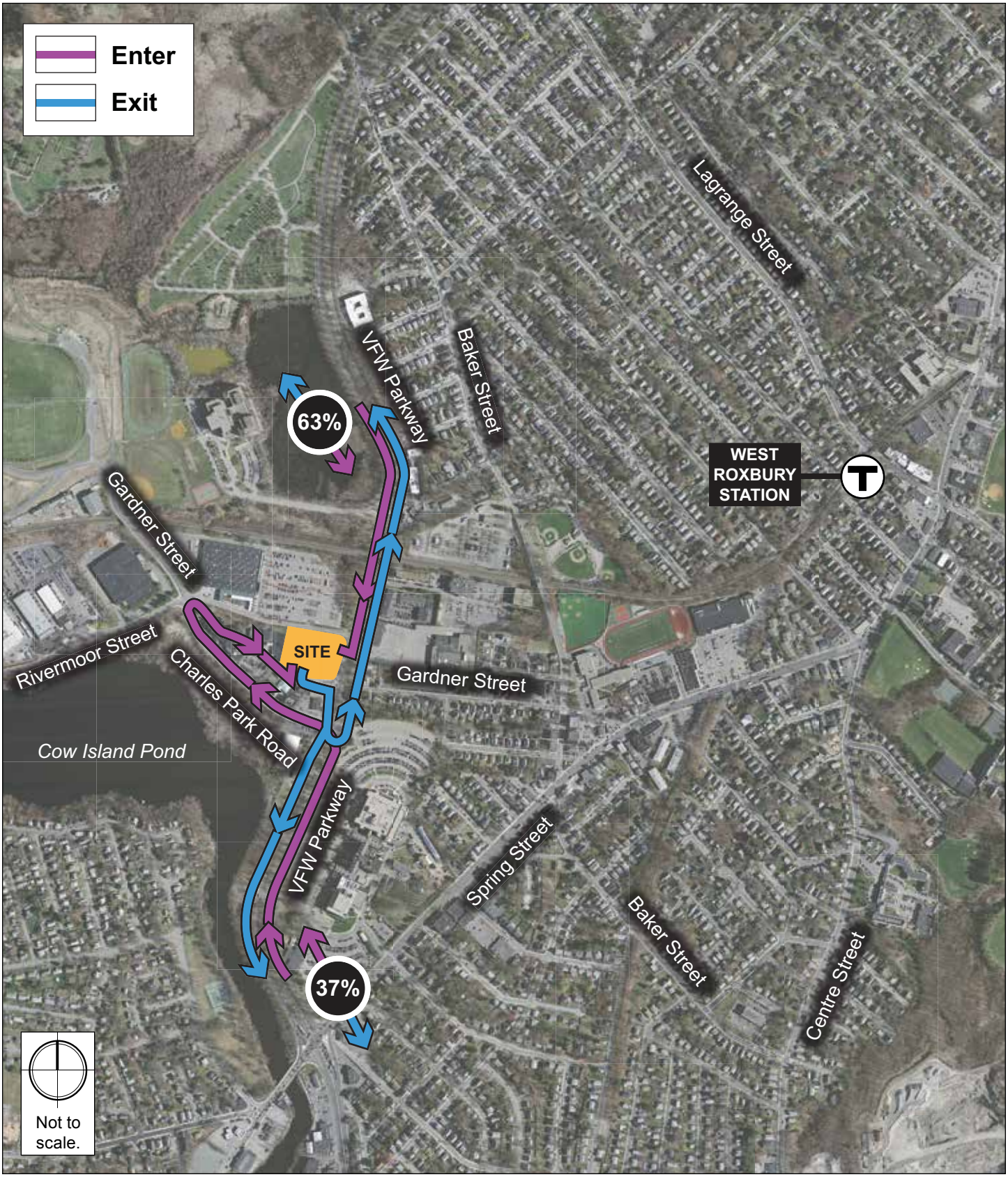

Figure 7-13.
Trip Distribution

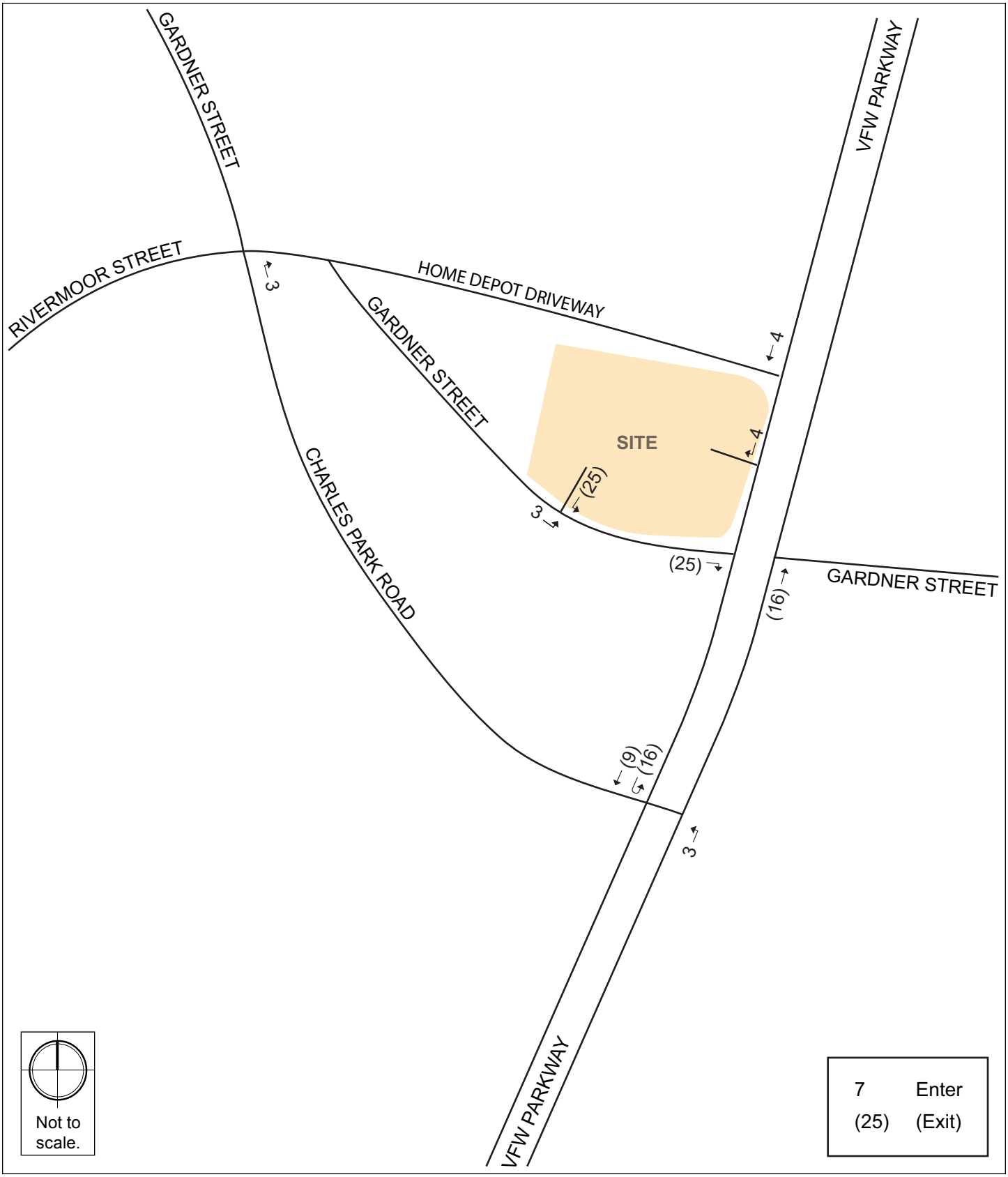

Figure 7-14.
Project-generated Vehicle Trips, Weekday a.m. Peak Hour

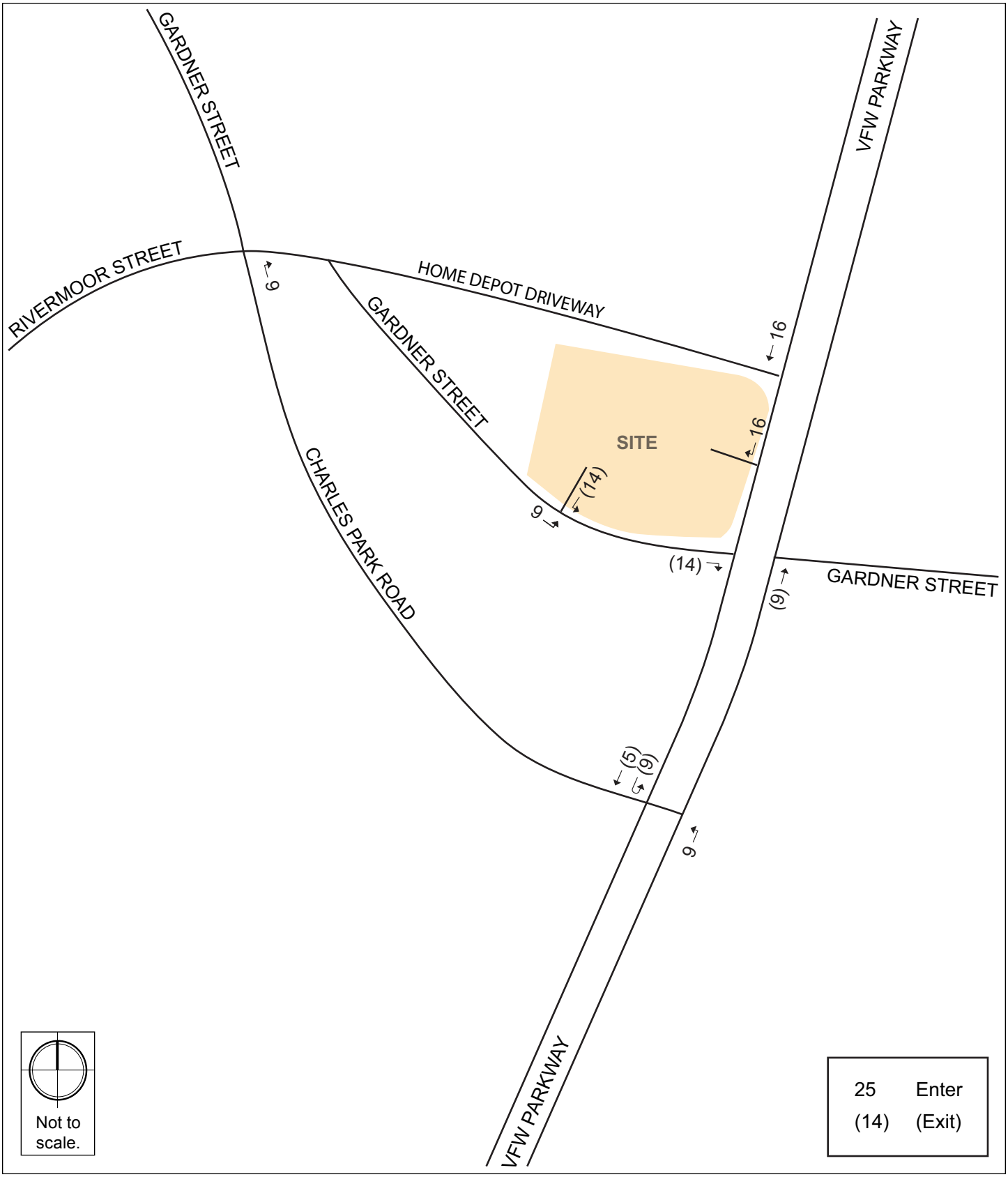

Figure 7-15.
Project-generated Vehicle Trips, Weekday p.m. Peak Hour

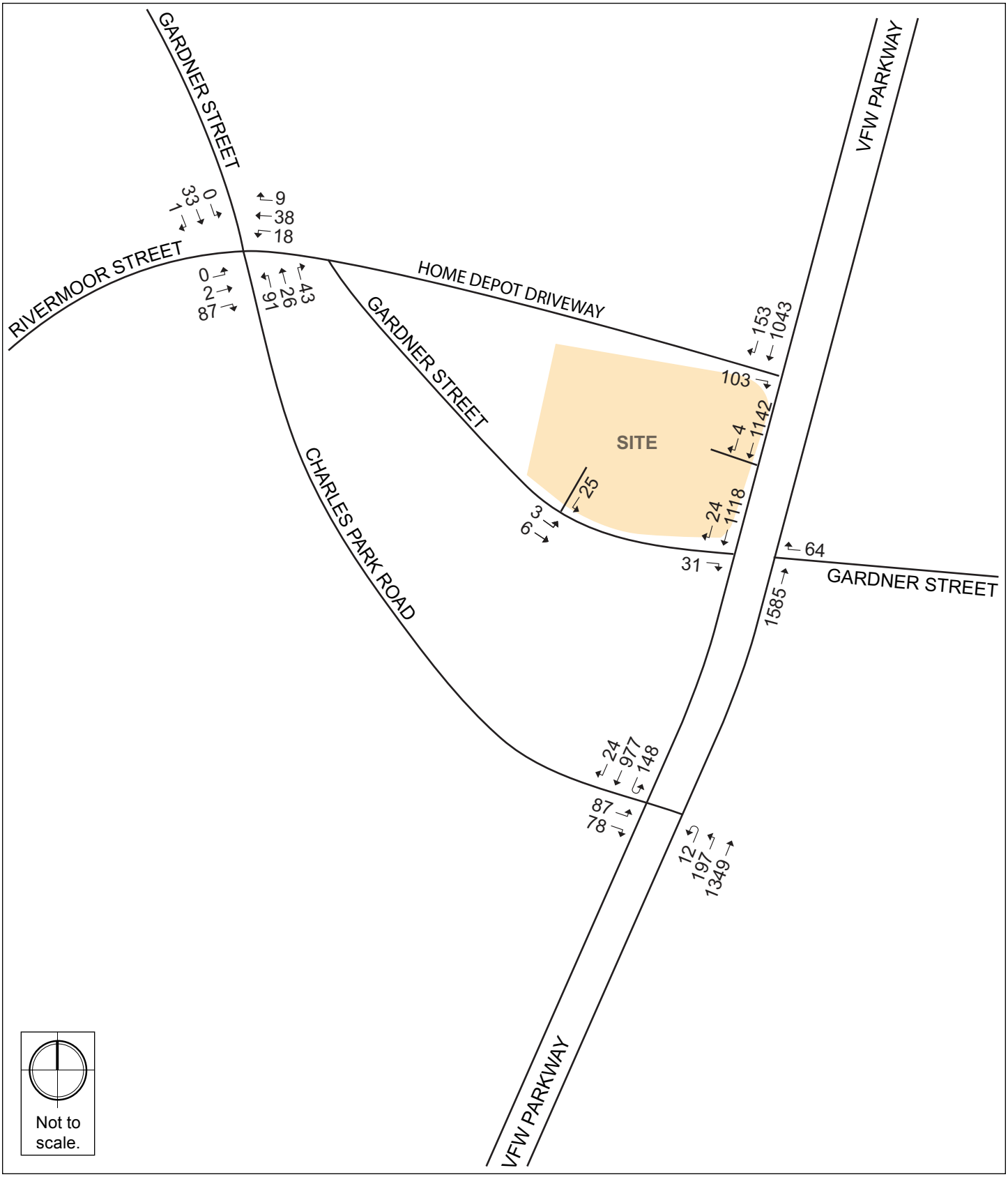

Figure 7-16.
Build (2020) Condition Traffic Volumes, Weekday a.m. Peak Hour

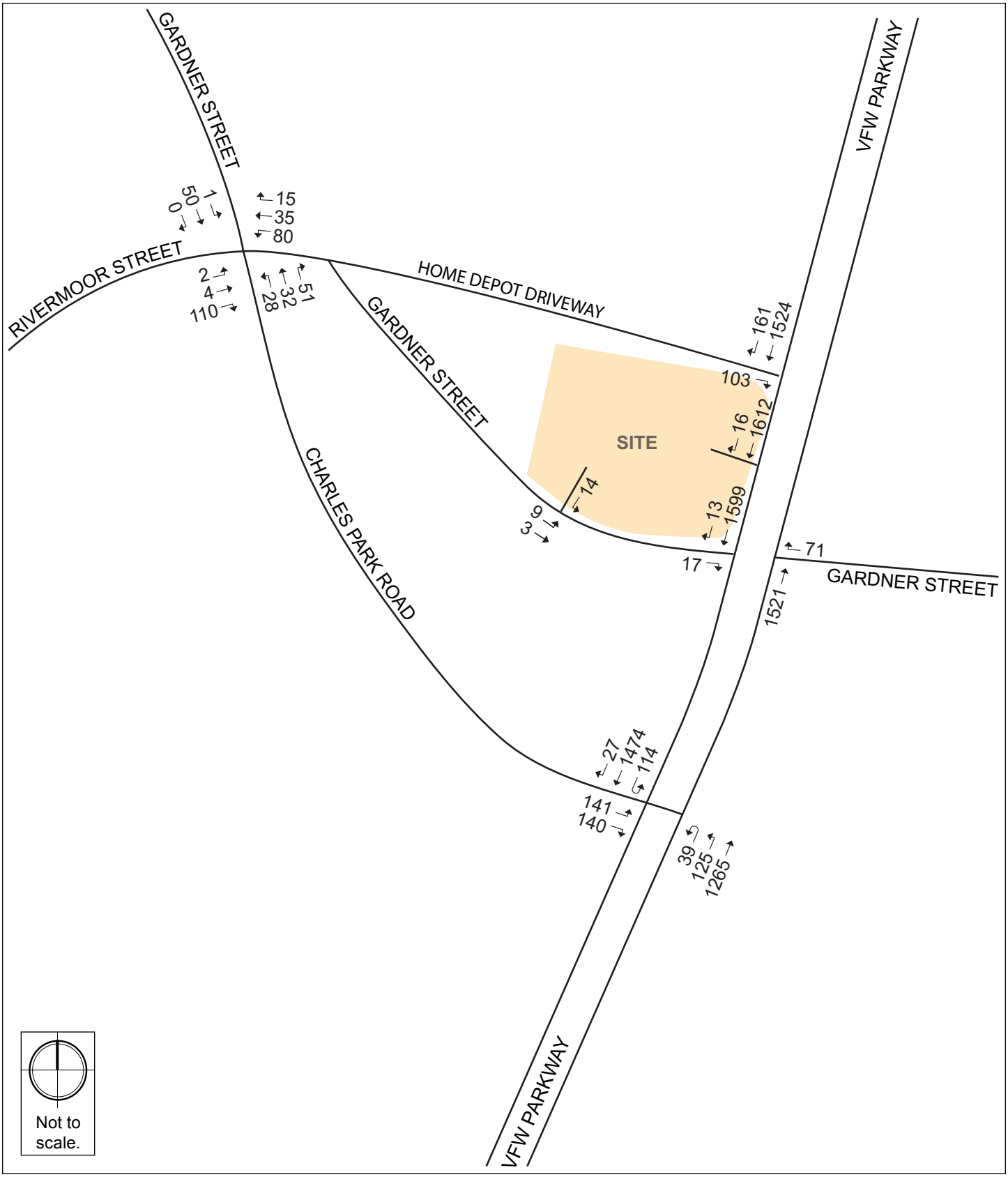

Figure 7-17.
Build (2020) Condition Traffic Volumes, Weekday p.m. Peak Hour

Table 7-9. Build (2020) Condition Capacity Analysis Summary, Weekday a.m. Peak Hour

Intersection/Approach	LOS	Delay (s)	V/C Ratio	50th Percentile Queue (ft)	95th Percentile Queue (ft)
Signalized Intersections					
VFW Parkway/Charles Park Road	**C**	**33.9**	**-**	**-**	**-**
Charles Park Road eastbound left|left	E	70.9	0.56	48	69
Charles Park Road eastbound right	C	20.8	0.52	0	40
VFW Parkway northbound left	E	75.8	0.81	188	263
VFW Parkway northbound thru|thru	B	18.8	0.68	388	592
VFW Parkway southbound u-turn	E	60.7	0.57	125	186
VFW Parkway southbound thru|thru/right	D	39.0	0.58	348	502
VFW Parkway/Gardner Street	**A**	**3.3**	**-**	**-**	**-**
Gardner Street eastbound right	A	0.1	0.06	0	0
Gardner Street westbound right	A	0.1	0.06	0	0
VFW Parkway northbound thru|thru	A	3.3	0.58	0	345
VFW Parkway southbound thru|thru/right	A	3.7	0.41	0	263
Unsignalized Intersections					
VFW Parkway/Home Depot Driveway	**-**	**-**	**-**	**-**	**-**
Home Depot Driveway eastbound right	C	19.2	0.31	-	32
VFW Parkway southbound thru|thru/right	A	0.0	0.44	-	0
Gardner Street/Charles Park Road/Rivermoor Street/Home Depot Driveway	-	-	-	-	-
Rivermoor Street eastbound left/thru/right	A	7.6	0.13	-	13
Home Depot Driveway westbound left/thru/right	A	8.6	0.16	-	15
Charles Park Road northbound left/thru/right	A	8.9	0.23	-	23
Gardner Street southbound left/thru/right	A	8.1	0.06	-	5
VFW Parkway/Site Driveway	**-**	**-**	**-**	**-**	**-**
VFW Parkway southbound thru|thru/right	A	0.0	0.49	-	0
Gardner Street/Site Driveway	**-**	**-**	**-**	**-**	**-**
Gardner Street eastbound left/thru	A	2.4	0.00	-	0
Site Driveway southbound left	A	8.7	0.03	-	2

= 95th percentile volume exceeds capacity, queue may be longer. Queue shown is the maximum after two cycles.

Gray shading indicates decrease in LOS from No-Build Condition below LOS E or LOS F.

Table 7-10. Build (2020) Condition Capacity Analysis Summary, Weekday p.m. Peak Hour

Intersection/Approach	LOS	Delay (s)	V/C Ratio	50th Percentile Queue (ft)	95th Percentile Queue (ft)
Signalized Intersections					
VFW Parkway/Charles Park Road	**D**	**47.9**	**-**	**-**	**-**
Charles Park Road eastbound left|left	E	69.6	0.63	77	101
Charles Park Road eastbound right	B	17.6	0.61	0	48
VFW Parkway northbound left	E	74.3	0.75	152	223
VFW Parkway northbound thru|thru	B	17.1	0.65	351	536
VFW Parkway southbound u-turn	E	59.3	0.49	97	152
VFW Parkway southbound thru|thru/right	E	72.4	0.77	436	#963
VFW Parkway/Gardner Street	**A**	**6.6**	**-**	**-**	**-**
Gardner Street eastbound right	A	0.1	0.03	0	0
Gardner Street westbound right	A	0.1	0.06	0	0
VFW Parkway northbound thru|thru	A	4.7	0.57	0	288
VFW Parkway southbound thru|thru/right	A	9.1	0.61	0	465
Unsignalized Intersections					
VFW Parkway/Home Depot Driveway	**-**	**-**	**-**	**-**	**-**
Home Depot Driveway eastbound right	D	26.6	0.42	-	49
VFW Parkway southbound thru|thru/right	A	0.0	0.64	-	0
Gardner Street/Charles Park Road/Rivermoor Street/Home Depot Driveway	-	-	-	-	-
Rivermoor Street eastbound left/thru/right	A	9.8	0.27	-	28
Home Depot Driveway westbound left/thru/right	A	9.2	0.23	-	23
Charles Park Road northbound left/thru/right	A	9.0	0.18	-	18
Gardner Street southbound left/thru/right	A	8.6	0.11	-	8
VFW Parkway/Site Driveway	**-**	**-**	**-**	**-**	**-**
VFW Parkway southbound thru|thru/right	A	0.0	0.69	-	0
Gardner Street/Site Driveway	**-**	**-**	**-**	**-**	**-**
Gardner Street eastbound left/thru	A	5.4	0.01	-	0
Site Driveway southbound left	A	8.7	0.02	-	1

~ = 50th percentile volume exceeds capacity, queue may be longer. Queue shown is the maximum after two cycles.

= 95th percentile volume exceeds capacity, queue may be longer. Queue shown is the maximum after two cycles.

Gray shading indicates decrease in LOS from No-Build Condition below LOS E or LOS F.

The signalized intersection of VFW Parkway/Charles Park Road will continue to operate at LOS C during the weekday a.m. peak hour and LOS d during the weekday p.m. peak hour under the Build Condition. The longest queues at the intersection will continue to occur in the VFW Parkway northbound thru|thru lane during the a.m. peak hour and the VFW southbound thru|thru/right-turn lane during the p.m. peak hour.

The signalized intersection of VFW Parkway/Gardner Street will continue to operate at LOS A during the weekday a.m. and p.m. peak hours under the Build Condition. The longest queues at the intersection will continue to occur at the VFW Parkway northbound approach during the a.m. peak hour and the VFW Parkway southbound approach during the p.m. peak hour.

At the unsignalized intersection of VFW Parkway/Home Depot Driveway, the VFW Parkway southbound approach will continue to operate at LOS A during the weekday a.m. and p.m. peak hours and the Home Depot Driveway eastbound approach will continue to operate at LOS C during the a.m. peak hour and decrease to LOS D during the p.m. peak hour. The longest queues at the intersection will continue to occur at the Home Depot Driveway eastbound approach during the a.m. and p.m. peak hours.

At the unsignalized intersection of Gardner Street/Charles Park Road/Rivermoor Street/Home Depot Driveway, all approaches will continue to operate at LOS A during the weekday a.m. and p.m. peak hours. The longest queues at the intersection will continue to occur at the Charles Park Road northbound approach during the a.m. peak hour and the Home Depot Driveway westbound approach during the p.m. peak hour.

7.5 Transportation Demand Management

The Proponent is committed to implementing Transportation Demand Management (TDM) measures to minimize automobile usage and Project related traffic impacts. TDM will be facilitated by the nature of the Project (which does not generate significant peak hour trips) and its proximity to numerous public transit alternatives.

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

The Proponent is prepared to take advantage of good transit access in marketing the site to future residents by working with them to implement the following TDM measures to encourage the use of non-vehicular modes of travel.

The TDM measures for the Project may include but are not limited to the following:

- Orientation Packets: The Proponent will provide orientation packets to new residents and tenants containing information on available transportation choices, including transit

routes/schedules and nearby vehicle sharing and bicycle sharing locations. On-site management will work with residents and tenants as they move in to help facilitate transportation for new arrivals.

- Provide an annual (or more frequent) newsletter or bulletin summarizing transit, ridesharing, bicycling, alternative work schedules, and other travel options.
- Transportation Coordinator: The Proponent will designate a transportation coordinator to oversee transportation issues, including parking, service and loading, and deliveries, and will work with residents as they move in to raise awareness of public transportation, bicycling, and walking opportunities.
- Provide information on travel alternatives for employees and visitors via the Internet and in the building lobby.
- Electric Vehicle Charging: The Proponent will explore the feasibility of providing electric vehicle charging station(s) within the garage.
- Vehicle Sharing Program: The Proponent will explore the feasibility of providing spaces in the garage for a car sharing service.

7.6 Transportation Mitigation Measures

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

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

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

7.7 Evaluation of Short-term Construction Impacts

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

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

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

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

8.0 COORDINATION WITH GOVERNMENTAL AGENCIES

8.1 Architectural Access Board Requirements

This 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 will not 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

The Project expects to exceed the 100,000 gross square feet size threshold requirement for review by the Boston Civic Design Commission.

8.4 Boston Parks Commission

As the Proposed Project is adjacent to the Veterans of Foreign Wars (VFW) Parkway, which is located within the Greenbelt Protection Overlay District (GPOD) as referenced in Article 29 of the Boston Zoning Code, review by the Boston Parks Commission will be required.

9.0 PROJECT CERTIFICATION

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

SOVAD LLC

Peter V. Davoo (MLF) — Signature of Proponent

10/26/15 — Date

Mitchell L. Fischman Consulting LLC

Signature of Preparer

10/26/15 — Date

Mitchell L. Fischman, Principal

APPENDIX A – LETTER OF INTENT TO FILE PNF, SEPTEMBER 24, 2015

SOVAD LLC
94 Grayfield Avenue
West Roxbury, MA 02132
SovadLLCWestRoxbury@Gmail.com

September 24, 2015

Mr. Brian Golden, Director
Boston Redevelopment Authority
One City Hall Plaza, 9th Floor
Boston, MA 02201
Attn: Mr. Christopher Tracy, Project Manager

Re: Letter of Intent to File Expanded Project Notification Form ("EPNF")
1235-1237 VFW Parkway & 165 Gardner Street, West Roxbury

Dear Director Golden:

SOVAD LLC (the "Proponent"), which currently has under contract the real property located at 1235-1237 VFW Parkway and 165 Gardner Street, West Roxbury, is writing to notify the Boston Redevelopment Authority (the "BRA") of its intent to file an Expanded Project Notification Form ("EPNF") with the BRA pursuant to Article 80B, Large Project Review requirements of the Boston Zoning Code (the "Code").

The Proposed Project seeks to revitalize an under-utilized and long-vacant property site along the VFW Parkway in West Roxbury with a four-story, 84-unit multi-family development of 108,661 gross square feet, including 126 on-site parking spaces and related improvements for landscaping, pedestrian and vehicular access and design (the "Proposed Project"). In furtherance of Mayor Martin J. Walsh's 2030 Housing Plan, the Proposed Project will also assist in addressing the shortage of market-rate and affordable housing units, while accommodating families with a majority of three- and two-bedrooms units (21 three-bedroom and 42 two bedroom units) in addition to 21 one bedroom units. 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 property site consists of approximately 1.8 acres (79,572 sf) of vacant land, with unimproved asphalt coverage and some existing tree cover. Formerly, an International House of Pancakes (IHOP) restaurant location, the site has remained vacant for years and

been unsuccessfully contemplated for various commercial developments in the past decade. It fronts on the VFW Parkway with sides along Gardner Street and the Home Depot West Roxbury Store (the "Project Site"). In support of the Proposed Project's residential use, the Project Site is a very short walk to the City's Millennium Park and very close to the Children's Happy Day School on Gardner Street. Please see **Figure 1. Project Locus.**

The Proposed Project will exceed the 50,000 square foot total build-out size requirement for a project located in a Boston neighborhood and therefore requires preparation of filing(s) under the Large Project Review regulations, pursuant to Article 80 of the Code. The proposed EPNF filing is expected to address many issues normally presented in a Draft Project Impact Report ("DPIR") including a transportation analysis, urban design and sustainability component, handicap and disability access, and 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.

The Project Site is located within the Route 1 Community Commercial (CC) sub-district of the West Roxbury Neighborhood District (Article 56 of the Code), which requires a Conditional Use Permit for the proposed multi-family residential use by the Boston Zoning Board of Appeal (ZBA). The Site and its proposed uses are also subject to review under Greenbelt Protection Overlay District (GPOD) (Article 29 of the Code), requiring the Proponent to submit plans to the City of Boston Parks Commission for review, and approval of a Conditional Use Permit from the ZBA. The determination of off-street parking and loading will be reviewed by the BRA as stipulated by Article 80. The Proposed Project is presently designed in conformance with the dimensional requirements of the Code.

