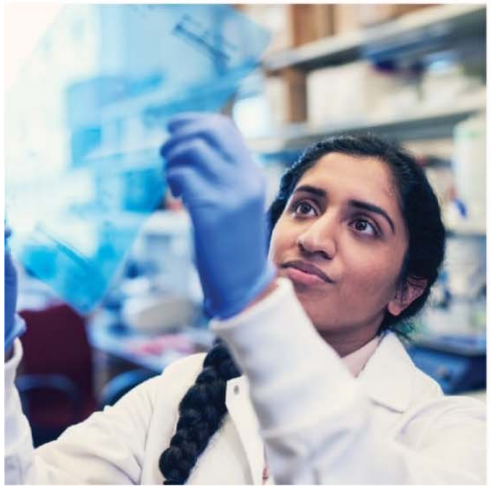
Draft Project Impact Report





Beth Israel Deaconess Medical Center
New Inpatient Building

Submitted to:
Boston Planning & Development Agency
One City Hall Square
Boston, MA 02201

Prepared by:
Epsilon Associates, Inc.
3 Mill & Main Place, Suite 250
Maynard, MA 01754

Submitted by:
Beth Israel Deaconess Medical Center
330 Brookline Avenue
Boston, MA 02215

In Association with:
Payette
Leggat McCall Properties
Goulston & Storrs
VHB

July 20, 2018

Epsilon
ASSOCIATES INC.

Draft Project Impact Report

BETH ISRAEL DEACONESS MEDICAL CENTER
NEW INPATIENT BUILDING

Submitted to:
Boston Planning & Development Agency
One City Hall Square
Boston, MA 02201

Submitted by:
Beth Israel Deaconess Medical Center
330 Brookline Avenue
Boston, MA 02215

Prepared by:
Epsilon Associates, Inc.
3 Mill & Main Place, Suite 250
Maynard, MA 01754

In Association with:
Payette
Leggat McCall Properties
Goulston & Storrs
VHB

July 20, 2018

Table of Contents

Table of Contents

1.0 GENERAL INFORMATION 1-1
1.1 Introduction 1-1
1.2 Project Team 1-2
1.3 Legal Information 1-3
1.3.1 Legal Judgments Adverse to the Proposed Project 1-3
1.3.2 History of Tax Arrears on Property 1-3
1.3.3 Site Control/Public Easements 1-3
1.4 Anticipated Permits and Approvals 1-4
1.5 Public Benefits 1-5

2.0 PROJECT DESCRIPTION 2-1
2.1 Project Site 2-1
2.2 Area Context 2-1
2.3 Project Description 2-3
2.4 Alternatives 2-21
2.4.1 Building Location Alternatives 2-21
2.4.2 Loading Dock Study 2-22

3.0 TRANSPORTATION ACCESS PLAN 3-1
3.1 Introduction 3-1
3.1.1 Project Overview 3-3
3.1.2 Summary of Findings & Transportation Mitigation 3-6
3.1.2.1 Traffic Impacts/Level of Service Analysis Summary 3-6
3.1.2.2 Parking Summary 3-7
3.1.2.3 Pedestrian and Bicycle Access 3-7
3.1.2.4 Public Transportation 3-8
3.1.2.5 Helicopter Operations 3-8
3.1.2.6 Transportation Demand Management 3-8
3.1.2.7 Adjacent Site/Off-Site Improvements 3-9
3.1.3 Methodology 3-10
3.1.4 Study Area 3-11
3.2 Existing Conditions 3-13
3.2.1 Summary of Existing BIDMC Transportation Infrastructure and Services 3-13
3.2.1.1 BIDMC Parking System 3-14
3.2.1.2 BIDMC Employee Transportation Demand Management Program 3-20

3.2.1.3 Loading and Service Operations 3-23
3.2.1.4 Helicopter Operations 3-24
3.2.1.5 BIDMC Bicycle Accommodations 3-24
3.2.2 Study Area Intersections 3-25
3.2.3 Study Area Roadway and Intersection Conditions 3-28
3.2.4 Crash Analysis 3-28
3.2.5 Area-wide Parking 3-31
3.2.5.1 Off-Street Parking Facilities 3-31
3.2.5.2 On-Street Parking 3-33
3.2.6 Pedestrians and Bicycles 3-33
3.2.7 Existing LMA Transit Infrastructure 3-33
3.2.7.1 MBTA Bus Route Service 3-34
3.2.7.2 MASCO Shuttle Services 3-42
3.2.7.3 MBTA Subway Services 3-45
3.3 Evaluation of Long-Term Transportation Impacts 3-47
3.3.1 Area Developments and Transportation Improvements 3-47
3.3.1.1 Area Developments 3-48
3.3.1.2 Area Initiatives 3-49
3.3.2 2023 No-Build Condition 3-49
3.3.2.1 Step 1 - Background Growth 3-50
3.3.2.2 Step 2 - Site-Specific Growth 3-50
3.3.2.3 2023 No-Build Peak Hour Traffic Volumes 3-50
3.3.3 2023 Build Condition 3-50
3.3.3.1 Unadjusted Trip Generation 3-50
3.3.3.2 Person Trip Generation 3-54
3.3.3.3 Mode Shares 3-54
3.3.3.4 Adjusted Trip Generation 3-55
3.3.3.5 Auto Trip Distribution and Assignment 3-55
3.3.3.6 Network Impacts of Pilgrim Road Two-Way Traffic 3-57
3.3.3.7 2023 Build Condition Peak Hour Traffic Volumes 3-57
3.3.3.8 Public Transportation 3-62
3.3.3.9 Pedestrian and Bicycle Operations 3-62
3.3.3.10 Project Parking 3-63
3.3.3.11 Loading and Service 3-63
3.4 Transportation Operations Analyses 3-63
3.4.1 Intersection Level of Service (LOS) Operations 3-63
3.4.1.1 Existing (2018) AM Peak Hour LOS Summary 3-64
3.4.1.2 Existing (2018) PM Peak Hour LOS Summary 3-66
3.4.1.3 No-Build (2023) AM Peak Hour LOS Summary 3-68

Table of Contents (Continued)

3.4.1.4 No-Build (2023) PM Peak Hour LOS Summary 3-71
3.4.1.5 Build (2023) AM Peak Hour LOS Summary 3-73
3.4.1.6 Build (2023) PM Peak Hour LOS Summary 3-75
3.4.2 Level of Service Summary 3-77
3.5 Construction Management Plan 3-80
3.5.1 Construction Vehicle Traffic 3-80
3.5.2 Construction Parking Issues 3-80
3.5.3 Pedestrian Access During Construction 3-80

4.0 ENVIRONMENTAL PROTECTION COMPONENT 4-1
4.1 Wind 4-1
4.1.1 Introduction 4-1
4.1.2 Methodology 4-1
4.1.2.1 Physical Modelling 4-1
4.1.2.2 Meteorological Data 4-2
4.1.2.3 Wind Criteria 4-2
4.1.2.4 General Wind Flow Patterns 4-7
4.1.3 Results and Discussion 4-7
4.1.3.1 Grade Level (Locations 1 through 102) 4-7
4.1.3.2 Level 6 Roof Garden (Locations 103 through 114) 4-13
4.1.4 Conclusion 4-14
4.2 Shadow 4-14
4.2.1 Introduction and Methodology 4-14
4.2.2 Vernal Equinox (March 21) 4-29
4.2.3 Summer Solstice (June 21) 4-29
4.2.4 Autumnal Equinox (September 21) 4-29
4.2.5 Winter Solstice (December 21) 4-30
4.2.6 Conclusions 4-30
4.3 Daylight 4-30
4.3.1 Introduction 4-30
4.3.2 Methodology 4-31
4.3.3 Results 4-33
4.3.4 Conclusions 4-37
4.4 Air Quality 4-37
4.4.1 National Ambient Air Quality Standards and Background Concentrations 4-38
4.4.1.1 National Ambient Air Quality Standards 4-38
4.4.1.2 Background Concentrations 4-39

Table of Contents (Continued)

	4.4.2	Mobile Sources	4-41
		4.4.2.1 Methodology	4-41
		4.4.2.2 Air Quality Results	4-43
		4.4.2.3 Conclusions	4-51
4.5	Solid and Hazardous Wastes		4-51
	4.5.1	Site Hazardous Wastes	4-51
	4.5.2	Operational Solid and Hazardous Wastes	4-51
	4.5.3	Recycling	4-52
4.6	Noise		4-52
	4.6.1	Introduction	4-52
	4.6.2	Noise Terminology	4-52
	4.6.3	Noise Regulations and Criteria	4-54
	4.6.4	Existing Conditions	4-55
	4.6.5	Noise Monitoring Methodology	4-55
	4.6.6	Noise Monitoring Locations	4-56
	4.6.7	Noise Monitoring Equipment	4-56
	4.6.8	Measured Background Sound Levels	4-57
	4.6.9	Future Conditions – Overview of Potential Project Noise Sources	4-60
	4.6.10	Noise Modeling Methodology	4-61
	4.6.11	Future Sound Levels – Nighttime	4-62
	4.6.12	Future Sound Levels – Daytime	4-64
	4.6.13	Conclusions	4-64
4.7	Nighttime Lighting		4-65
	4.7.1	Exterior Lighting	4-65
	4.7.2	Interior Lighting	4-65
4.8	Flood Hazards/Wetlands		4-66
4.9	Geotechnical/Groundwater		4-66
4.10	Construction Impacts		4-67
	4.10.1	Introduction	4-67
	4.10.2	Construction Methodology / Public Safety	4-68
	4.10.3	Construction Schedule	4-68
	4.10.4	Construction Staging / Access	4-68
	4.10.5	Construction Mitigation	4-69
	4.10.6	Construction Employment and Worker Transportation	4-69
	4.10.7	Construction Truck Routes and Deliveries	4-69
	4.10.8	Construction Air Quality	4-70
	4.10.9	Construction Noise	4-70
	4.10.10	Construction Waste	4-71
	4.10.11	Protection of Utilities	4-71

4.11 Rodent Control 4-71
4.12 Wildlife Habitat 4-72

5.0 URBAN DESIGN 5-1
5.1 Urban Context 5-1
5.2 Design and Materials 5-1
5.3 Brookline Avenue Improvements 5-2
5.4 Evolution of Design 5-2

6.0 SUSTAINABILITY 6-1
6.1 Sustainable Design 6-1
6.2 Energy Conservation 6-3
6.2.1 Building Orientation and Envelope 6-3
6.2.2 Energy Conservation Measures 6-4
6.2.3 Rainwater Capture 6-4

7.0 HISTORIC RESOURCES 7-1
7.1 Historic Resources within the Project Site 7-1
7.2 Historic Resources in the Vicinity of the Project Site 7-1
7.3 Archaeological Resources on the Project Site 7-2
7.4 Potential Impacts to Historic Resources 7-2
7.4.1 Urban Design 7-4
7.4.2 Shadow Impacts 7-4
7.5 Status of Project Review with Historical Agencies 7-5
7.5.1 Boston Landmarks Commission Article 80 Review 7-5
7.5.2 Massachusetts Historical Commission State Register Review 7-5

8.0 INFRASTRUCTURE 8-1
8.1 Introduction 8-1
8.2 Sanitary Sewer 8-1
8.2.1 Existing System Conditions 8-1
8.2.2 Future Wastewater Generation & System Modifications 8-2
8.3 Water Supply 8-2
8.3.1 Existing System Conditions 8-2
8.3.2 Future Water Demand & System Modifications 8-3
8.4 Stormwater Drainage 8-3
8.4.1 Existing System Conditions 8-3
8.4.2 Future Stormwater Flows 8-3
8.4.3 Consistency with Massachusetts Stormwater Management Standards 8-4

Table of Contents (Continued)

8.5	Electrical Service		8-6
	8.5.1	Existing System Conditions	8-6
	8.5.2	Future Electrical Requirements	8-6
8.6	Chilled Water		8-6
	8.6.1	Existing System Conditions	8-6
	8.6.2	Future Chilled Water Requirements	8-6
8.7	Natural Gas		8-7
	8.7.1	Existing System Conditions	8-7
	8.7.2	Future Natural Gas Requirements	8-7
8.8	Steam		8-7
	8.8.1	Existing System Conditions	8-7
	8.8.2	Future Steam Requirements	8-7
8.9	Telecommunications		8-7
	8.9.1	Existing Systems	8-7
	8.9.2	Future System Connections	8-8
8.10	Emergency Systems		8-8
8.11	Fiber Optics		8-8
9.0	**RESPONSE TO COMMENTS**		**9-1**

List of Appendices

Appendix A	Scoping Determination/DPIR Submission Requirements
Appendix B	Transportation
Appendix C	Wind
Appendix D	Air Quality
Appendix E	Climate Change Questionnaire
Appendix F	Accessibility Checklist
Appendix G	Graphic Analysis of Brookline Avenue

List of Figures

Figure 2-1	Aerial Locus Map	2-2
Figure 2-2	East Elevation (Deaconess Road)	2-5
Figure 2-3	West Elevation (Francis Street)	2-6
Figure 2-4	South Elevation (Brookline Avenue)	2-7
Figure 2-5	North Elevation (Pilgrim Road)	2-8
Figure 2-6	Basement Plan	2-9

List of Figures (Continued)

Figure 2-7	Level 1 Plan	2-10
Figure 2-8	Level 2 Plan	2-11
Figure 2-9	Level 3 Plan	2-12
Figure 2-10	Level 4 Plan	2-13
Figure 2-11	Level 5 Plan	2-14
Figure 2-12	Levels 6 to 9 Plan	2-15
Figure 2-13	Level 10 Plan	2-16
Figure 2-14	Roof Plan	2-17
Figure 2-15	North-South Section	2-18
Figure 2-16	East-West Section	2-19
Figure 3-1	Site Location	3-2
Figure 3-2	Site Plan	3-5
Figure 3-3	Study Area Intersections	3-12
Figure 3-4	BIDMC West Campus Existing Transportation Infrastructure	3-17
Figure 3-5	BIDMC LMA Owned and Leased Parking	3-18
Figure 3-6	LMA and Fenway Neighborhoods Blue Bikes Stations	3-22
Figure 3-7	2018 Existing Condition Morning Peak Hour (7:15 AM - 8:15 AM) Traffic Volumes	3-29
Figure 3-8	2018 Existing Condition Evening Peak Hour (3:45 PM - 4:45 PM) Traffic Volumes	3-30
Figure 3-9	Summary of Nearby Public Off-Street Parking Facilities	3-32
Figure 3-10	Summary of On-Street Parking in the Study Area	3-35
Figure 3-11	Primary Pedestrian Routes	3-36
Figure 3-12	2018 Existing Condition Morning Peak Hour (7:15 AM – 8:15 AM) Pedestrian Volumes	3-37
Figure 3-13	2018 Existing Condition Evening Peak Hour (3:45 PM – 4:45 PM) Pedestrian Volumes	3-38
Figure 3-14	2018 Existing Condition Morning Peak Hour (7:15 AM – 8:15 AM) Bicycle Volumes	3-39
Figure 3-15	2018 Existing Conditions Evening Peak Hour (3:45 PM – 4:45 PM) Bicycle Volumes	3-40
Figure 3-16	Public Transportation	3-41
Figure 3-17	MASCO Shuttle Bus Routes Morning Peak	3-43
Figure 3-18	MASCO Shuttle Bus Routes Evening Peak	3-44
Figure 3-19	2023 No-Build Condition Morning Peak Hour (7:15 AM – 8:15 AM) Traffic Volumes	3-51
Figure 3-20	2023 No-Build Condition Evening Peak Hour (3:45 PM – 4:45 PM) Traffic Volumes	3-52

List of Figures (Continued)

Figure 3-21	Trip Distribution	3-56
Figure 3-22	Project Trips Morning Peak Hour (7:15 AM - 8:15 AM) Traffic Volumes	3-58
Figure 3-23	Project Trips Evening Peak Hour (3:45 PM - 4:45 PM) Traffic Volumes	3-59
Figure 3-24	2023 Build Condition Morning Peak Hour (7:15 AM -8:15 AM) Traffic Volumes	3-60
Figure 3-25	2023 Build Condition Evening Peak Hour (3:45 PM - 4:45 PM) Traffic Volumes	3-61
Figure 4.1-1	Wind Tunnel Study Model – No Build Configuration	4-3
Figure 4.1-2	Wind Tunnel Study Model – Build Configuration	4-4
Figure 4.1-3	Seasonal Directional Distribution of Winds Approaching Boston Logan International Airport from 1988 Through 2018	4-5
Figure 4.1-4	Annual Directional Distribution of Winds Approaching Boston Logan International Airport from 1988 Through 2018	4-6
Figure 4.1-5	General Wind Flow Phenomena Around Buildings	4-8
Figure 4.1-6	Pedestrian Wind Conditions – Mean Speed – No Build, Annual	4-9
Figure 4.1-7	Pedestrian Wind Conditions – Mean Speed – Build, Annual	4-10
Figure 4.1-8	Pedestrian Wind Conditions – Effective Gust – No Build, Annual	4-11
Figure 4.1-9	Pedestrian Wind Conditions – Effective Gust – Build, Annual	4-12
Figure 4.2-1	Shadow Study, March 21, 9:00 a.m.	4-15
Figure 4.2-2	Shadow Study, March 21, 12:00 p.m.	4-16
Figure 4.2-3	Shadow Study, March 21, 3:00 p.m.	4-17
Figure 4.2-4	Shadow Study, June 21, 9:00 a.m.	4-18
Figure 4.2-5	Shadow Study, June 21, 12:00 p.m.	4-19
Figure 4.2-6	Shadow Study, June 21, 3:00 p.m.	4-20
Figure 4.2-7	Shadow Study, June 21, 6:00 p.m.	4-21
Figure 4.2-8	Shadow Study, September 21, 9:00 a.m.	4-22
Figure 4.2-9	Shadow Study, September 21, 12:00 p.m.	4-23
Figure 4.2-10	Shadow Study, September 21, 3:00 p.m.	4-24
Figure 4.2-11	Shadow Study, September 21, 6:00 p.m.	4-25
Figure 4.2-12	Shadow Study, December 21, 9:00 a.m.	4-26
Figure 4.2-13	Shadow Study, December 21, 12:00 p.m.	4-27
Figure 4.2-14	Shadow Study, December 21, 3:00 p.m.	4-28
Figure 4.3-1	Daylight Analysis Viewpoints	4-32
Figure 4.3-2	Proposed Conditions	4-34
Figure 4.3-3	Area Context	4-35
Figure 4.3-4	Area Context	4-36
Figure 4.4-1	Intersection of Brookline Avenue and Francis Street	4-44
Figure 4.4-2	Intersection of Brookline Avenue and Longwood Avenue	4-45

List of Figures (Continued)

Figure 4.4-3	Intersection of Brookline Avenue and Riverway	4-46
Figure 4.4-4	Intersection of Riverway and Longwood Avenue	4-47
Figure 4.6-1	Sound Monitoring Locations	4-58
Figure 4.6-2	Sound Modeling Locations	4-63
Figure 5-1	Rendering – Brookline Avenue and Francis Street	5-3
Figure 5-2	Rendering - Riverway	5-4
Figure 5-3	View from Emerald Necklace	5-5
Figure 5-4	View from Autumn Street	5-6
Figure 5-5	View from Brookline Avenue	5-7
Figure 5-6	View from Francis Street	5-8
Figure 5-7	View from Brookline Avenue	5-9
Figure 5-8	View from Brookline Avenue	5-10
Figure 5-9	View from Brookline Avenue and Francis Street	5-11
Figure 5-10	View from Brookline Avenue Sidewalk	5-12
Figure 5-11	View from Francis Street Drop-off	5-13
Figure 5-12	View from Longwood Avenue	5-14
Figure 5-13	Landscape Plan	5-15
Figure 5-14	Landscape at the Corner of Brookline Avenue and Francis Street	5-16
Figure 7-1	Historic Resources	7-3
Figure 9-1	Brookline Avenue and Francis Street Intersection Landscaping	9-11
Figure 9-2	Area Bike Routes	9-20

List of Tables

Table 1-1	Anticipated Permits and Approvals	1-4
Table 3-1	BIDMC Existing Parking Space Inventory (as of January 2018)	3-14
Table 3-2	BIDMC Loading and Service Facilities	3-24
Table 3-3	Vehicular Crash Summary (2013 - 2015)	3-31
Table 3-4	Unadjusted Project Generated Net-New Vehicle Trips	3-53
Table 3-5	Project Generated Person Trips	3-54
Table 3-6	Mode Shares	3-54
Table 3-7	Project Generated Trips	3-55
Table 3-8	Auto Trip Distribution	3-57
Table 3-9	Level of Service Criteria	3-64

List of Tables (Continued)

Table 3-10	Existing Condition (2018) Signalized Intersection LOS Summary – AM Peak Hour	3-64
Table 3-11	Existing Condition (2018) Unsignalized Intersection LOS Summary – AM Peak Hour	3-66
Table 3-12	Existing Condition (2018) Signalized Intersection LOS Summary – PM Peak Hour	3-67
Table 3-13	Existing Condition (2018) Unsignalized Intersection LOS Summary – PM Peak Hour	3-68
Table 3-14	No-Build Condition (2023) Signalized Intersection LOS Summary – AM Peak Hour	3-69
Table 3-15	No-Build Condition (2023) Unsignalized Intersection LOS Summary – AM Peak Hour	3-70
Table 3-16	No-Build Condition (2023) Signalized Intersection LOS Summary – PM Peak Hour	3-71
Table 3-17	No-Build Condition (2023) Unsignalized Intersection LOS Summary – PM Peak Hour	3-72
Table 3-18	Build Condition (2023) Signalized Intersection LOS Summary – AM Peak Hour	3-74
Table 3-19	Build Condition (2023) Unsignalized Intersection LOS Summary – AM Peak Hour	3-75
Table 3-20	Build Condition (2023) Signalized Intersection LOS Summary – PM Peak Hour	3-76
Table 3-21	Build Condition (2023) Unsignalized Intersection LOS Summary – PM Peak Hour	3-77
Table 3-22	LOS Summary Comparison – Signalized Intersections	3-78
Table 3-23	LOS Summary Comparison – Unsignalized Intersections	3-79
Table 4.1-1	BPDA Mean Wind Speed Criteria	4-2
Table 4.3-1	Daylight Analysis Results	4-33
Table 4.4-1	National (NAAQS) and Massachusetts (MAAQS) Ambient Air Quality Standards	4-39
Table 4.4-2	Observed Ambient Air Quality Concentrations and Selected Background Levels	4-40
Table 4.4-3	Summary of Microscale Modeling Analysis (Existing 2018)	4-48
Table 4.4-4	Summary of Microscale Modeling Analysis (No-Build 2025)	4-49
Table 4.4-5	Summary of Microscale Modeling Analysis (Build 2025)	4-50
Table 4.6-1	City Noise Standards, Maximum Allowable Sound Pressure Levels	4-55
Table 4.6-2	Summary of Measured Background Noise Levels – April 3, 2018 (Daytime) & (Nighttime)	4-59

List of Tables (Continued)

Table 4.6-3	Modeled Noise Sources	4-60
Table 4.6-4	Modeled Sound Power Levels per Noise Source	4-61
Table 4.6-5	Attenuation Values Applied to Mitigate Each Noise Source	4-61
Table 4.6-6	Comparison of Future Predicted Project-Only Nighttime Sound Levels to the City of Boston Limits	4-62
Table 4.6-7	Comparison of Future Predicted Project-Only Daytime Sound Levels to City Noise Standards	4-64
Table 7-1	Historic Resources in the Vicinity of the Project Site	7-1
Table 9-1	List of Comment Letters	9-1

Chapter 1

General Information

1.0 GENERAL INFORMATION

1.1 Introduction

Beth Israel Deaconess Medical Center (BIDMC) is a premier non-profit academic medical center and a major teaching affiliate of Harvard Medical School that is renowned for excellence in patient care, biomedical research, teaching, and community service. Located in the heart of Boston's Longwood Medical and Academic Area (LMA), it serves more than half a million patient encounters annually. BIDMC is also the hub of a network of licensed and affiliated healthcare providers, including the Bowdoin Street Health Center, five other affiliated community health centers in Boston and one on Cape Cod; three BIDMC owned non-profit community hospitals in Milton, Needham and Plymouth and six other affiliated hospitals; health care providers such as Atrius Health, Joslin Diabetes Center and Hebrew Senior Life; and numerous physician groups, including its exclusive affiliate, Harvard Medical Faculty Physicians whose physicians provide patient care, research and medical education services at BIDMC.

BIDMC's Boston campus is the referral center for the sickest patients being cared for by BIDMC's network of health care providers. Due to the increasingly acute, complex needs of its patients, BIDMC needs more single-bedded patient rooms, more intensive care beds and expanded surgery and clinical support spaces that can support patient and family oriented, team-based care and improved technology. Currently only 37 percent of BIDMC's medical/surgical beds are in single-bedded rooms, which is well below other Academic Medical Centers (AMCs) that have built new inpatient facilities in recent years, and BIDMC's inpatient beds operate at or above 85 percent occupancy over 88 percent of the time, above optimal occupancy rates. Patients and families continue to request single rooms, and the seriously ill and often vulnerable patients and families BIDMC cares for have greater need for the quiet and respite of a single-bedded room than patients with fewer significant medical needs and other challenges. Single-bedded patient rooms help reduce the incidence of hospital-acquired infection, improve patient sleep and reduce stress for patients and their families. In addition, BIDMC's existing operating rooms, diagnostic, procedural spaces, and healing and waiting areas are aged and undersized relative to current industry norms and regulatory requirements for new facilities. BIDMC's average age of facility is approximately 60 years (since original building construction) which is well above BIDMC's AMC peers in the Boston area.

To address these needs and improve BIDMC's ability to fulfill its mission to provide highest quality affordable patient care, BIDMC is proposing a new inpatient building on its West Campus, herein referred to as the Project, which will include inpatient beds (both medical/surgical and intensive care), operating and procedure rooms, clinical service and support spaces, medical education and conference space, and a rooftop helipad (which will be relocated from its existing location at the adjacent Rosenberg Building).

BIDMC is pleased to submit this Draft Project Impact Report (DPIR) to the BRA, doing business as Boston Planning and Development Agency (herein, the "BPDA" except when referring to activities prior to 2016). This DPIR responds to the Scoping Determination issued in response to the Institutional Master Plan Notification Form/Project Notification Form (IMPNF/PNF) by the BPDA on February 22, 2018. The Scoping Determination is included as Appendix A.

1.2 Project Team

Proponent and Owner:	Beth Israel Deaconess Medical Center, Inc. 330 Brookline Avenue Boston, MA 02215 (617) 667-7000 Walter Armstrong: Senior Vice President, Capital Facilities and Engineering David Flanagan: Director of Engineering, Infrastructure and Research Facilities Planning Emily Ryzak: Office Engineering Manager Elizabeth Gerlach: Deputy General Counsel and Director of Real Estate Development & Land Use Planning
Development Consultant:	Leggat McCall Properties 10 Post Office Square, Suite 13 Boston, MA 02109 (617) 422-7000 Robert Foster
Architect:	Payette 290 Congress Street, Fifth Floor Boston, MA 02210 (617) 895-1000 George Marsh Kevin Sullivan Stuart Baur
Permitting Consultant:	Epsilon Associates, Inc. 3 Mill & Main Place, Suite 250 Maynard, MA 01754 (978) 897-7100 Cindy Schlessinger Geoff Starsiak

Legal Counsel:	Goulston & Storrs 400 Atlantic Avenue Boston, MA 02110 (617) 482-1776 Adam Hundley
Transportation Consultant and Civil Engineer:	VHB 99 High Street Boston, MA 02110 (617) 728-7777 Sean Manning Howard Moshier
Geotechnical Engineer:	GEI Consultants 400 Unicorn Park Drive, Suite 8 Boston, MA 02129 (781) 721-4000 Michael Yako Ileen Gladstone

1.3 Legal Information

1.3.1 Legal Judgments Adverse to the Proposed Project

To the Proponent's knowledge, there are no legal judgments or actions pending concerning the Project or the Project site.

1.3.2 History of Tax Arrears on Property

No property owned in the City of Boston by the Proponent is in tax arrears to the City of Boston.

1.3.3 Site Control/Public Easements

BIDMC owns the Project site. There are two public easements on or adjacent to the Project site, one adjacent to Brookline Avenue on the easterly side of the Project site, and the other in the discontinued area of Pilgrim Road owned by BIDMC adjacent to the westerly boundary of the site, summarized as follows:

- There is an easement for public pedestrian passage within an easement area 10 feet wide and approximately 391 feet long that extends along the westerly sideline of Brookline Avenue from Deaconess Road to Francis Street, on land owned by BIDMC. This easement was granted in connection with the development approvals

for the Rosenberg Building and the West Campus Main Loading Facility by BIDMC's predecessor to the City of Boston to allow for the widening of Brookline Avenue. A portion of the easement area extends along the eastern boundary of the Project site. Design plans for this area have not yet been finalized, but the pedestrian sidewalk will be maintained in this location.

- BIDMC owns a discontinued area of Pilgrim Road from Deaconess Road to Francis Street, a portion of which extends along the western boundary of the Project site. Pursuant to the easement agreement referenced immediately above, BIDMC is obligated to maintain and repair a paved right of way at least 12 feet wide within the discontinued area for public safety and Boston Police and Fire Department access. Design plans for this area have not yet been finalized, but BIDMC will maintain at least 12 feet of paved, clear passage in this area for such purposes.

1.4 Anticipated Permits and Approvals

Table 1-1 includes a preliminary list of local, state and federal permits and approvals that may be required for the Project. This list is based upon current information about the Project, and is subject to change as the design and program of the Project evolves. Some of the permits and approvals listed may not be required, while there may be others not listed that will be needed.

Table 1-1 Anticipated Permits and Approvals

Agency Name	Permit / Approval
Local	
Boston Planning and Development Agency	Article 80 Large Project Review and ancillary documents (including a Cooperation Agreement, Development Impact Project Agreement and Boston Residents Construction Employment Plan) Institutional Master Plan Review
Boston Civic Design Commission	Design Review
Boston Transportation Department	Transportation Access Plan Agreement Construction Management Plan
Boston Water and Sewer Commission	Water and sewer connection permits Construction Dewatering Permit, if required
Boston Zoning Commission	Institutional Master Plan Amendment Approval
Boston Fire Department	Site Access Plan and other required permits

Table 1-1 Anticipated Permits and Approvals (continued)

Agency Name	Permit / Approval
Local (continued)	
Boston Committee on Licenses / Public Safety Commission	Fuel Storage Permit
Boston Parks and Recreation Department	Review of construction within 100 feet of a park
Public Improvement Commission	Specific Repair Plan approval and License for changes to the public right of way, if required
Public Works Department	Curb cut and street/sidewalk opening permits
Interagency Green Building Committee	Zoning Article 37 Green Buildings
Inspectional Services Department	Building and occupancy permits
State	
Department of Public Health	Determination of Need and plan approval
MEPA Unit, Executive Office of Energy and Environmental Affairs	MEPA review
Department of Environmental Protection	Air quality and groundwater discharge permits, if required
Massachusetts Historical Commission	Determination of No Adverse Effect
Massachusetts Water Resources Authority	Construction dewatering permit, if required
Federal	
U.S. Environmental Protection Agency	NPDES General Permit for dewatering and Stormwater Discharge Permit, if applicable
Federal Aviation Administration	Determination of no hazard to air navigation, if required

Massachusetts Environmental Policy Act

The Project is subject to review under the Massachusetts Environmental Policy Act since the Project requires a Determination of Need from the Department of Public Health, and the Project will exceed a review threshold for Transportation. The Proponent submitted an Environmental Notification Form to the MEPA office on February 28, 2018, and the Secretary of the Executive Office of Energy and Environmental Affairs issued the Certificate on April 6, 2018 stating that no further review under MEPA is required.

1.5 Public Benefits

As discussed in Chapter 7 of the IMP Amendment, BIDMC provides significant public benefits to the surrounding community and City of Boston, including, but not limited to, increasing access to care, promoting healthy living, addressing multiple forms of violence

experienced in people's lives, creating employment opportunities and workforce development, and contributing economic benefits. The Project will enhance these programs, services and contributions, and will also provide additional Project-related benefits, including:

- Creating a new architecturally distinguished, energy-efficient building at the gateway from the south to the LMA and to BIDMC's campuses on Brookline Avenue;
- Providing new and enhanced in-patient clinical facilities needed to serve seriously ill Boston area residents now and in the future;
- Enhancing the pedestrian experience on Brookline Avenue, Francis Street and Pilgrim Road by improvements including the addition of numerous street trees, expanded landscaped areas and widened sidewalks;
- Improving access, mobility and safety in the LMA by roadway improvements and enhanced valet parking operations management, including the widening of Pilgrim Road to accommodate two-way traffic access;
- Creating approximately 80 to 100 new full-time equivalent permanent jobs during operation of the Project, and approximately 400 construction jobs per peak day during construction;
- Providing more than $1,910,000 to the Neighborhood Housing Trust, and a payment of more than $380,000 to the Neighborhood Jobs Trust; and
- Investing over $21 million in community-based health initiatives in connection with the IMP Project.

Chapter 2

Project Description

2.0 PROJECT DESCRIPTION

2.1 Project Site

The Project site is located on BIDMC's West Campus in the LMA and is bound by Brookline Avenue, Francis Street, a discontinued portion of Pilgrim Road owned by BIDMC, and the Rosenberg Building (see Figure 2-1). The approximately 45,000 sf site currently includes the Emergency Department patient drop-off, ambulance entrance, main West Campus loading facility (Main Loading Facility) and West Campus oxygen tanks. The Project site was chosen for development of the Project because it is adjacent to the existing West Campus inpatient services that need to be expanded, and the efficiencies and enhancement of existing services that will be created through the interconnection and integration of the Project to the Rosenberg and Farr Buildings. The Project site is largely unbuilt, which will avoid the disruptive and expensive relocation of existing hospital programs during construction.

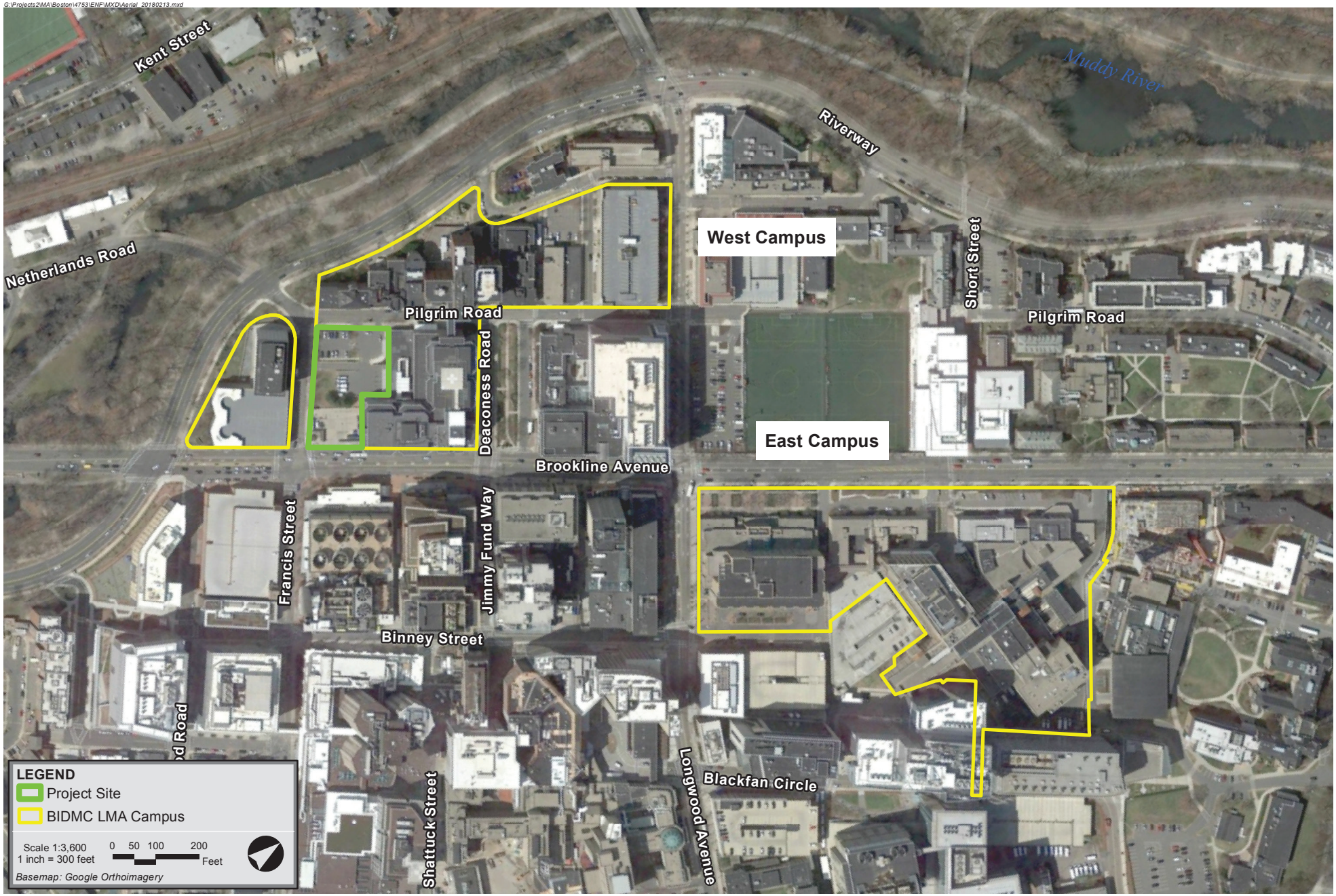
Though nearly flat along the Brookline Avenue and Francis Street frontages, the site slopes sharply upward at an approximately 10 percent grade along Pilgrim Road, rising from an elevation of approximately 34 feet at the intersection of Pilgrim Road and Francis Street, to an elevation of approximately 43 feet at the existing curb cut on Pilgrim Road providing access to the Emergency Department drop-off.

The existing sidewalk along Brookline Avenue is approximately 10'-8" wide with no frontage width and a greenscape/furnishing zone that is near minimum width and lacks material or landscape articulation.

The existing sidewalk along Francis Street is approximately six feet wide and currently lacks any frontage area along the majority of its length, though there is a narrow zone of landscaping close to the intersection with Pilgrim Road. In addition, there are several mid-block street trees between Brookline Avenue and the existing ambulance entrance ramp. The functional width of the existing sidewalk is reduced to approximately four feet in width at these street trees and at the three light poles that are located along this stretch of Francis Street.

2.2 Area Context

The LMA is a densely developed area reflecting a unique concentration of medical and academic institutions. Predominant land uses in the core of the LMA include health care, education, and research, with residential, retail and cultural uses along the edges. The Riverway portion of the Emerald Necklace, which is the most significant open space in the area, bounds the LMA along the west and north. The Back Bay Fens also bounds the north and northeast edges of the LMA. Additionally, several institutions own and maintain open spaces that are available for public use, while several colleges maintain open spaces that are fenced and primarily available for their students.



Beth Israel Deaconess Medical Center

Epsilon Associates Inc.

BIDMC DPIR

Figure 2-1
Aerial Locus Map

Existing building heights in the LMA range from two to 20 stories, with most building heights under 13 stories. The density of land uses in the area, measured by FAR, ranges from 0.2 to 6.4 according to recent data prepared by MASCO. The BIDMC campus falls in the middle of this range, with existing FARs on its LMA parcels ranging from 3.0 to 3.5.

Immediately adjacent to the Project site on the opposite side of Brookline Avenue is the MATEP Power Plant and diagonally across the intersection of Brookline Avenue and Francis Street is a five-story parking garage owned and operated by Brigham and Women's Hospital. Adjacent to the Project site on the opposite side of Francis Street is the Lowry Medical Office Building and its attached five-story parking garage. The opposite side of Pilgrim Road is densely occupied by other BIDMC buildings generally referred to as the Farr Complex.

2.3 Project Description

The Project includes the construction of a 10 story inpatient clinical building on the West Campus that will include up to 325,000 sf of gross floor area (as defined in the Zoning Code). The Project will include a ground level footprint of approximately 25,000 sf of enclosed space. As initially described in the IMPNF/PNF, it was contemplated that the Project would contain up to 345,000 sf of gross floor area and have a height of up to 200 feet to the top of the highest occupied floor. The Project gross floor area and height have been reduced based on design evolution and feedback from the City and the community. The Project will be approximately 178 feet in height to the top of the highest occupied floor, as measured per the Zoning Code (plus the helipad, mechanical equipment and roof structures, including a mechanical penthouse, mechanical screen and the enclosure for the elevators which serve the helipad, for up to an additional +/- 39 feet). The building will extend over an additional area of approximately 13,000 sf of area that will be open at the ground level along Pilgrim Road. The majority of this covered exterior space will be used for ambulance arrival space. The Project will house a range of clinical inpatient programs and inpatient beds (both medical/surgical and intensive care), operating and procedure rooms, as well as a range of support services and other functions ancillary to those clinical inpatient programs, education and conference space and a helipad on the roof (which will be relocated from the immediately adjacent Rosenberg Building).