In support of the required Article 80 Large Project Review process, SOVAD LLC has conducted, and will continue to conduct, community outreach with neighbors and abutters of the Site, including meetings and discussions with the elected representatives and officials from the area, and with the residents of the adjacent Gardner Street and Charles Park Road neighborhoods. The most recent meeting organized by SOVAD was a September 21, 2015 meeting at a local restaurant near to the Project Site to present plans and discuss the public review required by the BRA for the Proposed Project.

Finally, as a local developer and 32 year resident of West Roxbury, I am personally vested and excited about the potential of the Proposed Project in our community; our team looks forward to working with you, the BRA, members of the IAG, City leaders and the community towards a successful outcome.

Thank you for your time and leadership, and please do not hesitate to contact me or our team members if you have any questions regarding the Proposed Project.

Sincerely,

Peter Davos, Managing Director, SOVAD LLC

Attachment: **Figure 1. Project Locus –1235-1237 VFW Parkway**

cc: City Councilor O'Malley
State Senator Rush
State Representative Coppinger
Chris Rusk, Mayor's Office of Neighborhood Services
Heather Campisano, Boston Redevelopment Authority
Christopher Tracy, Project Manager
Joseph P. Hanley, Esq, McDermott, Quilty & Miller, LLP
Mitchell L. Fischman, MLF Consulting LLC

Figure 1
Project Locus

APPENDIX B – AIR QUALITY APPENDIX

APPENDIX B
AIR QUALITY

1236-1237 VFW PARKWAY
PROJECT NOTIFICATION FORM

MOVES2014 2015 and 2020 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: 2020

TOTAL EXIT VOLUME: 19 VEH/HOUR

CO RATE: 0.51 GRAMS CO/HR

VENT CFM: 25,875 CFM

TOTAL CO EMISSIONS = 0.16 GRAMS/MIN = 0.0027 GRAMS/SEC
TOTAL VENTILATION = 1,099 CU. M/MIN

PEAK 1-HOUR CO CONCENTRATION FROM VEHICLES: 0.13 PPM

****

PROJECT: VFW PARKWAY PARKING GARAGE PEAK PM HOUR - YEAR: 2020

TOTAL EXIT VOLUME: 23 VEH/HOUR

CO RATE: 0.51 GRAMS CO/HR

VENT CFM: 25,875 CFM

TOTAL CO EMISSIONS = 0.20 GRAMS/MIN = 0.0033 GRAMS/SEC
TOTAL VENTILATION = 1,099 CU. M/MIN

PEAK 1-HOUR CO CONCENTRATION FROM VEHICLES: 0.16 PPM

```
*** AERMOD - VERSION  14134 ***   *** 1235-1237 VFW Parkway                                                   ***        08/14/15
 *** AERMET - VERSION 13350  ***   *** Building Heating System and Parking Garage                              ***        16:45:52
                                                                                                                           PAGE   1
 **MODELOPTs:   NonDFAULT CONC      FLAT      NOCHKD    SCREEN    NODRYDPLT NOWETDPLT

                                          ***     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     2 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 Assumes No FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  CO

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

 **This Run Includes:      2 Source(s);       3 Source Group(s); and     405 Receptor(s)

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

 **The AERMET Input Meteorological Data Version Date: 13350

 **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 =      3.6 MB of RAM.

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

 **File for Summary of Results:   W:\Apps\aermod\4010\CO.SUM
 *** AERMOD - VERSION  14134 ***   *** 1235-1237 VFW Parkway                                                   ***        08/14/15
 *** AERMET - VERSION 13350  ***   *** Building Heating System and Parking Garage                              ***        16:45:52
                                                                                                                           PAGE   2
 **MODELOPTs:   NonDFAULT CONC      FLAT      NOCHKD    SCREEN    NODRYDPLT NOWETDPLT

                                          *** 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 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  14134 ***   *** 1235-1237 VFW Parkway                                                   ***        08/14/15
 *** AERMET - VERSION 13350  ***   *** Building Heating System and Parking Garage                              ***        16:45:52
                                                                                                                           PAGE   3
 **MODELOPTs:   NonDFAULT CONC      FLAT      NOCHKD    SCREEN    NODRYDPLT NOWETDPLT

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

```
  Surface file:   Urban.sfc                                                    Met Version: 13350
  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  14134 ***   *** 1235-1237 VFW Parkway                                          ***        08/14/15
 *** AERMET - VERSION 13350  ***   *** Building Heating System and Parking Garage                     ***        16:45:52
                                                                                                               PAGE   4
 **MODELOPTs:   NonDFAULT CONC      FLAT      NOCHKD    SCREEN    NODRYDPLT NOWETDPLT

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


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

                                                    DATE                                                                NETWORK
GROUP ID                          AVERAGE CONC     (YYMMDDHH)             RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)    OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH   1ST HIGH VALUE IS      17.50464  ON 10011206: AT (  320817.40,  4682890.20,     5.00,     5.00,    0.00)  DC

BUILDING HIGH   1ST HIGH VALUE IS      10.37519  ON 10011206: AT (  320817.40,  4682890.20,     5.00,     5.00,    0.00)  DC

GARAGE   HIGH   1ST HIGH VALUE IS       7.48716  ON 10011805: AT (  320844.40,  4682888.20,     5.00,     5.00,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION  14134 ***   *** 1235-1237 VFW Parkway                                          ***        08/14/15
 *** AERMET - VERSION 13350  ***   *** Building Heating System and Parking Garage                     ***        16:45:52
                                                                                                               PAGE   5
 **MODELOPTs:   NonDFAULT CONC      FLAT      NOCHKD    SCREEN    NODRYDPLT NOWETDPLT

 *** 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

1236-1237 VFW PARKWAY
PROJECT NOTIFICATION FORM

Page **Contents**

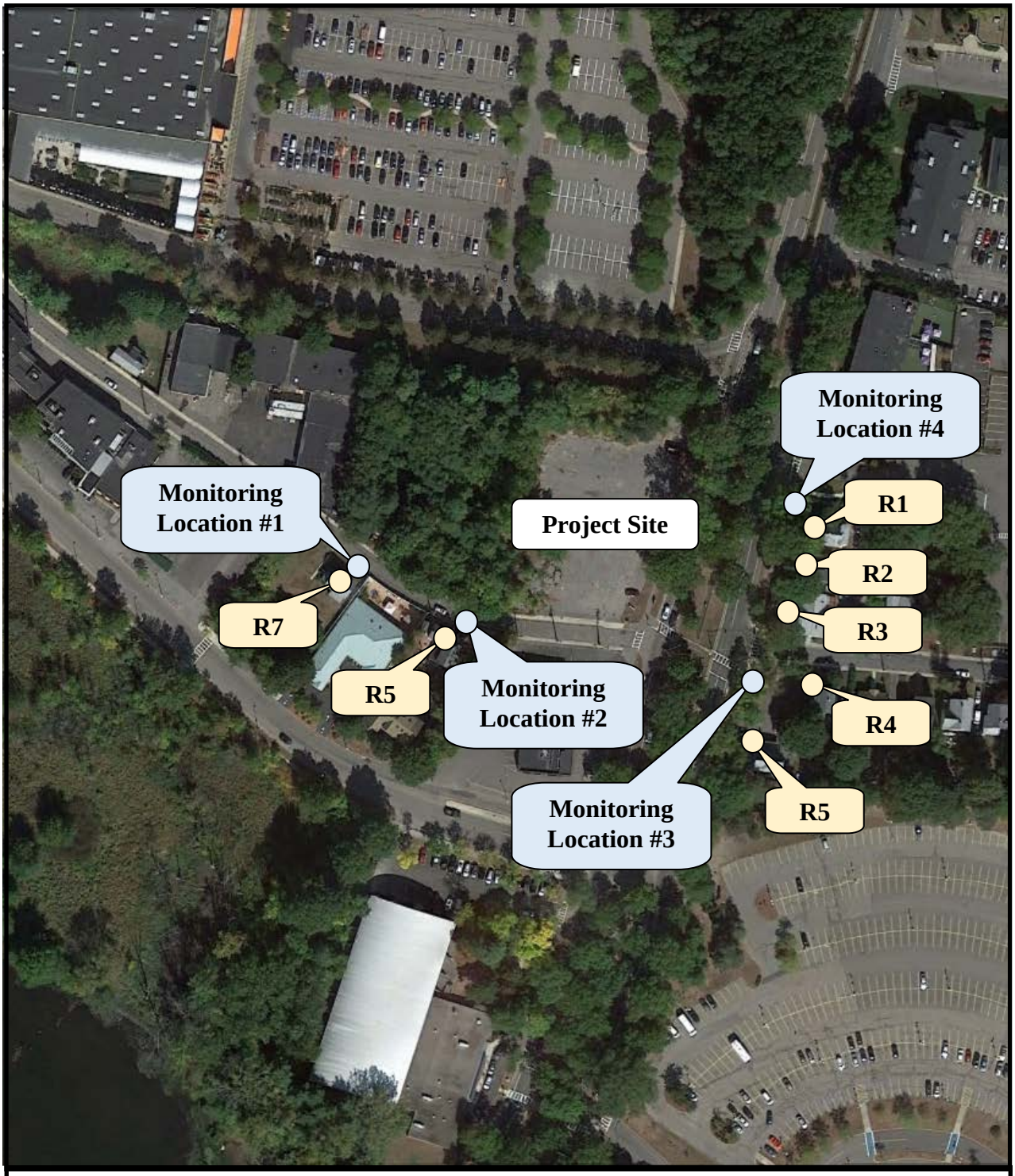

Figure 1

Sound Monitoring and Modeling Receptors
1236-1237 VFW Parkway

TECH environmental
FOCUSED KNOWLEDGE. REAL SOLUTIONS.

Sound Monitoring Results

Location #1: 178 Gardner Street

Frequency (Hz)	L_{90} (dBA)
Broadband	43.6
16	49.3
31.5	52.5
63	51.9
125	46.8
250	40.2
500	38.4
1000	37.8
2000	37.4
4000	25.4
8000	17.1
16000	12.2

Transportation Data Corporation
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VFW Parkway
north of Gardner Street
City, State: W. Roxbury, MA
Client: HSH/M. Littman

04581Avolume
Site Code: 2015063

Start	30-Jun-15	NB		Hour Totals		SB		Hour Totals		Combined Totals	
Time	Tue	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		36	308			34	276				
12:15		30	288			30	317				
12:30		14	276			18	309				
12:45		14	345	94	1217	14	320	96	1222	190	2439
01:00		16	260			14	309				
01:15		11	280			9	338				
01:30		9	273			5	296				
01:45		2	280	38	1093	13	345	41	1288	79	2381
02:00		7	288			9	358				
02:15		8	306			5	322				
02:30		2	290			10	365				
02:45		8	304	25	1188	20	348	44	1393	69	2581
03:00		10	322			8	402				
03:15		7	312			9	371				
03:30		8	286			5	336				
03:45		7	282	32	1202	12	308	34	1417	66	2619
04:00		8	293			4	369				
04:15		13	288			6	354				
04:30		20	300			20	354				
04:45		31	293	72	1174	22	325	52	1402	124	2576
05:00		44	286			22	314				
05:15		76	304			33	312				
05:30		118	294			39	360				
05:45		155	268	393	1152	50	364	144	1350	537	2502
06:00		206	285			62	332				
06:15		295	281			73	370				
06:30		316	268			123	354				
06:45		330	214	1147	1048	146	315	404	1371	1551	2419
07:00		340	256			159	280				
07:15		330	200			226	280				
07:30		306	170			281	234				
07:45		332	212	1308	838	272	213	938	1007	2246	1845
08:00		356	200			238	230				
08:15		308	189			253	188				
08:30		352	155			238	182				
08:45		336	173	1352	717	286	156	1015	756	2367	1473
09:00		334	161			254	153				
09:15		304	137			246	114				
09:30		334	138			253	126				
09:45		291	85	1263	521	204	95	957	488	2220	1009
10:00		278	105			240	101				
10:15		262	99			276	83				
10:30		254	78			257	54				
10:45		268	68	1062	350	277	64	1050	302	2112	652
11:00		276	36			258	65				
11:15		282	45			272	51				
11:30		290	34			290	68				
11:45		287	27	1135	142	274	50	1094	234	2229	376
Total		7921	10642			5869	12230			13790	22872
Percent		42.7%	57.3%			32.4%	67.6%			37.6%	62.4%
Combined Total		18563				18099				36662	

Total	7921	10642		5869	12230			13790	22872
Percent	42.7%	57.3%		32.4%	67.6%			37.6%	62.4%
Combined Total	18563			18099				36662	
ADT	ADT 36,662		AADT 36,662						

Sound Monitoring Results

Location #2: 164 Gardner Street

Frequency (Hz)	L_{90} (dBA)
Broadband	49.1
16	51.5
31.5	53.7
63	55.2
125	50.3
250	45.6
500	46.4
1000	44.1
2000	41.7
4000	32.2
8000	21.6
16000	13.2

Sound Monitoring Results

Location #3: 1240 VFW Parkway

Frequency (Hz)	
Broadband	46.0
16	52.0
31.5	54.1
63	54.5
125	50.0
250	44.9
500	41.5
1000	41.5
2000	37.9
4000	31.7
8000	19.9
16000	12.4

Sound Monitoring Results

Location #4: 3 Gardner Place

Frequency (Hz)	
Broadband	45.0
16	49.7
31.5	51.7
63	53.8
125	50.8
250	45.3
500	41.5
1000	39.7
2000	35.5
4000	28.8
8000	19.9
16000	13.0

Cadna Noise Modeling Results

Name	Night (dBA)	Octave Band Day 31 (dB)	63 (dB)	125 (dB)	250 (dB)	500 (dB)	1000 (dB)	2000 (dB)	4000 (dB)	8000 (dB)
178 Gardner Street (Elevated)	31.3	22.4	20.6	17.8	31.5	29.1	27.1	22.0	14.0	3.7
164 Gardner Street (Elevated)	36.4	23.8	22.8	21.4	35.9	34.1	32.6	27.3	18.4	7.4
1240 VFW Pkwy (Elevated)	34.6	18.3	17.7	16.6	32.1	31.5	31.2	26.8	17.6	2.2
130 Gardner Street (Elevated)	34.8	17.6	17.1	16.2	31.8	31.3	31.3	27.4	19.2	4.8
137 Gardner Street (Elevated)	35.1	18.5	17.8	17.0	32.4	31.8	31.5	27.5	19.3	6.5
1 Gardner Place (Elevated)	36.3	18.3	17.9	17.4	33.0	32.6	32.7	29.2	22.0	9.5
3 Gardner Place (Elevated)	37.0	18.3	18.0	17.6	33.3	33.1	33.3	30.1	22.5	9.9

APPENDIX D – TRANSPORTATION APPENDIX

Transportation Data Corporation

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N/S: VFW Parkway
W: Charles Park Road
City, State: W. Roxbury, MA
Client: HSH/M. Littman

File Name : 04581D
Site Code : 2015063
Start Date : 6/24/2015

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

	VFW Parkway From North			VFW Parkway From South			Charles Park Road From West			
Start Time	Right	Thru	Uturn	Thru	Left	Uturn	Right	Left	Peds	Int. Total
07:00 AM	5	126	29	346	40	1	12	10	2	571
07:15 AM	4	219	32	334	30	5	12	18	3	657
07:30 AM	8	235	31	294	47	1	27	19	14	676
07:45 AM	5	229	30	298	57	1	17	19	1	657
Total	22	809	122	1272	174	8	68	66	20	2561
08:00 AM	6	233	25	279	46	4	14	21	4	632
08:15 AM	5	220	21	313	44	0	22	28	2	655
08:30 AM	9	234	28	305	47	1	32	20	2	678
08:45 AM	12	234	30	312	38	2	19	25	1	673
Total	32	921	104	1209	175	7	87	94	9	2638
Grand Total	54	1730	226	2481	349	15	155	160	29	5199
Apprch %	2.7	86.1	11.2	87.2	12.3	0.5	45.1	46.5	8.4	
Total %	1	33.3	4.3	47.7	6.7	0.3	3	3.1	0.6	
Cars & Peds	52	1705	224	2458	339	14	135	137	29	5093
% Cars & Peds	96.3	98.6	99.1	99.1	97.1	93.3	87.1	85.6	100	98
Trucks & Buses	1	10	2	17	10	1	19	23	0	83
% Trucks & Buses	1.9	0.6	0.9	0.7	2.9	6.7	12.3	14.4	0	1.6
Bikes by Direction	1	15	0	6	0	0	1	0	0	23
% Bikes by Direction	1.9	0.9	0	0.2	0	0	0.6	0	0	0.4

	VFW Parkway From North				VFW Parkway From South				Charles Park Road From West				
Start Time	Right	Thru	Uturn	App. Total	Thru	Left	Uturn	App. Total	Right	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	6	233	25	264	279	46	**4**	329	14	21	**4**	39	632
08:15 AM	5	220	21	246	**313**	44	0	**357**	22	**28**	2	52	655
08:30 AM	9	**234**	28	271	305	**47**	1	353	**32**	20	2	**54**	**678**
08:45 AM	**12**	234	**30**	**276**	312	38	2	352	19	25	1	45	673
Total Volume	32	921	104	1057	1209	175	7	1391	87	94	9	190	2638
% App. Total	3	87.1	9.8		86.9	12.6	0.5		45.8	49.5	4.7		
PHF	.667	.984	.867	.957	.966	.931	.438	.974	.680	.839	.563	.880	.973
Cars & Peds	30	908	104	1042	1198	170	7	1375	77	85	9	171	2588
% Cars & Peds	93.8	98.6	100	98.6	99.1	97.1	100	98.8	88.5	90.4	100	90.0	98.1
Trucks & Buses	1	6	0	7	10	5	0	15	9	9	0	18	40
% Trucks & Buses	3.1	0.7	0	0.7	0.8	2.9	0	1.1	10.3	9.6	0	9.5	1.5
Bikes by Direction	1	7	0	8	1	0	0	1	1	0	0	1	10
% Bikes by Direction	3.1	0.8	0	0.8	0.1	0	0	0.1	1.1	0	0	0.5	0.4

Transportation Data Corporation

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N/S: VFW Parkway
W: Charles Park Road
City, State: W. Roxbury, MA
Client: HSH/M. Littman

File Name : 04581D
Site Code : 2015063
Start Date : 6/24/2015

Groups Printed- Cars & Peds

	VFW Parkway From North			VFW Parkway From South			Charles Park Road From West			
Start Time	Right	Thru	Uturn	Thru	Left	Uturn	Right	Left	Peds	Int. Total
07:00 AM	5	119	29	341	38	1	7	8	2	550
07:15 AM	4	217	31	331	29	4	11	11	3	641
07:30 AM	8	234	30	290	46	1	25	15	14	663
07:45 AM	5	227	30	298	56	1	15	18	1	651
Total	22	797	120	1260	169	7	58	52	20	2505
08:00 AM	6	230	25	277	45	4	13	18	4	622
08:15 AM	4	215	21	309	42	0	19	23	2	635
08:30 AM	9	231	28	304	46	1	27	20	2	668
08:45 AM	11	232	30	308	37	2	18	24	1	663
Total	30	908	104	1198	170	7	77	85	9	2588
Grand Total	52	1705	224	2458	339	14	135	137	29	5093
Apprch %	2.6	86.1	11.3	87.4	12.1	0.5	44.9	45.5	9.6	
Total %	1	33.5	4.4	48.3	6.7	0.3	2.7	2.7	0.6	

	VFW Parkway From North				VFW Parkway From South				Charles Park Road From West				
Start Time	Right	Thru	Uturn	App. Total	Thru	Left	Uturn	App. Total	Right	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	6	230	25	261	277	45	**4**	326	13	18	**4**	35	622
08:15 AM	4	215	21	240	**309**	42	0	**351**	19	23	2	44	635
08:30 AM	9	231	28	268	304	**46**	1	351	**27**	20	2	**49**	**668**
08:45 AM	**11**	**232**	**30**	**273**	308	37	2	347	18	**24**	1	43	663
Total Volume	30	908	104	1042	1198	170	7	1375	77	85	9	171	2588
% App. Total	2.9	87.1	10		87.1	12.4	0.5		45	49.7	5.3		
PHF	.682	.978	.867	.954	.969	.924	.438	.979	.713	.885	.563	.872	.969

Transportation Data Corporation

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N/S: VFW Parkway
W: Charles Park Road
City, State: W. Roxbury, MA
Client: HSH/M. Littman

File Name : 04581D
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Trucks & Buses

	VFW Parkway From North			VFW Parkway From South			Charles Park Road From West			
Start Time	Right	Thru	Uturn	Thru	Left	Uturn	Right	Left	Peds	Int. Total
07:00 AM	0	3	0	3	2	0	5	2	0	15
07:15 AM	0	0	1	1	1	1	1	7	0	12
07:30 AM	0	1	1	3	1	0	2	4	0	12
07:45 AM	0	0	0	0	1	0	2	1	0	4
Total	0	4	2	7	5	1	10	14	0	43
08:00 AM	0	1	0	2	1	0	1	3	0	8
08:15 AM	1	1	0	4	2	0	2	5	0	15
08:30 AM	0	2	0	0	1	0	5	0	0	8
08:45 AM	0	2	0	4	1	0	1	1	0	9
Total	1	6	0	10	5	0	9	9	0	40
Grand Total	1	10	2	17	10	1	19	23	0	83
Apprch %	7.7	76.9	15.4	60.7	35.7	3.6	45.2	54.8	0	
Total %	1.2	12	2.4	20.5	12	1.2	22.9	27.7	0	

	VFW Parkway From North				VFW Parkway From South				Charles Park Road From West				
Start Time	Right	Thru	Uturn	App. Total	Thru	Left	Uturn	App. Total	Right	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 07:00 AM													
07:00 AM	0	**3**	0	**3**	**3**	**2**	0	**5**	**5**	2	0	7	**15**
07:15 AM	0	0	**1**	1	1	1	**1**	3	1	**7**	0	**8**	12
07:30 AM	0	1	1	2	3	1	0	4	2	4	0	6	12
07:45 AM	0	0	0	0	0	1	0	1	2	1	0	3	4
Total Volume	0	4	2	6	7	5	1	13	10	14	0	24	43
% App. Total	0	66.7	33.3		53.8	38.5	7.7		41.7	58.3	0		
PHF	.000	.333	.500	.500	.583	.625	.250	.650	.500	.500	.000	.750	.717

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Client: HSH/M. Littman

File Name : 04581D
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Bikes by Direction

	VFW Parkway From North			VFW Parkway From South			Charles Park Road From West			
Start Time	Right	Thru	Uturn	Thru	Left	Uturn	Right	Left	Peds	Int. Total
07:00 AM	0	4	0	2	0	0	0	0	0	6
07:15 AM	0	2	0	2	0	0	0	0	0	4
07:30 AM	0	0	0	1	0	0	0	0	0	1
07:45 AM	0	2	0	0	0	0	0	0	0	2
Total	0	8	0	5	0	0	0	0	0	13
08:00 AM	0	2	0	0	0	0	0	0	0	2
08:15 AM	0	4	0	0	0	0	1	0	0	5
08:30 AM	0	1	0	1	0	0	0	0	0	2
08:45 AM	1	0	0	0	0	0	0	0	0	1
Total	1	7	0	1	0	0	1	0	0	10
Grand Total	1	15	0	6	0	0	1	0	0	23
Apprch %	6.2	93.8	0	100	0	0	100	0	0	
Total %	4.3	65.2	0	26.1	0	0	4.3	0	0	

	VFW Parkway From North				VFW Parkway From South				Charles Park Road From West				
Start Time	Right	Thru	Uturn	App. Total	Thru	Left	Uturn	App. Total	Right	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 07:00 AM													
07:00 AM	0	**4**	0	**4**	**2**	0	0	**2**	0	0	0	0	**6**
07:15 AM	0	2	0	2	2	0	0	2	0	0	0	0	4
07:30 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
07:45 AM	0	2	0	2	0	0	0	0	0	0	0	0	2
Total Volume	0	8	0	8	5	0	0	5	0	0	0	0	13
% App. Total	0	100	0		100	0	0		0	0	0		
PHF	.000	.500	.000	.500	.625	.000	.000	.625	.000	.000	.000	.000	.542

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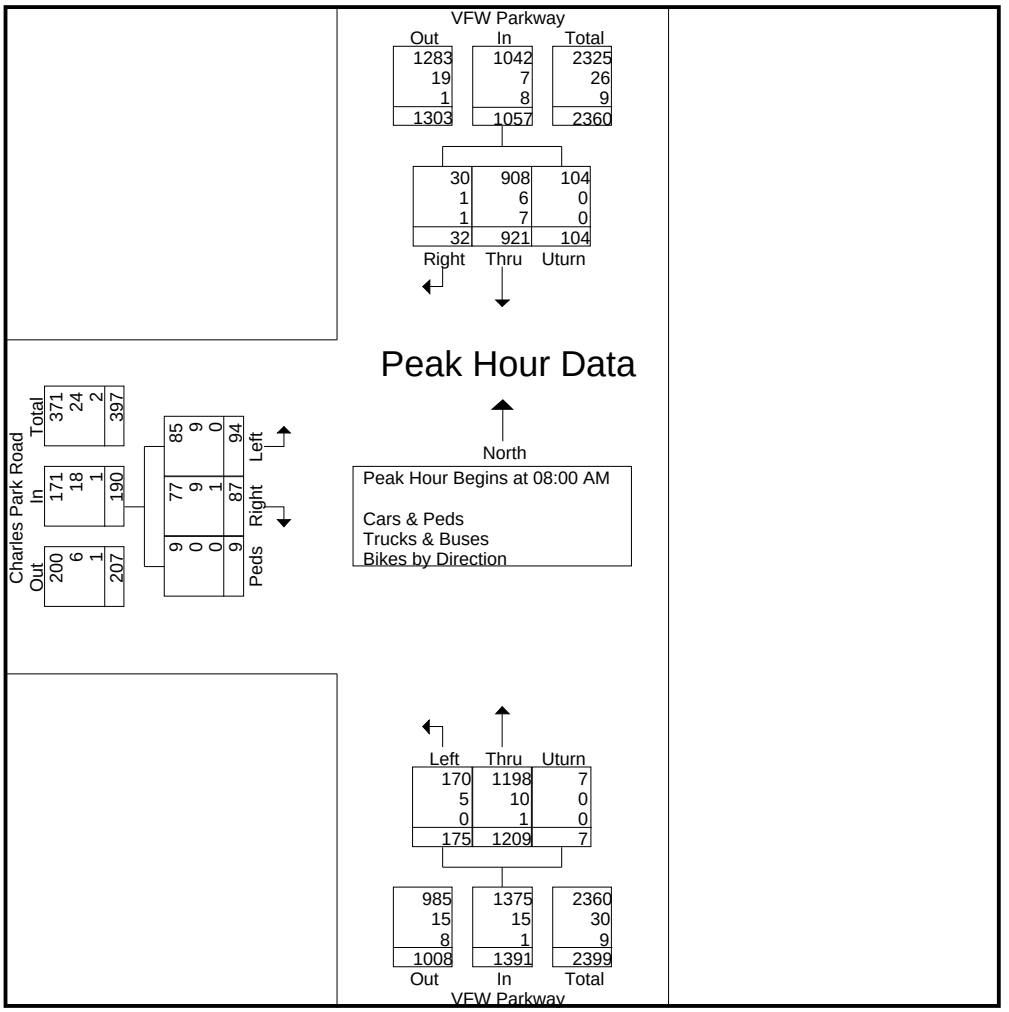
Client: HSH/M. Littman

File Name : 04581D
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

	VFW Parkway From North				VFW Parkway From South				Charles Park Road From West				
Start Time	Right	Thru	Uturn	App. Total	Thru	Left	Uturn	App. Total	Right	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	6	233	25	264	279	46	**4**	329	14	21	**4**	39	632
08:15 AM	5	220	21	246	**313**	44	0	**357**	22	**28**	2	52	655
08:30 AM	9	**234**	28	271	305	**47**	1	353	**32**	20	2	**54**	**678**
08:45 AM	**12**	234	**30**	**276**	312	38	2	352	19	25	1	45	673
Total Volume	32	921	104	1057	1209	175	7	1391	87	94	9	190	2638
% App. Total	3	87.1	9.8		86.9	12.6	0.5		45.8	49.5	4.7		
PHF	.667	.984	.867	.957	.966	.931	.438	.974	.680	.839	.563	.880	.973
Cars & Peds	30	908	104	1042	1198	170	7	1375	77	85	9	171	2588
% Cars & Peds	93.8	98.6	100	98.6	99.1	97.1	100	98.8	88.5	90.4	100	90.0	98.1
Trucks & Buses	1	6	0	7	10	5	0	15	9	9	0	18	40
% Trucks & Buses	3.1	0.7	0	0.7	0.8	2.9	0	1.1	10.3	9.6	0	9.5	1.5
Bikes by Direction	1	7	0	8	1	0	0	1	1	0	0	1	10
% Bikes by Direction	3.1	0.8	0	0.8	0.1	0	0	0.1	1.1	0	0	0.5	0.4



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N/S: VFW Parkway
W: Charles Park Road
City, State: W. Roxbury, MA
Client: HSH/M. Littman

File Name : 04581DD
Site Code : 2015063
Start Date : 6/24/2015

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

	VFW Parkway From North			VFW Parkway From South			Charles Park Road From West			
Start Time	Right	Thru	Uturn	Thru	Left	Uturn	Right	Left	Peds	Int. Total
04:00 PM	3	333	25	250	23	14	26	38	10	722
04:15 PM	1	339	20	244	28	16	24	27	1	700
04:30 PM	3	346	25	276	18	11	33	39	0	751
04:45 PM	3	359	28	275	23	8	30	25	4	755
Total	10	1377	98	1045	92	49	113	129	15	2928
05:00 PM	4	359	19	265	27	14	42	35	0	765
05:15 PM	13	362	17	272	22	6	25	30	0	747
05:30 PM	6	317	29	301	31	9	29	32	0	754
05:45 PM	7	333	26	293	30	3	17	15	0	724
Total	30	1371	91	1131	110	32	113	112	0	2990
Grand Total	40	2748	189	2176	202	81	226	241	15	5918
Apprch %	1.3	92.3	6.3	88.5	8.2	3.3	46.9	50	3.1	
Total %	0.7	46.4	3.2	36.8	3.4	1.4	3.8	4.1	0.3	
Cars & Peds	40	2737	188	2166	197	79	220	240	15	5882
% Cars & Peds	100	99.6	99.5	99.5	97.5	97.5	97.3	99.6	100	99.4
Trucks & Buses	0	6	0	0	4	2	6	1	0	19
% Trucks & Buses	0	0.2	0	0	2	2.5	2.7	0.4	0	0.3
Bikes by Direction	0	5	1	10	1	0	0	0	0	17
% Bikes by Direction	0	0.2	0.5	0.5	0.5	0	0	0	0	0.3

	VFW Parkway From North				VFW Parkway From South				Charles Park Road From West				
Start Time	Right	Thru	Uturn	App. Total	Thru	Left	Uturn	App. Total	Right	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	3	359	28	390	275	23	8	306	30	25	**4**	59	755
05:00 PM	4	359	19	382	265	27	**14**	306	**42**	**35**	0	**77**	**765**
05:15 PM	**13**	**362**	17	**392**	272	22	6	300	25	30	0	55	747
05:30 PM	6	317	**29**	352	**301**	**31**	9	**341**	29	32	0	61	754
Total Volume	26	1397	93	1516	1113	103	37	1253	126	122	4	252	3021
% App. Total	1.7	92.2	6.1		88.8	8.2	3		50	48.4	1.6		
PHF	.500	.965	.802	.967	.924	.831	.661	.919	.750	.871	.250	.818	.987
Cars & Peds	26	1392	92	1510	1106	101	36	1243	124	122	4	250	3003
% Cars & Peds	100	99.6	98.9	99.6	99.4	98.1	97.3	99.2	98.4	100	100	99.2	99.4
Trucks & Buses	0	2	0	2	0	2	1	3	2	0	0	2	7
% Trucks & Buses	0	0.1	0	0.1	0	1.9	2.7	0.2	1.6	0	0	0.8	0.2
Bikes by Direction	0	3	1	4	7	0	0	7	0	0	0	0	11
% Bikes by Direction	0	0.2	1.1	0.3	0.6	0	0	0.6	0	0	0	0	0.4

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Client: HSH/M. Littman

File Name : 04581DD
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Cars & Peds

	VFW Parkway From North			VFW Parkway From South			Charles Park Road From West			
Start Time	Right	Thru	Uturn	Thru	Left	Uturn	Right	Left	Peds	Int. Total
04:00 PM	3	331	25	249	23	14	25	38	10	718
04:15 PM	1	339	20	243	27	16	23	26	1	696
04:30 PM	3	343	25	275	17	11	31	39	0	744
04:45 PM	3	356	28	274	22	8	29	25	4	749
Total	10	1369	98	1041	89	49	108	128	15	2907
05:00 PM	4	359	19	264	26	13	41	35	0	761
05:15 PM	13	360	17	270	22	6	25	30	0	743
05:30 PM	6	317	28	298	31	9	29	32	0	750
05:45 PM	7	332	26	293	29	2	17	15	0	721
Total	30	1368	90	1125	108	30	112	112	0	2975
Grand Total	40	2737	188	2166	197	79	220	240	15	5882
Apprch %	1.3	92.3	6.3	88.7	8.1	3.2	46.3	50.5	3.2	
Total %	0.7	46.5	3.2	36.8	3.3	1.3	3.7	4.1	0.3	

	VFW Parkway From North				VFW Parkway From South				Charles Park Road From West				
Start Time	Right	Thru	Uturn	App. Total	Thru	Left	Uturn	App. Total	Right	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	3	356	**28**	387	274	22	8	304	29	25	**4**	58	749
05:00 PM	4	359	19	382	264	26	**13**	303	**41**	**35**	0	**76**	**761**
05:15 PM	**13**	**360**	17	**390**	270	22	6	298	25	30	0	55	743
05:30 PM	6	317	28	351	**298**	**31**	9	**338**	29	32	0	61	750
Total Volume	26	1392	92	1510	1106	101	36	1243	124	122	4	250	3003
% App. Total	1.7	92.2	6.1		89	8.1	2.9		49.6	48.8	1.6		
PHF	.500	.967	.821	.968	.928	.815	.692	.919	.756	.871	.250	.822	.987

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Client: HSH/M. Littman

File Name : 04581DD
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Trucks & Buses

	VFW Parkway From North			VFW Parkway From South			Charles Park Road From West			
Start Time	Right	Thru	Uturn	Thru	Left	Uturn	Right	Left	Peds	Int. Total
04:00 PM	0	1	0	0	0	0	1	0	0	2
04:15 PM	0	0	0	0	0	0	1	1	0	2
04:30 PM	0	2	0	0	1	0	2	0	0	5
04:45 PM	0	1	0	0	1	0	1	0	0	3
Total	0	4	0	0	2	0	5	1	0	12
05:00 PM	0	0	0	0	1	1	1	0	0	3
05:15 PM	0	1	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	0	1	1	0	0	0	3
Total	0	2	0	0	2	2	1	0	0	7
Grand Total	0	6	0	0	4	2	6	1	0	19
Apprch %	0	100	0	0	66.7	33.3	85.7	14.3	0	
Total %	0	31.6	0	0	21.1	10.5	31.6	5.3	0	

	VFW Parkway From North				VFW Parkway From South				Charles Park Road From West				
Start Time	Right	Thru	Uturn	App. Total	Thru	Left	Uturn	App. Total	Right	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	0	0	0	0	0	0	0	1	**1**	0	**2**	2
04:30 PM	0	**2**	0	**2**	0	**1**	0	1	**2**	0	0	2	**5**
04:45 PM	0	1	0	1	0	1	0	1	1	0	0	1	3
05:00 PM	0	0	0	0	0	1	**1**	**2**	1	0	0	1	3
Total Volume	0	3	0	3	0	3	1	4	5	1	0	6	13
% App. Total	0	100	0		0	75	25		83.3	16.7	0		
PHF	.000	.375	.000	.375	.000	.750	.250	.500	.625	.250	.000	.750	.650

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File Name : 04581DD
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Bikes by Direction

	VFW Parkway From North			VFW Parkway From South			Charles Park Road From West			
Start Time	Right	Thru	Uturn	Thru	Left	Uturn	Right	Left	Peds	Int. Total
04:00 PM	0	1	0	1	0	0	0	0	0	2
04:15 PM	0	0	0	1	1	0	0	0	0	2
04:30 PM	0	1	0	1	0	0	0	0	0	2
04:45 PM	0	2	0	1	0	0	0	0	0	3
Total	0	4	0	4	1	0	0	0	0	9
05:00 PM	0	0	0	1	0	0	0	0	0	1
05:15 PM	0	1	0	2	0	0	0	0	0	3
05:30 PM	0	0	1	3	0	0	0	0	0	4
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	6	0	0	0	0	0	8
Grand Total	0	5	1	10	1	0	0	0	0	17
Apprch %	0	83.3	16.7	90.9	9.1	0	0	0	0	
Total %	0	29.4	5.9	58.8	5.9	0	0	0	0	

	VFW Parkway From North				VFW Parkway From South				Charles Park Road From West				
Start Time	Right	Thru	Uturn	App. Total	Thru	Left	Uturn	App. Total	Right	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	**2**	0	**2**	1	0	0	1	0	0	0	0	3
05:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
05:15 PM	0	1	0	1	2	0	0	2	0	0	0	0	3
05:30 PM	0	0	**1**	1	**3**	0	0	**3**	0	0	0	0	**4**
Total Volume	0	3	1	4	7	0	0	7	0	0	0	0	11
% App. Total	0	75	25		100	0	0		0	0	0		
PHF	.000	.375	.250	.500	.583	.000	.000	.583	.000	.000	.000	.000	.688

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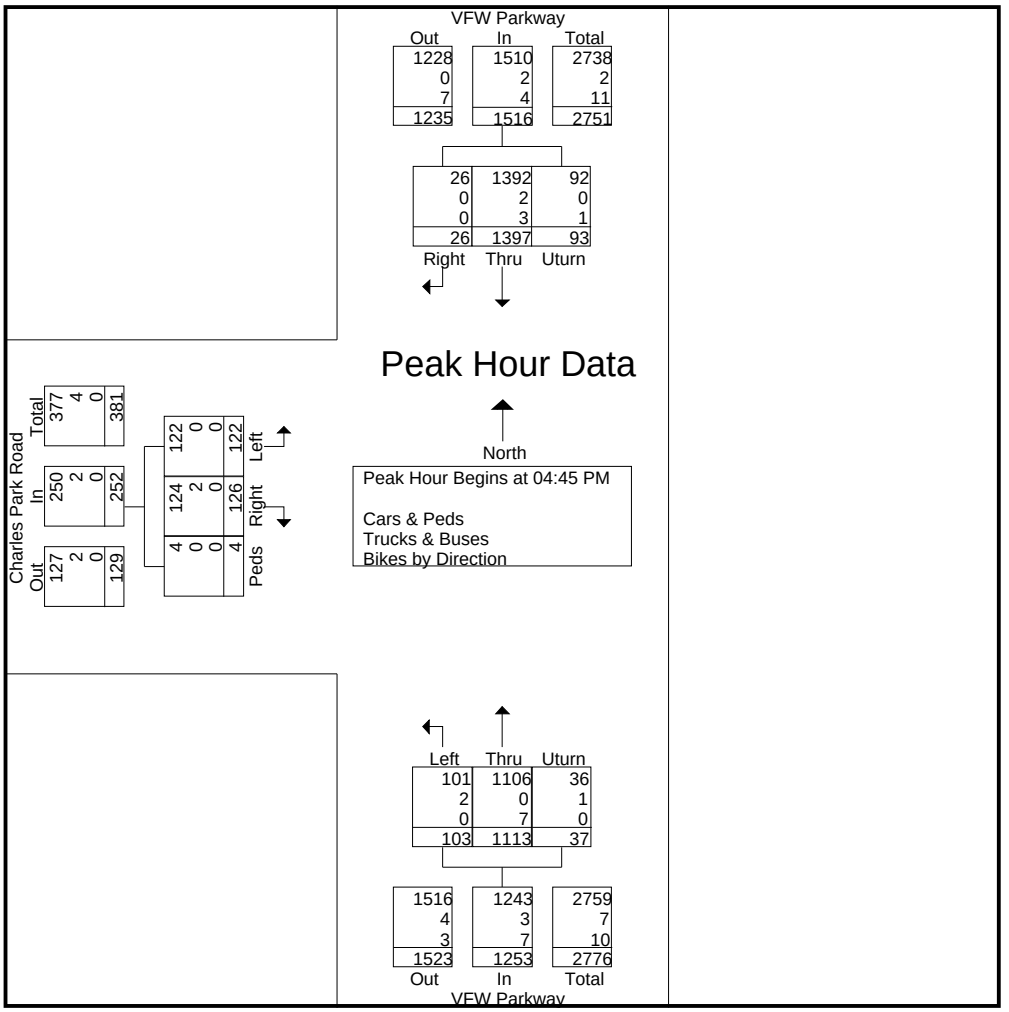
File Name : 04581DD
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

	VFW Parkway From North				VFW Parkway From South				Charles Park Road From West				
Start Time	Right	Thru	Uturn	App. Total	Thru	Left	Uturn	App. Total	Right	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	3	359	28	390	275	23	8	306	30	25	**4**	59	755
05:00 PM	4	359	19	382	265	27	**14**	306	**42**	**35**	0	**77**	**765**
05:15 PM	**13**	**362**	17	**392**	272	22	6	300	25	30	0	55	747
05:30 PM	6	317	**29**	352	**301**	**31**	9	**341**	29	32	0	61	754
Total Volume	26	1397	93	1516	1113	103	37	1253	126	122	4	252	3021
% App. Total	1.7	92.2	6.1		88.8	8.2	3		50	48.4	1.6		
PHF	.500	.965	.802	.967	.924	.831	.661	.919	.750	.871	.250	.818	.987
Cars & Peds	26	1392	92	1510	1106	101	36	1243	124	122	4	250	3003
% Cars & Peds	100	99.6	98.9	99.6	99.4	98.1	97.3	99.2	98.4	100	100	99.2	99.4
Trucks & Buses	0	2	0	2	0	2	1	3	2	0	0	2	7
% Trucks & Buses	0	0.1	0	0.1	0	1.9	2.7	0.2	1.6	0	0	0.8	0.2
Bikes by Direction	0	3	1	4	7	0	0	7	0	0	0	0	11
% Bikes by Direction	0	0.2	1.1	0.3	0.6	0	0	0.6	0	0	0	0	0.4



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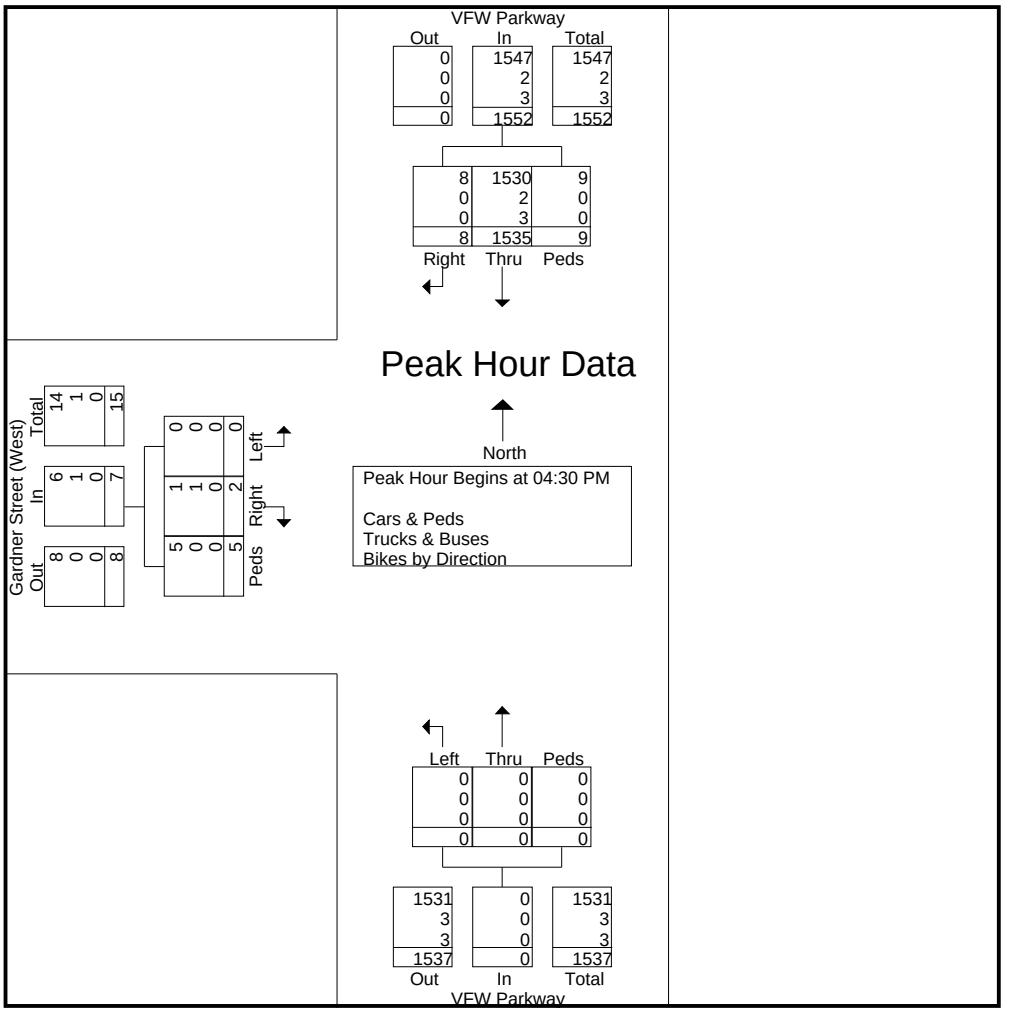
City, State: W. Roxbury, MA
Client: HSH/M. Littman

File Name : 04581CC
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

	VFW Parkway From North				VFW Parkway From South				Gardner Street (West) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	1	372	2	375	0	0	0	0	**1**	0	1	2	377
04:45 PM	**3**	392	2	**397**	0	0	0	0	0	0	1	1	398
05:00 PM	3	378	**3**	384	0	0	0	0	0	0	0	0	384
05:15 PM	1	**393**	2	396	0	0	0	0	1	0	**3**	**4**	**400**
Total Volume	8	1535	9	1552	0	0	0	0	2	0	5	7	1559
% App. Total	0.5	98.9	0.6		0	0	0		28.6	0	71.4		
PHF	.667	.976	.750	.977	.000	.000	.000	.000	.500	.000	.417	.438	.974
Cars & Peds	8	1530	9	1547	0	0	0	0	1	0	5	6	1553
% Cars & Peds	100	99.7	100	99.7	0	0	0	0	50.0	0	100	85.7	99.6
Trucks & Buses	0	2	0	2	0	0	0	0	1	0	0	1	3
% Trucks & Buses	0	0.1	0	0.1	0	0	0	0	50.0	0	0	14.3	0.2
Bikes by Direction	0	3	0	3	0	0	0	0	0	0	0	0	3
% Bikes by Direction	0	0.2	0	0.2	0	0	0	0	0	0	0	0	0.2



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Client: HSH/M. Littman

File Name : 04581CC
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Bikes by Direction

	VFW Parkway From North			VFW Parkway From South			Gardner Street (West) From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	0	1	0	1	0	0	0	0	0	2
04:15 PM	0	1	0	0	0	0	0	0	0	1
04:30 PM	0	1	0	0	0	0	0	0	0	1
04:45 PM	0	1	0	0	0	0	0	0	0	1
Total	0	4	0	1	0	0	0	0	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	0	0	1
05:30 PM	0	1	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	0	0	0	0	0	2
Grand Total	0	6	0	1	0	0	0	0	0	7
Apprch %	0	100	0	100	0	0	0	0	0	
Total %	0	85.7	0	14.3	0	0	0	0	0	

	VFW Parkway From North				VFW Parkway From South				Gardner Street (West) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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 04:00 PM													
04:00 PM	0	**1**	0	**1**	**1**	0	0	**1**	0	0	0	0	**2**
04:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
04:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
04:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	4	0	4	1	0	0	1	0	0	0	0	5
% App. Total	0	100	0		100	0	0		0	0	0		
PHF	.000	1.000	.000	1.000	.250	.000	.000	.250	.000	.000	.000	.000	.625

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Client: HSH/M. Littman

File Name : 04581CC
Site Code : 2015063
Start Date : 6/24/2015

Groups Printed- Trucks & Buses

	VFW Parkway From North			VFW Parkway From South			Gardner Street (West) From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	0	1	0	0	0	0	0	0	0	1
04:15 PM	0	1	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	1	0	0	1
04:45 PM	0	1	0	0	0	0	0	0	0	1
Total	0	3	0	0	0	0	1	0	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	0	0	0	0	0	0	1
Total	0	2	0	0	0	0	0	0	0	2
Grand Total	0	5	0	0	0	0	1	0	0	6
Apprch %	0	100	0	0	0	0	100	0	0	
Total %	0	83.3	0	0	0	0	16.7	0	0	

	VFW Parkway From North				VFW Parkway From South				Gardner Street (West) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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 04:00 PM													
04:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	**1**
04:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	**1**	0	0	**1**	1
04:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	3	0	3	0	0	0	0	1	0	0	1	4
% App. Total	0	100	0		0	0	0		100	0	0		
PHF	.000	.750	.000	.750	.000	.000	.000	.000	.250	.000	.000	.250	1.000

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Client: HSH/M. Littman

File Name : 04581CC
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Cars & Peds

	VFW Parkway From North			VFW Parkway From South			Gardner Street (West) From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	1	357	1	0	0	0	2	0	0	361
04:15 PM	1	362	0	0	0	0	0	0	0	363
04:30 PM	1	371	2	0	0	0	0	0	1	375
04:45 PM	3	390	2	0	0	0	0	0	1	396
Total	6	1480	5	0	0	0	2	0	2	1495
05:00 PM	3	378	3	0	0	0	0	0	0	384
05:15 PM	1	391	2	0	0	0	1	0	3	398
05:30 PM	5	354	2	0	0	0	2	0	2	365
05:45 PM	2	360	0	0	0	0	2	0	0	364
Total	11	1483	7	0	0	0	5	0	5	1511
Grand Total	17	2963	12	0	0	0	7	0	7	3006
Apprch %	0.6	99	0.4	0	0	0	50	0	50	
Total %	0.6	98.6	0.4	0	0	0	0.2	0	0.2	

	VFW Parkway From North				VFW Parkway From South				Gardner Street (West) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	1	371	2	374	0	0	0	0	0	0	1	1	375
04:45 PM	**3**	390	2	**395**	0	0	0	0	0	0	1	1	396
05:00 PM	3	378	**3**	384	0	0	0	0	0	0	0	0	384
05:15 PM	1	**391**	2	394	0	0	0	0	**1**	0	**3**	**4**	**398**
Total Volume	8	1530	9	1547	0	0	0	0	1	0	5	6	1553
% App. Total	0.5	98.9	0.6		0	0	0		16.7	0	83.3		
PHF	.667	.978	.750	.979	.000	.000	.000	.000	.250	.000	.417	.375	.976

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N/S: VFW Parkway
W: Gardner Street (West)
City, State: W. Roxbury, MA
Client: HSH/M. Littman

File Name : 04581CC
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

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

	VFW Parkway From North			VFW Parkway From South			Gardner Street (West) From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	1	359	1	1	0	0	2	0	0	364
04:15 PM	1	364	0	0	0	0	0	0	0	365
04:30 PM	1	372	2	0	0	0	1	0	1	377
04:45 PM	3	392	2	0	0	0	0	0	1	398
Total	6	1487	5	1	0	0	3	0	2	1504
05:00 PM	3	378	3	0	0	0	0	0	0	384
05:15 PM	1	393	2	0	0	0	1	0	3	400
05:30 PM	5	355	2	0	0	0	2	0	2	366
05:45 PM	2	361	0	0	0	0	2	0	0	365
Total	11	1487	7	0	0	0	5	0	5	1515
Grand Total	17	2974	12	1	0	0	8	0	7	3019
Apprch %	0.6	99	0.4	100	0	0	53.3	0	46.7	
Total %	0.6	98.5	0.4	0	0	0	0.3	0	0.2	
Cars & Peds	17	2963	12	0	0	0	7	0	7	3006
% Cars & Peds	100	99.6	100	0	0	0	87.5	0	100	99.6
Trucks & Buses	0	5	0	0	0	0	1	0	0	6
% Trucks & Buses	0	0.2	0	0	0	0	12.5	0	0	0.2
Bikes by Direction	0	6	0	1	0	0	0	0	0	7
% Bikes by Direction	0	0.2	0	100	0	0	0	0	0	0.2

	VFW Parkway From North				VFW Parkway From South				Gardner Street (West) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	1	372	2	375	0	0	0	0	**1**	0	1	2	377
04:45 PM	**3**	392	2	**397**	0	0	0	0	0	0	1	1	398
05:00 PM	3	378	**3**	384	0	0	0	0	0	0	0	0	384
05:15 PM	1	**393**	2	396	0	0	0	0	1	0	**3**	**4**	**400**
Total Volume	8	1535	9	1552	0	0	0	0	2	0	5	7	1559
% App. Total	0.5	98.9	0.6		0	0	0		28.6	0	71.4		
PHF	.667	.976	.750	.977	.000	.000	.000	.000	.500	.000	.417	.438	.974
Cars & Peds	8	1530	9	1547	0	0	0	0	1	0	5	6	1553
% Cars & Peds	100	99.7	100	99.7	0	0	0	0	50.0	0	100	85.7	99.6
Trucks & Buses	0	2	0	2	0	0	0	0	1	0	0	1	3
% Trucks & Buses	0	0.1	0	0.1	0	0	0	0	50.0	0	0	14.3	0.2
Bikes by Direction	0	3	0	3	0	0	0	0	0	0	0	0	3
% Bikes by Direction	0	0.2	0	0.2	0	0	0	0	0	0	0	0	0.2

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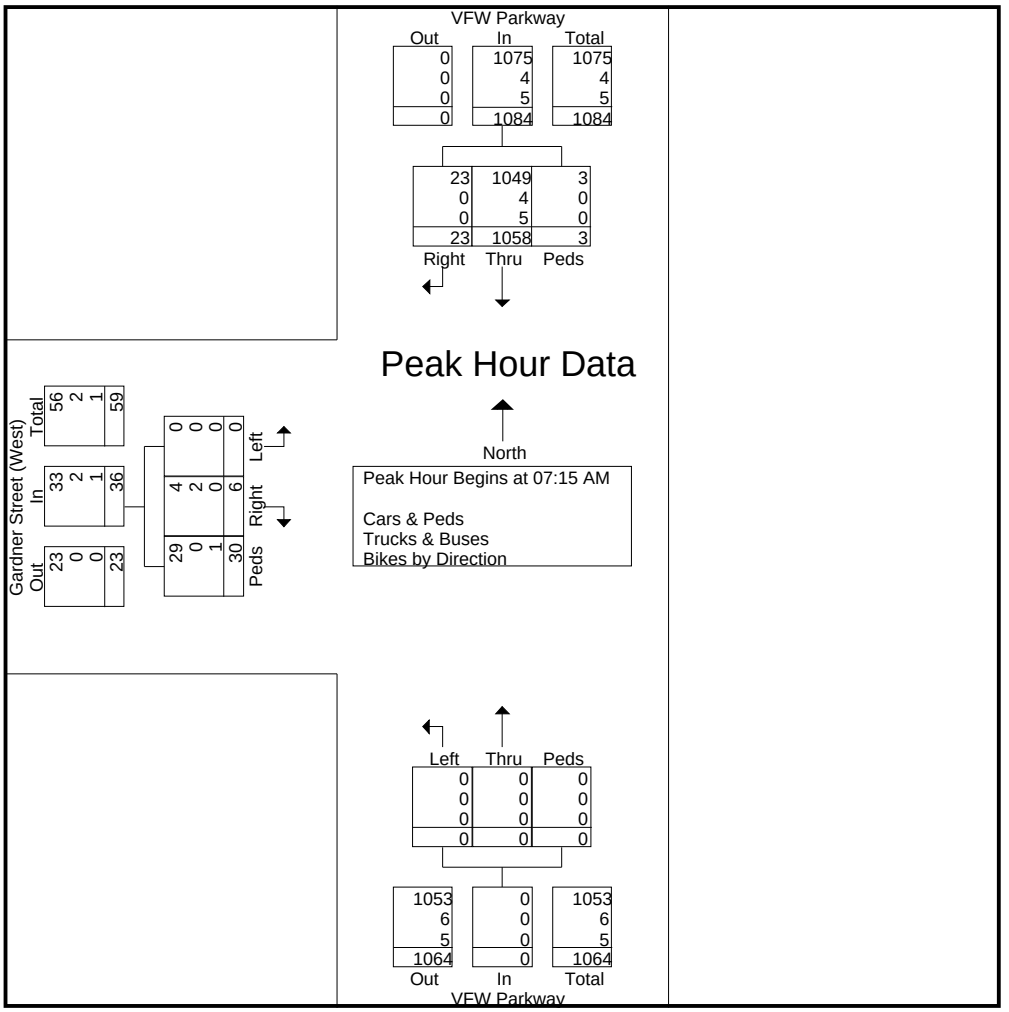
Client: HSH/M. Littman

File Name : 04581C
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

	VFW Parkway From North				VFW Parkway From South				Gardner Street (West) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	4	251	0	255	0	0	0	0	0	0	0	0	255
07:30 AM	4	265	**1**	270	0	0	0	0	**3**	0	**20**	**23**	293
07:45 AM	7	263	1	271	0	0	0	0	3	0	2	5	276
08:00 AM	**8**	**279**	1	**288**	0	0	0	0	0	0	8	8	**296**
Total Volume	23	1058	3	1084	0	0	0	0	6	0	30	36	1120
% App. Total	2.1	97.6	0.3		0	0	0		16.7	0	83.3		
PHF	.719	.948	.750	.941	.000	.000	.000	.000	.500	.000	.375	.391	.946
Cars & Peds	23	1049	3	1075	0	0	0	0	4	0	29	33	1108
% Cars & Peds	100	99.1	100	99.2	0	0	0	0	66.7	0	96.7	91.7	98.9
Trucks & Buses	0	4	0	4	0	0	0	0	2	0	0	2	6
% Trucks & Buses	0	0.4	0	0.4	0	0	0	0	33.3	0	0	5.6	0.5
Bikes by Direction	0	5	0	5	0	0	0	0	0	0	1	1	6
% Bikes by Direction	0	0.5	0	0.5	0	0	0	0	0	0	3.3	2.8	0.5



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File Name : 04581C
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Bikes by Direction

	VFW Parkway From North			VFW Parkway From South			Gardner Street (West) From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	0	4	0	0	0	0	0	0	0	4
07:15 AM	0	2	0	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	1	0	0	0	0	0	0	1	2
Total	0	7	0	0	0	0	0	0	1	8
08:00 AM	0	2	0	0	0	0	0	0	0	2
08:15 AM	0	4	0	0	0	0	0	0	0	4
08:30 AM	0	1	0	0	0	0	0	0	0	1
08:45 AM	0	1	0	0	0	0	0	0	0	1
Total	0	8	0	0	0	0	0	0	0	8
Grand Total	0	15	0	0	0	0	0	0	1	16
Apprch %	0	100	0	0	0	0	0	0	100	
Total %	0	93.8	0	0	0	0	0	0	6.2	

	VFW Parkway From North				VFW Parkway From South				Gardner Street (West) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	1	0	1	0	0	0	0	0	0	**1**	**1**	2
08:00 AM	0	2	0	2	0	0	0	0	0	0	0	0	2
08:15 AM	0	**4**	0	**4**	0	0	0	0	0	0	0	0	**4**
08:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	8	0	8	0	0	0	0	0	0	1	1	9
% App. Total	0	100	0		0	0	0		0	0	100		
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.250	.250	.563

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Client: HSH/M. Littman

File Name : 04581C
Site Code : 2015063
Start Date : 6/24/2015

Groups Printed- Trucks & Buses

	VFW Parkway From North			VFW Parkway From South			Gardner Street (West) From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	0	3	0	0	0	0	0	0	0	3
07:15 AM	0	2	0	0	0	0	0	0	0	2
07:30 AM	0	1	0	0	0	0	2	0	0	3
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	6	0	0	0	0	2	0	0	8
08:00 AM	0	1	0	0	0	0	0	0	0	1
08:15 AM	0	2	0	0	0	0	0	0	0	2
08:30 AM	0	2	0	0	0	0	0	0	0	2
08:45 AM	0	2	0	0	0	0	0	0	0	2
Total	0	7	0	0	0	0	0	0	0	7
Grand Total	0	13	0	0	0	0	2	0	0	15
Apprch %	0	100	0	0	0	0	100	0	0	
Total %	0	86.7	0	0	0	0	13.3	0	0	

	VFW Parkway From North				VFW Parkway From South				Gardner Street (West) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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 07:00 AM													
07:00 AM	0	**3**	0	**3**	0	0	0	0	0	0	0	0	**3**
07:15 AM	0	2	0	2	0	0	0	0	0	0	0	0	2
07:30 AM	0	1	0	1	0	0	0	0	**2**	0	0	**2**	3
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	6	0	6	0	0	0	0	2	0	0	2	8
% App. Total	0	100	0		0	0	0		100	0	0		
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.250	.000	.000	.250	.667

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Client: HSH/M. Littman

File Name : 04581C
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Cars & Peds