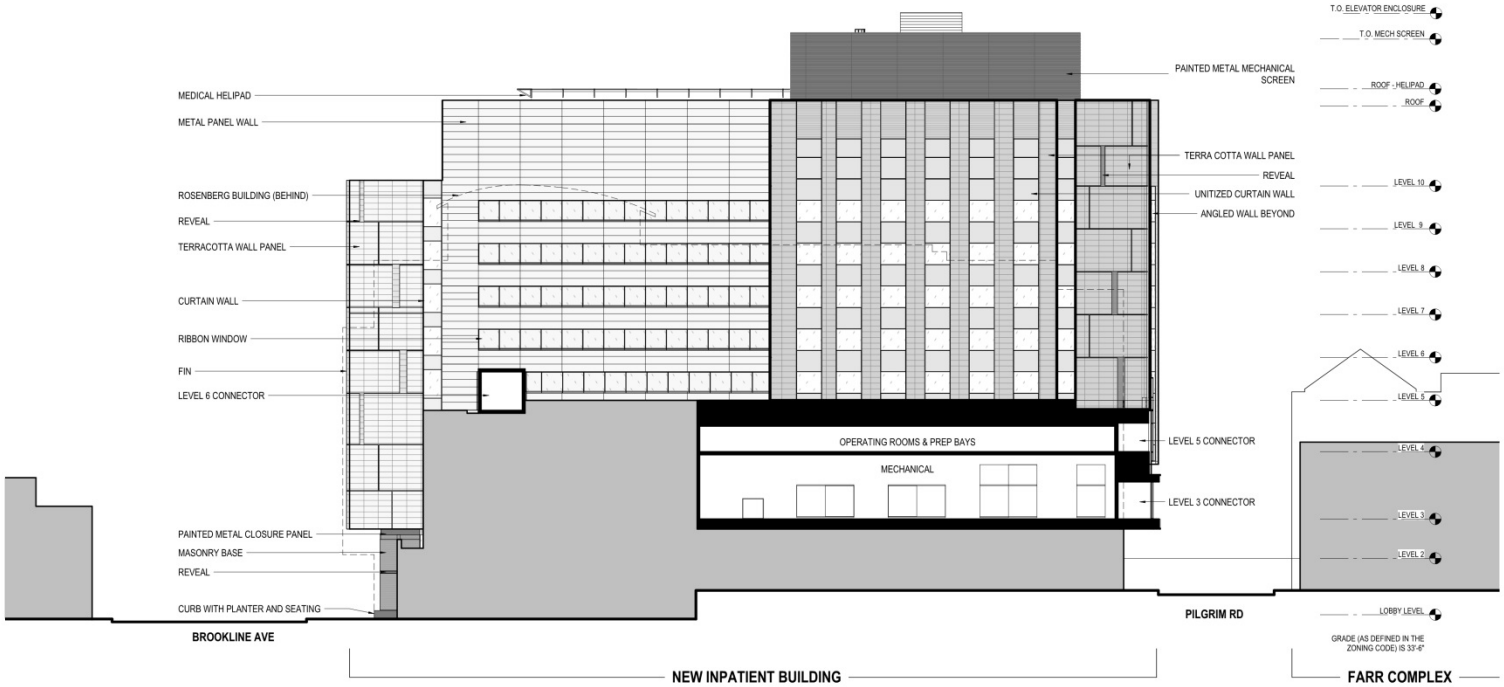
The site selected for the Project is adjacent to the Rosenberg Building. Currently, the Rosenberg Building is BIDMC's primary inpatient clinical facility on the West Campus and houses multiple operating rooms, as well as BIDMC's Emergency Department (a Level 1 Trauma Center). The location of the Project will enable services to be connected to and integrated with existing inpatient services in the Rosenberg Building and the interconnected Farr Building complex. The adjacency of the Project to the Emergency Department and the operating rooms in the Rosenberg Building will provide connectivity to support rapid, safe,

and efficient movement of patients to patient rooms. Likewise, the Project's pre-procedure rooms will have streamlined connections to the operating and procedure rooms in the Farr and the Rosenberg Buildings, supporting greater clinical collaborations and efficiencies in patient flow. Patients seen for services in any of these buildings will have covered, quick access to the entire complex. The interconnections among the Project and the existing patient care facilities will also facilitate the sharing of clinical and operational support services, such as dietary, pharmacy, materials management, central sterile processing, and operating room storage areas, allowing BIDMC to leverage existing support infrastructure and streamline services. Additionally, the site selected does not involve demolition or the costly relocation of existing patient care services, and will facilitate maintaining full and uninterrupted hospital functions during construction.

The Project will include up to 158 single-bedded inpatient rooms (up to 128 medical/surgical and 30 intensive care beds) within the new building. However, only 39 of the medical/surgical and 30 of the ICU beds will be additive to the overall BIDMC bed count that will exist at the time the Project opens (i.e., "net new"), as BIDMC anticipates closing 89 West Campus medical/surgical beds at the opening of the Project. Additionally, BIDMC anticipates reopening 20 medical/surgical beds by the end of 2024 within existing West Campus facilities. Overall, BIDMC anticipates that up to 89 net new patient beds will be brought on-line in connection with the Project on the West Campus. Figures 2-2 to 2-16 include elevations, floor plans and sections.

The Project will be designed for the evolving needs of the patients BIDMC serves, with the flexibility to adapt in the future. The Project will include family-friendly, single-bedded patient rooms able to accommodate the sophisticated technology needed to best treat critically ill patients. New, state-of-the-art operating and procedure rooms will be large enough to support the latest imaging and other surgical equipment. BIDMC's design goal for the overall Project is to incorporate sustainable and evidence-based concepts to improve clinical outcomes, cost-efficiencies and decrease environmental impacts.

The Project will connect to the Farr Bridge and the Rosenberg Building in multiple locations in order to provide convenient access and circulation for patients, families and staff. No demolition of existing buildings will be required for the Project. Construction of the Project will result in the elimination of 14 existing parking spaces currently accessed from Pilgrim Road, and 12 parking spaces in the Clicker Lot (26 total spaces eliminated); no new parking is proposed as part of the Project.



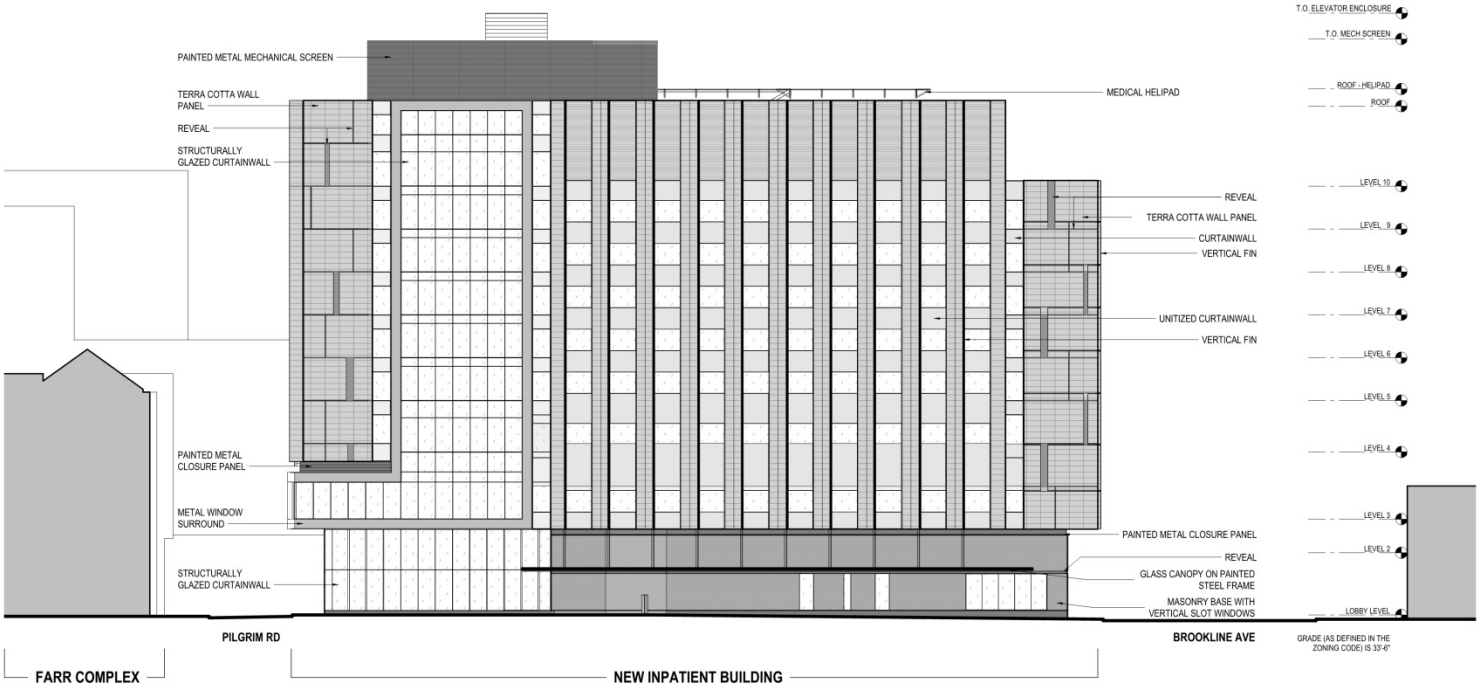
Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 2-2

East Elevation (Deaconess Road)



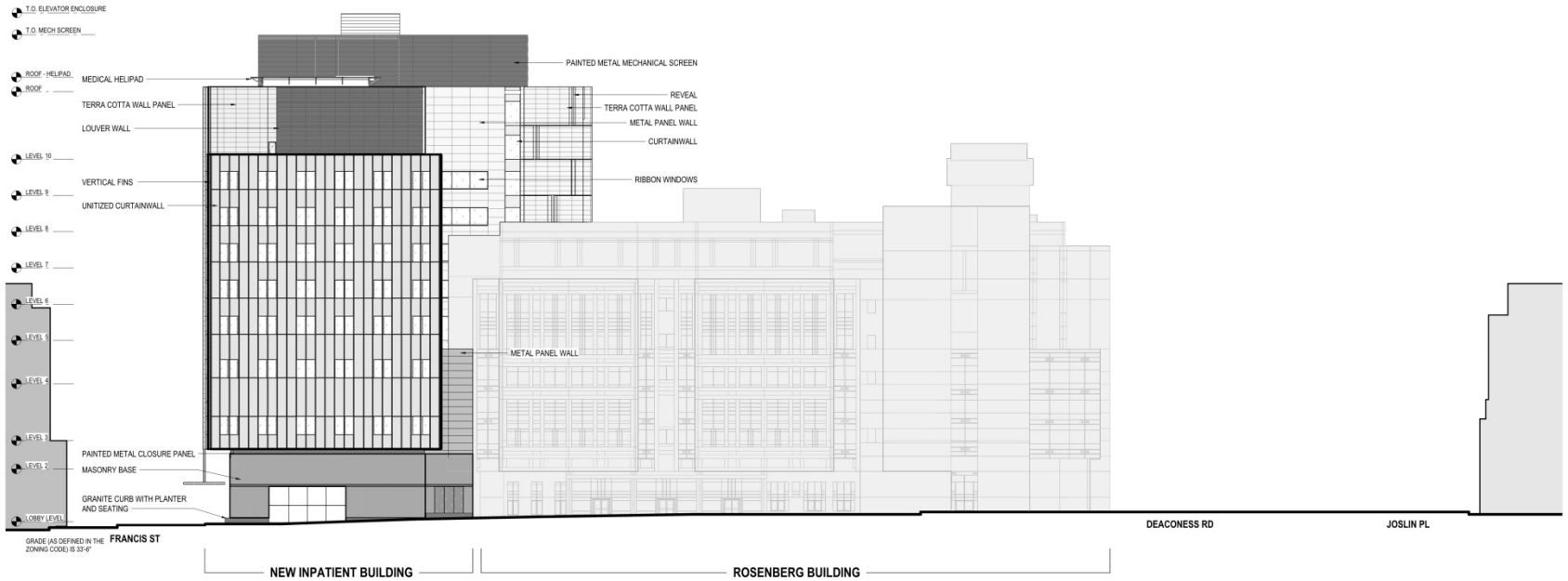
Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 2-3

West Elevation (Francis Street)



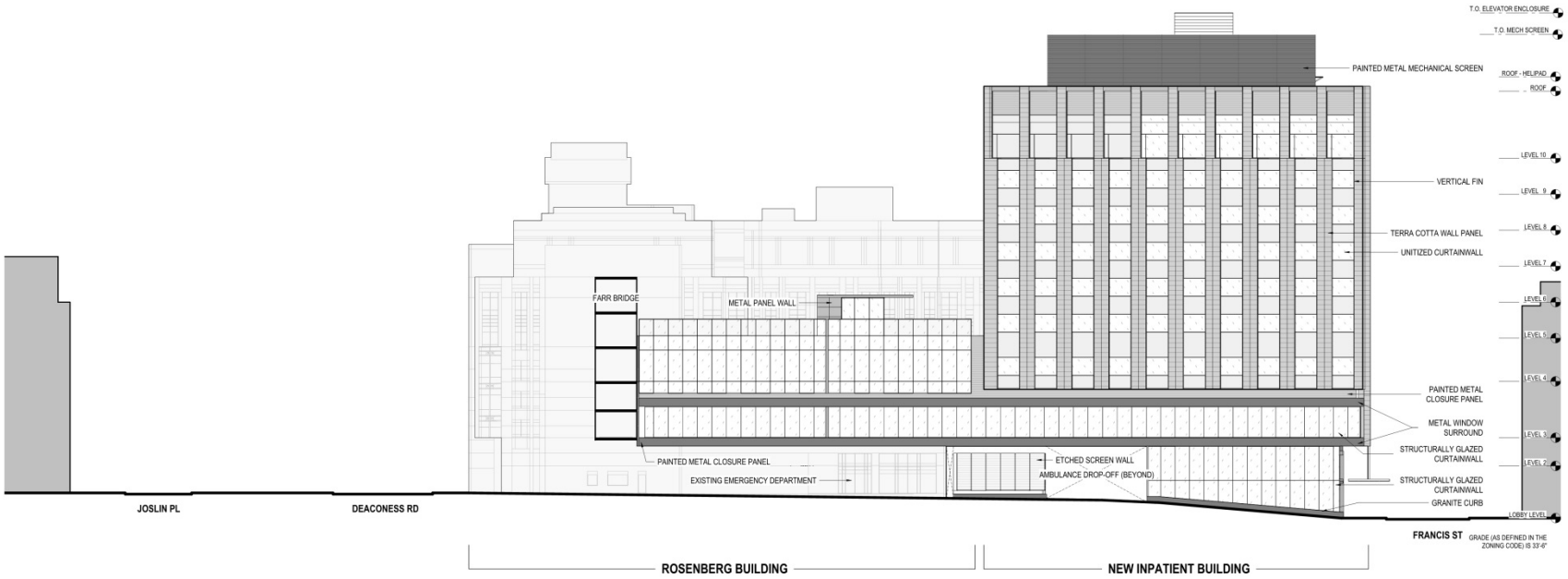
Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 2-4

South Elevation (Brookline Avenue)

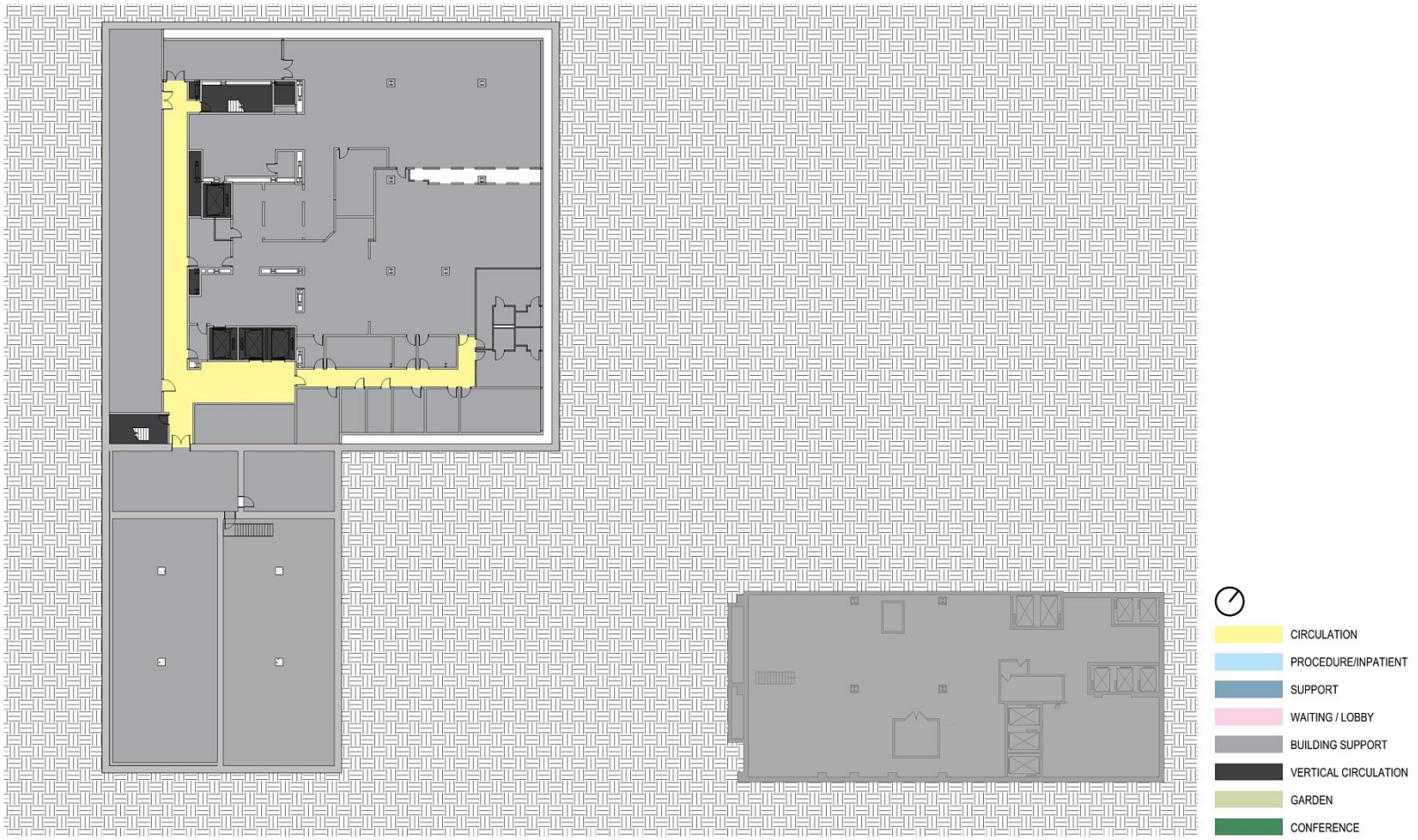


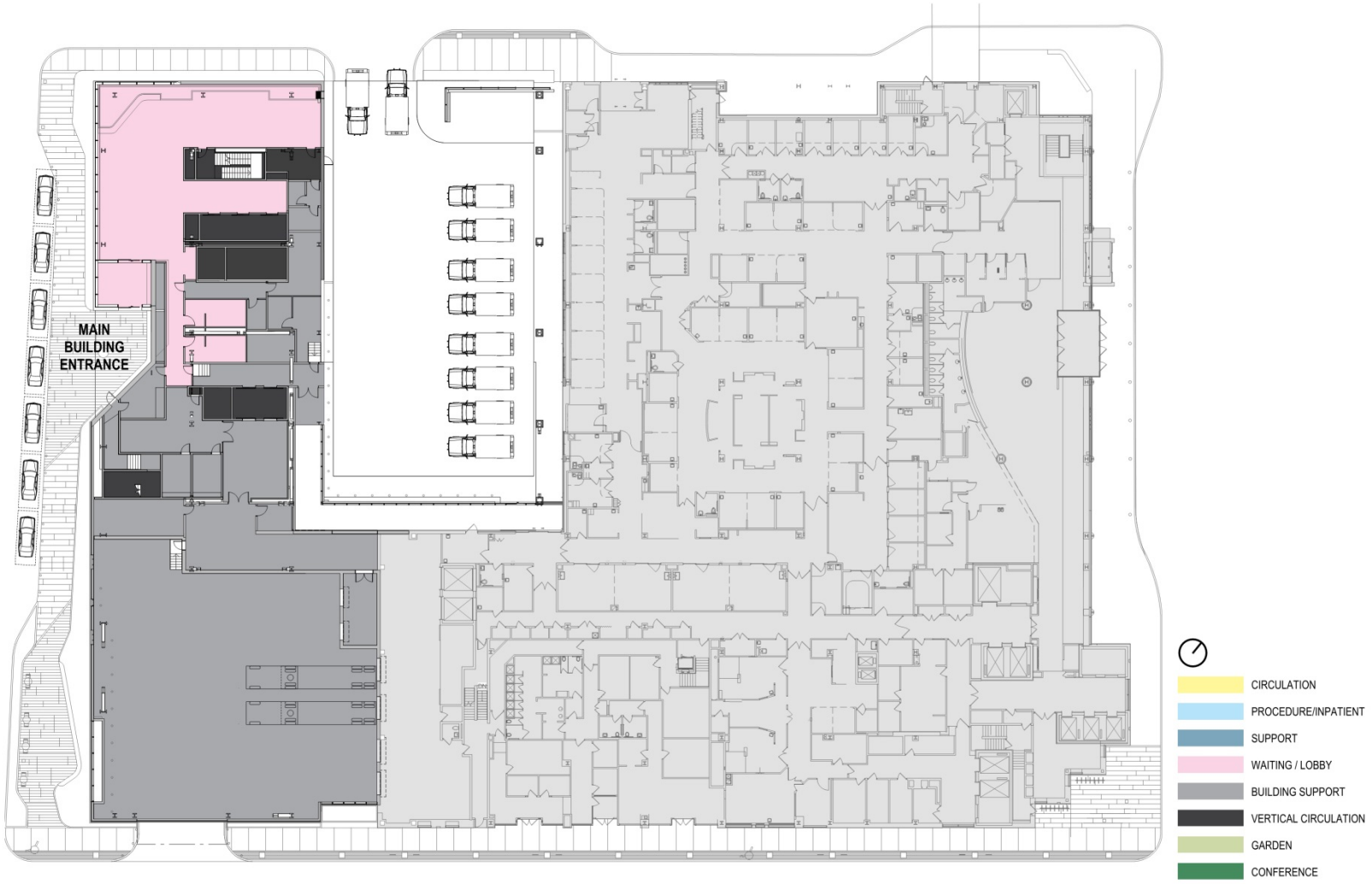
Beth Israel Deaconess Medical Center

PAYETTE

Figure 2-5

North Elevation (Pilgrim Road)