	VFW Parkway From North			VFW Parkway From South			Gardner Street (West) From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	2	156	2	0	0	0	1	0	5	166
07:15 AM	4	247	0	0	0	0	0	0	0	251
07:30 AM	4	264	1	0	0	0	1	0	20	290
07:45 AM	7	262	1	0	0	0	3	0	1	274
Total	17	929	4	0	0	0	5	0	26	981
08:00 AM	8	276	1	0	0	0	0	0	8	293
08:15 AM	3	231	4	0	0	0	2	0	4	244
08:30 AM	1	277	3	0	0	0	1	0	6	288
08:45 AM	3	261	1	0	0	0	2	0	0	267
Total	15	1045	9	0	0	0	5	0	18	1092
Grand Total	32	1974	13	0	0	0	10	0	44	2073
Apprch %	1.6	97.8	0.6	0	0	0	18.5	0	81.5	
Total %	1.5	95.2	0.6	0	0	0	0.5	0	2.1	

	VFW Parkway From North				VFW Parkway From South				Gardner Street (West) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	4	247	0	251	0	0	0	0	0	0	0	0	251
07:30 AM	4	264	**1**	269	0	0	0	0	1	0	**20**	**21**	290
07:45 AM	7	262	1	270	0	0	0	0	**3**	0	1	4	274
08:00 AM	**8**	**276**	1	**285**	0	0	0	0	0	0	8	8	**293**
Total Volume	23	1049	3	1075	0	0	0	0	4	0	29	33	1108
% App. Total	2.1	97.6	0.3		0	0	0		12.1	0	87.9		
PHF	.719	.950	.750	.943	.000	.000	.000	.000	.333	.000	.363	.393	.945

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Client: HSH/M. Littman

File Name : 04581C
Site Code : 2015063
Start Date : 6/24/2015

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

	VFW Parkway From North			VFW Parkway From South			Gardner Street (West) From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	2	163	2	0	0	0	1	0	5	173
07:15 AM	4	251	0	0	0	0	0	0	0	255
07:30 AM	4	265	1	0	0	0	3	0	20	293
07:45 AM	7	263	1	0	0	0	3	0	2	276
Total	17	942	4	0	0	0	7	0	27	997
08:00 AM	8	279	1	0	0	0	0	0	8	296
08:15 AM	3	237	4	0	0	0	2	0	4	250
08:30 AM	1	280	3	0	0	0	1	0	6	291
08:45 AM	3	264	1	0	0	0	2	0	0	270
Total	15	1060	9	0	0	0	5	0	18	1107
Grand Total	32	2002	13	0	0	0	12	0	45	2104
Apprch %	1.6	97.8	0.6	0	0	0	21.1	0	78.9	
Total %	1.5	95.2	0.6	0	0	0	0.6	0	2.1	
Cars & Peds	32	1974	13	0	0	0	10	0	44	2073
% Cars & Peds	100	98.6	100	0	0	0	83.3	0	97.8	98.5
Trucks & Buses	0	13	0	0	0	0	2	0	0	15
% Trucks & Buses	0	0.6	0	0	0	0	16.7	0	0	0.7
Bikes by Direction	0	15	0	0	0	0	0	0	1	16
% Bikes by Direction	0	0.7	0	0	0	0	0	0	2.2	0.8

	VFW Parkway From North				VFW Parkway From South				Gardner Street (West) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	4	251	0	255	0	0	0	0	0	0	0	0	255
07:30 AM	4	265	**1**	270	0	0	0	0	**3**	0	**20**	**23**	293
07:45 AM	7	263	1	271	0	0	0	0	3	0	2	5	276
08:00 AM	**8**	**279**	1	**288**	0	0	0	0	0	0	8	8	**296**
Total Volume	23	1058	3	1084	0	0	0	0	6	0	30	36	1120
% App. Total	2.1	97.6	0.3		0	0	0		16.7	0	83.3		
PHF	.719	.948	.750	.941	.000	.000	.000	.000	.500	.000	.375	.391	.946
Cars & Peds	23	1049	3	1075	0	0	0	0	4	0	29	33	1108
% Cars & Peds	100	99.1	100	99.2	0	0	0	0	66.7	0	96.7	91.7	98.9
Trucks & Buses	0	4	0	4	0	0	0	0	2	0	0	2	6
% Trucks & Buses	0	0.4	0	0.4	0	0	0	0	33.3	0	0	5.6	0.5
Bikes by Direction	0	5	0	5	0	0	0	0	0	0	1	1	6
% Bikes by Direction	0	0.5	0	0.5	0	0	0	0	0	0	3.3	2.8	0.5

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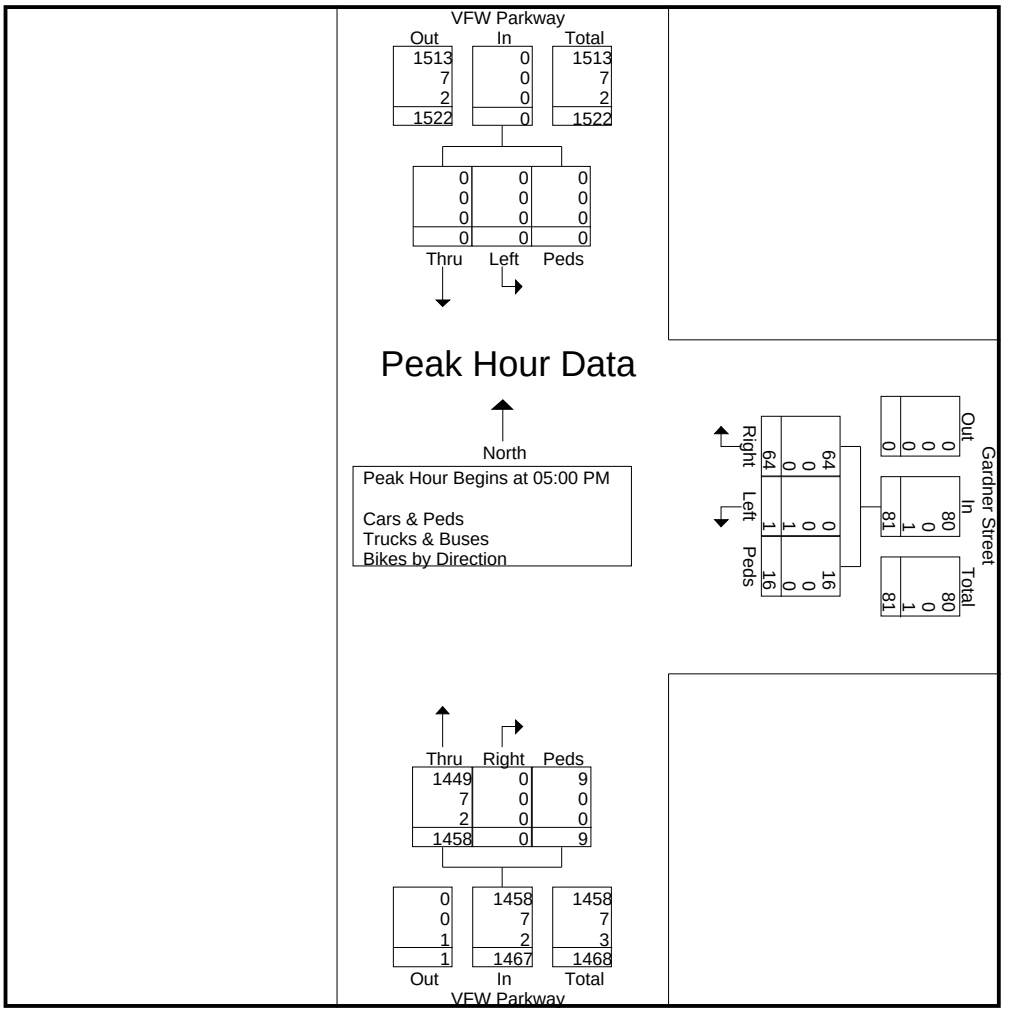
N/S: VFW Parkway
E: Gardner Street (East)
City, State: West Roxbury, MA
Client: HSH/M. Littman

File Name : 04581BB
Site Code : 2015063
Start Date : 5/5/2015
Page No : 1

	VFW Parkway From North				Gardner Street From East				VFW Parkway 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	0	0	0	0	**22**	0	5	**27**	0	350	3	353	380
05:15 PM	0	0	0	0	9	0	**6**	15	0	377	**4**	381	396
05:30 PM	0	0	0	0	17	**1**	3	21	0	**384**	2	**386**	**407**
05:45 PM	0	0	0	0	16	0	2	18	0	347	0	347	365
Total Volume	0	0	0	0	64	1	16	81	0	1458	9	1467	1548
% App. Total	0	0	0		79	1.2	19.8		0	99.4	0.6		
PHF	.000	.000	.000	.000	.727	.250	.667	.750	.000	.949	.563	.950	.951
Cars & Peds	0	0	0	0	64	0	16	80	0	1449	9	1458	1538
% Cars & Peds	0	0	0	0	100	0	100	98.8	0	99.4	100	99.4	99.4
Trucks & Buses	0	0	0	0	0	0	0	0	0	7	0	7	7
% Trucks & Buses	0	0	0	0	0	0	0	0	0	0.5	0	0.5	0.5
Bikes by Direction	0	0	0	0	0	1	0	1	0	2	0	2	3
% Bikes by Direction	0	0	0	0	0	100	0	1.2	0	0.1	0	0.1	0.2



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File Name : 04581BB
Site Code : 2015063
Start Date : 5/5/2015
Page No : 1

Groups Printed- Bikes by Direction

	VFW Parkway From North			Gardner Street From East			VFW Parkway 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	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	2	0	2
04:45 PM	0	0	0	0	0	0	0	2	0	2
Total	0	0	0	0	0	0	0	4	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	1	0	0	1	0	2
05:45 PM	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	1	0	0	2	0	3
Grand Total	0	0	0	0	1	0	0	6	0	7
Apprch %	0	0	0	0	100	0	0	100	0	
Total %	0	0	0	0	14.3	0	0	85.7	0	

	VFW Parkway From North				Gardner Street From East				VFW Parkway 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 04:00 PM													
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	**2**
04:45 PM	0	0	0	0	0	0	0	0	0	2	0	2	2
Total Volume	0	0	0	0	0	0	0	0	0	4	0	4	4
% App. Total	0	0	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.500

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E: Gardner Street (East)
City, State: West Roxbury, MA
Client: HSH/M. Littman

File Name : 04581BB
Site Code : 2015063
Start Date : 5/5/2015
Page No : 1

Groups Printed- Trucks & Buses

	VFW Parkway From North			Gardner Street From East			VFW Parkway 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	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	2	0	2
04:45 PM	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	5	0	5
05:00 PM	0	0	0	0	0	0	0	1	0	1
05:15 PM	0	0	0	0	0	0	0	2	0	2
05:30 PM	0	0	0	0	0	0	0	3	0	3
05:45 PM	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	7	0	7
Grand Total	0	0	0	0	0	0	0	12	0	12
Apprch %	0	0	0	0	0	0	0	100	0	
Total %	0	0	0	0	0	0	0	100	0	

	VFW Parkway From North				Gardner Street From East				VFW Parkway 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	1	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	2	0	2	2
05:30 PM	0	0	0	0	0	0	0	0	0	**3**	0	**3**	**3**
Total Volume	0	0	0	0	0	0	0	0	0	7	0	7	7
% App. Total	0	0	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.583	.000	.583	.583

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File Name : 04581BB
Site Code : 2015063
Start Date : 5/5/2015
Page No : 1

Groups Printed- Cars & Peds

	VFW Parkway From North			Gardner Street From East			VFW Parkway From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:00 PM	0	0	0	10	0	1	0	295	9	315
04:15 PM	0	0	0	11	0	4	0	278	3	296
04:30 PM	0	0	0	12	0	5	0	304	4	325
04:45 PM	0	0	0	20	0	4	0	315	4	343
Total	0	0	0	53	0	14	0	1192	20	1279
05:00 PM	0	0	0	22	0	5	0	349	3	379
05:15 PM	0	0	0	9	0	6	0	375	4	394
05:30 PM	0	0	0	17	0	3	0	380	2	402
05:45 PM	0	0	0	16	0	2	0	345	0	363
Total	0	0	0	64	0	16	0	1449	9	1538
Grand Total	0	0	0	117	0	30	0	2641	29	2817
Apprch %	0	0	0	79.6	0	20.4	0	98.9	1.1	
Total %	0	0	0	4.2	0	1.1	0	93.8	1	

	VFW Parkway From North				Gardner Street From East				VFW Parkway 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	0	0	0	0	**22**	0	5	**27**	0	349	3	352	379
05:15 PM	0	0	0	0	9	0	**6**	15	0	375	**4**	379	394
05:30 PM	0	0	0	0	17	0	3	20	0	**380**	2	**382**	**402**
05:45 PM	0	0	0	0	16	0	2	18	0	345	0	345	363
Total Volume	0	0	0	0	64	0	16	80	0	1449	9	1458	1538
% App. Total	0	0	0		80	0	20		0	99.4	0.6		
PHF	.000	.000	.000	.000	.727	.000	.667	.741	.000	.953	.563	.954	.956

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File Name : 04581BB
Site Code : 2015063
Start Date : 5/5/2015
Page No : 1

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

	VFW Parkway From North			Gardner Street From East			VFW Parkway From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:00 PM	0	0	0	10	0	1	0	297	9	317
04:15 PM	0	0	0	11	0	4	0	278	3	296
04:30 PM	0	0	0	12	0	5	0	308	4	329
04:45 PM	0	0	0	20	0	4	0	318	4	346
Total	0	0	0	53	0	14	0	1201	20	1288
05:00 PM	0	0	0	22	0	5	0	350	3	380
05:15 PM	0	0	0	9	0	6	0	377	4	396
05:30 PM	0	0	0	17	1	3	0	384	2	407
05:45 PM	0	0	0	16	0	2	0	347	0	365
Total	0	0	0	64	1	16	0	1458	9	1548
Grand Total	0	0	0	117	1	30	0	2659	29	2836
Apprch %	0	0	0	79.1	0.7	20.3	0	98.9	1.1	
Total %	0	0	0	4.1	0	1.1	0	93.8	1	
Cars & Peds	0	0	0	117	0	30	0	2641	29	2817
% Cars & Peds	0	0	0	100	0	100	0	99.3	100	99.3
Trucks & Buses	0	0	0	0	0	0	0	12	0	12
% Trucks & Buses	0	0	0	0	0	0	0	0.5	0	0.4
Bikes by Direction	0	0	0	0	1	0	0	6	0	7
% Bikes by Direction	0	0	0	0	100	0	0	0.2	0	0.2

	VFW Parkway From North				Gardner Street From East				VFW Parkway 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	0	0	0	0	**22**	0	5	**27**	0	350	3	353	380
05:15 PM	0	0	0	0	9	0	**6**	15	0	377	**4**	381	396
05:30 PM	0	0	0	0	17	**1**	3	21	0	**384**	2	**386**	**407**
05:45 PM	0	0	0	0	16	0	2	18	0	347	0	347	365
Total Volume	0	0	0	0	64	1	16	81	0	1458	9	1467	1548
% App. Total	0	0	0		79	1.2	19.8		0	99.4	0.6		
PHF	.000	.000	.000	.000	.727	.250	.667	.750	.000	.949	.563	.950	.951
Cars & Peds	0	0	0	0	64	0	16	80	0	1449	9	1458	1538
% Cars & Peds	0	0	0	0	100	0	100	98.8	0	99.4	100	99.4	99.4
Trucks & Buses	0	0	0	0	0	0	0	0	0	7	0	7	7
% Trucks & Buses	0	0	0	0	0	0	0	0	0	0.5	0	0.5	0.5
Bikes by Direction	0	0	0	0	0	1	0	1	0	2	0	2	3
% Bikes by Direction	0	0	0	0	0	100	0	1.2	0	0.1	0	0.1	0.2

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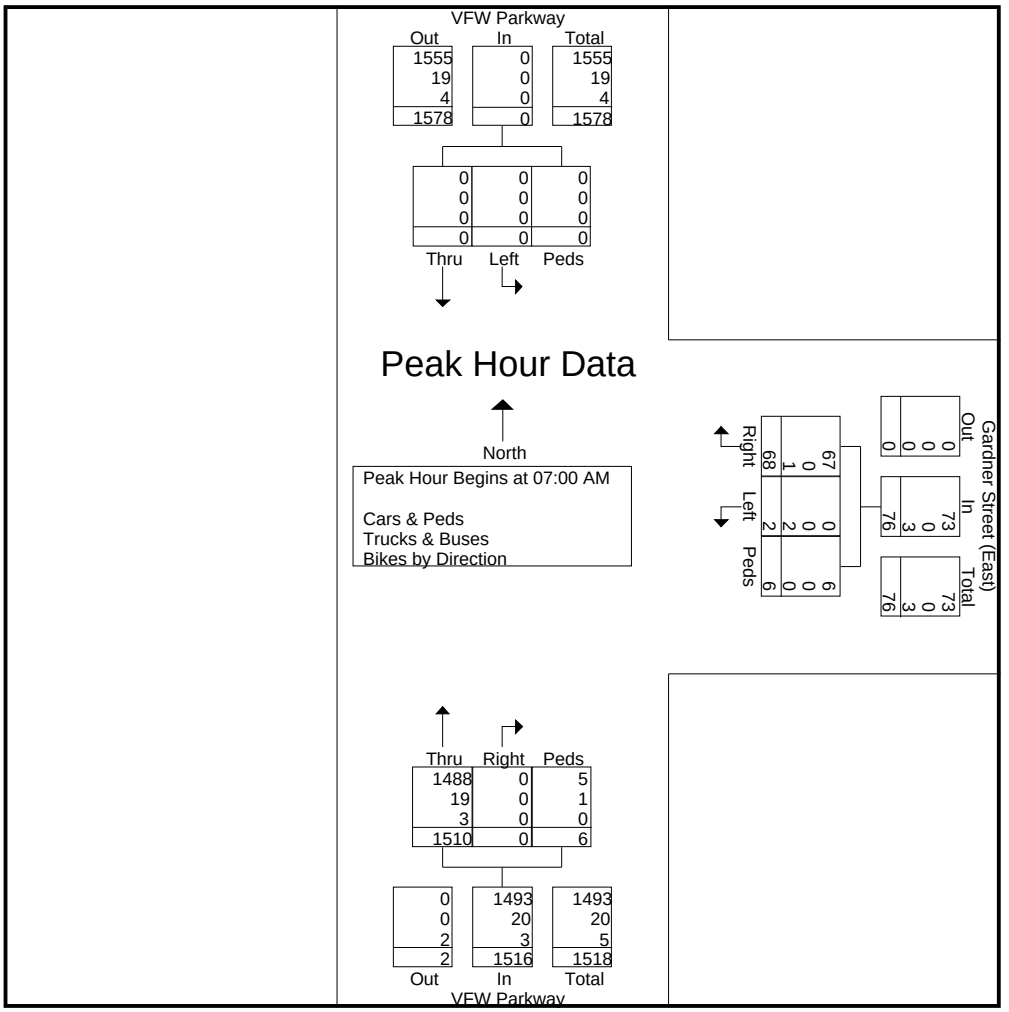
Client: HSH/M. Littman

File Name : 04581B
Site Code : 2015063
Start Date : 5/5/2015
Page No : 1

	VFW Parkway From North				Gardner Street (East) From East				VFW Parkway 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 07:00 AM													
07:00 AM	0	0	0	0	18	0	0	18	0	395	1	396	414
07:15 AM	0	0	0	0	**20**	0	**2**	**22**	0	**415**	1	**416**	**438**
07:30 AM	0	0	0	0	12	0	2	14	0	362	**2**	364	378
07:45 AM	0	0	0	0	18	**2**	2	22	0	338	2	340	362
Total Volume	0	0	0	0	68	2	6	76	0	1510	6	1516	1592
% App. Total	0	0	0		89.5	2.6	7.9		0	99.6	0.4		
PHF	.000	.000	.000	.000	.850	.250	.750	.864	.000	.910	.750	.911	.909
Cars & Peds	0	0	0	0	67	0	6	73	0	1488	5	1493	1566
% Cars & Peds	0	0	0	0	98.5	0	100	96.1	0	98.5	83.3	98.5	98.4
Trucks & Buses	0	0	0	0	0	0	0	0	0	19	1	20	20
% Trucks & Buses	0	0	0	0	0	0	0	0	0	1.3	16.7	1.3	1.3
Bikes by Direction	0	0	0	0	1	2	0	3	0	3	0	3	6
% Bikes by Direction	0	0	0	0	1.5	100	0	3.9	0	0.2	0	0.2	0.4



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File Name : 04581B
Site Code : 2015063
Start Date : 5/5/2015
Page No : 1

Groups Printed- Bikes by Direction

	VFW Parkway From North			Gardner Street (East) From East			VFW Parkway 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	0	0	0
07:30 AM	0	0	0	1	0	0	0	0	0	1
07:45 AM	0	0	0	0	2	0	0	3	0	5
Total	0	0	0	1	2	0	0	3	0	6
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	1	2	0	0	3	0	6
Apprch %	0	0	0	33.3	66.7	0	0	100	0	
Total %	0	0	0	16.7	33.3	0	0	50	0	

	VFW Parkway From North				Gardner Street (East) From East				VFW Parkway 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 07:00 AM													
07:00 AM	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
07:30 AM	0	0	0	0	**1**	0	0	1	0	0	0	0	1
07:45 AM	0	0	0	0	0	**2**	0	**2**	0	**3**	0	**3**	**5**
Total Volume	0	0	0	0	1	2	0	3	0	3	0	3	6
% App. Total	0	0	0		33.3	66.7	0		0	100	0		
PHF	.000	.000	.000	.000	.250	.250	.000	.375	.000	.250	.000	.250	.300

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File Name : 04581B
Site Code : 2015063
Start Date : 5/5/2015
Page No : 1

Groups Printed- Trucks & Buses

	VFW Parkway From North			Gardner Street (East) From East			VFW Parkway 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	8	0	8
07:15 AM	0	0	0	0	0	0	0	7	1	8
07:30 AM	0	0	0	0	0	0	0	1	0	1
07:45 AM	0	0	0	0	0	0	0	3	0	3
Total	0	0	0	0	0	0	0	19	1	20
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	1	0	1
08:30 AM	0	0	0	0	0	0	0	2	0	2
08:45 AM	0	0	0	0	0	0	0	4	0	4
Total	0	0	0	0	0	0	0	7	0	7
Grand Total	0	0	0	0	0	0	0	26	1	27
Apprch %	0	0	0	0	0	0	0	96.3	3.7	
Total %	0	0	0	0	0	0	0	96.3	3.7	

	VFW Parkway From North				Gardner Street (East) From East				VFW Parkway 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 07:00 AM													
07:00 AM	0	0	0	0	0	0	0	0	0	**8**	0	**8**	**8**
07:15 AM	0	0	0	0	0	0	0	0	0	7	**1**	8	8
07:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
07:45 AM	0	0	0	0	0	0	0	0	0	3	0	3	3
Total Volume	0	0	0	0	0	0	0	0	0	19	1	20	20
% App. Total	0	0	0		0	0	0		0	95	5		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.594	.250	.625	.625

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Site Code : 2015063
Start Date : 5/5/2015
Page No : 1

Groups Printed- Cars & Peds

	VFW Parkway From North			Gardner Street (East) From East			VFW Parkway From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
07:00 AM	0	0	0	18	0	0	0	387	1	406
07:15 AM	0	0	0	20	0	2	0	408	0	430
07:30 AM	0	0	0	11	0	2	0	361	2	376
07:45 AM	0	0	0	18	0	2	0	332	2	354
Total	0	0	0	67	0	6	0	1488	5	1566
08:00 AM	0	0	0	12	0	1	0	375	1	389
08:15 AM	0	0	0	11	0	0	0	368	1	380
08:30 AM	0	0	0	9	0	0	0	321	0	330
08:45 AM	0	0	0	11	0	3	0	325	0	339
Total	0	0	0	43	0	4	0	1389	2	1438
Grand Total	0	0	0	110	0	10	0	2877	7	3004
Apprch %	0	0	0	91.7	0	8.3	0	99.8	0.2	
Total %	0	0	0	3.7	0	0.3	0	95.8	0.2	

	VFW Parkway From North				Gardner Street (East) From East				VFW Parkway 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 07:00 AM													
07:00 AM	0	0	0	0	18	0	0	18	0	387	1	388	406
07:15 AM	0	0	0	0	**20**	0	**2**	**22**	0	**408**	0	**408**	**430**
07:30 AM	0	0	0	0	11	0	2	13	0	361	**2**	363	376
07:45 AM	0	0	0	0	18	0	2	20	0	332	2	334	354
Total Volume	0	0	0	0	67	0	6	73	0	1488	5	1493	1566
% App. Total	0	0	0		91.8	0	8.2		0	99.7	0.3		
PHF	.000	.000	.000	.000	.838	.000	.750	.830	.000	.912	.625	.915	.910

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File Name : 04581B
Site Code : 2015063
Start Date : 5/5/2015
Page No : 1

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

	VFW Parkway From North			Gardner Street (East) From East			VFW Parkway From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
07:00 AM	0	0	0	18	0	0	0	395	1	414
07:15 AM	0	0	0	20	0	2	0	415	1	438
07:30 AM	0	0	0	12	0	2	0	362	2	378
07:45 AM	0	0	0	18	2	2	0	338	2	362
Total	0	0	0	68	2	6	0	1510	6	1592
08:00 AM	0	0	0	12	0	1	0	375	1	389
08:15 AM	0	0	0	11	0	0	0	369	1	381
08:30 AM	0	0	0	9	0	0	0	323	0	332
08:45 AM	0	0	0	11	0	3	0	329	0	343
Total	0	0	0	43	0	4	0	1396	2	1445
Grand Total	0	0	0	111	2	10	0	2906	8	3037
Apprch %	0	0	0	90.2	1.6	8.1	0	99.7	0.3	
Total %	0	0	0	3.7	0.1	0.3	0	95.7	0.3	
Cars & Peds	0	0	0	110	0	10	0	2877	7	3004
% Cars & Peds	0	0	0	99.1	0	100	0	99	87.5	98.9
Trucks & Buses	0	0	0	0	0	0	0	26	1	27
% Trucks & Buses	0	0	0	0	0	0	0	0.9	12.5	0.9
Bikes by Direction	0	0	0	1	2	0	0	3	0	6
% Bikes by Direction	0	0	0	0.9	100	0	0	0.1	0	0.2

	VFW Parkway From North				Gardner Street (East) From East				VFW Parkway 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 07:00 AM													
07:00 AM	0	0	0	0	18	0	0	18	0	395	1	396	414
07:15 AM	0	0	0	0	**20**	0	**2**	**22**	0	**415**	1	**416**	**438**
07:30 AM	0	0	0	0	12	0	2	14	0	362	**2**	364	378
07:45 AM	0	0	0	0	18	**2**	2	22	0	338	2	340	362
Total Volume	0	0	0	0	68	2	6	76	0	1510	6	1516	1592
% App. Total	0	0	0		89.5	2.6	7.9		0	99.6	0.4		
PHF	.000	.000	.000	.000	.850	.250	.750	.864	.000	.910	.750	.911	.909
Cars & Peds	0	0	0	0	67	0	6	73	0	1488	5	1493	1566
% Cars & Peds	0	0	0	0	98.5	0	100	96.1	0	98.5	83.3	98.5	98.4
Trucks & Buses	0	0	0	0	0	0	0	0	0	19	1	20	20
% Trucks & Buses	0	0	0	0	0	0	0	0	0	1.3	16.7	1.3	1.3
Bikes by Direction	0	0	0	0	1	2	0	3	0	3	0	3	6
% Bikes by Direction	0	0	0	0	1.5	100	0	3.9	0	0.2	0	0.2	0.4

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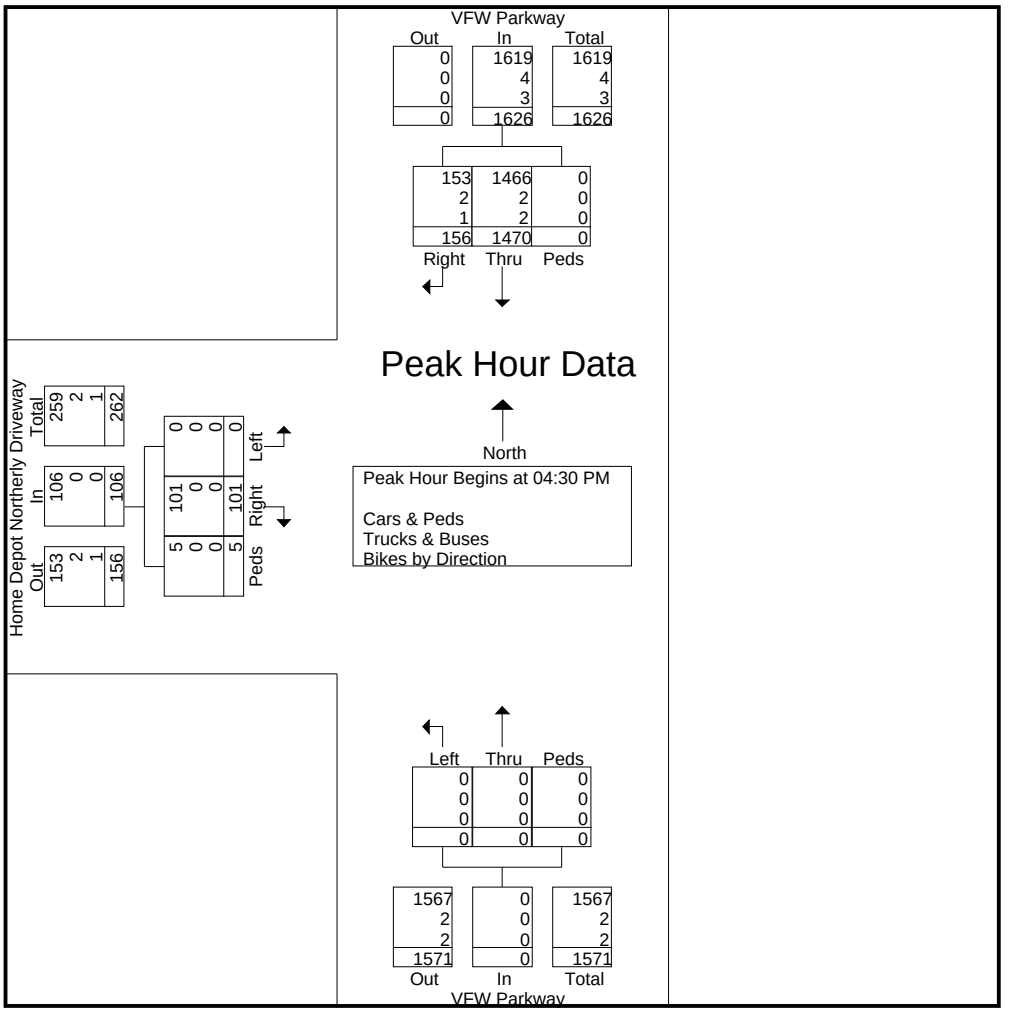
W: Home Depot Northerly Driveway
City, State: W. Roxbury, MA
Client: HSH/M. Littman

File Name : 04581AA
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

	VFW Parkway From North				VFW Parkway From South				Home Depot Northerly Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	**48**	367	0	415	0	0	0	0	26	0	1	27	442
04:45 PM	35	**383**	0	**418**	0	0	0	0	24	0	1	25	**443**
05:00 PM	35	344	0	379	0	0	0	0	23	0	**2**	25	404
05:15 PM	38	376	0	414	0	0	0	0	**28**	0	1	**29**	443
Total Volume	156	1470	0	1626	0	0	0	0	101	0	5	106	1732
% App. Total	9.6	90.4	0		0	0	0		95.3	0	4.7		
PHF	.813	.960	.000	.972	.000	.000	.000	.000	.902	.000	.625	.914	.977
Cars & Peds	153	1466	0	1619	0	0	0	0	101	0	5	106	1725
% Cars & Peds	98.1	99.7	0	99.6	0	0	0	0	100	0	100	100	99.6
Trucks & Buses	2	2	0	4	0	0	0	0	0	0	0	0	4
% Trucks & Buses	1.3	0.1	0	0.2	0	0	0	0	0	0	0	0	0.2
Bikes by Direction	1	2	0	3	0	0	0	0	0	0	0	0	3
% Bikes by Direction	0.6	0.1	0	0.2	0	0	0	0	0	0	0	0	0.2



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File Name : 04581AA
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Bikes by Direction

	VFW Parkway From North			VFW Parkway From South			Home Depot Northerly Driveway From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	0	1	0	1	0	0	0	1	0	3
04:15 PM	0	1	0	0	0	0	0	0	0	1
04:30 PM	0	1	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	3	0	1	0	0	0	1	0	5
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	1	1	0	0	0	0	0	0	0	2
05:30 PM	0	1	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	1	2	0	0	0	0	0	0	0	3
Grand Total	1	5	0	1	0	0	0	1	0	8
Apprch %	16.7	83.3	0	100	0	0	0	100	0	
Total %	12.5	62.5	0	12.5	0	0	0	12.5	0	

	VFW Parkway From North				VFW Parkway From South				Home Depot Northerly Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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 04:00 PM													
04:00 PM	0	**1**	0	**1**	**1**	0	0	**1**	0	**1**	0	**1**	**3**
04:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
04:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	3	0	3	1	0	0	1	0	1	0	1	5
% App. Total	0	100	0		100	0	0		0	100	0		
PHF	.000	.750	.000	.750	.250	.000	.000	.250	.000	.250	.000	.250	.417

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File Name : 04581AA
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Trucks & Buses

	VFW Parkway From North			VFW Parkway From South			Home Depot Northerly Driveway From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	0	1	0	0	0	0	0	0	0	1
04:15 PM	0	1	0	0	0	0	0	0	0	1
04:30 PM	1	0	0	0	0	0	0	0	0	1
04:45 PM	0	1	0	0	0	0	0	0	0	1
Total	1	3	0	0	0	0	0	0	0	4
05:00 PM	1	0	0	0	0	0	0	0	0	1
05:15 PM	0	1	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	0	0	0	0	0	0	1
Total	1	2	0	0	0	0	0	0	0	3
Grand Total	2	5	0	0	0	0	0	0	0	7
Apprch %	28.6	71.4	0	0	0	0	0	0	0	
Total %	28.6	71.4	0	0	0	0	0	0	0	

	VFW Parkway From North				VFW Parkway From South				Home Depot Northerly Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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 04:00 PM													
04:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	**1**
04:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
04:30 PM	**1**	0	0	1	0	0	0	0	0	0	0	0	1
04:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	1	3	0	4	0	0	0	0	0	0	0	0	4
% App. Total	25	75	0		0	0	0		0	0	0		
PHF	.250	.750	.000	1.000	.000	.000	.000	.000	.000	.000	.000	.000	1.000

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File Name : 04581AA
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Cars & Peds

	VFW Parkway From North			VFW Parkway From South			Home Depot Northerly Driveway From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	56	321	0	0	0	0	38	0	1	416
04:15 PM	39	326	0	0	0	0	24	0	0	389
04:30 PM	47	366	0	0	0	0	26	0	1	440
04:45 PM	35	382	0	0	0	0	24	0	1	442
Total	177	1395	0	0	0	0	112	0	3	1687
05:00 PM	34	344	0	0	0	0	23	0	2	403
05:15 PM	37	374	0	0	0	0	28	0	1	440
05:30 PM	34	333	0	0	0	0	23	0	0	390
05:45 PM	36	331	0	0	0	0	37	0	0	404
Total	141	1382	0	0	0	0	111	0	3	1637
Grand Total	318	2777	0	0	0	0	223	0	6	3324
Apprch %	10.3	89.7	0	0	0	0	97.4	0	2.6	
Total %	9.6	83.5	0	0	0	0	6.7	0	0.2	

	VFW Parkway From North				VFW Parkway From South				Home Depot Northerly Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	**47**	366	0	413	0	0	0	0	26	0	1	27	440
04:45 PM	35	**382**	0	**417**	0	0	0	0	24	0	1	25	**442**
05:00 PM	34	344	0	378	0	0	0	0	23	0	**2**	25	403
05:15 PM	37	374	0	411	0	0	0	0	**28**	0	1	**29**	440
Total Volume	153	1466	0	1619	0	0	0	0	101	0	5	106	1725
% App. Total	9.5	90.5	0		0	0	0		95.3	0	4.7		
PHF	.814	.959	.000	.971	.000	.000	.000	.000	.902	.000	.625	.914	.976

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Client: HSH/M. Littman

File Name : 04581AA
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

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

	VFW Parkway From North			VFW Parkway From South			Home Depot Northerly Driveway From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	56	323	0	1	0	0	38	1	1	420
04:15 PM	39	328	0	0	0	0	24	0	0	391
04:30 PM	48	367	0	0	0	0	26	0	1	442
04:45 PM	35	383	0	0	0	0	24	0	1	443
Total	178	1401	0	1	0	0	112	1	3	1696
05:00 PM	35	344	0	0	0	0	23	0	2	404
05:15 PM	38	376	0	0	0	0	28	0	1	443
05:30 PM	34	334	0	0	0	0	23	0	0	391
05:45 PM	36	332	0	0	0	0	37	0	0	405
Total	143	1386	0	0	0	0	111	0	3	1643
Grand Total	321	2787	0	1	0	0	223	1	6	3339
Apprch %	10.3	89.7	0	100	0	0	97	0.4	2.6	
Total %	9.6	83.5	0	0	0	0	6.7	0	0.2	
Cars & Peds	318	2777	0	0	0	0	223	0	6	3324
% Cars & Peds	99.1	99.6	0	0	0	0	100	0	100	99.6
Trucks & Buses	2	5	0	0	0	0	0	0	0	7
% Trucks & Buses	0.6	0.2	0	0	0	0	0	0	0	0.2
Bikes by Direction	1	5	0	1	0	0	0	1	0	8
% Bikes by Direction	0.3	0.2	0	100	0	0	0	100	0	0.2

	VFW Parkway From North				VFW Parkway From South				Home Depot Northerly Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	**48**	367	0	415	0	0	0	0	26	0	1	27	442
04:45 PM	35	**383**	0	**418**	0	0	0	0	24	0	1	25	**443**
05:00 PM	35	344	0	379	0	0	0	0	23	0	**2**	25	404
05:15 PM	38	376	0	414	0	0	0	0	**28**	0	1	**29**	443
Total Volume	156	1470	0	1626	0	0	0	0	101	0	5	106	1732
% App. Total	9.6	90.4	0		0	0	0		95.3	0	4.7		
PHF	.813	.960	.000	.972	.000	.000	.000	.000	.902	.000	.625	.914	.977
Cars & Peds	153	1466	0	1619	0	0	0	0	101	0	5	106	1725
% Cars & Peds	98.1	99.7	0	99.6	0	0	0	0	100	0	100	100	99.6
Trucks & Buses	2	2	0	4	0	0	0	0	0	0	0	0	4
% Trucks & Buses	1.3	0.1	0	0.2	0	0	0	0	0	0	0	0	0.2
Bikes by Direction	1	2	0	3	0	0	0	0	0	0	0	0	3
% Bikes by Direction	0.6	0.1	0	0.2	0	0	0	0	0	0	0	0	0.2

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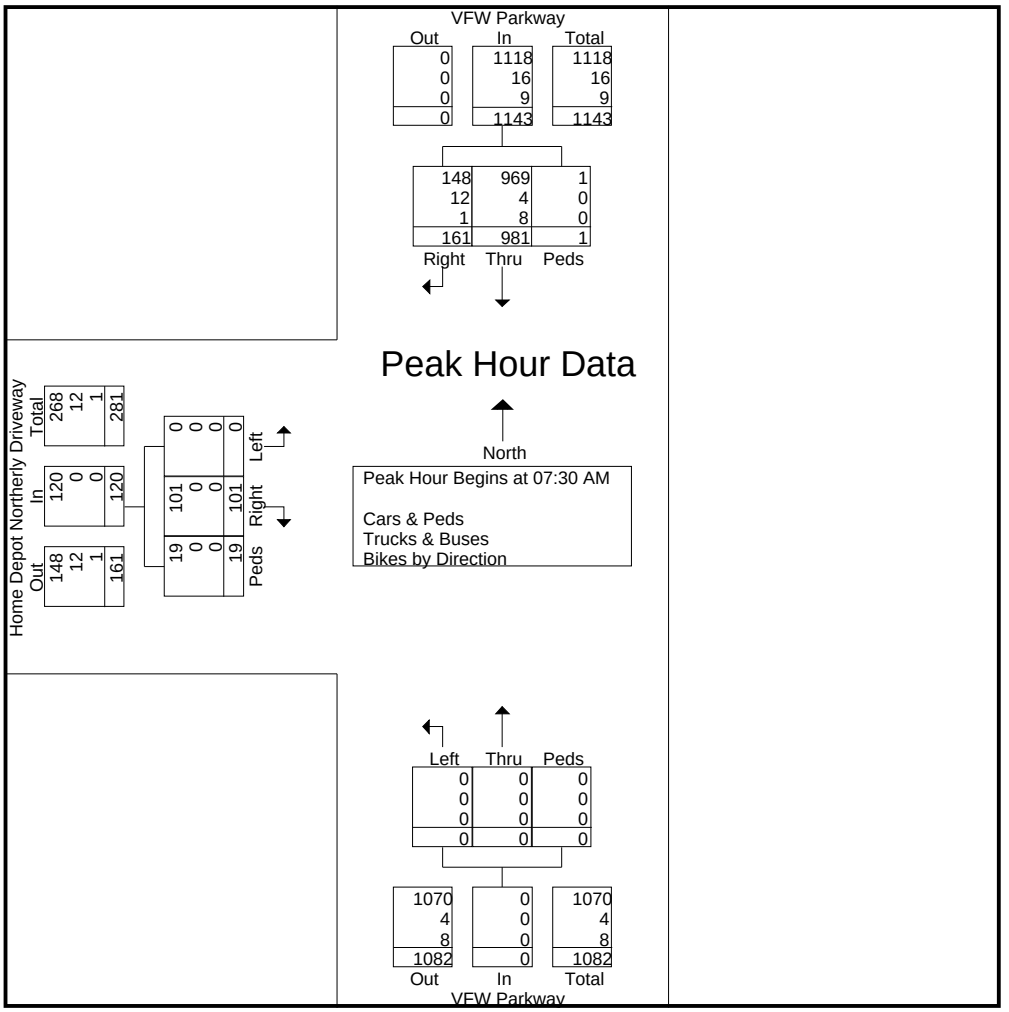
W: Home Depot Northerly Driveway
City, State: W. Roxbury, MA
Client: HSH/M. Littman

File Name : 04581A
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

	VFW Parkway From North				VFW Parkway From South				Home Depot Northerly Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	33	245	0	278	0	0	0	0	**27**	0	**11**	**38**	316
07:45 AM	40	255	0	295	0	0	0	0	25	0	0	25	320
08:00 AM	40	**264**	**1**	**305**	0	0	0	0	23	0	8	31	**336**
08:15 AM	**48**	217	0	265	0	0	0	0	26	0	0	26	291
Total Volume	161	981	1	1143	0	0	0	0	101	0	19	120	1263
% App. Total	14.1	85.8	0.1		0	0	0		84.2	0	15.8		
PHF	.839	.929	.250	.937	.000	.000	.000	.000	.935	.000	.432	.789	.940
Cars & Peds	148	969	1	1118	0	0	0	0	101	0	19	120	1238
% Cars & Peds	91.9	98.8	100	97.8	0	0	0	0	100	0	100	100	98.0
Trucks & Buses	12	4	0	16	0	0	0	0	0	0	0	0	16
% Trucks & Buses	7.5	0.4	0	1.4	0	0	0	0	0	0	0	0	1.3
Bikes by Direction	1	8	0	9	0	0	0	0	0	0	0	0	9
% Bikes by Direction	0.6	0.8	0	0.8	0	0	0	0	0	0	0	0	0.7



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File Name : 04581A
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Bikes by Direction

	VFW Parkway From North			VFW Parkway From South			Home Depot Northerly Driveway From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	0	3	0	0	0	0	0	0	0	3
07:15 AM	0	0	0	0	1	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	1	2	0	0	0	0	0	0	0	3
Total	1	5	0	0	1	0	0	0	0	7
08:00 AM	0	2	0	0	0	0	0	0	0	2
08:15 AM	0	4	0	0	0	0	0	0	0	4
08:30 AM	0	1	0	0	0	0	0	0	0	1
08:45 AM	0	1	0	0	0	0	0	0	0	1
Total	0	8	0	0	0	0	0	0	0	8
Grand Total	1	13	0	0	1	0	0	0	0	15
Apprch %	7.1	92.9	0	0	100	0	0	0	0	
Total %	6.7	86.7	0	0	6.7	0	0	0	0	

	VFW Parkway From North				VFW Parkway From South				Home Depot Northerly Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	**1**	2	0	3	0	0	0	0	0	0	0	0	3
08:00 AM	0	2	0	2	0	0	0	0	0	0	0	0	2
08:15 AM	0	**4**	0	**4**	0	0	0	0	0	0	0	0	**4**
08:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	1	9	0	10	0	0	0	0	0	0	0	0	10
% App. Total	10	90	0		0	0	0		0	0	0		
PHF	.250	.563	.000	.625	.000	.000	.000	.000	.000	.000	.000	.000	.625

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File Name : 04581A
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Trucks & Buses

	VFW Parkway From North			VFW Parkway From South			Home Depot Northerly Driveway From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	1	3	0	0	0	0	0	0	0	4
07:15 AM	0	1	0	0	0	0	0	0	0	1
07:30 AM	1	1	0	0	0	0	0	0	0	2
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	2	5	0	0	0	0	0	0	0	7
08:00 AM	1	1	0	0	0	0	0	0	0	2
08:15 AM	10	2	0	0	0	0	0	0	0	12
08:30 AM	8	2	0	0	0	0	0	0	0	10
08:45 AM	4	1	0	0	0	0	1	0	0	6
Total	23	6	0	0	0	0	1	0	0	30
Grand Total	25	11	0	0	0	0	1	0	0	37
Apprch %	69.4	30.6	0	0	0	0	100	0	0	
Total %	67.6	29.7	0	0	0	0	2.7	0	0	

	VFW Parkway From North				VFW Parkway From South				Home Depot Northerly Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	1	1	0	2	0	0	0	0	0	0	0	0	2
08:15 AM	**10**	**2**	0	**12**	0	0	0	0	0	0	0	0	**12**
08:30 AM	8	2	0	10	0	0	0	0	0	0	0	0	10
08:45 AM	4	1	0	5	0	0	0	0	**1**	0	0	**1**	6
Total Volume	23	6	0	29	0	0	0	0	1	0	0	1	30
% App. Total	79.3	20.7	0		0	0	0		100	0	0		
PHF	.575	.750	.000	.604	.000	.000	.000	.000	.250	.000	.000	.250	.625

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Client: HSH/M. Littman

File Name : 04581A
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

Groups Printed- Cars & Peds

	VFW Parkway From North			VFW Parkway From South			Home Depot Northerly Driveway From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	23	155	0	0	0	0	7	0	8	193
07:15 AM	26	228	0	0	0	0	23	0	10	287
07:30 AM	32	244	0	0	0	0	27	0	11	314
07:45 AM	39	253	0	0	0	0	25	0	0	317
Total	120	880	0	0	0	0	82	0	29	1111
08:00 AM	39	261	1	0	0	0	23	0	8	332
08:15 AM	38	211	0	0	0	0	26	0	0	275
08:30 AM	28	234	0	0	0	0	27	0	0	289
08:45 AM	42	229	0	0	0	0	42	0	5	318
Total	147	935	1	0	0	0	118	0	13	1214
Grand Total	267	1815	1	0	0	0	200	0	42	2325
Apprch %	12.8	87.1	0	0	0	0	82.6	0	17.4	
Total %	11.5	78.1	0	0	0	0	8.6	0	1.8	

	VFW Parkway From North				VFW Parkway From South				Home Depot Northerly Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	26	228	0	254	0	0	0	0	23	0	10	33	287
07:30 AM	32	244	0	276	0	0	0	0	**27**	0	**11**	**38**	314
07:45 AM	**39**	253	0	292	0	0	0	0	25	0	0	25	317
08:00 AM	39	**261**	**1**	**301**	0	0	0	0	23	0	8	31	**332**
Total Volume	136	986	1	1123	0	0	0	0	98	0	29	127	1250
% App. Total	12.1	87.8	0.1		0	0	0		77.2	0	22.8		
PHF	.872	.944	.250	.933	.000	.000	.000	.000	.907	.000	.659	.836	.941

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N/S: VFW Parkway
W: Home Depot Northerly Driveway
City, State: W. Roxbury, MA
Client: HSH/M. Littman

File Name : 04581A
Site Code : 2015063
Start Date : 6/24/2015
Page No : 1

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

	VFW Parkway From North			VFW Parkway From South			Home Depot Northerly Driveway From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	24	161	0	0	0	0	7	0	8	200
07:15 AM	26	229	0	0	1	0	23	0	10	289
07:30 AM	33	245	0	0	0	0	27	0	11	316
07:45 AM	40	255	0	0	0	0	25	0	0	320
Total	123	890	0	0	1	0	82	0	29	1125
08:00 AM	40	264	1	0	0	0	23	0	8	336
08:15 AM	48	217	0	0	0	0	26	0	0	291
08:30 AM	36	237	0	0	0	0	27	0	0	300
08:45 AM	46	231	0	0	0	0	43	0	5	325
Total	170	949	1	0	0	0	119	0	13	1252
Grand Total	293	1839	1	0	1	0	201	0	42	2377
Apprch %	13.7	86.2	0	0	100	0	82.7	0	17.3	
Total %	12.3	77.4	0	0	0	0	8.5	0	1.8	
Cars & Peds	267	1815	1	0	0	0	200	0	42	2325
% Cars & Peds	91.1	98.7	100	0	0	0	99.5	0	100	97.8
Trucks & Buses	25	11	0	0	0	0	1	0	0	37
% Trucks & Buses	8.5	0.6	0	0	0	0	0.5	0	0	1.6
Bikes by Direction	1	13	0	0	1	0	0	0	0	15
% Bikes by Direction	0.3	0.7	0	0	100	0	0	0	0	0.6

	VFW Parkway From North				VFW Parkway From South				Home Depot Northerly Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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	33	245	0	278	0	0	0	0	**27**	0	**11**	**38**	316
07:45 AM	40	255	0	295	0	0	0	0	25	0	0	25	320
08:00 AM	40	**264**	**1**	**305**	0	0	0	0	23	0	8	31	**336**
08:15 AM	**48**	217	0	265	0	0	0	0	26	0	0	26	291
Total Volume	161	981	1	1143	0	0	0	0	101	0	19	120	1263
% App. Total	14.1	85.8	0.1		0	0	0		84.2	0	15.8		
PHF	.839	.929	.250	.937	.000	.000	.000	.000	.935	.000	.432	.789	.940
Cars & Peds	148	969	1	1118	0	0	0	0	101	0	19	120	1238
% Cars & Peds	91.9	98.8	100	97.8	0	0	0	0	100	0	100	100	98.0
Trucks & Buses	12	4	0	16	0	0	0	0	0	0	0	0	16
% Trucks & Buses	7.5	0.4	0	1.4	0	0	0	0	0	0	0	0	1.3
Bikes by Direction	1	8	0	9	0	0	0	0	0	0	0	0	9
% Bikes by Direction	0.6	0.8	0	0.8	0	0	0	0	0	0	0	0	0.7

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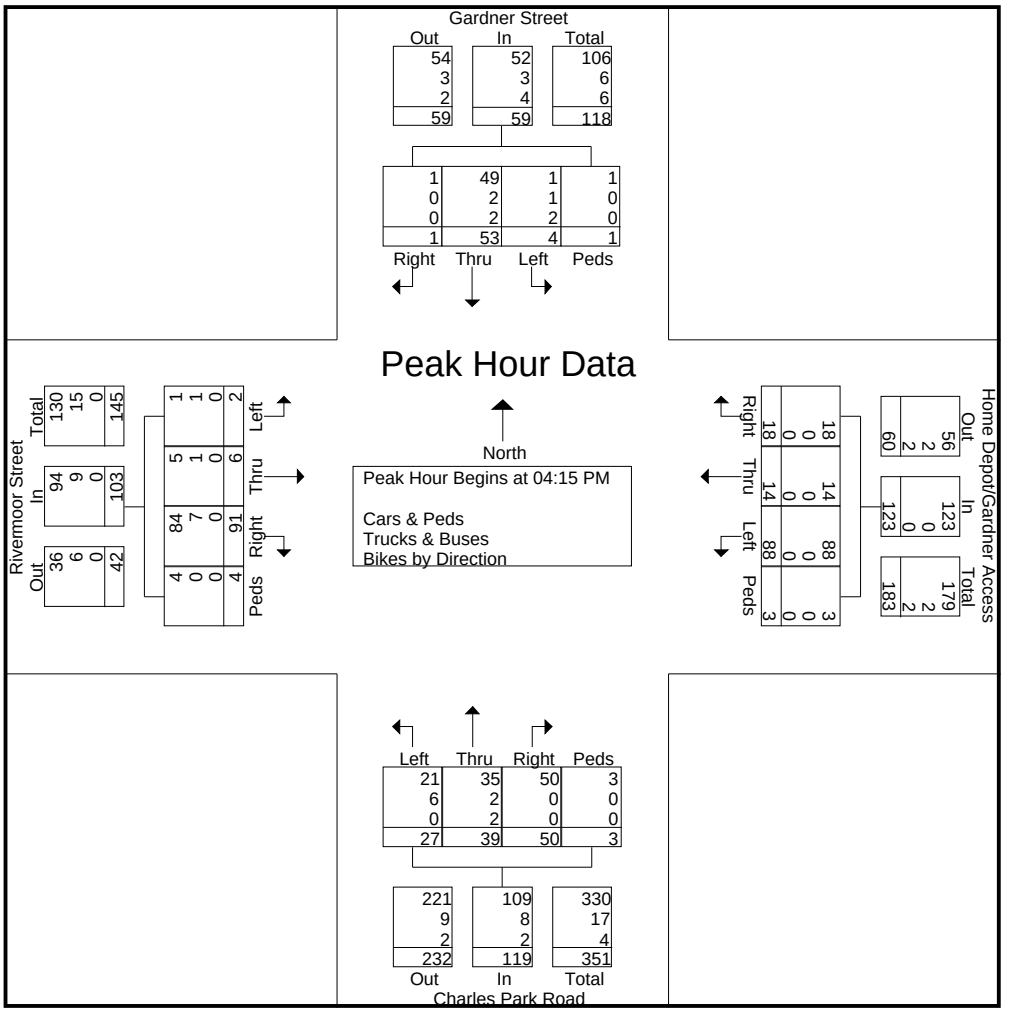
City, State: W. Roxbury, MA
Client: HSH/M. Littman

File Name : 04581EE
Site Code : 2015063
Start Date : 6/30/2015
Page No : 1

	Gardner Street From North					Home Depot/Gardner Access From East					Charles Park Road From South					Rivermoor Street 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	**1**	**19**	0	**1**	**21**	5	4	21	1	31	**20**	9	8	0	**37**	11	0	0	1	12	101
04:30 PM	0	9	**2**	0	11	4	1	21	**2**	28	8	**11**	**9**	**2**	30	25	2	**1**	1	29	98
04:45 PM	0	6	1	0	7	3	4	20	0	27	10	9	5	1	25	19	1	1	**2**	23	82
05:00 PM	0	19	1	0	20	**6**	**5**	**26**	0	**37**	12	10	5	0	27	**36**	**3**	0	0	**39**	**123**
Total Volume	1	53	4	1	59	18	14	88	3	123	50	39	27	3	119	91	6	2	4	103	404
% App. Total	1.7	89.8	6.8	1.7		14.6	11.4	71.5	2.4		42	32.8	22.7	2.5		88.3	5.8	1.9	3.9		
PHF	.250	.697	.500	.250	.702	.750	.700	.846	.375	.831	.625	.886	.750	.375	.804	.632	.500	.500	.500	.660	.821
Cars & Peds	1	49	1	1	52	18	14	88	3	123	50	35	21	3	109	84	5	1	4	94	378
% Cars & Peds	100	92.5	25.0	100	88.1	100	100	100	100	100	100	89.7	77.8	100	91.6	92.3	83.3	50.0	100	91.3	93.6
Trucks & Buses	0	2	1	0	3	0	0	0	0	0	0	2	6	0	8	7	1	1	0	9	20
% Trucks & Buses	0	3.8	25.0	0	5.1	0	0	0	0	0	0	5.1	22.2	0	6.7	7.7	16.7	50.0	0	8.7	5.0
Bikes by Direction	0	2	2	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	6
% Bikes by Direction	0	3.8	50.0	0	6.8	0	0	0	0	0	0	5.1	0	0	1.7	0	0	0	0	0	1.5



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Client: HSH/M. Littman

File Name : 04581EE
Site Code : 2015063
Start Date : 6/30/2015
Page No : 1

Groups Printed- Bikes by Direction

	Gardner Street From North				Home Depot/Gardner Access From East				Charles Park Road From South				Rivermoor Street 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	1	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	3
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	0	1	1	0	0	0	0	0	0	3	0	0	0	0	0	0	5
05:00 PM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	3
05:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	3	1	0	0	0	0	0	0	3	2	0	0	0	0	0	9
Grand Total	0	4	2	0	0	0	0	0	0	6	2	0	0	0	0	0	14
Apprch %	0	66.7	33.3	0	0	0	0	0	0	75	25	0	0	0	0	0	
Total %	0	28.6	14.3	0	0	0	0	0	0	42.9	14.3	0	0	0	0	0	

	Gardner Street From North					Home Depot/Gardner Access From East					Charles Park Road From South					Rivermoor Street 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 05:00 PM																					
05:00 PM	0	1	**1**	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
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	0	0	0	0	0	0	0	0	0	0	1	**2**	0	**3**	0	0	0	0	0	**3**
05:45 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	3	1	0	4	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	9
% App. Total	0	75	25	0		0	0	0	0		0	60	40	0		0	0	0	0		
PHF	.000	.375	.250	.000	.500	.000	.000	.000	.000	.000	.000	.375	.250	.000	.417	.000	.000	.000	.000	.000	.750

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Client: HSH/M. Littman

File Name : 04581EE
Site Code : 2015063
Start Date : 6/30/2015
Page No : 1

Groups Printed- Trucks & Buses

	Gardner Street From North				Home Depot/Gardner Access From East				Charles Park Road From South				Rivermoor Street 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	1	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	3
04:30 PM	0	2	1	0	0	0	0	0	0	0	3	0	4	0	0	0	10
04:45 PM	0	0	0	0	0	0	0	0	0	1	1	0	2	0	1	0	5
Total	0	2	1	0	0	0	0	0	0	2	7	0	6	0	1	0	19
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
Total	0	0	0	0	0	0	0	0	0	0	1	0	4	1	0	0	6
Grand Total	0	2	1	0	0	0	0	0	0	2	8	0	10	1	1	0	25
Apprch %	0	66.7	33.3	0	0	0	0	0	0	20	80	0	83.3	8.3	8.3	0	
Total %	0	8	4	0	0	0	0	0	0	8	32	0	40	4	4	0	

	Gardner Street From North					Home Depot/Gardner Access From East					Charles Park Road From South					Rivermoor Street 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	0	0	0	0	0	0	0	0	0	0	**1**	2	0	**3**	0	0	0	0	0	3
04:30 PM	0	**2**	**1**	0	**3**	0	0	0	0	0	0	0	**3**	0	3	**4**	0	0	0	**4**	**10**
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2	0	**1**	0	3	5
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	**1**	0	0	2	2
Total Volume	0	2	1	0	3	0	0	0	0	0	0	2	6	0	8	7	1	1	0	9	20
% App. Total	0	66.7	33.3	0		0	0	0	0		0	25	75	0		77.8	11.1	11.1	0		
PHF	.000	.250	.250	.000	.250	.000	.000	.000	.000	.000	.000	.500	.500	.000	.667	.438	.250	.250	.000	.563	.500

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City, State: W. Roxbury, MA
Client: HSH/M. Littman

File Name : 04581EE
Site Code : 2015063
Start Date : 6/30/2015
Page No : 1

Groups Printed- Cars & Peds

	Gardner Street From North				Home Depot/Gardner Access From East				Charles Park Road From South				Rivermoor Street 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	12	0	0	6	3	18	0	13	5	10	0	25	1	0	1	94
04:15 PM	1	19	0	1	5	4	21	1	20	8	6	0	11	0	0	1	98
04:30 PM	0	6	0	0	4	1	21	2	8	10	6	2	21	2	1	1	85
04:45 PM	0	6	1	0	3	4	20	0	10	7	4	1	17	1	0	2	76
Total	1	43	1	1	18	12	80	3	51	30	26	3	74	4	1	5	353
05:00 PM	0	18	0	0	6	5	26	0	12	10	5	0	35	2	0	0	119
05:15 PM	0	14	0	0	1	5	9	0	3	6	4	0	15	0	0	1	58
05:30 PM	0	10	0	2	4	7	21	3	15	6	4	0	14	0	1	1	88
05:45 PM	1	5	0	0	7	1	10	0	19	12	0	0	20	1	0	0	76
Total	1	47	0	2	18	18	66	3	49	34	13	0	84	3	1	2	341
Grand Total	2	90	1	3	36	30	146	6	100	64	39	3	158	7	2	7	694
Apprch %	2.1	93.8	1	3.1	16.5	13.8	67	2.8	48.5	31.1	18.9	1.5	90.8	4	1.1	4	
Total %	0.3	13	0.1	0.4	5.2	4.3	21	0.9	14.4	9.2	5.6	0.4	22.8	1	0.3	1	

	Gardner Street From North					Home Depot/Gardner Access From East					Charles Park Road From South					Rivermoor Street 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	**1**	**19**	0	**1**	**21**	5	4	21	1	31	**20**	8	**6**	0	**34**	11	0	0	1	12	98
04:30 PM	0	6	0	0	6	4	1	21	**2**	28	8	**10**	6	**2**	26	21	**2**	**1**	1	25	85
04:45 PM	0	6	**1**	0	7	3	4	20	0	27	10	7	4	1	22	17	1	0	**2**	20	76
05:00 PM	0	18	0	0	18	**6**	**5**	**26**	0	**37**	12	10	5	0	27	**35**	2	0	0	**37**	**119**
Total Volume	1	49	1	1	52	18	14	88	3	123	50	35	21	3	109	84	5	1	4	94	378
% App. Total	1.9	94.2	1.9	1.9		14.6	11.4	71.5	2.4		45.9	32.1	19.3	2.8		89.4	5.3	1.1	4.3		
PHF	.250	.645	.250	.250	.619	.750	.700	.846	.375	.831	.625	.875	.875	.375	.801	.600	.625	.250	.500	.635	.794