CIRCULATION
PROCEDURE/INPATIENT
SUPPORT
WAITING / LOBBY
BUILDING SUPPORT
VERTICAL CIRCULATION
GARDEN
CONFERENCE



Beth Israel Deaconess Medical Center

PAYETTE

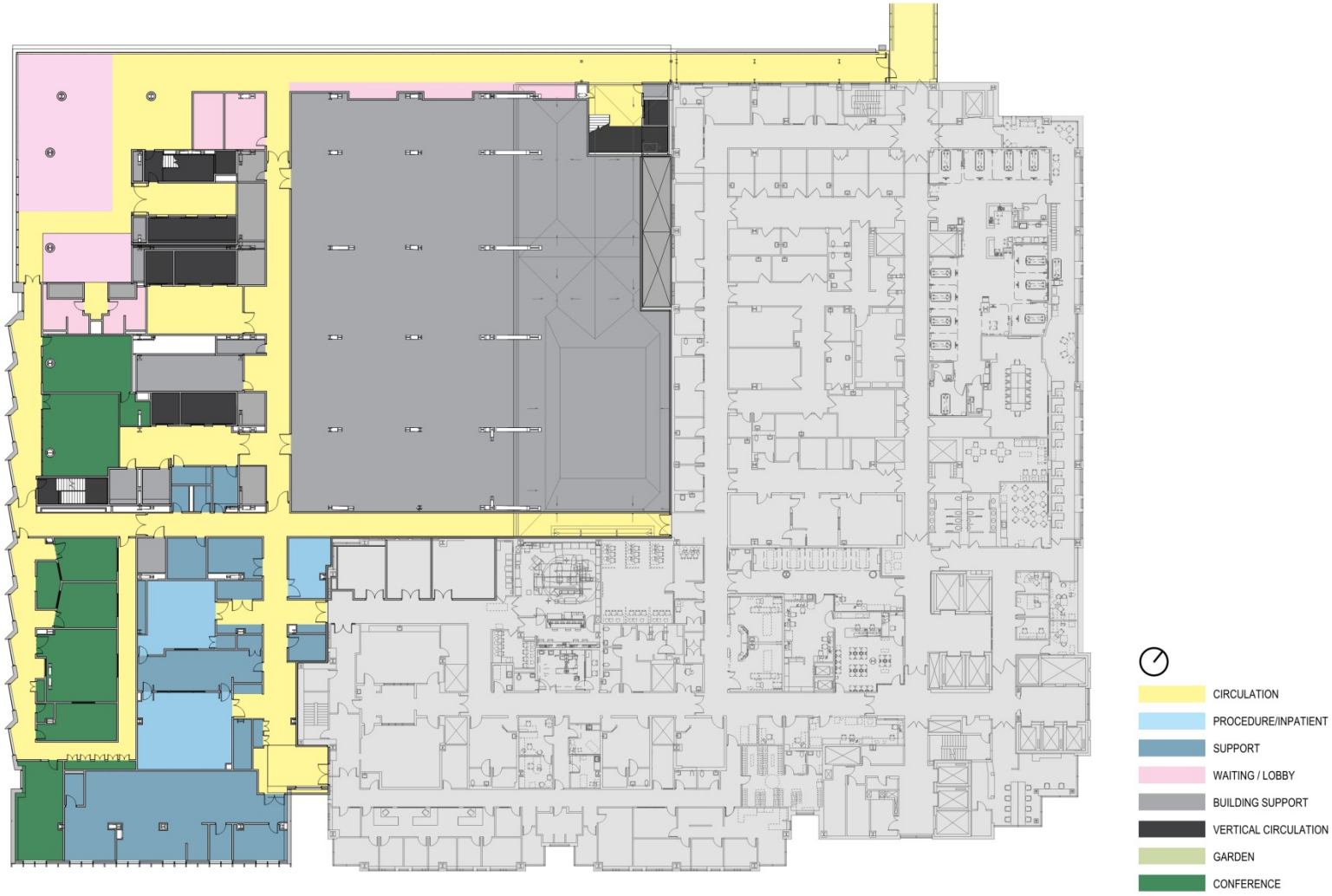
Figure 2-7
Level 1 Plan

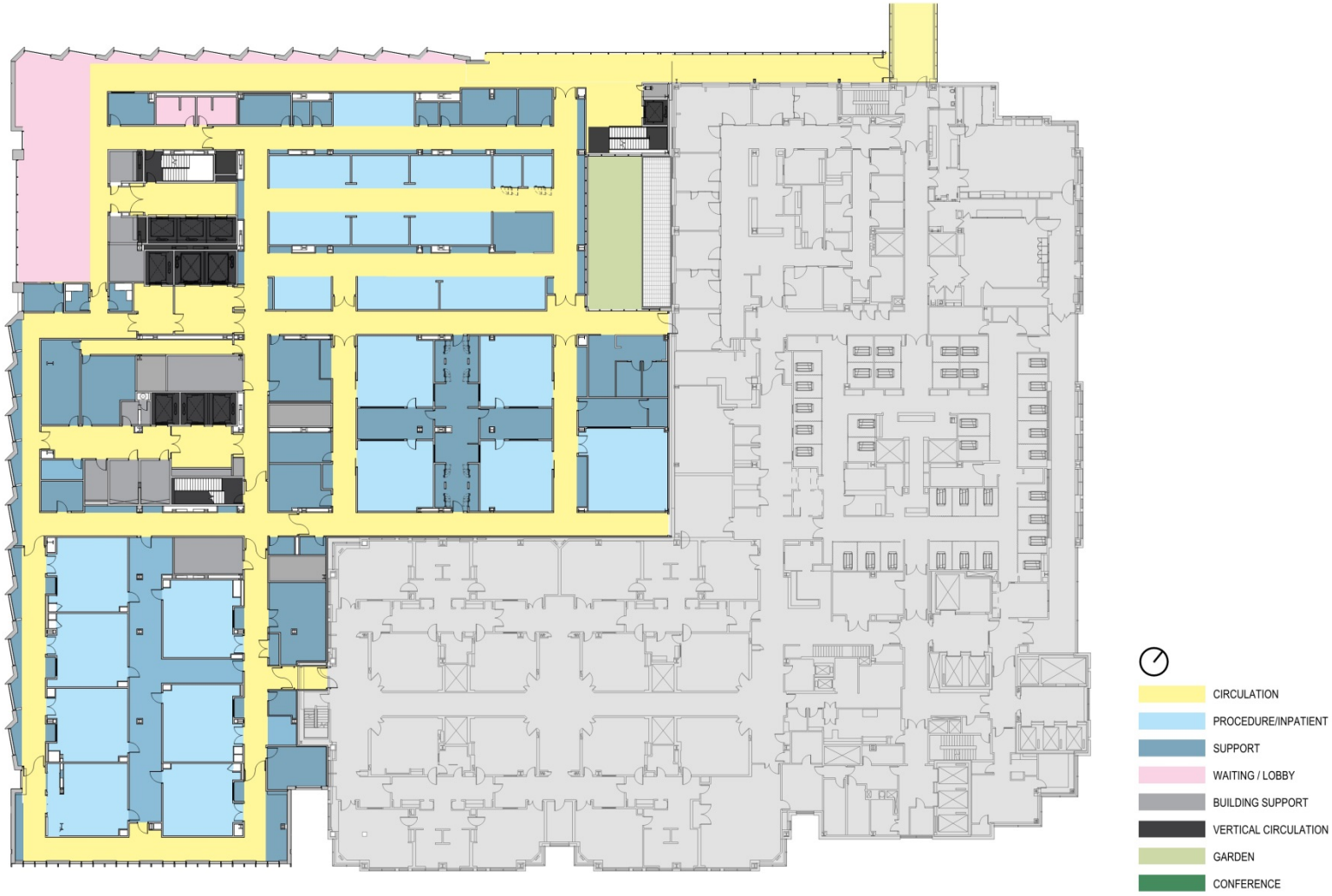


Beth Israel Deaconess Medical Center

PAYETTE

Figure 2-8
Level 2 Plan

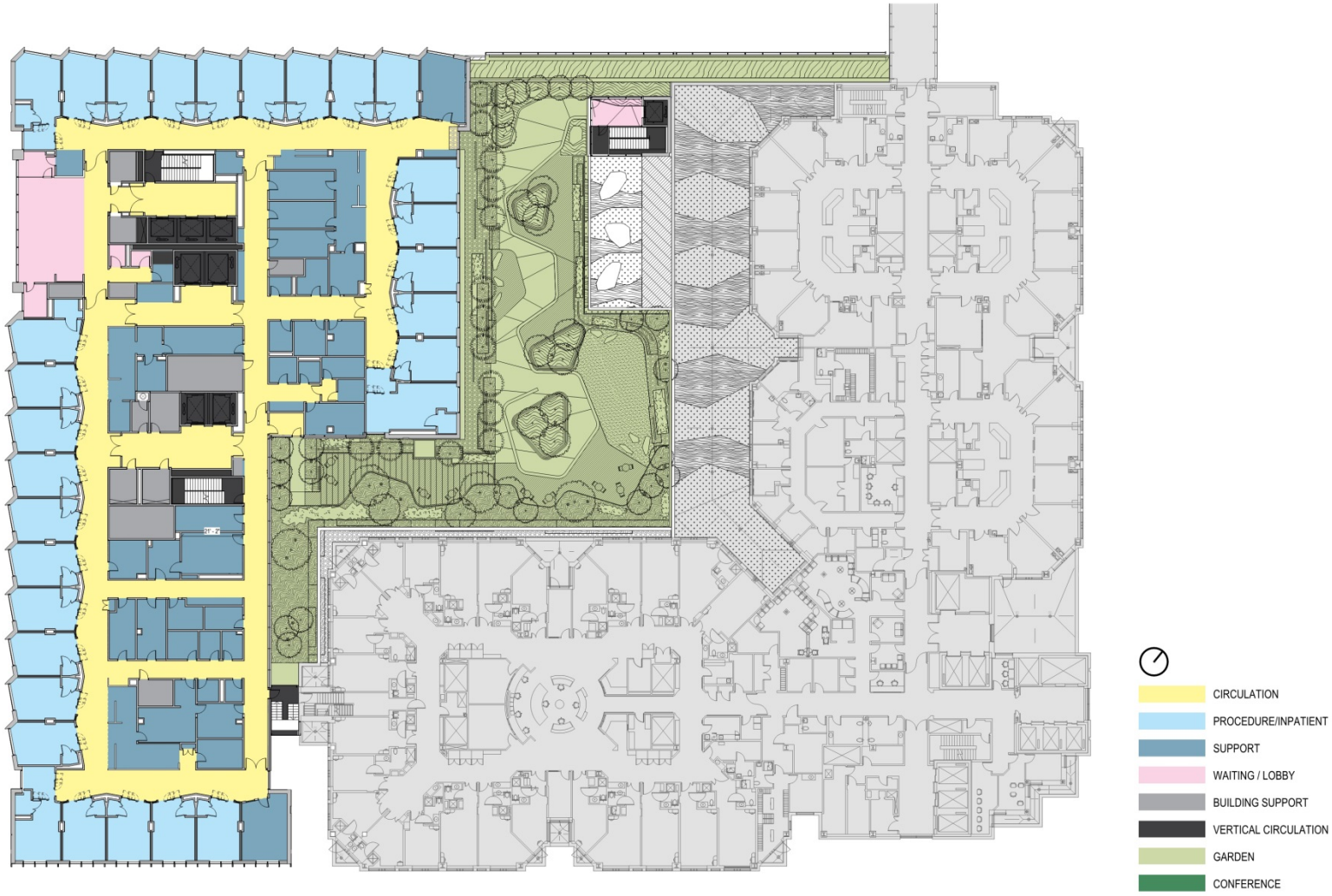

CIRCULATION
PROCEDURE/INPATIENT
SUPPORT
WAITING / LOBBY
BUILDING SUPPORT
VERTICAL CIRCULATION
GARDEN
CONFERENCE

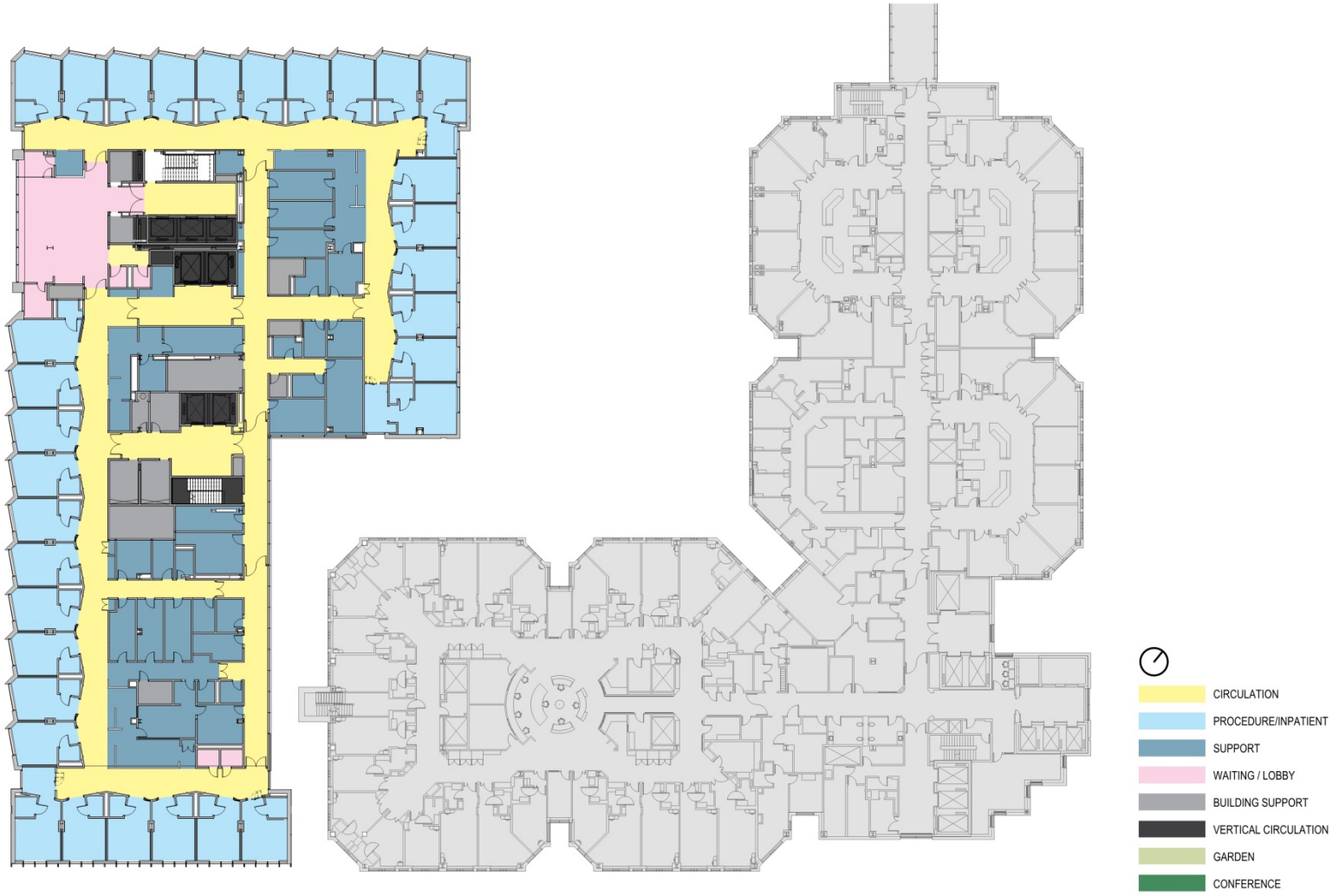


Beth Israel Deaconess Medical Center

PAYETTE

Figure 2-10
Level 4 Plan

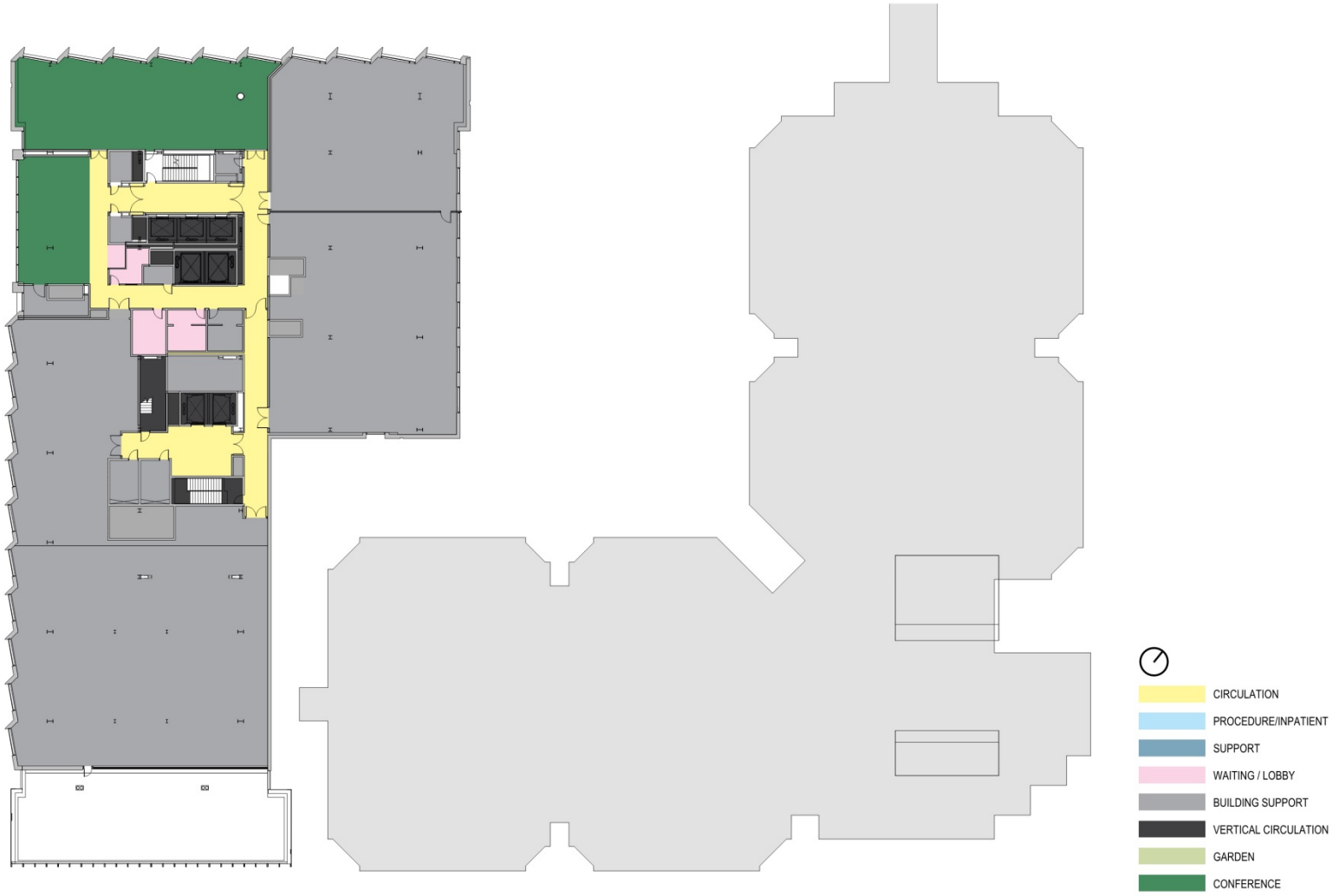

CIRCULATION
PROCEDURE/INPATIENT
SUPPORT
WAITING / LOBBY
BUILDING SUPPORT
VERTICAL CIRCULATION
GARDEN
CONFERENCE



Beth Israel Deaconess Medical Center

PAYETTE

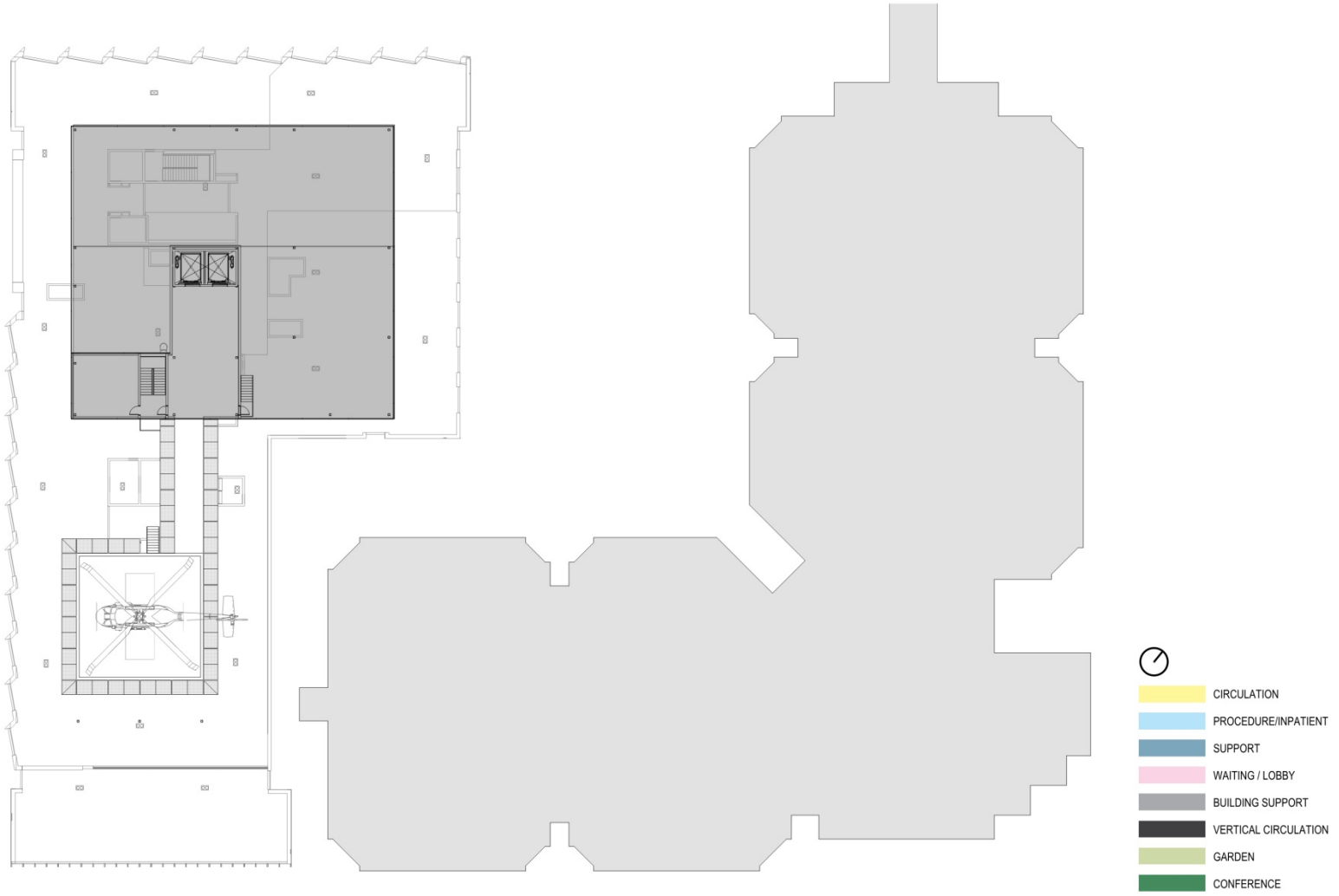
Figure 2-12
Levels 6 to 9 Plan



Beth Israel Deaconess Medical Center

PAYETTE

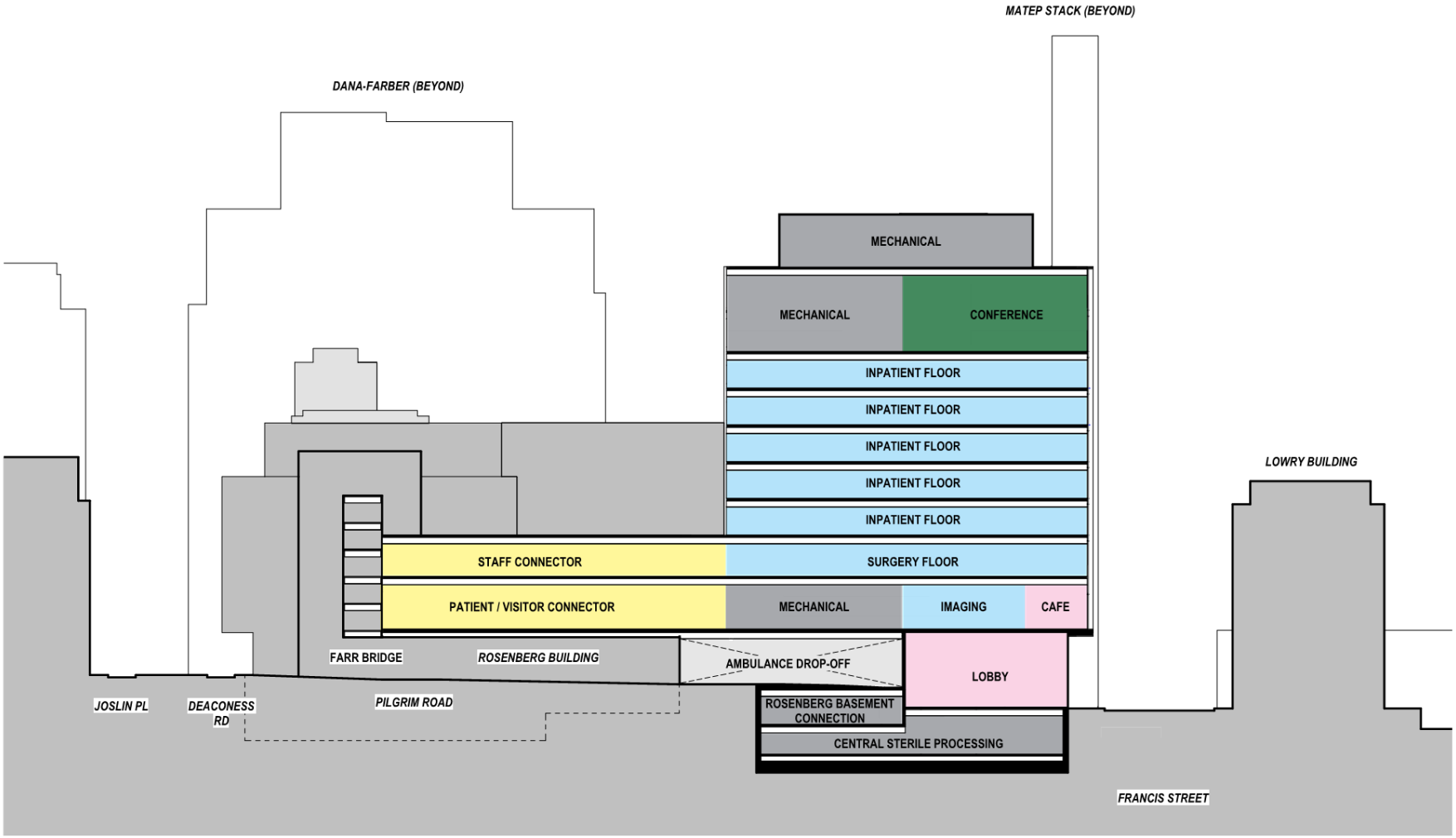
Figure 2-13
Level 10 Plan



Beth Israel Deaconess Medical Center

PAYETTE

Figure 2-14
Roof Plan

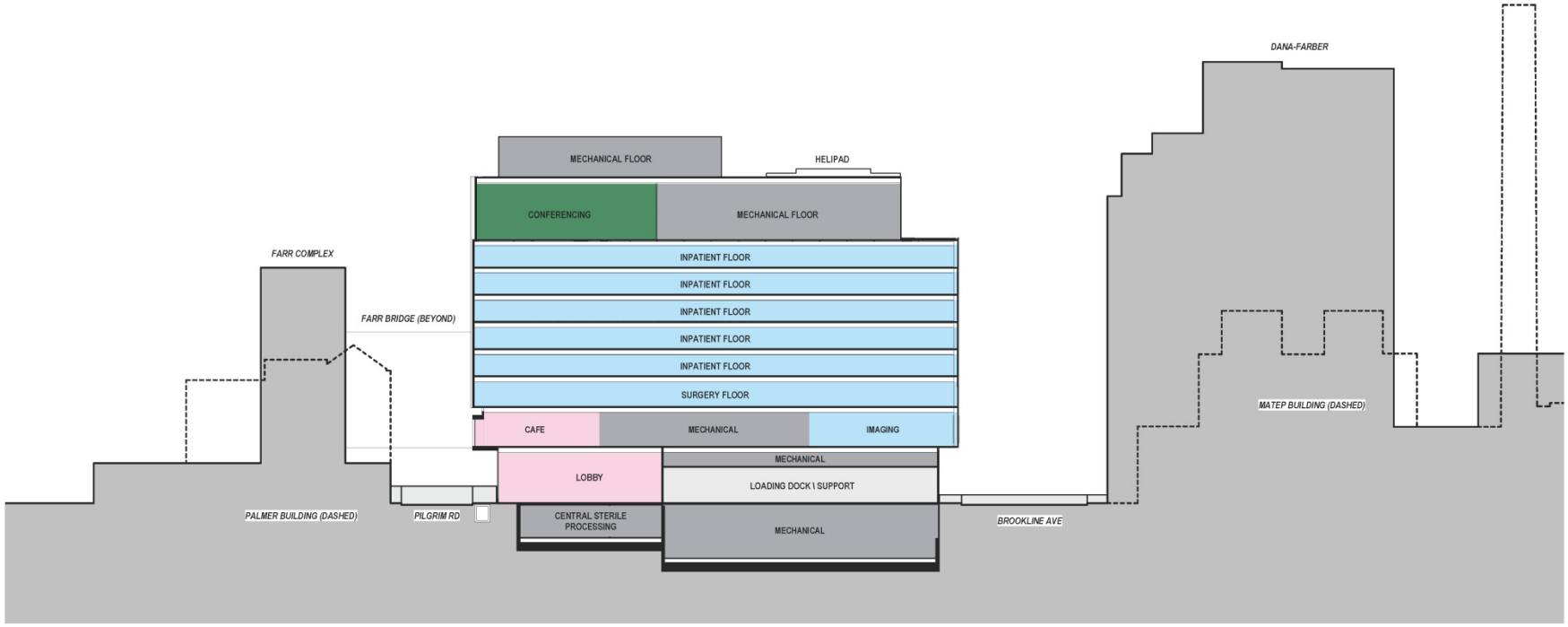


Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 2-15
North-South Section



Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 2-16
East-West Section

Public Realm

The primary urban design challenge for the West Campus involves developing an appropriate transition from the urban grid on the Brookline Avenue side of the campus to the linear sweep of open space formed by the Emerald Necklace / Riverway on the other side of the campus. An important characteristic of the West Campus is the sense of 'place' that is created by the clear distinction between the heavily trafficked roads that mark its edge, and the more pedestrian friendly campus interior. This sense of place is reinforced by the location of the primary building entrances for each of BIDMC's buildings within this pedestrian realm.

Connecting to the pedestrian realm at the center of the West Campus, the proposed design includes a number of improvements to the public realm around the Project site.

The Brookline Avenue pedestrian zone is proposed to include a two-foot wide landscaped area along the face of the new building façade, and is also proposed to include new street trees running the length of the block from Deaconess Road to Francis Street into a slightly widened greenscape edge. A new mid-block garden at the interface between the existing Rosenberg Building and the Project as well as, terrariums, greenwalls, other plantings, or art installations in the base of the buildings will create a uniquely beautiful streetwall which will enrich the pedestrian experience and provide additional public amenities along both Brookline Avenue and Francis Street.

Along the Francis Street side of the Project site, the design proposes a large landscaped garden at the Brookline Avenue intersection and additional terrariums, greenwalls, other plantings, or art installations integrated into the base of the building. The proposed garden will replace the existing open space at this corner, and will provide a generous buffer between pedestrian and vehicular traffic. Moving toward the west, the sidewalk along Francis Street will be widened significantly from six feet to a width that varies from 12 feet to 20 feet along its entire length. Bollards will protect the pedestrian zone from the vehicular drop-off where the two functions are immediately adjacent to each other. Opportunities for public seating may be incorporated into planter walls, provided in zones where the width of the sidewalk allows the incorporation of street furniture, or both.

The sidewalk adjacent to the Project and the Rosenberg Building along Pilgrim Road between Francis Street and Deaconess Road will be replaced with new construction and improved. A new elevated 'connector' which will cantilever over the Pilgrim Road sidewalk at Level 3 of the Project will introduce a new sense of scale which will enhance the pedestrian experience by reducing the apparent height of the building. A roof garden for the use of patients, visitors and staff will be provided on the roof between the Rosenberg Building and the Project. Lighting of the pedestrian realm (including sidewalks, landscaped areas and adjacent building walls) will be carefully designed to provide an enhanced experience as visitors navigate the site.

The existing curb cuts along Brookline Avenue and Pilgrim Road will be maintained in the same (or similar) location, while the existing curb cut along Francis Street now used as an ambulance entrance to the Emergency Department will be removed. A new drop-off/valet return area similar to the one in front of the Rosenberg Building (on Deaconess Road) is proposed for Francis Street. For those patients choosing to valet park, valet return will be accommodated on Francis Street across the street from the Project. This location will allow those vehicles to return from the Pilgrim Garage without having to travel along Brookline Avenue.

Throughout the site, concrete flatwork will be provided for ease of maintenance and to enhance public accessibility through the campus. Accent materials in frontage and greenscape zones will serve to enhance the pedestrian experience and potentially serve as a precedent for establishing a sense of character and identity to the pedestrian realm of the West Campus.

2.4 Alternatives

2.4.1 Building Location Alternatives

An analysis was conducted to determine the best approach to meeting BIDMC's needs and objectives for the Project. Three options emerged from this analysis:

1. Renovations to existing space;
2. Building off-campus; and
3. Building on-campus.

Renovation of the existing space was determined to be infeasible given the limited options on-campus. The footprints of existing buildings do not provide adequate space for renovations in order to comply with current Department of Public Health (DPH) guidelines without significant loss of medical/surgical beds and reduced clinical capacity as well as multiple, expensive and disruptive relocations of existing patient services to allow for such renovation. Existing floor-to-floor heights do not allow for continuing improvement to above ceiling utilities and infrastructure for future technological advances.

Off-campus locations were economically inefficient because building off-site would require the acquisition of new land and duplication of numerous existing campus support services in the off-campus location.

Other on-campus building sites were evaluated to determine the feasibility of building on-campus. The location of the selected Project site will allow BIDMC to meet its defined objectives for new and expanded inpatient facilities in the most cost effective and efficient manner, with as little disruption as possible to ongoing operations during construction.

The Project and its location adjacent to the Rosenberg Building, BIDMC's most recent inpatient clinical facility, will allow the Project's new inpatient facilities and services to be interconnected and integrated with the existing inpatient services in Rosenberg (including the Emergency Department with its level 1 trauma center) and the interconnected Farr Building complex. This integration will enhance and improve the existing West Campus inpatient services and will allow for shared and efficient use of clinical support services such as pharmacology, radiology, dietary, and pathology, with the existing inpatient program in the Rosenberg and Farr Buildings.

The adjacencies of the Project to the Emergency Department and Rosenberg Building operating rooms will allow patients to be able to move from the Emergency Department or operating rooms in Rosenberg to inpatient beds in the Project more quickly, safely and efficiently, allowing more throughput and reducing overcrowded conditions in the Emergency Department.

In addition, the Project will add to BIDMC's climate resilience. BIDMC recognizes its importance as a critical facility that needs to provide uninterrupted healthcare services to the City and the region. The Project design will incorporate systems that will allow the building to be resilient to future climate change impacts, as discussed in Chapter 6, as well as incorporating measures to decrease the Project's impact on climate change.

2.4.2 Loading Dock Study

The Project team has also carefully studied three scenarios for the proposed location and configuration of the loading dock: 1) Locating the loading dock at the corner of the building at the intersection of Francis Street and Pilgrim Road; 2) Maintaining the loading dock physically in its existing location, but reorienting the entry so that access would be from Francis Street instead of Brookline Avenue; and 3) Maintaining the loading dock in its existing location and improving it to allow for improved truck maneuverability.

Study A

The first scenario, locating the loading dock on the corner of Francis Street and Pilgrim Road would require access from Francis Street due to the steep grade change across the site. It would require significant compromises to the building layout resulting in a building that would *not* meet many of BIDMC's goals for the Project, including creating new single-bedded rooms (this alternative would result in approximately 79 fewer beds), providing efficient inpatient units, efficiently expanding surgical/procedural and radiological service platforms and connecting to similar service areas in the Rosenberg Building, and leveraging existing operational and support resources and interconnection with the rest of the West Campus inpatient facilities. This location would have a number of challenges, including separation of the loading dock from the materials management space in the Rosenberg Building (both horizontally and vertically due to the grade change) and transportation conflicts due to the narrow streets, ambulance activity, drop-off/pick-up activity, back-in

requirements for trucks, and the truck restrictions on the Riverway. All of these conflicts are problematic, creating a significant overlap of service traffic with arriving ambulances, presenting a potentially grave risk to individuals requiring immediate medical attention.

Study B

The second scenario, maintaining the loading dock in its existing location, but with access from Francis Street, would result in many of the same transportation conflicts that would occur in the first alternative described above. Similarly, potential conflicts with ambulance access to the Emergency Department present a potentially grave risk to individuals requiring immediate medical attention.

Proposed Project

The third scenario as included in the proposed Project maintains the loading dock and access to the dock as it exists currently and incorporates improvements to the loading area. The building spaces in the proposed Project allow for the most important efficiencies within the West Campus complex of inpatient facilities, connecting floors with similar uses, increasing bed capacity, and providing efficient inpatient unit layouts. The existing materials management space will continue to operate as it currently does. The dock's maneuvering area will be increased to provide larger trucks with the ability to drive head-in into the loading facility without needing to back in from Brookline Avenue. These improvements will limit transportation conflicts by getting most trucks off Brookline Avenue quickly, and when backing up is required, allow for room for other vehicles to maneuver around the trucks. Importantly, the loading facility as proposed will not create conflicts with ambulance access to the Emergency Department.

Chapter 3

Transportation Access Plan

3.0 TRANSPORTATION ACCESS PLAN

3.1 Introduction

This chapter presents an evaluation and summary of existing and future transportation infrastructure and operations for the West Campus with the proposed Project. Figure 3-1 indicates the site location. This transportation study has been developed to understand and mitigate the transportation impacts of the Project and to develop appropriate transportation infrastructure improvements that support safe and efficient transportation access for BIDMC patients, visitors, staff and physicians, as well as the LMA as a whole.

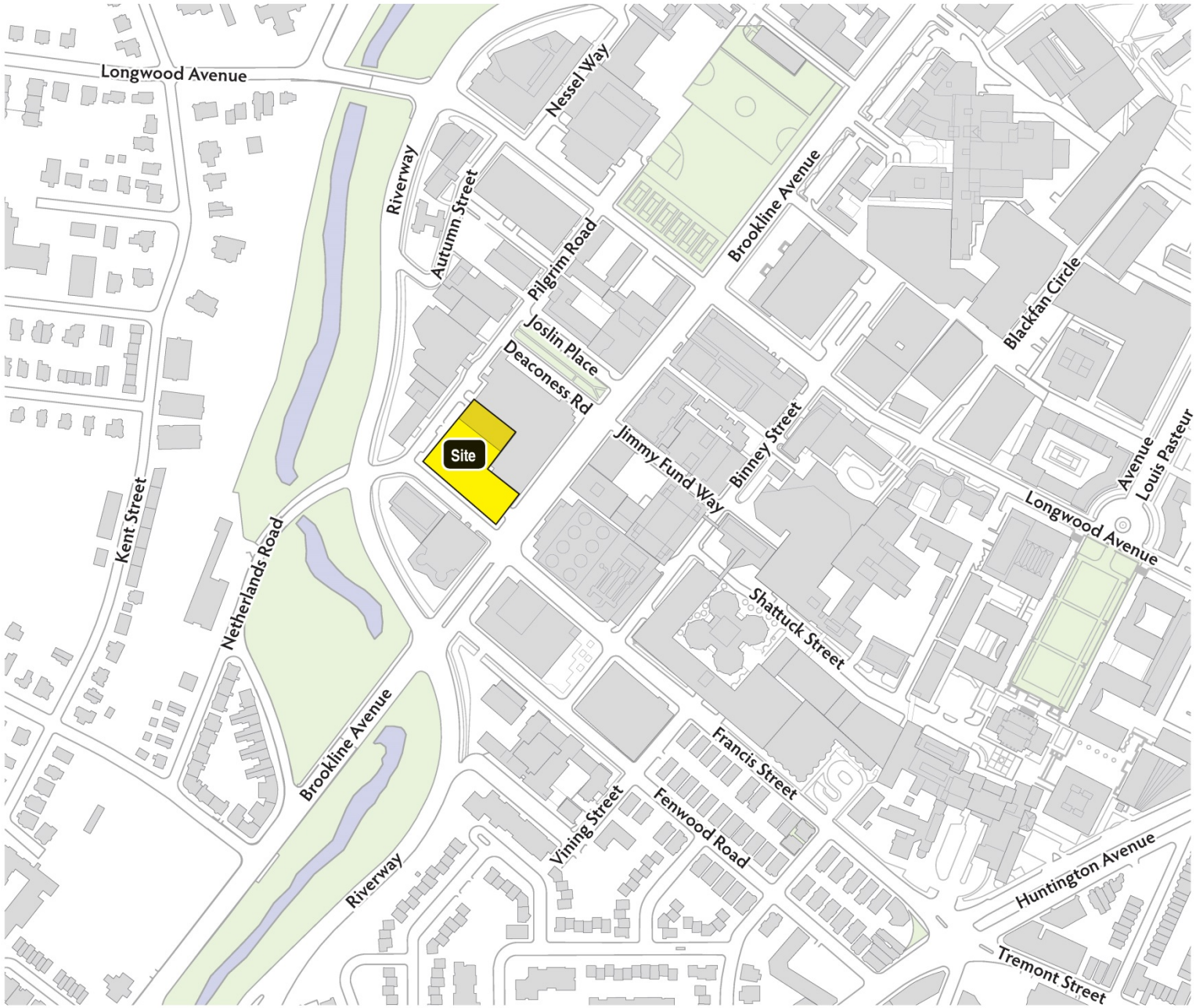
This study specifically addresses the Scoping Determination that was issued by the BPDA after their review of the IMPNF/PNF, dated January 2018.