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File Name : 04581EE
Site Code : 2015063
Start Date : 6/30/2015
Page No : 1

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

	Gardner Street From North				Home Depot/Gardner Access From East				Charles Park Road From South				Rivermoor Street 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	12	0	0	6	3	18	0	13	6	11	0	25	1	0	1	96
04:15 PM	1	19	0	1	5	4	21	1	20	9	8	0	11	0	0	1	101
04:30 PM	0	9	2	0	4	1	21	2	8	11	9	2	25	2	1	1	98
04:45 PM	0	6	1	0	3	4	20	0	10	9	5	1	19	1	1	2	82
Total	1	46	3	1	18	12	80	3	51	35	33	3	80	4	2	5	377
05:00 PM	0	19	1	0	6	5	26	0	12	10	5	0	36	3	0	0	123
05:15 PM	0	14	0	0	1	5	9	0	3	8	5	0	16	0	0	1	62
05:30 PM	0	10	0	2	4	7	21	3	15	7	6	0	14	0	1	1	91
05:45 PM	1	7	0	0	7	1	10	0	19	12	0	0	22	1	0	0	80
Total	1	50	1	2	18	18	66	3	49	37	16	0	88	4	1	2	356
Grand Total	2	96	4	3	36	30	146	6	100	72	49	3	168	8	3	7	733
Apprch %	1.9	91.4	3.8	2.9	16.5	13.8	67	2.8	44.6	32.1	21.9	1.3	90.3	4.3	1.6	3.8	
Total %	0.3	13.1	0.5	0.4	4.9	4.1	19.9	0.8	13.6	9.8	6.7	0.4	22.9	1.1	0.4	1	
Cars & Peds	2	90	1	3	36	30	146	6	100	64	39	3	158	7	2	7	694
% Cars & Peds	100	93.8	25	100	100	100	100	100	100	88.9	79.6	100	94	87.5	66.7	100	94.7
Trucks & Buses	0	2	1	0	0	0	0	0	0	2	8	0	10	1	1	0	25
% Trucks & Buses	0	2.1	25	0	0	0	0	0	0	2.8	16.3	0	6	12.5	33.3	0	3.4
Bikes by Direction	0	4	2	0	0	0	0	0	0	6	2	0	0	0	0	0	14
% Bikes by Direction	0	4.2	50	0	0	0	0	0	0	8.3	4.1	0	0	0	0	0	1.9

	Gardner Street From North					Home Depot/Gardner Access From East					Charles Park Road From South					Rivermoor Street 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	**1**	**19**	0	**1**	**21**	5	4	21	1	31	**20**	9	8	0	**37**	11	0	0	1	12	101
04:30 PM	0	9	**2**	0	11	4	1	21	**2**	28	8	**11**	**9**	**2**	30	25	2	**1**	1	29	98
04:45 PM	0	6	1	0	7	3	4	20	0	27	10	9	5	1	25	19	1	1	**2**	23	82
05:00 PM	0	19	1	0	20	**6**	**5**	**26**	0	**37**	12	10	5	0	27	**36**	**3**	0	0	**39**	**123**
Total Volume	1	53	4	1	59	18	14	88	3	123	50	39	27	3	119	91	6	2	4	103	404
% App. Total	1.7	89.8	6.8	1.7		14.6	11.4	71.5	2.4		42	32.8	22.7	2.5		88.3	5.8	1.9	3.9		
PHF	.250	.697	.500	.250	.702	.750	.700	.846	.375	.831	.625	.886	.750	.375	.804	.632	.500	.500	.500	.660	.821
Cars & Peds	1	49	1	1	52	18	14	88	3	123	50	35	21	3	109	84	5	1	4	94	378
% Cars & Peds	100	92.5	25.0	100	88.1	100	100	100	100	100	100	89.7	77.8	100	91.6	92.3	83.3	50.0	100	91.3	93.6
Trucks & Buses	0	2	1	0	3	0	0	0	0	0	0	2	6	0	8	7	1	1	0	9	20
% Trucks & Buses	0	3.8	25.0	0	5.1	0	0	0	0	0	0	5.1	22.2	0	6.7	7.7	16.7	50.0	0	8.7	5.0
Bikes by Direction	0	2	2	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	6
% Bikes by Direction	0	3.8	50.0	0	6.8	0	0	0	0	0	0	5.1	0	0	1.7	0	0	0	0	0	1.5

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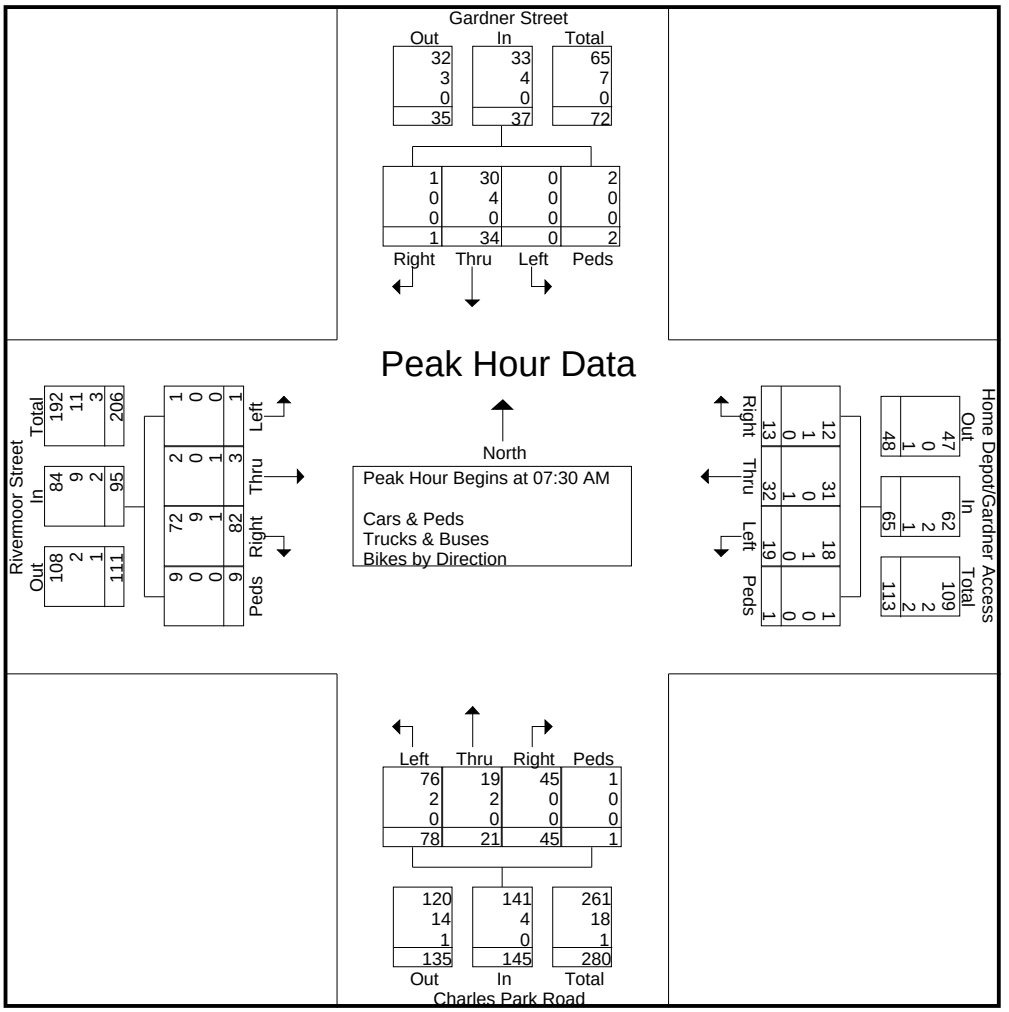
N/S: Gardner Street/Charles Park Road
E/W: Home Depot/Rivermoor Street
City, State: W. Roxbury, MA
Client: HSH/M. Littman

File Name : 04581E
Site Code : 2015063
Start Date : 6/30/2015

	Gardner Street From North					Home Depot/Gardner Access From East					Charles Park Road From South					Rivermoor Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	9	0	0	9	1	6	1	**1**	9	**12**	**6**	**24**	0	**42**	**26**	0	0	2	**28**	88
07:45 AM	**1**	8	0	0	9	**5**	**15**	**7**	0	**27**	11	5	19	0	35	20	**2**	0	1	23	**94**
08:00 AM	0	**11**	0	0	**11**	2	5	4	0	11	10	4	17	**1**	32	16	1	0	0	17	71
08:15 AM	0	6	0	**2**	8	5	6	7	0	18	12	6	18	0	36	20	0	**1**	**6**	27	89
Total Volume	1	34	0	2	37	13	32	19	1	65	45	21	78	1	145	82	3	1	9	95	342
% App. Total	2.7	91.9	0	5.4		20	49.2	29.2	1.5		31	14.5	53.8	0.7		86.3	3.2	1.1	9.5		
PHF	.250	.773	.000	.250	.841	.650	.533	.679	.250	.602	.938	.875	.813	.250	.863	.788	.375	.250	.375	.848	.910
Cars & Peds	1	30	0	2	33	12	31	18	1	62	45	19	76	1	141	72	2	1	9	84	320
% Cars & Peds	100	88.2	0	100	89.2	92.3	96.9	94.7	100	95.4	100	90.5	97.4	100	97.2	87.8	66.7	100	100	88.4	93.6
Trucks & Buses	0	4	0	0	4	1	0	1	0	2	0	2	2	0	4	9	0	0	0	9	19
% Trucks & Buses	0	11.8	0	0	10.8	7.7	0	5.3	0	3.1	0	9.5	2.6	0	2.8	11.0	0	0	0	9.5	5.6
Bikes by Direction	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	3
% Bikes by Direction	0	0	0	0	0	0	3.1	0	0	1.5	0	0	0	0	0	1.2	33.3	0	0	2.1	0.9



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Client: HSH/M. Littman

File Name : 04581E
Site Code : 2015063
Start Date : 6/30/2015

Groups Printed- Bikes by Direction

	Gardner Street From North				Home Depot/Gardner Access From East				Charles Park Road From South				Rivermoor Street 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	1	0	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	3
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	1	0	1	0	2	0	0	0	5
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
08:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
Grand Total	0	0	0	0	0	2	0	0	1	0	1	0	2	1	0	0	7
Apprch %	0	0	0	0	0	100	0	0	50	0	50	0	66.7	33.3	0	0	
Total %	0	0	0	0	0	28.6	0	0	14.3	0	14.3	0	28.6	14.3	0	0	

	Gardner Street From North					Home Depot/Gardner Access From East					Charles Park Road From South					Rivermoor Street 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 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	0	0	**1**	0	0	0	**1**	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	**1**	0	0	**1**	0	0	**1**	0	1	**1**	0	0	0	**1**	**3**
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	1	1	0	1	0	2	2	0	0	0	2	5
% App. Total	0	0	0	0		0	100	0	0		50	0	50	0		100	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.250	.000	.250	.000	.500	.500	.000	.000	.000	.500	.417

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Client: HSH/M. Littman

File Name : 04581E
Site Code : 2015063
Start Date : 6/30/2015
Page No : 1

Groups Printed- Trucks & Buses

	Gardner Street From North				Home Depot/Gardner Access From East				Charles Park Road From South				Rivermoor Street 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	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4
07:15 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
07:30 AM	0	1	0	0	0	0	0	0	0	2	0	0	4	0	0	0	7
07:45 AM	0	1	0	0	0	0	1	0	0	0	1	0	2	0	0	0	5
Total	0	3	0	0	0	0	1	0	0	3	2	0	9	0	0	0	18
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
08:15 AM	0	2	0	0	1	0	0	0	0	0	1	0	2	0	0	0	6
08:30 AM	0	0	0	0	0	0	0	0	0	3	2	0	1	0	0	0	6
08:45 AM	0	2	0	0	0	0	0	0	0	0	1	0	1	0	0	0	4
Total	0	4	0	0	1	0	0	0	0	3	4	0	5	0	0	0	17
Grand Total	0	7	0	0	1	0	1	0	0	6	6	0	14	0	0	0	35
Apprch %	0	100	0	0	50	0	50	0	0	50	50	0	100	0	0	0	
Total %	0	20	0	0	2.9	0	2.9	0	0	17.1	17.1	0	40	0	0	0	

	Gardner Street From North					Home Depot/Gardner Access From East					Charles Park Road From South					Rivermoor Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	1	0	0	1	0	0	0	0	0	0	**2**	0	0	**2**	**4**	0	0	0	**4**	**7**
07:45 AM	0	1	0	0	1	0	0	**1**	0	**1**	0	0	**1**	0	1	2	0	0	0	2	5
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
08:15 AM	0	**2**	0	0	**2**	**1**	0	0	0	1	0	0	1	0	1	2	0	0	0	2	6
Total Volume	0	4	0	0	4	1	0	1	0	2	0	2	2	0	4	9	0	0	0	9	19
% App. Total	0	100	0	0		50	0	50	0		0	50	50	0		100	0	0	0		
PHF	.000	.500	.000	.000	.500	.250	.000	.250	.000	.500	.000	.250	.500	.000	.500	.563	.000	.000	.000	.563	.679

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Client: HSH/M. Littman

File Name : 04581E
Site Code : 2015063
Start Date : 6/30/2015
Page No : 1

Groups Printed- Cars & Peds

	Gardner Street From North				Home Depot/Gardner Access From East				Charles Park Road From South				Rivermoor Street 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	5	1	0	1	9	2	1	10	5	20	2	2	0	0	0	58
07:15 AM	0	3	0	0	1	3	5	0	5	9	21	0	12	0	0	2	61
07:30 AM	0	8	0	0	1	6	1	1	12	4	24	0	21	0	0	2	80
07:45 AM	1	7	0	0	5	15	6	0	11	5	18	0	18	2	0	1	89
Total	1	23	1	0	8	33	14	2	38	23	83	2	53	2	0	5	288
08:00 AM	0	11	0	0	2	5	4	0	10	4	17	1	15	0	0	0	69
08:15 AM	0	4	0	2	4	5	7	0	12	6	17	0	18	0	1	6	82
08:30 AM	0	11	0	2	4	3	1	0	10	10	17	0	15	2	1	1	77
08:45 AM	1	11	1	0	4	1	3	2	19	1	9	0	12	0	0	0	64
Total	1	37	1	4	14	14	15	2	51	21	60	1	60	2	2	7	292
Grand Total	2	60	2	4	22	47	29	4	89	44	143	3	113	4	2	12	580
Apprch %	2.9	88.2	2.9	5.9	21.6	46.1	28.4	3.9	31.9	15.8	51.3	1.1	86.3	3.1	1.5	9.2	
Total %	0.3	10.3	0.3	0.7	3.8	8.1	5	0.7	15.3	7.6	24.7	0.5	19.5	0.7	0.3	2.1	

	Gardner Street From North					Home Depot/Gardner Access From East					Charles Park Road From South					Rivermoor Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	8	0	0	8	1	6	1	**1**	9	**12**	4	**24**	0	**40**	**21**	0	0	2	23	80
07:45 AM	**1**	7	0	0	8	**5**	**15**	6	0	**26**	11	5	18	0	34	18	**2**	0	1	21	**89**
08:00 AM	0	**11**	0	0	**11**	2	5	4	0	11	10	4	17	**1**	32	15	0	0	0	15	69
08:15 AM	0	4	0	**2**	6	4	5	**7**	0	16	12	**6**	17	0	35	18	0	**1**	**6**	**25**	82
Total Volume	1	30	0	2	33	12	31	18	1	62	45	19	76	1	141	72	2	1	9	84	320
% App. Total	3	90.9	0	6.1		19.4	50	29	1.6		31.9	13.5	53.9	0.7		85.7	2.4	1.2	10.7		
PHF	.250	.682	.000	.250	.750	.600	.517	.643	.250	.596	.938	.792	.792	.250	.881	.857	.250	.250	.375	.840	.899

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File Name : 04581E
Site Code : 2015063
Start Date : 6/30/2015
Page No : 1

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

	Gardner Street From North				Home Depot/Gardner Access From East				Charles Park Road From South				Rivermoor Street 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	6	1	0	1	9	2	1	11	5	20	2	5	0	0	0	63
07:15 AM	0	3	0	0	1	4	5	0	5	10	23	0	13	0	0	2	66
07:30 AM	0	9	0	0	1	6	1	1	12	6	24	0	26	0	0	2	88
07:45 AM	1	8	0	0	5	15	7	0	11	5	19	0	20	2	0	1	94
Total	1	26	1	0	8	34	15	2	39	26	86	2	64	2	0	5	311
08:00 AM	0	11	0	0	2	5	4	0	10	4	17	1	16	1	0	0	71
08:15 AM	0	6	0	2	5	6	7	0	12	6	18	0	20	0	1	6	89
08:30 AM	0	11	0	2	4	3	1	0	10	13	19	0	16	2	1	1	83
08:45 AM	1	13	1	0	4	1	3	2	19	1	10	0	13	0	0	0	68
Total	1	41	1	4	15	15	15	2	51	24	64	1	65	3	2	7	311
Grand Total	2	67	2	4	23	49	30	4	90	50	150	3	129	5	2	12	622
Apprch %	2.7	89.3	2.7	5.3	21.7	46.2	28.3	3.8	30.7	17.1	51.2	1	87.2	3.4	1.4	8.1	
Total %	0.3	10.8	0.3	0.6	3.7	7.9	4.8	0.6	14.5	8	24.1	0.5	20.7	0.8	0.3	1.9	
Cars & Peds	2	60	2	4	22	47	29	4	89	44	143	3	113	4	2	12	580
% Cars & Peds	100	89.6	100	100	95.7	95.9	96.7	100	98.9	88	95.3	100	87.6	80	100	100	93.2
Trucks & Buses	0	7	0	0	1	0	1	0	0	6	6	0	14	0	0	0	35
% Trucks & Buses	0	10.4	0	0	4.3	0	3.3	0	0	12	4	0	10.9	0	0	0	5.6
Bikes by Direction	0	0	0	0	0	2	0	0	1	0	1	0	2	1	0	0	7
% Bikes by Direction	0	0	0	0	0	4.1	0	0	1.1	0	0.7	0	1.6	20	0	0	1.1

	Gardner Street From North					Home Depot/Gardner Access From East					Charles Park Road From South					Rivermoor Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	9	0	0	9	1	6	1	**1**	9	**12**	**6**	**24**	0	**42**	**26**	0	0	2	**28**	88
07:45 AM	**1**	8	0	0	9	**5**	**15**	**7**	0	**27**	11	5	19	0	35	20	**2**	0	1	23	**94**
08:00 AM	0	**11**	0	0	**11**	2	5	4	0	11	10	4	17	**1**	32	16	1	0	0	17	71
08:15 AM	0	6	0	**2**	8	5	6	7	0	18	12	6	18	0	36	20	0	**1**	**6**	27	89
Total Volume	1	34	0	2	37	13	32	19	1	65	45	21	78	1	145	82	3	1	9	95	342
% App. Total	2.7	91.9	0	5.4		20	49.2	29.2	1.5		31	14.5	53.8	0.7		86.3	3.2	1.1	9.5		
PHF	.250	.773	.000	.250	.841	.650	.533	.679	.250	.602	.938	.875	.813	.250	.863	.788	.375	.250	.375	.848	.910
Cars & Peds	1	30	0	2	33	12	31	18	1	62	45	19	76	1	141	72	2	1	9	84	320
% Cars & Peds	100	88.2	0	100	89.2	92.3	96.9	94.7	100	95.4	100	90.5	97.4	100	97.2	87.8	66.7	100	100	88.4	93.6
Trucks & Buses	0	4	0	0	4	1	0	1	0	2	0	2	2	0	4	9	0	0	0	9	19
% Trucks & Buses	0	11.8	0	0	10.8	7.7	0	5.3	0	3.1	0	9.5	2.6	0	2.8	11.0	0	0	0	9.5	5.6
Bikes by Direction	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	3
% Bikes by Direction	0	0	0	0	0	0	3.1	0	0	1.5	0	0	0	0	0	1.2	33.3	0	0	2.1	0.9

MASSACHUSETTS HIGHWAY DEPARTMENT - STATEWIDE TRAFFIC DATA COLLECTION

2011 WEEKDAY SEASONAL FACTORS *

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

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

RECREATIONAL: (ALL YEARS)

**GROUP 3A:

1. CAPE COD (ALL TOWNS)

2.PLYMOUTH(SOUTH OF RTE.3A)

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

3.MARTHA'S VINEYARD

4.NANTUCKET

***GROUP 3B:

5.PERMANENTS 2 & 189

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

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

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

2011 AXLE CORRECTION FACTORS

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

ROUND OFF

0 - 999.....10

> 1,000.....100

Apply I-84 factor to stations:

3290, 3921, 3929

15059 1717-1725 Hyde Park Avenue

Trip Generation Assessment

HOWARD STEIN HUDSON

15-Jul-15

Land Use	Size	Category	Trip Rates (Trips/ksf or unit)	Unadjusted Vehicle Trips	Internal trips	Pass-by %	Less capture trips	Assumed national vehicle occupancy rate[1]	Converted to Person trips	Transit Share[2]	Transit Trips	Walk/Bike/ Other Share[2]	Walk/ Bike/ Other Trips	Vehicle Share[2]	Total Vehicle Person Trips	Assumed local auto occupancy rate for autos [3]	Total Adjusted Auto Trips
Daily Peak Hour																	
Apartment[4]	84	Total	6.65	558	0%	0%	558	1.13	**631**		**44**		**70**		**517**	1.13	**458**
	units	In	3.33	279	0%	0%	279	1.13	**315**	7%	**22**	11%	**35**	82%	**259**	1.13	**229**
		Out	3.33	279	0%	0%	279	1.13	**315**	7%	**22**	11%	**35**	82%	**259**	1.13	**229**
AM Peak Hour																	
Apartment[4]	84	Total	0.51	43	0%	0%	43	1.13	**49**		**8**		**4**		**36**	1.13	**32**
	units	In	0.10	9	0%	0%	9	1.13	**10**	7%	**1**	13%	**1**	80%	**8**	1.13	**7**
		Out	0.41	34	0%	0%	34	1.13	**38**	18%	**7**	9%	**3**	73%	**28**	1.13	**25**
PM Peak Hour																	
Apartment[4]	84	Total	0.62	52	0%	0%	52	1.13	**59**		**8**		**6**		**44**	1.13	**39**
	units	In	0.40	34	0%	0%	34	1.13	**38**	18%	**7**	9%	**3**	73%	**28**	1.13	**25**
		Out	0.22	18	0%	0%	18	1.13	**20**	7%	**1**	13%	**3**	80%	**16**	1.13	**14**

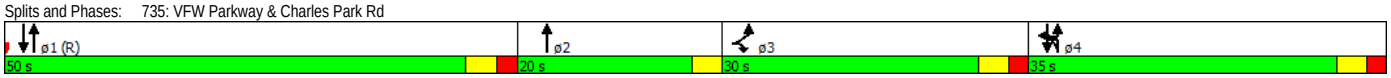
1. 2009 National vehicle occupancy rates - 1.13:home to work; 1.84: family/personal business; 1.78: shopping; 2.2 social/recreational
2. Mode shares based on peak-hour BTD Data for Area 19 - West Roxbury
3. Local vehicle occupancy rates based on 2009 National vehicle occupancy rates.
4. ITE Trip Generation Rate, 9th Edition, LUC 220 (Apartment), average rate

Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR	ø2
Lane Configurations									
Volume (vph)	77	70	11	180	1284	126	921	23	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	190	190		125		230		0	
Storage Lanes	1	1		1		1		0	
Taper Length (ft)	200			25		25			
Lane Util. Factor	0.97	1.00	0.95	1.00	0.95	1.00	0.95	0.95	
Ped Bike Factor							1.00		
Frt		0.850					0.996		
Flt Protected	0.950			0.950		0.950			
Satd. Flow (prot)	2648	1333	0	1586	3249	1593	3234	0	
Flt Permitted	0.950			0.950		0.950			
Satd. Flow (perm)	2648	1333	0	1586	3249	1593	3234	0	
Right Turn on Red		Yes						Yes	
Satd. Flow (RTOR)		88					2		
Link Speed (mph)	30				30		30		
Link Distance (ft)	1231				559		275		
Travel Time (s)	28.0				12.7		6.3		
Confl. Bikes (#/hr)								6	
Peak Hour Factor	0.80	0.80	0.95	0.95	0.95	0.96	0.96	0.96	
Heavy Vehicles (%)	19%	9%	9%	2%	0%	2%	0%	0%	
Adj. Flow (vph)	96	88	12	189	1352	131	959	24	
Shared Lane Traffic (%)									
Lane Group Flow (vph)	96	88	0	201	1352	131	983	0	
Turn Type	Prot	Prot	Prot	Prot	NA	Prot	NA		
Protected Phases	3	3	4	4	1 2	4	1		2
Permitted Phases									
Detector Phase	3	3	4	4		4			
Switch Phase									
Minimum Initial (s)	5.0	5.0	15.0	15.0		15.0	30.0		5.0
Minimum Split (s)	10.0	10.0	20.0	20.0		20.0	35.0		20.0
Total Split (s)	30.0	30.0	35.0	35.0		35.0	50.0		20.0
Total Split (%)	22.2%	22.2%	25.9%	25.9%		25.9%	37.0%		15%
Maximum Green (s)	25.0	25.0	30.0	30.0		30.0	45.0		17.0
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0	3.0		3.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0		5.0		5.0	5.0		
Lead/Lag	Lead	Lead	Lag	Lag		Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes		Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Recall Mode	None	None	None	None		None	C-Max		None
Walk Time (s)									8.0
Flash Dont Walk (s)									9.0
Pedestrian Calls (#/hr)									22
Act Effct Green (s)	9.3	9.3		21.7	89.0	21.7	77.0		
Actuated g/C Ratio	0.07	0.07		0.16	0.66	0.16	0.57		
v/c Ratio	0.53	0.51		0.79	0.63	0.51	0.53		
Control Delay	70.7	21.8		75.1	16.4	57.8	22.6		
Queue Delay	0.0	0.0		0.0	0.0	1.0	7.2		
Total Delay	70.7	21.8		75.1	16.4	58.9	29.8		
LOS	E	C		E	B	E	C		
Approach Delay	47.3				24.0		33.2		
Approach LOS	D				C		C		
Queue Length 50th (ft)	42	0		172	337	107	307		
Queue Length 95th (ft)	62	39		245	515	163	444		
Internal Link Dist (ft)	1151				479		195		
Turn Bay Length (ft)	190	190		125		230			
Base Capacity (vph)	490	318		352	2141	354	1844		
Starvation Cap Reductn	0	0		0	0	87	810		
Spillback Cap Reductn	0	0		0	0	0	0		
Storage Cap Reductn	0	0		0	0	0	0		
Reduced v/c Ratio	0.20	0.28		0.57	0.63	0.49	0.95		

Intersection Summary

Area Type: CBD
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 68.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 735: VFW Parkway & Charles Park Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø1	ø2	ø3
Lane Configurations															
Volume (vph)	0	0	6	0	0	61	0	1487	0	0	1064	23			
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	0.95	1.00	1.00	0.95	0.95			
Ped Bike Factor			0.99			0.99					1.00				
Frt			0.865			0.865					0.997				
Flt Protected															
Satd. Flow (prot)	0	0	1112	0	0	1479	0	3217	0	0	3238	0			
Flt Permitted															
Satd. Flow (perm)	0	0	1098	0	0	1459	0	3217	0	0	3238	0			
Right Turn on Red			Yes			Yes			Yes			Yes			
Satd. Flow (RTOR)											4				
Link Speed (mph)		30			30			30			30				
Link Distance (ft)		208			554			275			302				
Travel Time (s)		4.7			12.6			6.3			6.9				
Confl. Peds. (#/hr)			3			6						3			
Confl. Bikes (#/hr)												5			
Peak Hour Factor	0.50	0.50	0.50	0.76	0.76	0.76	0.90	0.90	0.90	0.94	0.94	0.94			
Heavy Vehicles (%)	0%	0%	33%	0%	0%	0%	0%	1%	0%	0%	0%	0%			
Adj. Flow (vph)	0	0	12	0	0	80	0	1652	0	0	1132	24			
Shared Lane Traffic (%)															
Lane Group Flow (vph)	0	0	12	0	0	80	0	1652	0	0	1156	0			
Turn Type			Perm			Perm		NA			NA				
Protected Phases								1 2			1 3		1	2	3
Permitted Phases			1 2 3			1 2 3									
Detector Phase															
Switch Phase															
Minimum Initial (s)													5.0	5.0	5.0
Minimum Split (s)													10.0	29.0	19.0
Total Split (s)													30.0	29.0	23.5
Total Split (%)													36%	35%	28%
Maximum Green (s)													25.0	24.0	18.5
Yellow Time (s)													3.0	3.0	3.0
All-Red Time (s)													2.0	2.0	2.0
Lost Time Adjust (s)															
Total Lost Time (s)															
Lead/Lag													Lead	Lag	
Lead-Lag Optimize?													Yes	Yes	
Vehicle Extension (s)													2.0	2.0	2.0
Recall Mode													C-Max	None	None
Walk Time (s)														10.0	8.0
Flash Dont Walk (s)														14.0	6.0
Pedestrian Calls (#/hr)														9	9
Act Effct Green (s)			82.5			82.5		77.7			75.7				
Actuated g/C Ratio			1.00			1.00		0.94			0.92				
v/c Ratio			0.01			0.05		0.55			0.39				
Control Delay			0.0			0.1		2.9			3.5				
Queue Delay			0.0			0.0		0.1			0.0				
Total Delay			0.0			0.1		3.0			3.5				
LOS			A			A		A			A				
Approach Delay								3.0			3.5				
Approach LOS								A			A				
Queue Length 50th (ft)			0			0		0			0				
Queue Length 95th (ft)			0			0		300			243				
Internal Link Dist (ft)		128			474			195			222				
Turn Bay Length (ft)															
Base Capacity (vph)			1098			1459		3030			2971				
Starvation Cap Reductn			0			0		211			0				
Spillback Cap Reductn			0			0		0			0				
Storage Cap Reductn			0			0		0			0				
Reduced v/c Ratio			0.01			0.05		0.59			0.39				

Intersection Summary

Area Type: CBD
Cycle Length: 82.5
Actuated Cycle Length: 82.5
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 3.1 Intersection LOS: A
Intersection Capacity Utilization 58.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 710: VFW Parkway & Gardner Street