The Transportation Access Plan includes an analysis of the following:

- Vehicle traffic on study area roadways and intersections;
- Parking conditions;
- Loading and service activities;
- Pedestrian and bicycle operations;
- Public transportation services; and
- Helicopter activities.

The purposes of these analyses are to:

- Define and quantify existing transportation conditions in the Project study area as defined by the Boston Transportation Department (BTD);
- Estimate the transportation impacts that will be generated under future conditions based on anticipated patient and employment growth, on-campus parking utilization, and with completion of the proposed Project on the West Campus;
- Develop a set of mitigation strategies and improvement measures which will help to lessen the transportation effects of future growth and to provide improvements to the transportation infrastructure in the LMA; and



N

0 200 400 Feet

Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-1
Site Location

- Demonstrate that these transportation mitigation efforts will exceed the requirements of the LMA Interim Guidelines and will serve as exceptional public benefits as they relate to transportation issues.

The sections below provide an overview of the Project, and a summary of findings of the transportation analysis, including anticipated impacts, proposed mitigation and transportation improvement actions, a discussion of the study methodology, and a description of the study area. Subsequent sections provide detailed discussions of existing and future conditions expected both with and without the proposed Project. The final section of the chapter presents a detailed summary of transportation mitigation and improvement actions that BIDMC is committed to implementing in connection with the Project.

3.1.1 Project Overview

BIDMC currently contemplates constructing a new inpatient building totaling approximately 325,000 sf of gross floor area (as defined in the Zoning Code). The Project contemplates inclusion of up to 158 single-bedded inpatient rooms (up to 128 medical/surgical and 30 intensive care beds). However, only 69 of those beds will be additive to the overall BIDMC bed count that will exist at the time the Project opens (i.e., "net new"), as BIDMC anticipates closing some West Campus beds at the opening of the Project. Additionally, BIDMC anticipates reopening 20 additional beds by the end of 2024 within existing West Campus facilities. Overall, BIDMC anticipates that up to 89 new patient beds will be put on-line in connection with the Project during the term of the amended IMP. The Project is proposed to be located on the West Campus, adjacent to the Rosenberg Building on the site currently occupied by the Emergency Department patient drop-off, ambulance entrance, Main Loading Facility and the oxygen tank farm. A more detailed discussion of the need for this Project and the anticipated timing of the construction were presented previously in Chapter 2.

The Project does not include construction of any new parking; all parking for the Project will be accommodated by the existing parking supply within the BIDMC Campus, and primarily at the nearby Pilgrim and Francis garages on the West Campus. Construction of the Project is expected to result in a modest loss of 26 off-street parking spaces controlled by BIDMC. Any incremental staff parking needs would be accommodated through the use of leased, off-site parking facilities. The following characterizes future transportation on the West Campus with the proposed Project completed:

- The existing services on-site, including the Emergency Department Patient Drop-off, Ambulance Entrance, Main Loading Facility, oxygen tank farm, and the East/West Transfer Ambulance and HP Van Entrance will be relocated (some only temporarily) to other areas within the West Campus to accommodate construction of the Project.

- Construction of the Project is expected to result in 26 parking spaces being taken out of service. All 14 on-site parking spaces currently supporting the Emergency Department will be lost, and 12 spaces in the nearby Clicker Lot will be lost due to the construction and use of the temporary loading dock and relocated oxygen tanks. These spaces will not be immediately replaced with the completion of the Project.

- The Emergency Department Ambulance Entrance and the Main Loading Facility will be replaced on-site within the Project's ground floor design. The Ambulance Entrance will be shifted from Francis Street to Pilgrim Road as part of the Project design.

- It is anticipated that the Emergency Department Patient Drop-off will be maintained at the existing Rosenberg Building main entrance along Deaconess Road.

- The East/West Transfer Ambulance and HP Van Entrance will be temporarily moved and accommodated via an existing entrance to the Farr Building along Autumn Street.

- Patient and visitor parking for the Project will be accommodated within the existing Pilgrim and Francis garages.

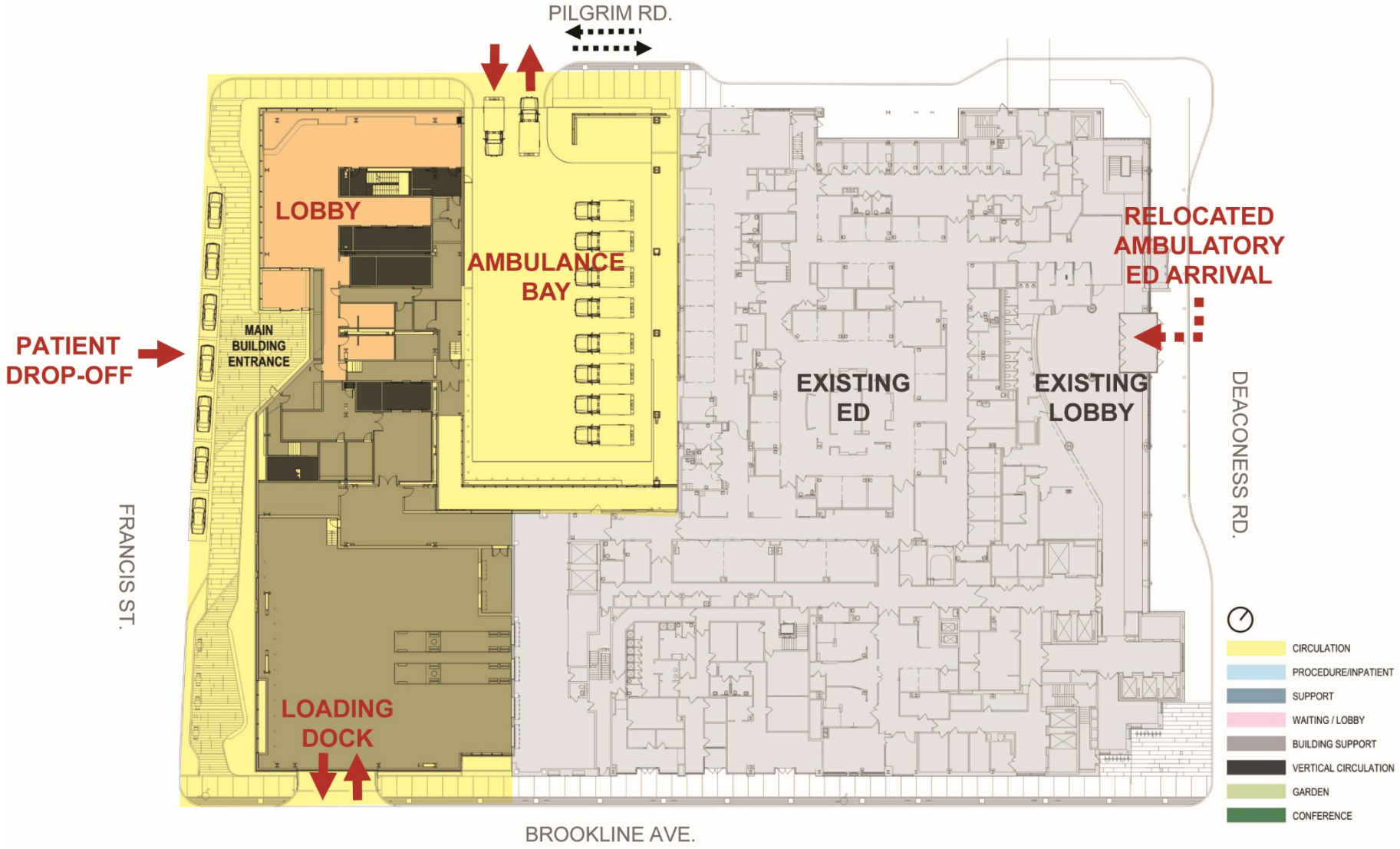
- Drop-off/pick-up activities for the Project will be accommodated at the existing, primary Rosenberg Building drop-off for ambulatory Emergency Department patients as well as a new, supplemental drop-off along Francis Street and adjacent to the Project site for surgery registrations.

- Loading and service activities for the Project will be handled within the replacement Main Loading Facility off Brookline Avenue on the south side of the building. The dock's maneuvering area will be increased to provide larger trucks with the ability to drive head-in into the facility without needing to back in from Brookline Avenue. Access to the Main Loading Facility will be similar to existing operations, with access maintained from Brookline Avenue.

- For those patients choosing to valet park, valet return will be accommodated on Francis Street opposite the Project. This location will allow those vehicles to return from the Pilgrim Garage without having to travel along Brookline Avenue.

- BIDMC helipad, currently located on top of the Rosenburg Building, will be relocated to the roof level of the Project.

Figure 3-2 illustrates the site plan for the Project and key supporting transportation infrastructure that will be put in place in connection with the Project.



Beth Israel Deaconess Medical Center

PAYETTE

Figure 3-2
Site Plan

3.1.2 Summary of Findings & Transportation Mitigation

The additional traffic generated by the Project will create minimal incremental impact to the surrounding transportation infrastructure. To offset these minimal new trips and in continuation of its ongoing efforts to improve transportation in and around the LMA, BIDMC is committed to providing transportation improvements and mitigation actions to improve transportation for patients, visitors, and employees traveling to the LMA. Key actions are described below.

The key finding of this study is that the transportation improvement and mitigation plan proposed by BIDMC will provide improved transportation infrastructure for patients, visitors, and employees traveling to the Project site, the rest of the West Campus, and the surrounding LMA area. BIDMC will proactively manage the Project, Rosenberg, and Emergency Department drop-off and valet parking activities to reduce adverse traffic impacts on area streets, particularly along adjacent Brookline Avenue. Portions of Pilgrim Road will be widened to accommodate two-way traffic access, allowing for a direct vehicular connection between the Project's patient drop-off on Francis Street and the nearby Pilgrim Garage. Valet return to this location will also occur along Pilgrim Road during peak periods, with the goal to minimize valet traffic activity along Brookline Avenue. Roadway improvements and enhanced valet parking operations management have been devised to help manage peak hour traffic flow adjacent to the site. Finally, BIDMC will continue to expand its proactive transportation demand management measures (TDM) to its employees to encourage the use of transit and other alternative forms of transportation.

3.1.2.1 Traffic Impacts/Level of Service Analysis Summary

The effects of the Project, including a detailed analysis of intersection level of service (LOS), were examined at 11 intersections specified by the BPDA and the BTD during the study area's morning and evening peak commuter hours for 2018 Existing Conditions. In addition, a baseline future traffic analysis was conducted for 2023 (No-Build Condition), which considers background growth and growth attributable to area projects that are proposed by others. Future Build Condition analyses were developed in order to evaluate future transportation conditions in the study area with the Project in place. The 2023 Build Condition represents a condition five years from the present, with the Project open and operational, and includes other area projects that are planned or approved by the City of Boston. The results of the analysis indicate that there will be no substantial changes in LOS in the study area as a result of the Project.

3.1.2.2 Parking Summary

The construction of the Project will require 26 parking spaces to be taken out of service. All 14 on-site parking spaces currently supporting the Emergency Department will be lost, and 12 spaces in the nearby Clicker Lot are expected to be lost due to the construction and use of the temporary loading dock and relocated oxygen tanks. These spaces will not be immediately replaced with the completion of the Project.

The proposed Project will provide no new parking on-site. Parking for patients and visitors will be provided in the existing Francis and Pilgrim garages. Any incremental staff parking needs would be accommodated through the use of leased, off-site parking facilities.

In addition, BIDMC provides an extensive TDM plan for employees to encourage alternative modes of transportation to the campus. As part of this plan, BIDMC has introduced a parking rate structure that makes it advantageous for employees to park outside of the LMA and utilize shuttles to reach the East and West Campuses.

3.1.2.3 Pedestrian and Bicycle Access

There will be new pedestrian traffic attributed to the Project. It is expected that the additional pedestrians will be accommodated by the existing sidewalks and crosswalks in the area, including BIDMC's plan to reconstruct sidewalks adjacent to the Project site along Brookline Avenue, Francis Street and Pilgrim Road. There will be no material changes to exterior pedestrian circulation as a result of the Project.

The planned pedestrian mitigation will help to improve the area's pedestrian infrastructure through several proposed pedestrian-related improvements and connections on the West Campus, including:

- Construction of new sidewalks and access ramps adjacent to the Project site.
- Significant pedestrian realm improvements along Francis Street and along Brookline Avenue adjacent to the Main Loading Facility.
- BIDMC, in connection with the Medical Academic and Scientific Community Organization, Inc. (MASCO) and other LMA institutions, is currently assessing the potential to introduce traffic-signal control at the intersection of the Riverway and Francis Street.
- BIDMC will provide bicycle storage capacity for the Project that complies with the City of Boston Bicycle Parking Guidelines. Bicycle access is planned to be located off of Pilgrim Road.

3.1.2.4 Public Transportation

The Project is expected to have only a minor incremental impact on transit operations in the area by 2023. The analysis assumed that future BIDMC employees, patients, and visitors will have access to the many public transportation services offered by the Massachusetts Bay Transportation Authority (MBTA), as well as the array of private shuttle and TDM services that are offered in the LMA through MASCO. The analysis indicates that by 2023, some existing public transportation services will be operating at or above capacity during peak periods if services are not expanded to meet expected passenger demands.

Because there are so many public transportation options that provide service to and from the LMA, no single service appears to be unduly affected by anticipated increases in activities because of the Project under future conditions. Consequently, BIDMC transit trips are expected to affect the transit system only minimally under future conditions.

3.1.2.5 Helicopter Operations

The BIDMC helipad is currently located on the roof level of the Rosenberg Building and will be relocated to the roof level of the Project. There are no anticipated changes to BIDMC helicopter operations.

3.1.2.6 Transportation Demand Management

BIDMC is committed to continuing to offer a wide array of proactive TDM incentives as a means to reduce single occupant driving and increase use of alternative forms of transportation to access the workplace by its staff and physicians. BIDMC actively supports efforts to reduce auto use for employees traveling to the hospital. Many actions to support this goal are actively employed, including the following:

- Providing an Employee Transportation Advisor;
- Membership in the MASCO CommuteWorks Transportation Management Association (TMA);
- Full support of MASCO's other on-going transportation initiatives;
- 50 percent transit pass subsidy for employees up to $125 per month;
- Carpool assistance and incentives;
- Park and Ride Service;
- Emergency ride home;
- Bicycling/walking incentives and amenities;

- Location-priced parking (i.e., offering competitive-rate parking on-campus and subsidized parking off-campus);

- Telecommuting and compressed workweeks, when feasible; and

- Promotional efforts.

BIDMC is committed to maintaining its employee transit subsidy in connection with the implementation of the Project. BIDMC will also continue to promote and improve its TDM program to benefit its employees and reduce traffic impacts to roadways and parking facilities within the LMA and nearby neighborhoods.

3.1.2.7 Adjacent Site/Off-Site Improvements

In addition to Project-specific improvements, a number of transportation improvements adjacent to the Project site are proposed. These improvements are specifically aimed at streamlining and improving the patient experience by streamlining patient arrivals, reducing drop-off activities and improving valet operations.

- **Francis Street Curbside Improvements:** The first adjacent site improvement is the design of a new patient drop-off lane along Francis Street adjacent to the Project site. The proposed improvement, as shown in Figure 3-2, will provide for additional, dedicated patient access to the West Campus, and specifically the Project. Managed valet parking operations will be maintained at this location to keep vehicle flow safe and efficient.

- **Pilgrim Road Widening:** Portions of Pilgrim Road between Francis Street and Deaconess Road will be widened with the goal to support and maintain two-way traffic access for the entire length of this roadway between Longwood Avenue and Francis Street. This improvement will support the most efficient circulation pattern for ambulances accessing and exiting the Emergency Department with their new Pilgrim Road access point. This action also supports an efficient valet operation from the new Project drop-off on Francis Street. Valet movement to the Pilgrim Garage and return to the Francis Street curb on the opposite side of the street from the Project will be accommodated along the corridor, eliminating the need to have valets returning patient cars to the Francis Street drop-off travel along Brookline Avenue during peak periods.

- **Riverway/Francis Street Signalization:** BIDMC, in connection with MASCO and other LMA institutions, is currently assessing the potential to introduce traffic-signal control at the intersection of the Riverway and Francis Street.

3.1.3 Methodology

The transportation analysis presented in this chapter conforms to the BTD "Transportation Access Plans Guidelines" and uses standard methodologies such as Institute of Transportation Engineers (ITE) trip generation and local travel characteristics as defined in Access Boston 2000-2010.

The study was conducted in two distinct stages. The first stage (Existing Conditions) involved a survey and compilation of existing transportation conditions within the study area (defined below) including:

- An inventory of the transportation infrastructure within the defined Project study area;
- Geometric and operational characteristics of study area roadways and intersections;
- Existing traffic control at study area intersections (i.e., traffic signalization, stop signs, one-way streets, etc.);
- Area off-street and on-street parking supply;
- Pedestrian activity along study area roadways, and at study area intersections;
- Bicycle activity and accommodations;
- Public transportation options within the study area, including bus, trolley, commuter rail, and private shuttle bus options; and
- Existing MedFlight/helicopter operations.

In the second stage of the study (Evaluation of Long-Term Transportation Impacts), future transportation conditions were projected within the study area. The future No-Build Condition includes an assessment of future transportation, including background growth on area roadways and intersections, planned transportation infrastructure improvements, and growth related to other proposed projects within the study area (without consideration of the Project). The future Build Condition assesses the No-Build Condition plus the Project. Roadway, pedestrian, and transit capacity for morning and evening peak commuter periods were studied and are summarized for the following conditions:

- 2018 Existing Condition;
- 2023 No-Build Condition; and
- 2023 Build Condition.

Specific travel demand forecasts for the Project were assessed along with future transportation demands due to background traffic growth and traffic growth from other planned or approved projects within the study area. The year 2023 was selected as the horizon year for the purposes of quantifying and assessing future transportation impacts generated by the Project.

This section also quantifies the proposed mitigation and improvement actions (presented previously) to address Project-related pedestrian, parking, traffic, and public transportation impacts that have been identified. The proposed improvement actions serve as the basis for the forthcoming preparation of a Transportation Access Plan Agreement (TAPA) to be developed and executed by BIDMC and BTD.

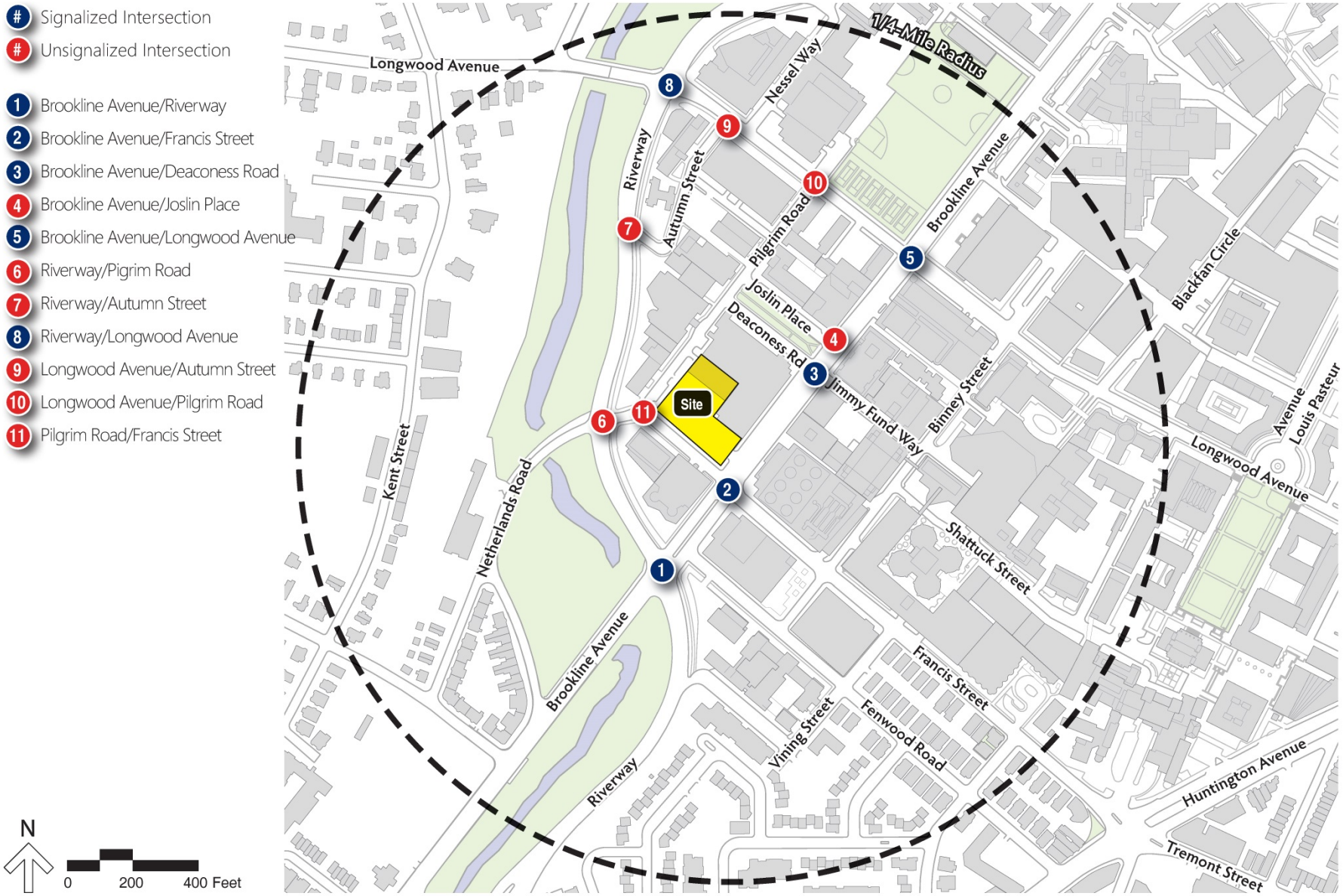
3.1.4 Study Area

The West Campus is bounded generally by Brookline Avenue, the Riverway, Autumn Street and Longwood Avenue. In addition to Brookline Avenue and Longwood Avenue, other arterials serving the area include the Riverway, the Fenway, Park Drive, Boylston Street, and Huntington Avenue.