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	98	0	0	989	138
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.93	0.93
Hourly flow rate (vph)	0	108	0	0	1063	148
Pedestrians	29			29		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	3			3		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				302		
pX, platoon unblocked						
vC, conflicting volume	1167	664	1092			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1167	664	1092			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	72	100			
cM capacity (veh/h)	185	386	617			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	108	0	0	709	503
Volume Left	0	0	0	0	0
Volume Right	108	0	0	0	148
cSH	386	1700	1700	1700	1700
Volume to Capacity	0.28	0.00	0.00	0.42	0.30
Queue Length 95th (ft)	28	0	0	0	0
Control Delay (s)	17.9	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	17.9	0.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	54.1%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	2	73	0	17	29	9	0	82	25	38	0	0	31	1
Peak Hour Factor	0.92	0.75	0.75	0.75	0.92	0.51	0.51	0.51	0.92	0.86	0.86	0.86	0.92	0.73	0.73	0.73
Heavy Vehicles, %	2	0	0	10	2	6	0	0	2	2	12	0	2	0	6	0
Mvmt Flow	0	0	3	97	0	33	57	18	0	95	29	44	0	0	42	1
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	8.3	8.6	7.9
HCM LOS	A	A	A	A

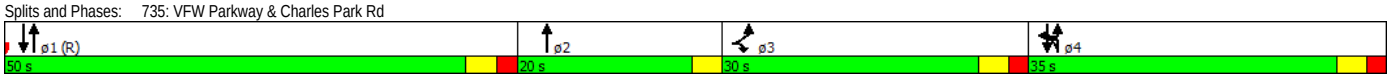
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	57%	0%	31%	0%
Vol Thru, %	17%	3%	53%	97%
Vol Right, %	26%	97%	16%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	145	75	55	32
LT Vol	82	0	17	0
Through Vol	25	2	29	31
RT Vol	38	73	9	1
Lane Flow Rate	169	100	108	44
Geometry Grp	1	1	1	1
Degree of Util (X)	0.206	0.109	0.137	0.056
Departure Headway (Hd)	4.397	3.933	4.56	4.629
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	818	913	788	775
Service Time	2.415	1.949	2.576	2.652
HCM Lane V/C Ratio	0.207	0.11	0.137	0.057
HCM Control Delay	8.6	7.4	8.3	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	0.4	0.5	0.2

Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR	ø2
Lane Configurations									
Volume (vph)	122	126	37	103	1204	100	1398	26	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	190	190		125		230		0	
Storage Lanes	1	1		1		1		0	
Taper Length (ft)	200			25		25			
Lane Util. Factor	0.97	1.00	0.95	1.00	0.95	1.00	0.95	0.95	
Ped Bike Factor							1.00		
Frt		0.850					0.997		
Flt Protected	0.950			0.950		0.950			
Satd. Flow (prot)	3152	1425	0	1589	3249	1624	3238	0	
Flt Permitted	0.950			0.950		0.950			
Satd. Flow (perm)	3152	1425	0	1589	3249	1624	3238	0	
Right Turn on Red		Yes						Yes	
Satd. Flow (RTOR)		156					1		
Link Speed (mph)	30				30		30		
Link Distance (ft)	1231				559		275		
Travel Time (s)	28.0				12.7		6.3		
Confl. Bikes (#/hr)								3	
Peak Hour Factor	0.81	0.81	0.92	0.92	0.92	0.97	0.97	0.97	
Heavy Vehicles (%)	0%	2%	3%	2%	0%	0%	0%	0%	
Adj. Flow (vph)	151	156	40	112	1309	103	1441	27	
Shared Lane Traffic (%)									
Lane Group Flow (vph)	151	156	0	152	1309	103	1468	0	
Turn Type	Prot	Prot	Prot	Prot	NA	Prot	NA		
Protected Phases	3	3	4	4	1 2	4	1		2
Permitted Phases									
Detector Phase	3	3	4	4		4			
Switch Phase									
Minimum Initial (s)	5.0	5.0	15.0	15.0		15.0	30.0		5.0
Minimum Split (s)	10.0	10.0	20.0	20.0		20.0	35.0		20.0
Total Split (s)	30.0	30.0	35.0	35.0		35.0	50.0		20.0
Total Split (%)	22.2%	22.2%	25.9%	25.9%		25.9%	37.0%		15%
Maximum Green (s)	25.0	25.0	30.0	30.0		30.0	45.0		17.0
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0	3.0		3.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0		5.0		5.0	5.0		
Lead/Lag	Lead	Lead	Lag	Lag		Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes		Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Recall Mode	None	None	None	None		None	C-Max		None
Walk Time (s)									8.0
Flash Dont Walk (s)									9.0
Pedestrian Calls (#/hr)									4
Act Effct Green (s)	10.9	10.9		18.3	90.8	18.3	86.8		
Actuated g/C Ratio	0.08	0.08		0.14	0.67	0.14	0.64		
v/c Ratio	0.60	0.60		0.71	0.60	0.47	0.71		
Control Delay	69.4	18.8		73.2	14.4	60.2	20.6		
Queue Delay	0.0	0.0		0.0	0.0	0.2	48.7		
Total Delay	69.4	18.8		73.2	14.4	60.4	69.4		
LOS	E	B		E	B	E	E		
Approach Delay	43.7				20.6		68.8		
Approach LOS	D				C		E		
Queue Length 50th (ft)	67	0		130	298	85	365		
Queue Length 95th (ft)	90	46		197	457	138	#841		
Internal Link Dist (ft)	1151				479		195		
Turn Bay Length (ft)	190	190		125		230			
Base Capacity (vph)	583	391		353	2185	360	2082		
Starvation Cap Reductn	0	0		0	0	44	837		
Spillback Cap Reductn	0	0		0	0	0	0		
Storage Cap Reductn	0	0		0	0	0	0		
Reduced v/c Ratio	0.26	0.40		0.43	0.60	0.33	1.18		

Intersection Summary

Area Type: CBD
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 45.4 Intersection LOS: D
Intersection Capacity Utilization 77.5% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 735: VFW Parkway & Charles Park Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø1	ø2	ø3
Lane Configurations															
Volume (vph)	0	0	3	0	0	68	0	1426	0	0	1521	12			
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	0.95	1.00	1.00	0.95	0.95			
Ped Bike Factor			0.99			0.98					1.00				
Frt			0.865			0.865					0.999				
Flt Protected															
Satd. Flow (prot)	0	0	1479	0	0	1479	0	3249	0	0	3245	0			
Flt Permitted															
Satd. Flow (perm)	0	0	1459	0	0	1454	0	3249	0	0	3245	0			
Right Turn on Red			Yes			Yes			Yes			Yes			
Satd. Flow (RTOR)											2				
Link Speed (mph)		30			30			30			30				
Link Distance (ft)		208			554			275			302				
Travel Time (s)		4.7			12.6			6.3			6.9				
Confl. Peds. (#/hr)			6			18						6			
Confl. Bikes (#/hr)												3			
Peak Hour Factor	0.38	0.38	0.38	0.77	0.77	0.77	0.93	0.93	0.93	0.97	0.97	0.97			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Adj. Flow (vph)	0	0	8	0	0	88	0	1533	0	0	1568	12			
Shared Lane Traffic (%)															
Lane Group Flow (vph)	0	0	8	0	0	88	0	1533	0	0	1580	0			
Turn Type			Perm			Perm		NA			NA				
Protected Phases								1 2			1 3		1	2	3
Permitted Phases			1 2 3			1 2 3									
Detector Phase															
Switch Phase															
Minimum Initial (s)													5.0	5.0	5.0
Minimum Split (s)													10.0	29.0	19.0
Total Split (s)													30.0	29.0	23.5
Total Split (%)													36%	35%	28%
Maximum Green (s)													25.0	24.0	18.5
Yellow Time (s)													3.0	3.0	3.0
All-Red Time (s)													2.0	2.0	2.0
Lost Time Adjust (s)															
Total Lost Time (s)															
Lead/Lag													Lead	Lag	
Lead-Lag Optimize?													Yes	Yes	
Vehicle Extension (s)													2.0	2.0	2.0
Recall Mode													C-Max	None	None
Walk Time (s)														10.0	8.0
Flash Dont Walk (s)														14.0	6.0
Pedestrian Calls (#/hr)														22	22
Act Effct Green (s)			82.5			82.5		72.9			68.9				
Actuated g/C Ratio			1.00			1.00		0.88			0.84				
v/c Ratio			0.01			0.06		0.53			0.58				
Control Delay			0.0			0.1		4.3			8.3				
Queue Delay			0.0			0.0		0.1			0.0				
Total Delay			0.0			0.1		4.3			8.3				
LOS			A			A		A			A				
Approach Delay								4.3			8.3				
Approach LOS								A			A				
Queue Length 50th (ft)			0			0		0			0				
Queue Length 95th (ft)			0			0		254			418				
Internal Link Dist (ft)		128			474			195			222				
Turn Bay Length (ft)															
Base Capacity (vph)			1459			1454		2871			2710				
Starvation Cap Reductn			0			0		240			0				
Spillback Cap Reductn			0			0		0			0				
Storage Cap Reductn			0			0		0			0				
Reduced v/c Ratio			0.01			0.06		0.58			0.58				

Intersection Summary

Area Type: CBD
Cycle Length: 82.5
Actuated Cycle Length: 82.5
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 6.2 Intersection LOS: A
Intersection Capacity Utilization 59.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 710: VFW Parkway & Gardner Street

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	98	0	0	1435	141
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.94	0.94
Hourly flow rate (vph)	0	111	0	0	1527	150
Pedestrians	4			4		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				302		
pX, platoon unblocked						
vC, conflicting volume	1606	846	1531			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1606	846	1531			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	64	100			
cM capacity (veh/h)	98	307	439			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	111	0	0	1018	659
Volume Left	0	0	0	0	0
Volume Right	111	0	0	0	150
cSH	307	1700	1700	1700	1700
Volume to Capacity	0.36	0.00	0.00	0.60	0.39
Queue Length 95th (ft)	40	0	0	0	0
Control Delay (s)	23.2	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	23.2	0.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	63.7%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	2	4	85	0	76	21	14	0	19	30	40	0	1	48	0
Peak Hour Factor	0.92	0.58	0.58	0.58	0.92	0.75	0.75	0.75	0.92	0.82	0.82	0.82	0.92	0.68	0.68	0.68
Heavy Vehicles, %	2	50	25	5	2	0	0	0	2	11	3	0	2	0	0	0
Mvmt Flow	0	3	7	147	0	101	28	19	0	23	37	49	0	1	71	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	8.7	8.5	8.3
HCM LOS	A	A	A	A

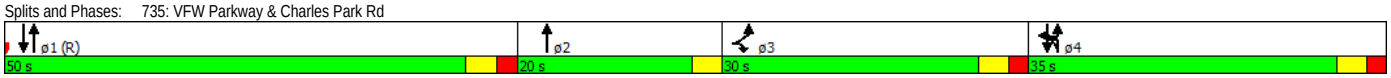
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	21%	2%	68%	2%
Vol Thru, %	34%	4%	19%	98%
Vol Right, %	45%	93%	13%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	89	91	111	49
LT Vol	19	2	76	1
Through Vol	30	4	21	48
RT Vol	40	85	14	0
Lane Flow Rate	109	157	148	72
Geometry Grp	1	1	1	1
Degree of Util (X)	0.141	0.209	0.188	0.095
Departure Headway (Hd)	4.678	4.797	4.583	4.768
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	766	748	783	751
Service Time	2.71	2.827	2.613	2.802
HCM Lane V/C Ratio	0.142	0.21	0.189	0.096
HCM Control Delay	8.5	9.1	8.7	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.8	0.7	0.3

Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR	ø2
Lane Configurations									
Volume (vph)	87	78	12	194	1349	132	968	24	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	190	190		125		230		0	
Storage Lanes	1	1		1		1		0	
Taper Length (ft)	200			25		25			
Lane Util. Factor	0.97	1.00	0.95	1.00	0.95	1.00	0.95	0.95	
Ped Bike Factor							1.00		
Frt		0.850					0.996		
Flt Protected	0.950			0.950		0.950			
Satd. Flow (prot)	2648	1333	0	1586	3249	1593	3234	0	
Flt Permitted	0.950			0.950		0.950			
Satd. Flow (perm)	2648	1333	0	1586	3249	1593	3234	0	
Right Turn on Red		Yes						Yes	
Satd. Flow (RTOR)		98					2		
Link Speed (mph)	30				30		30		
Link Distance (ft)	1231				559		275		
Travel Time (s)	28.0				12.7		6.3		
Confl. Bikes (#/hr)								6	
Peak Hour Factor	0.80	0.80	0.95	0.95	0.95	0.96	0.96	0.96	
Heavy Vehicles (%)	19%	9%	9%	2%	0%	2%	0%	0%	
Adj. Flow (vph)	109	98	13	204	1420	138	1008	25	
Shared Lane Traffic (%)									
Lane Group Flow (vph)	109	98	0	217	1420	138	1033	0	
Turn Type	Prot	Prot	Prot	Prot	NA	Prot	NA		
Protected Phases	3	3	4	4	1 2	4	1		2
Permitted Phases									
Detector Phase	3	3	4	4		4			
Switch Phase									
Minimum Initial (s)	5.0	5.0	15.0	15.0		15.0	30.0		5.0
Minimum Split (s)	10.0	10.0	20.0	20.0		20.0	35.0		20.0
Total Split (s)	30.0	30.0	35.0	35.0		35.0	50.0		20.0
Total Split (%)	22.2%	22.2%	25.9%	25.9%		25.9%	37.0%		15%
Maximum Green (s)	25.0	25.0	30.0	30.0		30.0	45.0		17.0
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0	3.0		3.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0		5.0		5.0	5.0		
Lead/Lag	Lead	Lead	Lag	Lag		Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes		Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Recall Mode	None	None	None	None		None	C-Max		None
Walk Time (s)									8.0
Flash Dont Walk (s)									9.0
Pedestrian Calls (#/hr)									22
Act Effct Green (s)	10.0	10.0		22.9	87.2	22.9	75.2		
Actuated g/C Ratio	0.07	0.07		0.17	0.65	0.17	0.56		
v/c Ratio	0.56	0.52		0.81	0.68	0.51	0.57		
Control Delay	70.9	20.8		75.8	18.6	56.6	24.7		
Queue Delay	0.0	0.0		0.0	0.0	1.5	12.8		
Total Delay	70.9	20.8		75.8	18.6	58.1	37.5		
LOS	E	C		E	B	E	D		
Approach Delay	47.2				26.2		39.9		
Approach LOS	D				C		D		
Queue Length 50th (ft)	48	0		185	385	111	342		
Queue Length 95th (ft)	69	40		261	589	169	493		
Internal Link Dist (ft)	1151				479		195		
Turn Bay Length (ft)	190	190		125		230			
Base Capacity (vph)	490	326		354	2097	356	1801		
Starvation Cap Reductn	0	0		0	0	101	758		
Spillback Cap Reductn	0	0		0	0	0	0		
Storage Cap Reductn	0	0		0	0	0	0		
Reduced v/c Ratio	0.22	0.30		0.61	0.68	0.54	0.99		

Intersection Summary

Area Type: CBD
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 33.0 Intersection LOS: C
Intersection Capacity Utilization 70.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 735: VFW Parkway & Charles Park Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø1	ø2	ø3
Lane Configurations															
Volume (vph)	0	0	6	0	0	64	0	1569	0	0	1118	24			
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	0.95	1.00	1.00	0.95	0.95			
Ped Bike Factor			0.99			0.99					1.00				
Frt			0.865			0.865					0.997				
Flt Protected															
Satd. Flow (prot)	0	0	1112	0	0	1479	0	3217	0	0	3237	0			
Flt Permitted															
Satd. Flow (perm)	0	0	1098	0	0	1459	0	3217	0	0	3237	0			
Right Turn on Red			Yes			Yes			Yes			Yes			
Satd. Flow (RTOR)											4				
Link Speed (mph)		30			30			30			30				
Link Distance (ft)		208			554			275			302				
Travel Time (s)		4.7			12.6			6.3			6.9				
Confl. Peds. (#/hr)			3			6						3			
Confl. Bikes (#/hr)												5			
Peak Hour Factor	0.50	0.50	0.50	0.76	0.76	0.76	0.90	0.90	0.90	0.94	0.94	0.94			
Heavy Vehicles (%)	0%	0%	33%	0%	0%	0%	0%	1%	0%	0%	0%	0%			
Adj. Flow (vph)	0	0	12	0	0	84	0	1743	0	0	1189	26			
Shared Lane Traffic (%)															
Lane Group Flow (vph)	0	0	12	0	0	84	0	1743	0	0	1215	0			
Turn Type			Perm			Perm		NA			NA				
Protected Phases								1 2			1 3		1	2	3
Permitted Phases			1 2 3			1 2 3									
Detector Phase															
Switch Phase															
Minimum Initial (s)													5.0	5.0	5.0
Minimum Split (s)													10.0	29.0	19.0
Total Split (s)													30.0	29.0	23.5
Total Split (%)													36%	35%	28%
Maximum Green (s)													25.0	24.0	18.5
Yellow Time (s)													3.0	3.0	3.0
All-Red Time (s)													2.0	2.0	2.0
Lost Time Adjust (s)															
Total Lost Time (s)															
Lead/Lag													Lead	Lag	
Lead-Lag Optimize?													Yes	Yes	
Vehicle Extension (s)													2.0	2.0	2.0
Recall Mode													C-Max	None	None
Walk Time (s)														10.0	8.0
Flash Dont Walk (s)														14.0	6.0
Pedestrian Calls (#/hr)														9	9
Act Effct Green (s)			82.5			82.5		77.7			75.7				
Actuated g/C Ratio			1.00			1.00		0.94			0.92				
v/c Ratio			0.01			0.06		0.58			0.41				
Control Delay			0.0			0.1		3.2			3.7				
Queue Delay			0.0			0.0		0.1			0.0				
Total Delay			0.0			0.1		3.3			3.7				
LOS			A			A		A			A				
Approach Delay								3.3			3.7				
Approach LOS								A			A				
Queue Length 50th (ft)			0			0		0			0				
Queue Length 95th (ft)			0			0		338			263				
Internal Link Dist (ft)		128			474			195			222				
Turn Bay Length (ft)															
Base Capacity (vph)			1098			1459		3030			2970				
Starvation Cap Reductn			0			0		193			0				
Spillback Cap Reductn			0			0		0			0				
Storage Cap Reductn			0			0		0			0				
Reduced v/c Ratio			0.01			0.06		0.61			0.41				

Intersection Summary

Area Type: CBD
Cycle Length: 82.5
Actuated Cycle Length: 82.5
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 3.3 Intersection LOS: A
Intersection Capacity Utilization 61.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 710: VFW Parkway & Gardner Street

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	103	0	0	1039	153
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.93	0.93
Hourly flow rate (vph)	0	113	0	0	1117	165
Pedestrians	29			29		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	3			3		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				302		
pX, platoon unblocked						
vC, conflicting volume	1228	699	1146			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1228	699	1146			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	69	100			
cM capacity (veh/h)	168	366	589			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	113	0	0	745	537
Volume Left	0	0	0	0	0
Volume Right	113	0	0	0	165
cSH	366	1700	1700	1700	1700
Volume to Capacity	0.31	0.00	0.00	0.44	0.32
Queue Length 95th (ft)	32	0	0	0	0
Control Delay (s)	19.2	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	19.2	0.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	56.3%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	2	87	0	18	38	9	0	91	26	40	0	0	33	1
Peak Hour Factor	0.92	0.75	0.75	0.75	0.92	0.51	0.51	0.51	0.92	0.86	0.86	0.86	0.92	0.73	0.73	0.73
Heavy Vehicles, %	2	0	0	10	2	6	0	0	2	2	12	0	2	0	6	0
Mvmt Flow	0	0	3	116	0	35	75	18	0	106	30	47	0	0	45	1
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	8.6	8.9	8.1
HCM LOS	A	A	A	A

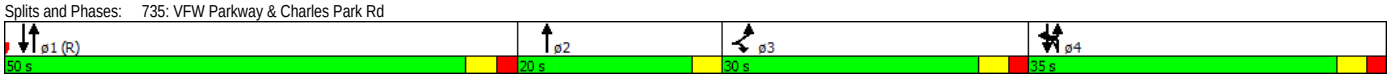
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	58%	0%	28%	0%
Vol Thru, %	17%	2%	58%	97%
Vol Right, %	25%	98%	14%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	157	89	65	34
LT Vol	91	0	18	0
Through Vol	26	2	38	33
RT Vol	40	87	9	1
Lane Flow Rate	183	119	127	47
Geometry Grp	1	1	1	1
Degree of Util (X)	0.228	0.132	0.164	0.061
Departure Headway (Hd)	4.497	4.002	4.636	4.743
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	800	896	775	755
Service Time	2.522	2.026	2.66	2.774
HCM Lane V/C Ratio	0.229	0.133	0.164	0.062
HCM Control Delay	8.9	7.6	8.6	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	0.5	0.6	0.2

Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR	ø2
Lane Configurations									
Volume (vph)	141	140	39	116	1265	105	1469	27	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	190	190		125		230		0	
Storage Lanes	1	1		1		1		0	
Taper Length (ft)	200			25		25			
Lane Util. Factor	0.97	1.00	0.95	1.00	0.95	1.00	0.95	0.95	
Ped Bike Factor							1.00		
Frt		0.850					0.997		
Flt Protected	0.950			0.950		0.950			
Satd. Flow (prot)	3152	1425	0	1589	3249	1624	3238	0	
Flt Permitted	0.950			0.950		0.950			
Satd. Flow (perm)	3152	1425	0	1589	3249	1624	3238	0	
Right Turn on Red		Yes						Yes	
Satd. Flow (RTOR)		173					1		
Link Speed (mph)	30				30		30		
Link Distance (ft)	1231				559		275		
Travel Time (s)	28.0				12.7		6.3		
Confl. Bikes (#/hr)								3	
Peak Hour Factor	0.81	0.81	0.92	0.92	0.92	0.97	0.97	0.97	
Heavy Vehicles (%)	0%	2%	3%	2%	0%	0%	0%	0%	
Adj. Flow (vph)	174	173	42	126	1375	108	1514	28	
Shared Lane Traffic (%)									
Lane Group Flow (vph)	174	173	0	168	1375	108	1542	0	
Turn Type	Prot	Prot	Prot	Prot	NA	Prot	NA		
Protected Phases	3	3	4	4	1 2	4	1		2
Permitted Phases									
Detector Phase	3	3	4	4		4			
Switch Phase									
Minimum Initial (s)	5.0	5.0	15.0	15.0		15.0	30.0		5.0
Minimum Split (s)	10.0	10.0	20.0	20.0		20.0	35.0		20.0
Total Split (s)	30.0	30.0	35.0	35.0		35.0	50.0		20.0
Total Split (%)	22.2%	22.2%	25.9%	25.9%		25.9%	37.0%		15%
Maximum Green (s)	25.0	25.0	30.0	30.0		30.0	45.0		17.0
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0	3.0		3.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0		5.0		5.0	5.0		
Lead/Lag	Lead	Lead	Lag	Lag		Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes		Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Recall Mode	None	None	None	None		None	C-Max		None
Walk Time (s)									8.0
Flash Dont Walk (s)									9.0
Pedestrian Calls (#/hr)									4
Act Effct Green (s)	11.8	11.8		19.4	88.8	19.4	84.8		
Actuated g/C Ratio	0.09	0.09		0.14	0.66	0.14	0.63		
v/c Ratio	0.63	0.61		0.74	0.64	0.47	0.76		
Control Delay	69.6	17.6		74.1	16.6	58.8	23.2		
Queue Delay	0.0	0.0		0.0	0.0	0.4	48.5		
Total Delay	69.6	17.6		74.1	16.6	59.1	71.7		
LOS	E	B		E	B	E	E		
Approach Delay	43.7				22.8		70.9		
Approach LOS	D				C		E		
Queue Length 50th (ft)	77	0		144	344	89	425		
Queue Length 95th (ft)	101	48		212	527	141	#947		
Internal Link Dist (ft)	1151				479		195		
Turn Bay Length (ft)	190	190		125		230			
Base Capacity (vph)	583	404		353	2137	360	2035		
Starvation Cap Reductn	0	0		0	0	61	771		
Spillback Cap Reductn	0	0		0	0	0	0		
Storage Cap Reductn	0	0		0	0	0	0		
Reduced v/c Ratio	0.30	0.43		0.48	0.64	0.36	1.22		

Intersection Summary

Area Type: CBD
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 47.3 Intersection LOS: D
Intersection Capacity Utilization 80.7% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 735: VFW Parkway & Charles Park Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø1	ø2	ø3
Lane Configurations															
Volume (vph)	0	0	3	0	0	71	0	1512	0	0	1599	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	0.95	1.00	1.00	0.95	0.95			
Ped Bike Factor			0.99			0.98					1.00				
Frt			0.865			0.865					0.999				
Flt Protected															
Satd. Flow (prot)	0	0	1479	0	0	1479	0	3249	0	0	3245	0			
Flt Permitted															
Satd. Flow (perm)	0	0	1459	0	0	1454	0	3249	0	0	3245	0			
Right Turn on Red			Yes			Yes			Yes			Yes			
Satd. Flow (RTOR)											2				
Link Speed (mph)		30			30			30			30				
Link Distance (ft)		208			554			275			302				
Travel Time (s)		4.7			12.6			6.3			6.9				
Confl. Peds. (#/hr)			6			18						6			
Confl. Bikes (#/hr)												3			
Peak Hour Factor	0.38	0.38	0.38	0.77	0.77	0.77	0.93	0.93	0.93	0.97	0.97	0.97			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Adj. Flow (vph)	0	0	8	0	0	92	0	1626	0	0	1648	13			
Shared Lane Traffic (%)															
Lane Group Flow (vph)	0	0	8	0	0	92	0	1626	0	0	1661	0			
Turn Type			Perm			Perm		NA			NA				
Protected Phases								1 2			1 3		1	2	3
Permitted Phases			1 2 3			1 2 3									
Detector Phase															
Switch Phase															
Minimum Initial (s)													5.0	5.0	5.0
Minimum Split (s)													10.0	29.0	19.0
Total Split (s)													30.0	29.0	23.5
Total Split (%)													36%	35%	28%
Maximum Green (s)													25.0	24.0	18.5
Yellow Time (s)													3.0	3.0	3.0
All-Red Time (s)													2.0	2.0	2.0
Lost Time Adjust (s)															
Total Lost Time (s)															
Lead/Lag													Lead	Lag	
Lead-Lag Optimize?													Yes	Yes	
Vehicle Extension (s)													2.0	2.0	2.0
Recall Mode													C-Max	None	None
Walk Time (s)														10.0	8.0
Flash Dont Walk (s)														14.0	6.0
Pedestrian Calls (#/hr)														22	22
Act Effct Green (s)			82.5			82.5		72.9			68.9				
Actuated g/C Ratio			1.00			1.00		0.88			0.84				
v/c Ratio			0.01			0.06		0.57			0.61				
Control Delay			0.0			0.1		4.6			9.1				
Queue Delay			0.0			0.0		0.1			0.0				
Total Delay			0.0			0.1		4.7			9.1				
LOS			A			A		A			A				
Approach Delay								4.7			9.1				
Approach LOS								A			A				
Queue Length 50th (ft)			0			0		0			0				
Queue Length 95th (ft)			0			0		286			465				
Internal Link Dist (ft)		128			474			195			222				
Turn Bay Length (ft)															
Base Capacity (vph)			1459			1454		2871			2710				
Starvation Cap Reductn			0			0		222			0				
Spillback Cap Reductn			0			0		0			0				
Storage Cap Reductn			0			0		0			0				
Reduced v/c Ratio			0.01			0.06		0.61			0.61				

Intersection Summary

Area Type: CBD
Cycle Length: 82.5
Actuated Cycle Length: 82.5
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 6.7 Intersection LOS: A
Intersection Capacity Utilization 62.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 710: VFW Parkway & Gardner Street

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	103	0	0	1508	161
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.94	0.94
Hourly flow rate (vph)	0	117	0	0	1604	171
Pedestrians	4			4		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				302		
pX, platoon unblocked						
vC, conflicting volume	1694	896	1608			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1694	896	1608			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	59	100			
cM capacity (veh/h)	85	285	410			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	117	0	0	1070	706
Volume Left	0	0	0	0	0
Volume Right	117	0	0	0	171
cSH	285	1700	1700	1700	1700
Volume to Capacity	0.41	0.00	0.00	0.63	0.42
Queue Length 95th (ft)	48	0	0	0	0
Control Delay (s)	26.1	0.0	0.0	0.0	0.0
Lane LOS	D				
Approach Delay (s)	26.1	0.0		0.0	
Approach LOS	D				

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	67.0%	ICU Level of Service	C	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	2	4	110	0	80	35	15	0	28	32	42	0	1	50	0
Peak Hour Factor	0.92	0.58	0.58	0.58	0.92	0.75	0.75	0.75	0.92	0.82	0.82	0.82	0.92	0.68	0.68	0.68
Heavy Vehicles, %	2	50	25	5	2	0	0	0	2	11	3	0	2	0	0	0
Mvmt Flow	0	3	7	190	0	107	47	20	0	34	39	51	0	1	74	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	9.1	8.9	8.6
HCM LOS	A	A	A	A

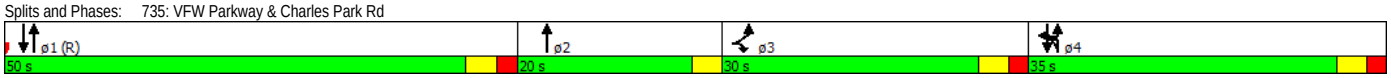
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	2%	62%	2%
Vol Thru, %	31%	3%	27%	98%
Vol Right, %	41%	95%	12%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	102	116	130	51
LT Vol	28	2	80	1
Through Vol	32	4	35	50
RT Vol	42	110	15	0
Lane Flow Rate	124	200	173	75
Geometry Grp	1	1	1	1
Degree of Util (X)	0.169	0.271	0.226	0.104
Departure Headway (Hd)	4.893	4.884	4.695	4.97
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	730	734	763	718
Service Time	2.942	2.928	2.74	3.023
HCM Lane V/C Ratio	0.17	0.272	0.227	0.104
HCM Control Delay	8.9	9.7	9.1	8.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	1.1	0.9	0.3

Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR	ø2
Lane Configurations									
Volume (vph)	87	78	12	197	1349	148	977	24	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	190	190		125		230		0	
Storage Lanes	1	1		1		1		0	
Taper Length (ft)	200			25		25			
Lane Util. Factor	0.97	1.00	0.95	1.00	0.95	1.00	0.95	0.95	
Ped Bike Factor							1.00		
Frt		0.850					0.996		
Flt Protected	0.950			0.950		0.950			
Satd. Flow (prot)	2648	1333	0	1586	3249	1593	3234	0	
Flt Permitted	0.950			0.950		0.950			
Satd. Flow (perm)	2648	1333	0	1586	3249	1593	3234	0	
Right Turn on Red		Yes						Yes	
Satd. Flow (RTOR)		98					2		
Link Speed (mph)	30				30		30		
Link Distance (ft)	1231				559		275		
Travel Time (s)	28.0				12.7		6.3		
Confl. Bikes (#/hr)								6	
Peak Hour Factor	0.80	0.80	0.95	0.95	0.95	0.96	0.96	0.96	
Heavy Vehicles (%)	19%	9%	9%	2%	0%	2%	0%	0%	
Adj. Flow (vph)	109	98	13	207	1420	154	1018	25	
Shared Lane Traffic (%)									
Lane Group Flow (vph)	109	98	0	220	1420	154	1043	0	
Turn Type	Prot	Prot	Prot	Prot	NA	Prot	NA		
Protected Phases	3	3	4	4	1 2	4	1		2
Permitted Phases									
Detector Phase	3	3	4	4		4			
Switch Phase									
Minimum Initial (s)	5.0	5.0	15.0	15.0		15.0	30.0		5.0
Minimum Split (s)	10.0	10.0	20.0	20.0		20.0	35.0		20.0
Total Split (s)	30.0	30.0	35.0	35.0		35.0	50.0		20.0
Total Split (%)	22.2%	22.2%	25.9%	25.9%		25.9%	37.0%		15%
Maximum Green (s)	25.0	25.0	30.0	30.0		30.0	45.0		17.0
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0	3.0		3.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0		5.0		5.0	5.0		
Lead/Lag	Lead	Lead	Lag	Lag		Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes		Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Recall Mode	None	None	None	None		None	C-Max		None
Walk Time (s)									8.0
Flash Dont Walk (s)									9.0
Pedestrian Calls (#/hr)									22
Act Effct Green (s)	10.0	10.0		23.1	87.0	23.1	75.0		
Actuated g/C Ratio	0.07	0.07		0.17	0.64	0.17	0.56		
v/c Ratio	0.56	0.52		0.81	0.68	0.57	0.58		
Control Delay	70.9	20.8		75.8	18.8	58.6	25.0		
Queue Delay	0.0	0.0		0.0	0.0	2.1	14.0		
Total Delay	70.9	20.8		75.8	18.8	60.7	39.0		
LOS	E	C		E	B	E	D		
Approach Delay	47.2				26.4		41.8		
Approach LOS	D				C		D		
Queue Length 50th (ft)	48	0		188	388	125	348		
Queue Length 95th (ft)	69	40		263	592	186	502		
Internal Link Dist (ft)	1151				479		195		
Turn Bay Length (ft)	190	190		125		230			
Base Capacity (vph)	490	326		355	2092	356	1796		
Starvation Cap Reductn	0	0		0	0	103	749		
Spillback Cap Reductn	0	0		0	0	0	0		
Storage Cap Reductn	0	0		0	0	0	0		
Reduced v/c Ratio	0.22	0.30		0.62	0.68	0.61	1.00		

Intersection Summary

Area Type: CBD
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 33.9 Intersection LOS: C
Intersection Capacity Utilization 70.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 735: VFW Parkway & Charles Park Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø1	ø2	ø3
Lane Configurations															
Volume (vph)	0	0	31	0	0	64	0	1585	0	0	1118	24			
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	0.95	1.00	1.00	0.95	0.95			
Ped Bike Factor			0.99			0.99					1.00				
Frt			0.865			0.865					0.997				
Flt Protected															
Satd. Flow (prot)	0	0	1112	0	0	1479	0	3217	0	0	3237	0			
Flt Permitted															
Satd. Flow (perm)	0	0	1098	0	0	1459	0	3217	0	0	3237	0			
Right Turn on Red			Yes			Yes			Yes			Yes			
Satd. Flow (RTOR)											4				
Link Speed (mph)		30			30			30			30				
Link Distance (ft)		208			554			275			199				
Travel Time (s)		4.7			12.6			6.3			4.5				
Confl. Peds. (#/hr)			3			6						3			
Confl. Bikes (#/hr)												5			
Peak Hour Factor	0.50	0.50	0.50	0.76	0.76	0.76	0.90	0.90	0.90	0.94	0.94	0.94			
Heavy Vehicles (%)	0%	0%	33%	0%	0%	0%	0%	1%	0%	0%	0%	0%			
Adj. Flow (vph)	0	0	62	0	0	84	0	1761	0	0	1189	26			
Shared Lane Traffic (%)															
Lane Group Flow (vph)	0	0	62	0	0	84	0	1761	0	0	1215	0			
Turn Type			Perm			Perm		NA			NA				
Protected Phases								1 2			1 3		1	2	3
Permitted Phases			1 2 3			1 2 3									
Detector Phase															
Switch Phase															
Minimum Initial (s)													5.0	5.0	5.0
Minimum Split (s)													10.0	29.0	19.0
Total Split (s)													30.0	29.0	23.5
Total Split (%)													36%	35%	28%
Maximum Green (s)													25.0	24.0	18.5
Yellow Time (s)													3.0	3.0	3.0
All-Red Time (s)													2.0	2.0	2.0
Lost Time Adjust (s)															
Total Lost Time (s)															
Lead/Lag													Lead	Lag	
Lead-Lag Optimize?													Yes	Yes	
Vehicle Extension (s)													2.0	2.0	2.0
Recall Mode													C-Max	None	None
Walk Time (s)														10.0	8.0
Flash Dont Walk (s)														14.0	6.0
Pedestrian Calls (#/hr)														9	9
Act Effct Green (s)			82.5			82.5		77.7			75.7				
Actuated g/C Ratio			1.00			1.00		0.94			0.92				
v/c Ratio			0.06			0.06		0.58			0.41				
Control Delay			0.1			0.1		3.3			3.7				
Queue Delay			0.0			0.0		0.1			0.0				
Total Delay			0.1			0.1		3.3			3.7				
LOS			A			A		A			A				
Approach Delay								3.3			3.7				
Approach LOS								A			A				
Queue Length 50th (ft)			0			0		0			0				
Queue Length 95th (ft)			0			0		345			263				
Internal Link Dist (ft)		128			474			195			119				
Turn Bay Length (ft)															
Base Capacity (vph)			1098			1459		3030			2970				
Starvation Cap Reductn			0			0		190			0				
Spillback Cap Reductn			0			0		0			0				
Storage Cap Reductn			0			0		0			0				
Reduced v/c Ratio			0.06			0.06		0.62			0.41				

Intersection Summary

Area Type: CBD
Cycle Length: 82.5
Actuated Cycle Length: 82.5
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 3.3 — Intersection LOS: A
Intersection Capacity Utilization 62.1% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 710: VFW Parkway & Gardner Street

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	103	0	0	1043	153
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.93	0.93
Hourly flow rate (vph)	0	113	0	0	1122	165
Pedestrians	29			29		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	3			3		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				301		
pX, platoon unblocked						
vC, conflicting volume	1233	701	1151			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1233	701	1151			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	69	100			
cM capacity (veh/h)	167	365	586			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	113	0	0	748	538
Volume Left	0	0	0	0	0
Volume Right	113	0	0	0	165
cSH	365	1700	1700	1700	1700
Volume to Capacity	0.31	0.00	0.00	0.44	0.32
Queue Length 95th (ft)	32	0	0	0	0
Control Delay (s)	19.2	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	19.2	0.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	56.4%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	2	87	0	18	38	9	0	91	26	43	0	0	33	1
Peak Hour Factor	0.92	0.75	0.75	0.75	0.92	0.51	0.51	0.51	0.92	0.86	0.86	0.86	0.92	0.73	0.73	0.73
Heavy Vehicles, %	2	0	0	10	2	6	0	0	2	2	12	0	2	0	6	0
Mvmt Flow	0	0	3	116	0	35	75	18	0	106	30	50	0	0	45	1
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

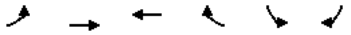
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	8.6	8.9	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	57%	0%	28%	0%
Vol Thru, %	16%	2%	58%	97%
Vol Right, %	27%	98%	14%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	160	89	65	34
LT Vol	91	0	18	0
Through Vol	26	2	38	33
RT Vol	43	87	9	1
Lane Flow Rate	186	119	127	47
Geometry Grp	1	1	1	1
Degree of Util (X)	0.232	0.132	0.164	0.061
Departure Headway (Hd)	4.487	4.008	4.642	4.746
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	800	895	774	754
Service Time	2.512	2.034	2.668	2.778
HCM Lane V/C Ratio	0.233	0.133	0.164	0.062
HCM Control Delay	8.9	7.6	8.6	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	0.5	0.6	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	0	0	0	1142	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	1241	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				199		
pX, platoon unblocked						
vC, conflicting volume	1243	623	1246			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1243	623	1246			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	166	429	555			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	828	418
Volume Left	0	0	0	0
Volume Right	0	0	0	4
cSH	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.49	0.25
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				
Approach Delay (s)	0.0		0.0	
Approach LOS				

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



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	3	6	0	0	25	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	7	0	0	27	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			384			
pX, platoon unblocked						
vC, conflicting volume	0				13	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				13	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	100
cM capacity (veh/h)	1623				1004	1085

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	10	0	27
Volume Left	3	0	27
Volume Right	0	0	0
cSH	1623	1700	1004
Volume to Capacity	0.00	0.00	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	2.4	0.0	8.7
Lane LOS	A		A
Approach Delay (s)	2.4	0.0	8.7
Approach LOS			A

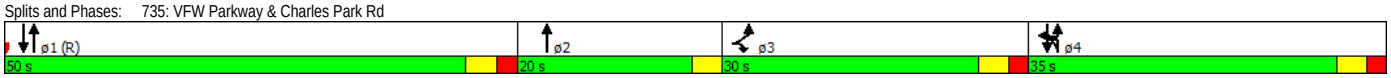
Intersection Summary			
Average Delay	7.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR	ø2
Lane Configurations									
Volume (vph)	141	140	39	125	1265	114	1474	27	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	190	190		125		230		0	
Storage Lanes	1	1		1		1		0	
Taper Length (ft)	200			25		25			
Lane Util. Factor	0.97	1.00	0.95	1.00	0.95	1.00	0.95	0.95	
Ped Bike Factor							1.00		
Frt		0.850					0.997		
Flt Protected	0.950			0.950		0.950			
Satd. Flow (prot)	3152	1425	0	1589	3249	1624	3238	0	
Flt Permitted	0.950			0.950		0.950			
Satd. Flow (perm)	3152	1425	0	1589	3249	1624	3238	0	
Right Turn on Red		Yes						Yes	
Satd. Flow (RTOR)		173					1		
Link Speed (mph)	30				30		30		
Link Distance (ft)	1231				559		275		
Travel Time (s)	28.0				12.7		6.3		
Confl. Bikes (#/hr)								3	
Peak Hour Factor	0.81	0.81	0.92	0.92	0.92	0.97	0.97	0.97	
Heavy Vehicles (%)	0%	2%	3%	2%	0%	0%	0%	0%	
Adj. Flow (vph)	174	173	42	136	1375	118	1520	28	
Shared Lane Traffic (%)									
Lane Group Flow (vph)	174	173	0	178	1375	118	1548	0	
Turn Type	Prot	Prot	Prot	Prot	NA	Prot	NA		
Protected Phases	3	3	4	4	1 2	4	1		2
Permitted Phases									
Detector Phase	3	3	4	4		4			
Switch Phase									
Minimum Initial (s)	5.0	5.0	15.0	15.0		15.0	30.0		5.0
Minimum Split (s)	10.0	10.0	20.0	20.0		20.0	35.0		20.0
Total Split (s)	30.0	30.0	35.0	35.0		35.0	50.0		20.0
Total Split (%)	22.2%	22.2%	25.9%	25.9%		25.9%	37.0%		15%
Maximum Green (s)	25.0	25.0	30.0	30.0		30.0	45.0		17.0
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0	3.0		3.0
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0		5.0		5.0	5.0		
Lead/Lag	Lead	Lead	Lag	Lag		Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes		Yes
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0	2.0		2.0
Recall Mode	None	None	None	None		None	C-Max		None
Walk Time (s)									8.0
Flash Dont Walk (s)									9.0
Pedestrian Calls (#/hr)									4
Act Effct Green (s)	11.8	11.8		20.1	88.1	20.1	84.1		
Actuated g/C Ratio	0.09	0.09		0.15	0.65	0.15	0.62		
v/c Ratio	0.63	0.61		0.75	0.65	0.49	0.77		
Control Delay	69.6	17.6		74.3	17.1	58.8	23.9		
Queue Delay	0.0	0.0		0.0	0.0	0.5	48.4		
Total Delay	69.6	17.6		74.3	17.1	59.3	72.4		
LOS	E	B		E	B	E	E		
Approach Delay	43.7				23.7		71.5		
Approach LOS	D				C		E		
Queue Length 50th (ft)	77	0		152	351	97	436		
Queue Length 95th (ft)	101	48		223	536	152	#963		
Internal Link Dist (ft)	1151				479		195		
Turn Bay Length (ft)	190	190		125		230			
Base Capacity (vph)	583	404		353	2120	360	2017		
Starvation Cap Reductn	0	0		0	0	70	758		
Spillback Cap Reductn	0	0		0	0	0	0		
Storage Cap Reductn	0	0		0	0	0	0		
Reduced v/c Ratio	0.30	0.43		0.50	0.65	0.41	1.23		

Intersection Summary

Area Type: CBD
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 47.9 Intersection LOS: D
Intersection Capacity Utilization 80.9% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 735: VFW Parkway & Charles Park Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø1	ø2	ø3
Lane Configurations															
Volume (vph)	0	0	17	0	0	71	0	1521	0	0	1599	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	0.95	1.00	1.00	0.95	0.95			
Ped Bike Factor			0.99			0.98					1.00				
Frt			0.865			0.865					0.999				
Flt Protected															
Satd. Flow (prot)	0	0	1479	0	0	1479	0	3249	0	0	3245	0			
Flt Permitted															
Satd. Flow (perm)	0	0	1459	0	0	1454	0	3249	0	0	3245	0			
Right Turn on Red			Yes			Yes			Yes			Yes			
Satd. Flow (RTOR)											2				
Link Speed (mph)		30			30			30			30				
Link Distance (ft)		208			554			275			197				
Travel Time (s)		4.7			12.6			6.3			4.5				
Confl. Peds. (#/hr)			6			18						6			
Confl. Bikes (#/hr)												3			
Peak Hour Factor	0.38	0.38	0.38	0.77	0.77	0.77	0.93	0.93	0.93	0.97	0.97	0.97			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Adj. Flow (vph)	0	0	45	0	0	92	0	1635	0	0	1648	13			
Shared Lane Traffic (%)															
Lane Group Flow (vph)	0	0	45	0	0	92	0	1635	0	0	1661	0			
Turn Type			Perm			Perm		NA			NA				
Protected Phases								1 2			1 3		1	2	3
Permitted Phases			1 2 3			1 2 3									
Detector Phase															
Switch Phase															
Minimum Initial (s)													5.0	5.0	5.0
Minimum Split (s)													10.0	29.0	19.0
Total Split (s)													30.0	29.0	23.5
Total Split (%)													36%	35%	28%
Maximum Green (s)													25.0	24.0	18.5
Yellow Time (s)													3.0	3.0	3.0
All-Red Time (s)													2.0	2.0	2.0
Lost Time Adjust (s)															
Total Lost Time (s)															
Lead/Lag													Lead	Lag	
Lead-Lag Optimize?													Yes	Yes	
Vehicle Extension (s)													2.0	2.0	2.0
Recall Mode													C-Max	None	None
Walk Time (s)														10.0	8.0
Flash Dont Walk (s)														14.0	6.0
Pedestrian Calls (#/hr)														22	22
Act Effct Green (s)			82.5			82.5		72.9			68.9				
Actuated g/C Ratio			1.00			1.00		0.88			0.84				
v/c Ratio			0.03			0.06		0.57			0.61				
Control Delay			0.1			0.1		4.7			9.1				
Queue Delay			0.0			0.0		0.1			0.0				
Total Delay			0.1			0.1		4.7			9.1				
LOS			A			A		A			A				
Approach Delay								4.7			9.1				
Approach LOS								A			A				
Queue Length 50th (ft)			0			0		0			0				
Queue Length 95th (ft)			0			0		288			465				
Internal Link Dist (ft)		128			474			195			117				
Turn Bay Length (ft)															
Base Capacity (vph)			1459			1454		2871			2710				
Starvation Cap Reductn			0			0		221			0				
Spillback Cap Reductn			0			0		0			0				
Storage Cap Reductn			0			0		0			0				
Reduced v/c Ratio			0.03			0.06		0.62			0.61				

Intersection Summary

Area Type: CBD
Cycle Length: 82.5
Actuated Cycle Length: 82.5
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 6.6 Intersection LOS: A
Intersection Capacity Utilization 62.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 710: VFW Parkway & Gardner Street

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	103	0	0	1524	161
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.94	0.94
Hourly flow rate (vph)	0	117	0	0	1621	171
Pedestrians	4			4		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				302		
pX, platoon unblocked						
vC, conflicting volume	1711	904	1625			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1711	904	1625			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	58	100			
cM capacity (veh/h)	83	281	404			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	117	0	0	1081	712
Volume Left	0	0	0	0	0
Volume Right	117	0	0	0	171
cSH	281	1700	1700	1700	1700
Volume to Capacity	0.42	0.00	0.00	0.64	0.42
Queue Length 95th (ft)	49	0	0	0	0
Control Delay (s)	26.6	0.0	0.0	0.0	0.0
Lane LOS	D				
Approach Delay (s)	26.6	0.0		0.0	
Approach LOS	D				

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	67.5%	ICU Level of Service	C	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Vol, veh/h	0	2	4	110	0	80	35	15	0	28	32	51	0	1	50	0
Peak Hour Factor	0.92	0.58	0.58	0.58	0.92	0.75	0.75	0.75	0.92	0.82	0.82	0.82	0.92	0.68	0.68	0.68
Heavy Vehicles, %	2	50	25	5	2	0	0	0	2	11	3	0	2	0	0	0
Mvmt Flow	0	3	7	190	0	107	47	20	0	34	39	62	0	1	74	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0

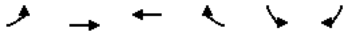
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.8	9.2	9	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	2%	62%	2%
Vol Thru, %	29%	3%	27%	98%
Vol Right, %	46%	95%	12%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	111	116	130	51
LT Vol	28	2	80	1
Through Vol	32	4	35	50
RT Vol	51	110	15	0
Lane Flow Rate	135	200	173	75
Geometry Grp	1	1	1	1
Degree of Util (X)	0.183	0.273	0.227	0.104
Departure Headway (Hd)	4.864	4.911	4.722	4.988
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	735	730	757	715
Service Time	2.914	2.957	2.77	3.044
HCM Lane V/C Ratio	0.184	0.274	0.229	0.105
HCM Control Delay	9	9.8	9.2	8.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	1.1	0.9	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	0	0	0	1612	16
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	1752	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				197		
pX, platoon unblocked						
vC, conflicting volume	1761	885	1770			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1761	885	1770			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	76	288	348			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	1168	601
Volume Left	0	0	0	0
Volume Right	0	0	0	17
cSH	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.69	0.35
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary				
Average Delay			0.0	
Intersection Capacity Utilization			48.4%	ICU Level of Service
Analysis Period (min)			15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	9	3	0	0	14	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	3	0	0	15	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			386			
pX, platoon unblocked						
vC, conflicting volume	0				23	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				23	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	100
cM capacity (veh/h)	1623				988	1085

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	13	0	15
Volume Left	10	0	15
Volume Right	0	0	0
cSH	1623	1700	988
Volume to Capacity	0.01	0.00	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	5.4	0.0	8.7
Lane LOS	A		A
Approach Delay (s)	5.4	0.0	8.7
Approach LOS			A

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX E – RESPONSE TO CLIMATE CHANGE 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:	1235-1237 VFW Parkway
Project Address Primary:	1235-1237 VFW Parkway
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	SOVAD LLC 94 Grayfield Avenue West Roxbury, MA Peter Davos DavosBoston@comcast.net Tel: 617-719-8668

A.2 - Team Description

Owner / Developer:	Peter Davos
Architect:	KHALSA DESIGN INC.- Jai Khalsa Jkhalsa@tkgeast.com
Engineer (building systems):	Not Selected
Sustainability / LEED:	Soden Sustainability Consulting Colleen Ryan Soden, LEED AP BD+C colleen@sodensustainability.com
Permitting:	Mitchell L. Fischman Consulting ("MLF Consulting") LLC mitchfischman@gmail.com Tel: 781-760-1726
Construction Management:	Not Selected
Climate Change Expert:	Soden Sustainability Consulting Colleen Ryan Soden, LEED AP BD+C colleen@sodensustainability.com

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:	Multifamily Residential
List the First Floor Uses:	*Common areas and residences*

What is the principal Construction Type – select most appropriate type?

Wood Frame	Masonry	Steel Frame	Concrete

Describe the building?

Site Area:	*79,592 SF*	Building Area:	*104,586 SF*
Building Height:	*44'-6" Ft.*	Number of Stories:	*4 PLUS BASEMENTFlrs.*
First Floor Elevation (reference Boston City Base):	*117 ?Elev.*	Are there below grade spaces/levels, if yes how many:	*ONE No / Number of Levels*

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:	*Yes / **No***	Certified:	*Yes / **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?

44 Inches / yr.	*4.3 Inches*	*1 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?

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:	*Min 20%*
How is performance determined:	Energy Model

What specific measures will the project employ to reduce building energy consumption?

Select all appropriate:	**High performance building envelop**	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 envelop elements?

Roof:	*R* =	Walls / Curtain Wall Assembly:	*R* =
Foundation:	*R* =	Basement / Slab:	*R* =
Windows:	*R* = / *U* =	Doors:	*R* = / *U* =

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 Envelop**
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 109 to 115 Elev. (Ft.)*
Building Proximity to Water:	*600 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?

260 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 COB ACCESS 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:	**1235-1237 V.F.W. Parkway Housing**
Project Address Primary:	**1235-1237 V.F.W. Parkway West Roxbury**
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	**Peter Davos** **SOVAD LLC** 94 Grayfield Avenue West Roxbury, MA DavosBoston@comcast.net Tel: 617-719-8668

Team Description

Owner / Developer:	**SOVAD LLC**
Architect:	**Khalsa Design Inc, Architects**
Engineer (building systems):	**Vincent A. Dilorio Engineers**
Sustainability / LEED:	**Soden Sustainability Consulting**
Permitting:	**MLF Consulting LLC**
Construction Management:	**n/a**

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
	Laboratory / Medical	Manufacturing / Industrial	Mercantile	Storage, Utility and Other
First Floor Uses (List)	*Amenity Space*			

What is the Construction Type – select most appropriate type?

	☑ Wood Frame	Masonry	Steel Frame	Concrete

Describe the building?

Site Area:	79,573+- SF	Building Area:	Approx. 125,000 +- GSF
Building Height:	44'+-	Number of Stories:	4
First Floor Elevation:	Varying, 117'-0" +/- across the site. *Final Elevation to be determined during Construction Drawing phase*	Are there below grade spaces:	☑ *Yes*

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.	On VFW Parkway near Home Depot Store, neighborhood commercial establishments and scattered residences
List the surrounding ADA compliant MBTA transit lines and the proximity to the development site: Commuter rail, subway, bus, etc.	West Roxbury Commuter Rail Stations at Centre Street
List the surrounding institutions: hospitals, public housing and elderly and disabled housing developments, educational facilities, etc.	**School:** WR High School **Public Library:** West Roxbury Branch of BPL on Centre Street **Community Center:** DCR Skating Facility **Hospitals:** WR VA Hospital Faulkner Hospital,
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:** DCR Skating Rink on VFW Parkway **Community Center:** No **Transit:** No

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 asphalt with granite curbing. The physical condition of the existing concrete sidewalk and pedestrian ramps is poor.

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 be replaced. 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.

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 comfortable 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	Information on sidewalks require 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.	Will be determined in design development phase of project design.
What is the total width of the proposed sidewalk? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone.	Sidewalk along VFW parkway frontage to be replaced.
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?	Final materials to be determined during the design development phase of the project design.

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?	N/A
If yes above, what are the proposed 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?	130 spaces
What is the total number of accessible spaces provided at the development site?	14 spaces
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?	No
Where is accessible visitor parking located?	On Site
Has a drop-off area been identified? **If yes,** will it be accessible?	Yes and it is 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 drawings

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 drawings
Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.	All entry points 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.	N/A
Has an accessible routes way-finding and signage package been developed? If yes, please describe.	Not yet but 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?	84 units

How many units are for sale; how many are for rent? What is the market value vs. affordable breakdown?	84 rental apartment units
How many accessible units are being proposed?	5 Accessible units
Please provide plan and diagram of the accessible units.	See attached drawings
How many accessible units will also be affordable? If none, please describe reason.	It will be a mix of affordable and market rate units. Final combination 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

Scheme 1 Legend

- BIKE STORAGE
- BLDG. SUPP.
- PARKING

FIGURE 3-4

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
TEL: 617-591-8682
FAX: 617-591-2086

SOVAD LLC

W Roxbury Residences

1235-1237 V.F.W. Parkway 165, 175 Gardner street,
West Roxbury, MA 02132

GARAGE PLAN

Project number	14099		
Date	07-06-2015		
Drawn by	Author		
Checked by	Checker	Scale	As indicated

7/21/2015 10:26:51 AM

Scheme 1 Legend

- 1 BED
- 2 BED
- 3 BED
- Community Room
- CORRIDOR

FIGURE 3-5

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
TEL: 617-591-8682
FAX: 617-591-2086

SOVAD LLC

W Roxbury Residences

1235-1237 V.F.W. Parkway 165, 175 Gardner street,
West Roxbury, MA 02132

FIRST FLOOR PLAN

Project number	14099		
Date	07-06-2015		
Drawn by	Author		
Checked by	Checker	Scale	As indicated

10/14/2015 2:51:15 PM

Scheme 1 Legend

- 1 BED
- 2 BED
- 3 BED
- CORRIDOR

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
TEL: 617-591-8682
FAX: 617-591-2086

SOVAD LLC

W Roxbury Residences

1235-1237 V.F.W. Parkway 165, 175 Gardner street,
West Roxbury, MA 02132

SECOND FLOOR PLAN

Project number	14099
Date	07-06-2015
Drawn by	Author
Checked by	Checker

A102

Scale As indicated

9/17/2015 3:21:19 PM

Scheme 1 Legend

- 1 BED
- 2 BED
- 3 BED
- CORRIDOR

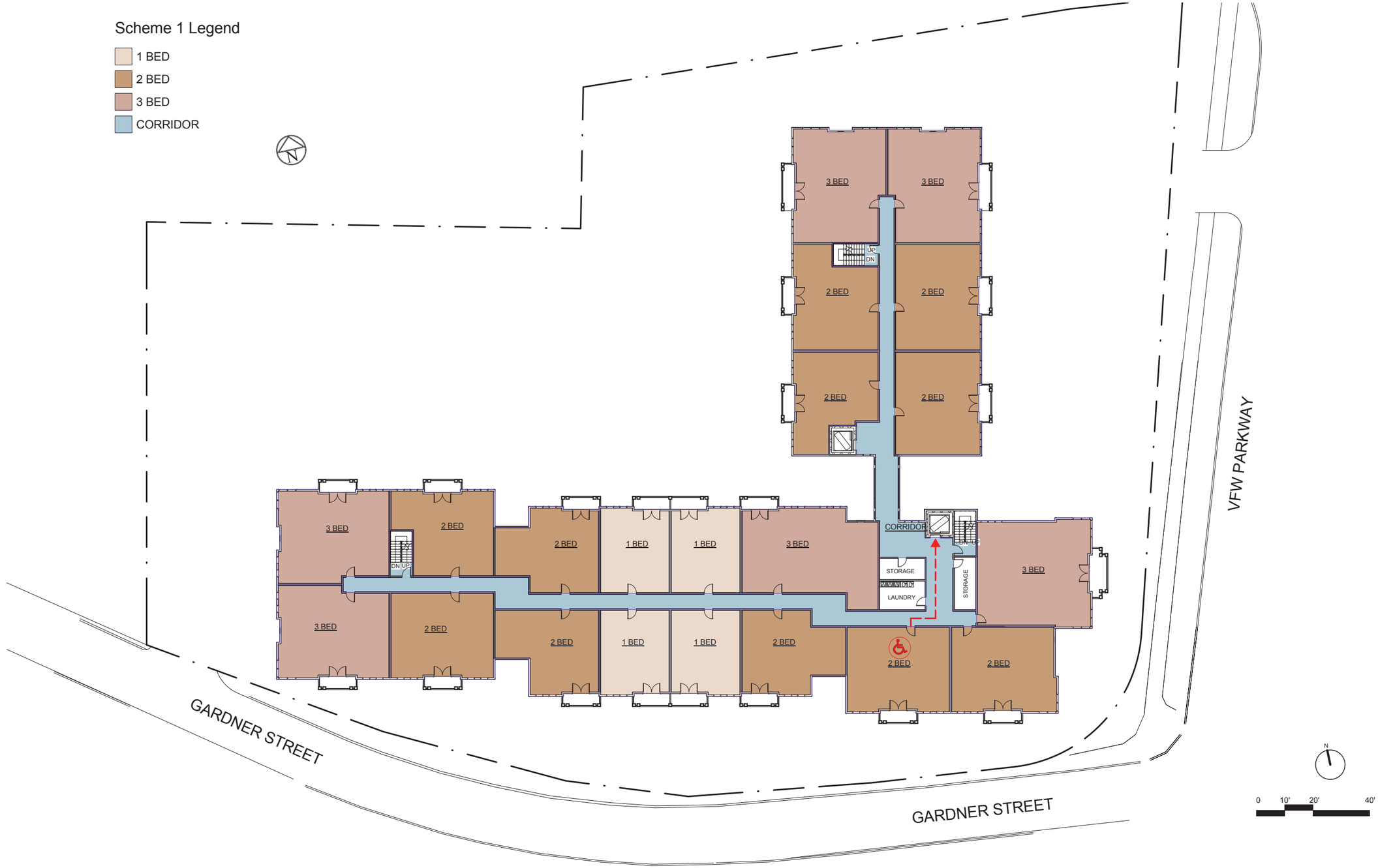


FIGURE 3-7

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
TEL: 617-591-8682
FAX: 617-591-2086

SOVAD LLC

W Roxbury Residences

1235-1237 V.F.W. Parkway 165, 175 Gardner street,
West Roxbury, MA 02132

THIRD FLOOR PLAN

Project number	14099		
Date	07-06-2015		
Drawn by	Author		
Checked by	Checker	Scale	As indicated

10/14/2015 2:52:19 PM

Scheme 1 Legend

- 1 BED
- 2 BED
- 3 BED
- CORRIDOR

FIGURE 3-8

KHALSA DESIGN INC.
17 IVALOO STREET SUITE 400
SOMERVILLE, MA 02143
TEL: 617-591-8682
FAX: 617-591-2086

SOVAD LLC

W Roxbury Residences

1235-1237 V.F.W. Parkway 165, 175 Gardner street,
West Roxbury, MA 02132

FOURTH FLOOR PLAN

Project number	14099		
Date	07-06-2015		
Drawn by	Author		
Checked by	Checker	Scale	As indicated

10/14/2015 2:52:41 PM

MLF
CONSULTING LLC

McDermott, Quilty & Miller LLP