The Project study area includes 11 intersections. These intersections, illustrated in Figure 3-3, are listed below.

1. Brookline Avenue/Riverway
2. Brookline Avenue/Francis Street
3. Brookline Avenue/Jimmy Fund Way/Deaconess Road
4. Brookline Avenue/Joslin Place
5. Brookline Avenue/Longwood Avenue
6. Riverway/ Pilgrim Road/Netherlands Road
7. Riverway/Autumn Street
8. Riverway/Longwood Avenue
9. Longwood Avenue/Autumn Street
10. Longwood Avenue/MASCO Driveway/Pilgrim Road
11. Pilgrim Road/Francis Street

These study area intersections were evaluated in detail using standard traffic engineering analysis techniques following BTD guidelines to identify incremental impacts of future traffic growth and site-generated traffic.



Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-3

Study Area Intersections

3.2 Existing Conditions

Existing transportation conditions in the study area, including roadway geometry, traffic control at study area intersections, peak hour traffic and pedestrian flows, transit availability, parking supply and utilization, and loading and service activities are described within this section of the Transportation Access Plan Component. The initial parts of this section specifically describe existing access characteristics of the campus. Subsequent sections describe and quantify transportation characteristics of the entire study area as required by the BPDA within their Scoping Determination for the DPIR.

3.2.1 Summary of Existing BIDMC Transportation Infrastructure and Services

BIDMC is located on two main campuses in the LMA—the East Campus and the West Campus—which correspond respectively to the prior Beth Israel and New England Deaconess campuses. BIDMC also has several off-site locations. BIDMC is currently licensed for 673 beds, including 493 medical/surgical beds, 77 intensive/critical care beds, 25 psychiatric services beds, 62 OB/GYN beds and 16 neonatal intensive care beds, and has a delivery rate of approximately 5,000 births per year.

BIDMC provides a full range of emergency services including a level 1 trauma center and rooftop helipad. In fiscal year (FY) 2017, BIDMC had 40,656 inpatient discharges, 643,975 outpatient visits (at campus and off-site licensed facilities), and 57,224 Emergency Department visits.

As of 2017, approximately 9,000 people work at BIDMC and at its facilities throughout greater Boston, including 2,800 Boston residents.

To serve their patients, visitors, and staff, BIDMC has developed an extensive transportation infrastructure for safe and efficient access to and from its LMA campus. The existing BIDMC campus transportation infrastructure includes:

- Multiple dedicated, off-street drop-off/pick-up areas at key entrances to patient care centers;
- Available on-campus self-parking for patients and visitors;
- Available on-campus valet parking for patients and visitors;
- Limited on-campus and off-campus parking for BIDMC employees;
- An extensive TDM program for its employees to encourage commuting to work by transit and other alternative forms of transportation;
- Covered and secured bicycle parking;

- A campus shuttle bus system serving employees and patients;
- Dedicated ambulance access that is separated from public, patient access points; and
- Multiple loading and service areas.

Figure 3-4 identifies the specific locations of these various services on the West Campus. Each of these services is described in detail in the following sections.

3.2.1.1 BIDMC Parking System

BIDMC offers its patients, visitors, physicians, and employees a variety of parking option. BIDMC currently controls approximately 4,032 off-street parking spaces either by ownership or through leases from others. Of the 4,032 spaces, 1,426 spaces are available for use by BIDMC patients and visitors, and 2,606 parking spaces are subscribed to staff and physicians. About 3,012 (75 percent) of these parking spaces are located on one of the BIDMC campuses or nearby on sites within the LMA.

In addition to spaces within the LMA, BIDMC uses an additional 1,020 spaces for employees in remote parking facilities outside of the LMA. The majority of employees that park off-site either walk or use shuttle buses to travel between the BIDMC campuses and these remote parking facilities. Figure 3-5 identifies the locations of these parking facilities within the LMA, while Table 3-1 provides a summary of existing BIDMC's parking facilities.

Table 3-1 BIDMC Existing Parking Space Inventory (as of January 2018)

Parking Facility[1]	Current Number of Parking Spaces			Connecting Mode	Owned/ Leased
On-Campus/LMA Parking	Total[2]	Patient/Visitor	Employee/Physician		
Shapiro Garage	727	432	295	Walk	Owned
Kirstein Lot	11	0	11	Walk	Owned
Finard/Yamins Lot	17	17	0	Walk	Owned
Lowry Garage	292	205	87	Walk	Owned
Pilgrim Garage	745	368	377	Walk	Owned
Clicker Lot	29	0	29	Walk	Owned
Emergency Department Lot	14	14	0	Walk	Owned
Center for Life Science Boston Garage 3 Blackfan Circle	253[3]	0	253	Walk	Owned (Condo)

Table 3-1 BIDMC Existing Parking Space Inventory (as of January 2018) (Continued)

Parking Facility[1]	Current Number of Parking Spaces			Connecting Mode	Owned/ Leased
On-Campus/LMA Parking	Total[2]	Patient/Visitor	Employee/Physician		
Center for Life Science Boston Garage 3 Blackfan Circle	79[3]	0	79	Walk	Leased
340 Brookline Avenue Garage	430[3]	390	40	Walk	Leased
NRB Garage 77 Avenue Louis Pasteur	200	0	200	Walk	Leased
MASCO Garage 375 Longwood Avenue	215	0	215	Walk	Leased
Subtotal On-Campus Parking Spaces	**3,012**	**1,426**	**1,586**		
Off-Campus Parking	Total	Patient/Visitor	Employee/Physician		
Research North 99 Brookline Avenue	33	0	33	Shuttle	Leased
Van Ness Garage Richard B. Ross Way	37	0	37	Shuttle	Leased
160 Ipswich Street	104	0	104	Shuttle	Leased
132 Ipswich Street	30	0	30	Shuttle	Leased
189-203 Ipswich Street	9	0	9	Shuttle	Leased
1271 Boylston Street (The Verb)	56	0	56	Shuttle	Leased
1282 Boylston Street (The Viridian)	150	0	150	Shuttle	Leased
Crosstown Garage 7 Melnea Cass Boulevard	90	0	90	Shuttle	Leased
Longwood Towers 20 Chapel Street, Brookline	35	0	35	Walk	Leased
Renaissance Open Lot & Garage 835 Columbus Avenue	250	0	250	Shuttle	Leased
55 Yawkey Lot 1249-1255 Boylston Street	59	0	59		

Table 3-1 BIDMC Existing Parking Space Inventory (as of January 2018) (Continued)

Parking Facility[1]	Current Number of Parking Spaces			Connecting Mode	Owned/ Leased
Off-Campus Parking	Total	Patient/Visitor	Employee/Physician		
Kenmore Lot 73 Brookline Avenue	94	0	94	Shuttle	Leased
Wentworth Lot Halleck Street	40	0	40	Shuttle	Leased
Chestnut Hill Lot 300 Hammond Pond Parkway, Newton	33	0	33	Shuttle	Leased
Subtotal Off-Campus Parking Spaces	**1,020**	**0**	**1,020**		
Grand Total BIDMC Parking Spaces	**4,032**	**1,426**	**2,606**		

Source: Beth Israel Deaconess Medical Center, Parking and Security.

[1] Parking spaces provided at leased facilities used by employees housed in such leased facilities are not included in this Table 3-1.

[2] The totals indicated are the maximum parking spaces that BIDMC controls by ownership or lease at each location (except as noted below in connection with the lease arrangements with Boston Children's Hospital for spaces in the Center for Life Science Boston). The number of spaces in actual use by BIDMC can at times be fewer than the maximum actual amount. BIDMC's off-campus parking lease arrangements are subject to change over time.

[3] As further described in Section 3.3.2 of the IMP Amendment (regarding the status of the LNRC/LRI project and its relationship to the BIDMC IMP), Children's owns the 340 Brookline Avenue Garage (formerly known as the BIDMC East Campus Parking Garage) and the Children's IMP permits 454 parking spaces in this garage to be used on an interim basis until commencement of construction of the LNRC/LRI on the garage site. As approved in the Children's IMP and described in the BIDMC 2009 IMP Renewal and subsequent IMP Updates, Children's leases a portion of such garage spaces to BIDMC, and concurrently, BIDMC leases to Children's parking spaces BIDMC owns in the Center for Life Science Boston (CLSB) Garage. Currently Children's leases to BIDMC 430 parking spaces in the 340 Brookline Garage and BIDMC leases to Children's 272 parking spaces in the CLSB Garage. As a result of these lease arrangements, BIDMC currently has use of 253 of its 450 owned spaces in the CLSB Garage condo, and has use of 79 spaces of the 154 it leases in the CLSB Garage pursuant to its research space lease. These lease arrangements may change during the five-year extension term of the BIDMC IMP.

East Campus

The East Campus currently provides 1,717 marked parking spaces for employees and transients (patients and visitors). These spaces are located in above-grade parking structures, below-grade facilities, and surface parking lots as described below:

- **340 Brookline Avenue Garage (formerly the East Campus Garage)**: Located adjacent to the main BIDMC hospital entrance, this above-grade parking structure provides parking for patients and their visitors as well as some BIDMC employees. 430 marked parking spaces are provided at this location.

- **Shapiro Parking Garage**: This underground parking structure, located beneath the Carl J. Shapiro Clinical Center, provides 727 parking spaces for both BIDMC employees and transients. It is used primarily by patients receiving care in the Shapiro Building and some BIDMC employees.

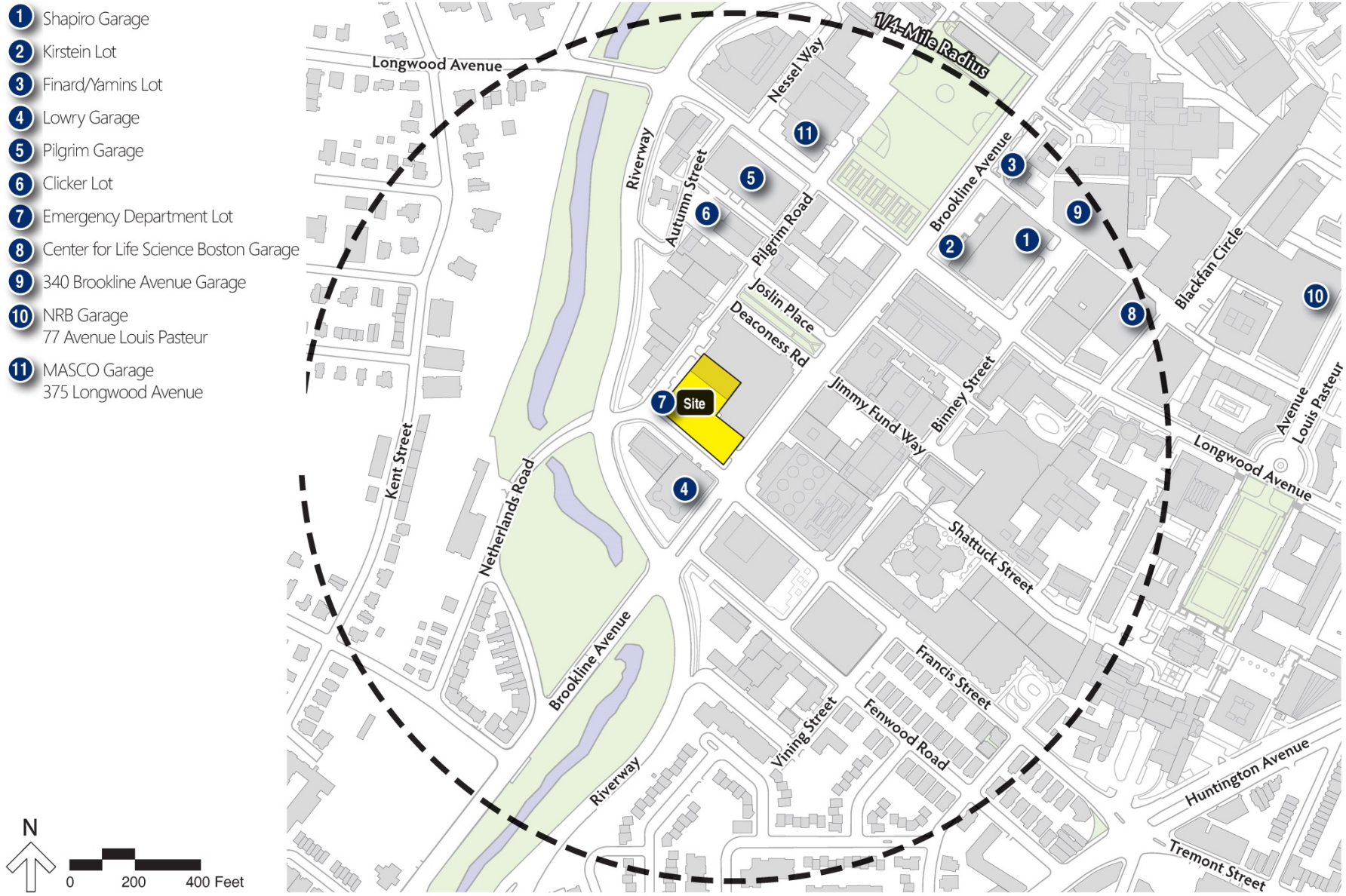


Beth Israel Deaconess Medical Center

vhb

Figure 3-4

BIDMC West Campus Existing Transportation Infrastructure



Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-5

BIDMC LMA Owned and Leased Parking

- **Center for Life Sciences Boston Parking Garage**: Located along Blackfan Circle, the CLSB Parking Garage provides parking for several of the area's institutions. BIDMC currently has use of 332 spaces in this parking garage (both owned and leased) and uses them for assigned employee and physician parking.

- **Kirstein Parking Lot**: This small lot, located in front of the Kirstein Building along Brookline Avenue, provides parking for 11 parkers.

- **Finard/Yamins Parking Lot**: This lot is used for radiation and oncology patients, as well as for ambulance parking and staging. Patients undergoing radiation treatment are often very weak and unstable. They require easy and convenient parking facilities because they generally are treated four to five times per week. This small lot, located along Brookline Avenue, provides approximately 17 spaces and is reserved primarily for oncology patients who receive chemotherapy and radiation treatment in the adjacent Finard Building.

- **NRB Garage**: Located on Avenue Louis Pasteur, the NRB Garage provides parking for several of the area's institutions. BIDMC leases 200 spaces in this parking garage, and uses them for assigned employee and physician parking.

West Campus

The West Campus currently provides 1,295 marked parking spaces for employee and transient use. These spaces are distributed across the following five locations:

- **Lowry Garage**: Located at the corner of Francis Street and Brookline Avenue, this above-grade parking structure provides parking for 292 physician and transient parkers. The majority of these spaces are reserved for patients and visitors who utilize the services provided in the adjacent Lowry Medical Office Building.

- **Pilgrim Garage**: Located along Pilgrim Road, this above-grade parking structure provides spaces for 745 employee, physician and transient parkers. This garage is the largest on the West Campus, and is used by both employees and transient parkers.

- **Clicker Lot**: Located across from the Pilgrim Garage, the Clicker Lot provides 29 parking spaces for BIDMC employees, particularly those from off-site locations and valet parking for some patients and visitors.

- **Emergency Department Lot**: Located at the corner of Pilgrim Road and Francis Street, this 14-space lot provides short-term parking for patients or families/friends bringing patients to the adjacent Emergency Department.

- **MASCO Parking Garage**: Located at the corner of Longwood Avenue and Pilgrim Road, the MASCO Parking Garage provides parking for several of the area's institutions. BIDMC leases 215 spaces in this parking garage, and uses them for assigned employee and physician parking.

In total, BIDMC provides 3,012 marked parking spaces for employee and transient use on or near the East and West Campuses.

Peak parking accumulation at BIDMC occurs around midday (between 11:00 a.m. and 2:00 p.m.) on Tuesdays, Wednesdays, and Thursdays. Under existing conditions, the BIDMC's parking system generally has enough capacity to meet typical weekday parking demands. Parking availability is continuously monitored and assessed to ensure that supply is available to accommodate expected patient needs.

3.2.1.2 BIDMC Employee Transportation Demand Management Program

BIDMC actively supports efforts to reduce auto use for people traveling to the hospital campus, particularly employees. Many actions to support this goal are actively employed by BIDMC, including:

- **Employee Transportation Advisor.** BIDMC employs an Employee Transportation Advisor who provides information and implements TDM measures at BIDMC, assisted by CommuteWorks.

- **CommuteWorks TMA.** BIDMC has been an active member of the CommuteWorks TMA since its 1989 founding. CommuteWorks, operated by MASCO, offers an array of ongoing programs (discussed further below) and periodically offers special limited-time incentive programs for employees and students of member institutions to try new modes of transportation. BIDMC's role includes implementing and monitoring CommuteWorks programs; posting and distributing announcements; holding promotional events for employees to encourage alternative modes of transportation; and providing transit schedules and other information to facilitate alternative transportation.

- **Full support of MASCO's other on-going transportation initiatives.** BIDMC continues to support MASCO and its initiatives to improve transportation conditions in the LMA.

- **Subsidies for transit passes for employees.** In 2016, approximately 4,125 BIDMC employees regularly purchased monthly T-passes and chose public transportation as their primary mode to work. BIDMC offers a transit pass subsidy of 50 percent, up to $125 per employee per month. The cost of passes is deducted on a pre-tax basis, resulting in an additional cost savings to employees.

For employees using MASCO's M2 shuttle, the only MASCO shuttle for which a fare is charged, BIDMC purchases tickets for employees. Transit schedules are posted at BIDMC and provided on its website.

- **Carpool assistance.** Ridematching services are provided to employees through MASCO's CommuteWorks TMA, MassRIDES and Nurides. Preferential parking is provided for carpools registered with CommuteWorks. Carpools of three or more are guaranteed parking at nearby garages, while two-person carpools are guaranteed spaces at remote MASCO lots. BIDMC will hold a parking space for up to four months while an employee tries carpooling risk-free. In addition, CommuteWorks provides a Guaranteed Ride Home program to allow employees with occasional or unplanned schedule changes to primarily carpool. Approximately 160 BIDMC employees participated in the Nurides carpooling service in 2016.

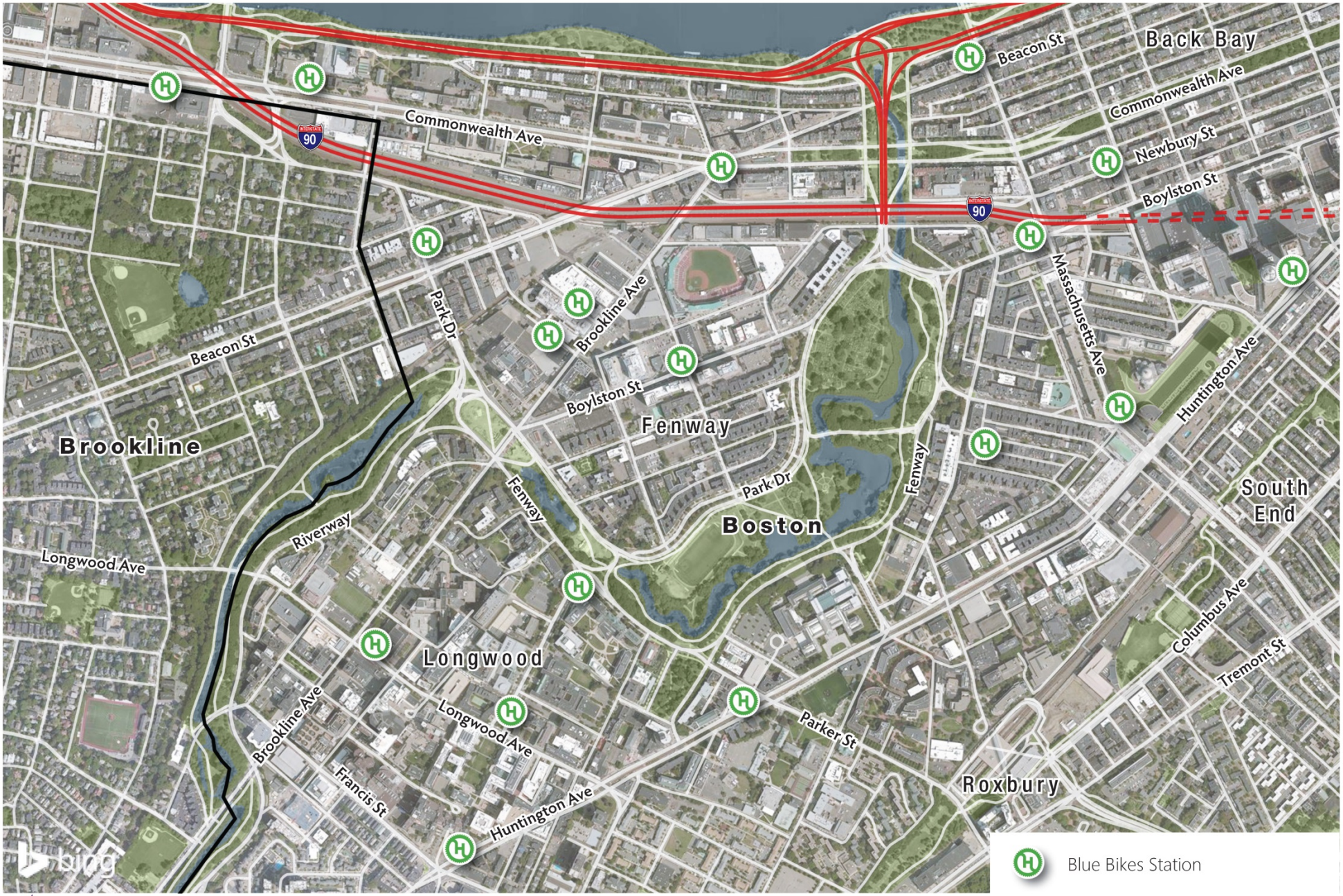
- **Park and Ride Service.** BIDMC provides private shuttle bus service from the Wellington, North Quincy, and Riverside MBTA stations. A portion of the parking costs may be covered by BIDMC if the employee's T-pass subsidy is less than the $125 maximum subsidy provided by BIDMC. The subsidy difference is applied to the employee's parking costs at the Park and Ride lots.

- **Guaranteed Ride Home.** CommuteWorks provides an Emergency Ride Home program which covers the cost of taxi or car rental vouchers up to five times a year (per person) for commuters who need to get home quickly due to personal emergencies, but who do not commute by car.

- **Bicycling/walking incentives and amenities.** BIDMC participates in Wellcoin, which provides rewards to employees who bicycle or walk to work, based on the miles they log. BIDMC provides sheltered bike racks on both campuses, and employee lockers and showers are available on-site. BIDMC subsidizes employee memberships to Blue Bikes Bikeshare, and is a corporate sponsor for three stations on or next to the campus. Approximately 100 employees participate in the Blue Bikes program using the service to commute to and from BIDMC. In addition, 111 employees participated in the 2016 Bike Week Commuter Challenge. Figure 3-6 shows Blue Bikes stations in the area.

- **Location-priced parking.** BIDMC employs a parking rate structure to discourage on-campus parking. Off-campus parkers pay $51.14 to $64.10 per week, while on-campus parkers pay $107.28 per week.

- **Telecommuting and compressed workweeks.** BIDMC has compressed work weeks for clinical staff, and allows telecommuting options for IT and other staff.



Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-6

LMA and Fenway Neighborhoods Blue Bikes Stations

- **Promotional efforts.** BIDMC promotes all forms of alternative transportation through a variety of employee newsletters, information kiosks, websites, e-mail, and special events.

BIDMC will continue to promote and improve its TDM program to benefit its employees and reduce traffic impacts to roadways and parking facilities within the LMA and nearby neighborhoods.

3.2.1.3 Loading and Service Operations

Loading activities for BIDMC are handled at several locations on the East and West Campuses, as described below, and presented in Table 3-2.

- **Feldberg/Reisman Building.** The main East Campus loading facility is located on the east side of the Feldberg/Reisman Building. It features a large service area with five truck bays. On the north side of the complex is a waste management area which includes two dumpster bays, trash receptacles, recycling receptacles, and a staging area. Also, on the north side of the complex is a loading dock with two ambulance bays and a hearse bay. A one-way service road that circles the campus and connects to Brookline Avenue provides access to the loading bays and parking located in the rear of the Feldberg/Reisman Complex.

- **Shapiro Center.** The Shapiro Center has its own dedicated loading dock, accessed from the East Campus service road, with a dumpster bay, an ambulance bay, and one truck bays.

- **Rosenberg Building.** The West Campus Main Loading Facility is located at the Rosenberg Building. It is a four-bay facility accessed from Brookline Avenue. It has three truck loading docks, one dumpster bay, and an ample staging area where truck maneuvers can be accommodated off-street for most trucks accessing this facility.

- **Libby Building**. The Libby Building dumpster bay is located on the south side of the building and is accessed from Pilgrim Road. A loading dock at the Libby Building is located within the Clicker Lot. BIDMC will convert a portion of the Clicker Lot into a temporary loading facility as a means to maintain materials management operations for the West Campus while the Project is under construction. This location will become the new, permanent location of the West Campus's oxygen farm.

Table 3-2 BIDMC Loading and Service Facilities

Active Facility	Service Bays (by type)			Primary Access Road
	Total	Loading	Dumpster	
East Campus				
Main Loading Facility	5	5	0	East Campus Service Road
Waste Management Area	2	0	2	East Campus Service Road
Shapiro Center	2	1	1	East Campus Service Road
West Campus				
Rosenberg Building Main Loading Facility	4	3	1	Brookline Avenue
Libby Building	1	0	1	Pilgrim Road

Source: Data provided by BIDMC 2017

3.2.1.4 Helicopter Operations

The BIDMC helipad is currently located on the roof level of the Rosenberg Building and will be relocated to the roof level of the Project. There are no anticipated changes to BIDMC helicopter operations.

Most helicopter operations in the LMA are carried out by Boston Medflight, which provides transport for patients who require specialized and immediate emergency care services at a facility with a level 1 trauma center and coordinates access to LMA and other Boston hospital helipads by other medical helicopter operators. BIDMC relocated its helipad in 2001 from the East Campus to the West Campus with the opening of the Berenson Emergency Department on Pilgrim Road. In 2017, helicopter transport of patients to BIDMC totaled 346 (or approximately seven missions per week).

3.2.1.5 BIDMC Bicycle Accommodations

BIDMC encourages employees to bicycle to work. BIDMC encourages employees to bicycle to work. Currently, BIDMC owns and leases approximately 256 bicycle spaces on its East and West Campuses or nearby in the LMA dedicated for use by its employees. BIDMC also maintains 147 bicycle parking spaces for public use on its East and West Campuses. In addition, BIDMC maintains 24 spaces at its Research North building located at 99 Brookline Avenue in the Fenway dedicated for use by its employees Additional bicycle parking will be put in place with the opening of the IMP Project. Bike parking to be added in connection with the IMP Project will comply with the City of Boston Bicycle Parking Guidelines. As mentioned above, BIDMC is also a Blue Bikes sponsor in the City, sponsoring three stations.

MASCO and its member institutions have a program of continuing to study and re-evaluate pedestrian and cyclist needs in the area. Later this summer, Longwood Avenue will be repaved and restriped to include dedicated bicycle lanes after lengthy planning and design by MASCO, with the active support of BIDMC, and the BTD. Future implementation of new bicycle lanes are planned for other area corridors into the future.

3.2.2 Study Area Intersections

The study area, previously illustrated in Figure 3-3, includes 11 intersections which provide a basis for determining to what extent, if any, Project traffic is likely to affect the wider transportation network. These intersections are described below, including general physical characteristics, geometric conditions, pedestrian facilities and traffic control measures.

1. **Brookline Avenue/Riverway** – The intersection of Brookline Avenue/Riverway is a four-legged intersection that operates under four-phase traffic signal control, including a westbound lead phase and an exclusive pedestrian phase. The Riverway provides two lanes on each approach. In the southbound direction, there is a combined right/through lane and a through only lane with no left permitted onto Brookline Avenue. In the northbound direction, a left/through and an exclusive right are provided. Brookline Avenue provides three lanes on each approach, one exclusive left-turn lane, one exclusive through lane, and one shared through/right-turn lane. There is no on-street parking permitted along any of the approaches. The traffic signal's pedestrian phase provides for exclusive pedestrian movement at the intersection. Sidewalks are provided along both sides of Brookline Avenue and along the north side of the Riverway. Unpaved paths follow the Riverway on its south side. Crosswalks are provided across all four intersection approaches.

2. **Brookline Avenue/Francis Street** – The intersection of Francis Street and Brookline Avenue is a four-legged intersection that operates under four-phase traffic signal control, including a westbound lead phase and an exclusive pedestrian phase. The Francis Street northbound approach provides two lanes, one for left-turns, and one for through/right-turns. The Francis Street southbound approach provides a single general-purpose travel lane. The Brookline Avenue eastbound approach provides three general lanes during the peak hours due to a peak hour parking restriction. As a result, eastbound Brookline Avenue operates with a shared left/through lane, a through lane, and the parking lane operates as a defacto right-turn lane onto Francis Street. The Brookline Avenue westbound approach provides an exclusive left-turn lane, an exclusive through lane, and a shared through/right-turn lane. MBTA bus stops are located on Brookline Avenue on both eastbound and westbound departures from the intersection. The traffic signal's actuated pedestrian phase provides for exclusive pedestrian movement at the intersection. Sidewalks and crosswalks are provided at all four intersection approaches.

3. **Brookline Avenue/Jimmy Fund Way/Deaconess Road** – The intersection of Brookline Avenue/Jimmy Fund Way/Deaconess Road is a four-legged intersection that operates under four-phase traffic signal control, including an exclusive pedestrian phase when the push-button is activated. The Brookline Avenue westbound approach is a two-lane approach, one through and one through/left-turn lane onto Jimmy Fund Way. The Brookline Avenue eastbound approach provides two general-purpose travel lanes. Deaconess Road is one-way in the southbound direction functioning with a left only lane and a through/right lane. Jimmy Fund Way is a two-lane approach with a left and right only as Deaconess Road is one-way southbound. An MBTA bus stop is located at the eastbound approach on Brookline Avenue serving Routes 60 and 65. An additional MBTA bus stop is located at the Brookline Avenue westbound approach which also serves bus Routes 60 and 65, and various LMA shuttles. Metered parking is provided along the north and south sides of Brookline Avenue west of the intersection, and on the east side of Deaconess Road. A valet parking area that serves the West Campus is located on the west side of Deaconess Road. Crosswalks are provided along all intersection approaches.

4. **Brookline Avenue/Joslin Place** – The three-way intersection of Brookline Avenue and Joslin Place is approximately 50 feet away from the intersection of Brookline Avenue, Jimmy Fund Way and Deaconess Road. Brookline Avenue provides two general purpose travel lanes in each direction. Joslin Place provides one-way northbound access and forms a pair with Deaconess Road travelling on either side of Joslin Park. A left-turn lane is provided on Brookline Avenue in the westbound direction between Deaconess Road and Joslin Place. A pick-up/drop-off area serving the Joslin Diabetes Center is located on the east side of Joslin Place. Sidewalks are provided along all intersection approaches. A crosswalk is provided across Joslin Place.

5. **Brookline Avenue/Longwood Avenue** – The intersection of Longwood Avenue and Brookline Avenue is a four-legged signalized intersection with an exclusive pedestrian phase. The Longwood Avenue northbound approach accommodates an exclusive left-turn lane, a through lane, and an exclusive right-turn lane. The Longwood Avenue southbound approach provides an exclusive left-turn lane, and a shared through/right-turn lane. The Brookline Avenue eastbound and westbound approaches each provide an exclusive left-turn lane, a through lane and a shared through/right-turn lane. There is no on-street parking or loading permitted along any of the approaches; however, loading and delivery vehicles occasionally stop along both sides of Brookline Avenue south of Longwood Avenue. Sidewalks and crosswalks are provided at all four intersection approaches.

6. **Riverway/Pilgrim Road/Netherlands Road** – The intersection of the Riverway, Pilgrim Road and Netherlands Road is a four-legged intersection controlled by stop

signs on the Netherlands Road and Francis Street approaches. The Netherlands Road eastbound approach provides a single general-purpose travel lane in each direction. Instead of a double yellow centerline, a yellow diamond two-way traffic sign has been posted. The Francis Street westbound approach also provides a single general-purpose travel lane in each direction, separated by a double yellow centerline. The Riverway provides two general purpose travel lanes in both the northbound and southbound directions. Left-turn prohibitions are posted on the westbound and southbound approaches. Sidewalks are provided along all intersection approaches except along the west side of the Riverway. No crosswalks are provided at this intersection.

7. **Riverway/Autumn Street** – Autumn Street terminates at the Riverway forming a three-legged unsignalized intersection. The Riverway provides two general-purpose travel lanes in each direction. Autumn Street forms a one-way eastbound departure from the intersection, with a single general-purpose travel lane. There is no parking along either street at this intersection. Sidewalks are provided along both sides of Autumn Street and along the east side of the Riverway. A crosswalk spans the Autumn Street leg of the intersection.

8. **Riverway/Longwood Avenue** – The intersection of Longwood Avenue/Riverway is a four-legged intersection that operates under three-phase traffic signal control. In addition to phases for all Riverway traffic and for all Longwood Avenue traffic, a phase allows for protected left-turns from Riverway eastbound and right-turns from Longwood Avenue southbound with concurrent pedestrian movements across both Longwood Avenue legs, the east Riverway leg, and diagonally across the intersection from the northeast corner to the southwest corner. The Longwood Avenue northbound approach provides an exclusive left-turn lane and a shared through/right-turn lane. The Longwood Avenue southbound approach provides a shared left-turn/through lane and an exclusive right-turn lane. The Riverway eastbound approach provides an exclusive left-turn lane, a through lane, and a shared through/right-turn lane. The Riverway westbound approach provides two through lanes (left-turns from this approach are prohibited) and an exclusive right-turn lane. There is no on-street parking permitted along any of the intersection approaches. Sidewalks are provided along all intersection approaches except along the north side of the Riverway (adjacent to the Emerald Necklace).

9. **Longwood Avenue/Autumn Street** – The intersections of Longwood Avenue and Autumn Street, and of Longwood Avenue and Plymouth Street (Nessel Way) are three legged intersections only slightly offset, effectively creating a single four legged unsignalized intersection. Autumn Street is a one-way approach to the intersection from the south. Plymouth Street, approaching Longwood Avenue from the north, carries two-way traffic. Longwood Avenue provides a single general-purpose travel lane in each direction. Sidewalks are provided along all intersection

approaches. Crosswalks span the north, south, and east legs of the intersection. Handicap parking is permitted along the east side of Autumn Street. No other on-street parking is allowed at this intersection.

10. **Longwood Avenue/MASCO Driveway/Pilgrim Road** – The intersection of Longwood Avenue/MASCO Driveway/Pilgrim Road is a four-legged unsignalized intersection. The west leg, Pilgrim Road, is one-way westbound under existing conditions, but will be made two-way under future conditions. Longwood Avenue is two lanes, one through and one left-turn lane, in both the north and southbound directions. The shared Winsor/MASCO Driveway has a single lane approach that is stop controlled in the westbound direction. Crosswalks are located at each leg of the intersection. In the future, this intersection may be signalized and was therefore analyzed this way in the future traffic analysis conditions.

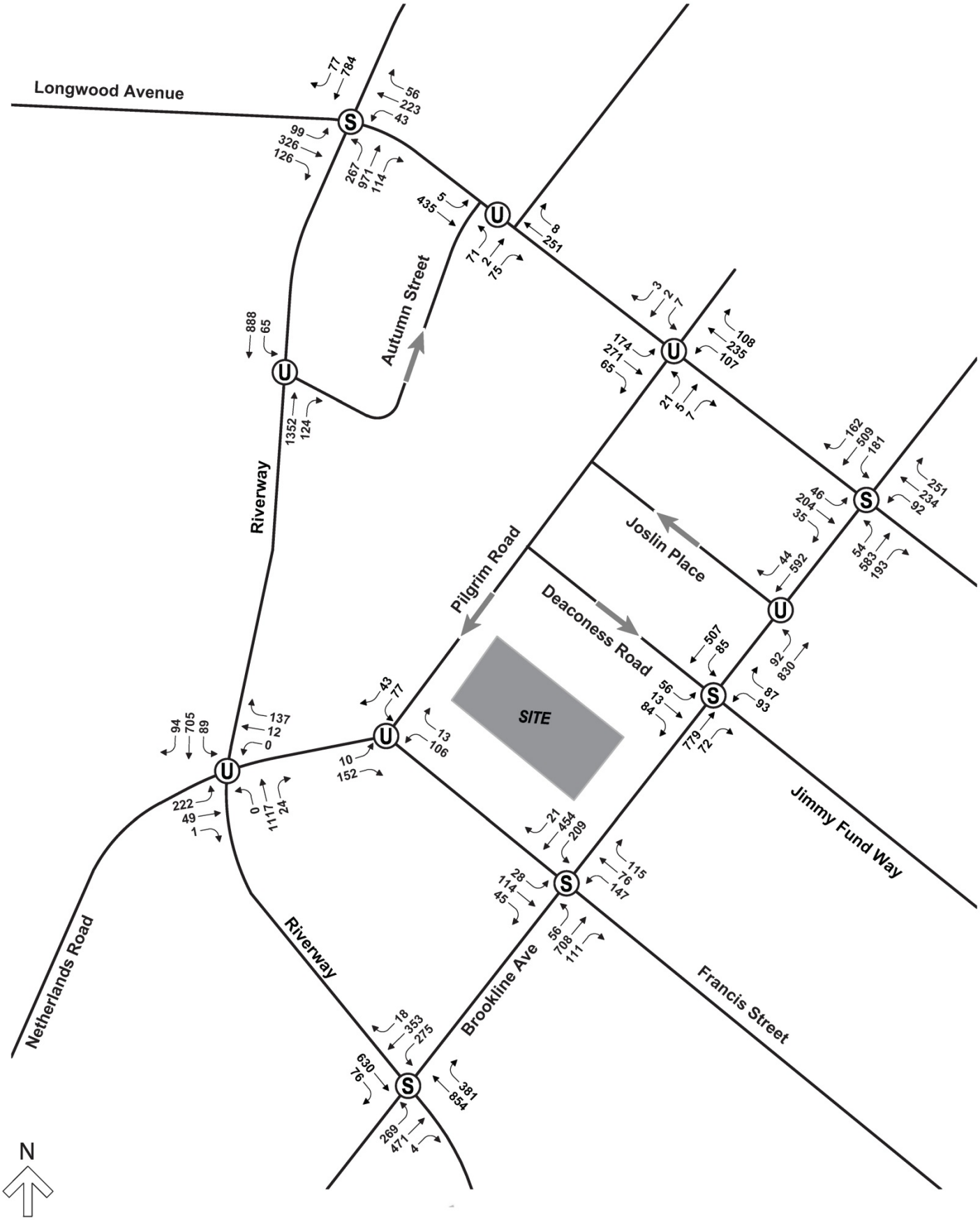
11. **Pilgrim Road/Francis Street** – Francis Street and Pilgrim Road form a three-legged unsignalized intersection. Francis Street approaches from the east and from the southwest. Pilgrim Road approaches from the north and terminates at Francis Street. Each approach provides a single general-purpose travel lane in each direction. No parking is allowed along either street at this intersection. Sidewalks are provided along all intersection approaches. Crosswalks span the north and east legs.

3.2.3 Study Area Roadway and Intersection Conditions

An extensive transportation data collection program was conducted in response to the BPDA Scoping Determination. This effort included conducting morning and evening peak hour turning movement counts (TMCs) from 7:00 to 9:00 a.m. and from 4:00 to 6:00 p.m. at all 11 study area intersections. Intersection turning movement counts were used to establish traffic networks for the 2018 Existing Condition for the morning and evening peak hours. Comparisons between data from adjacent intersections and of counts done on different days have been used to balance the networks and to adjust for any noted day-to-day and/or seasonal variations between different counts. 2018 Existing Condition morning and evening peak hour traffic volumes are shown in Figures 3-7 and 3-8. Detailed traffic count data sheets are provided in Appendix B.

3.2.4 Crash Analysis

Accident data was investigated for the study area. Data was obtained from the Massachusetts Department of Transportation (MassDOT) Highway Division for the most recent three-year period available (2013 through 2015) for the intersections within the study area. As part of this analysis, MassDOT's crash rate at each of the intersections was calculated in order to compare against the district average.



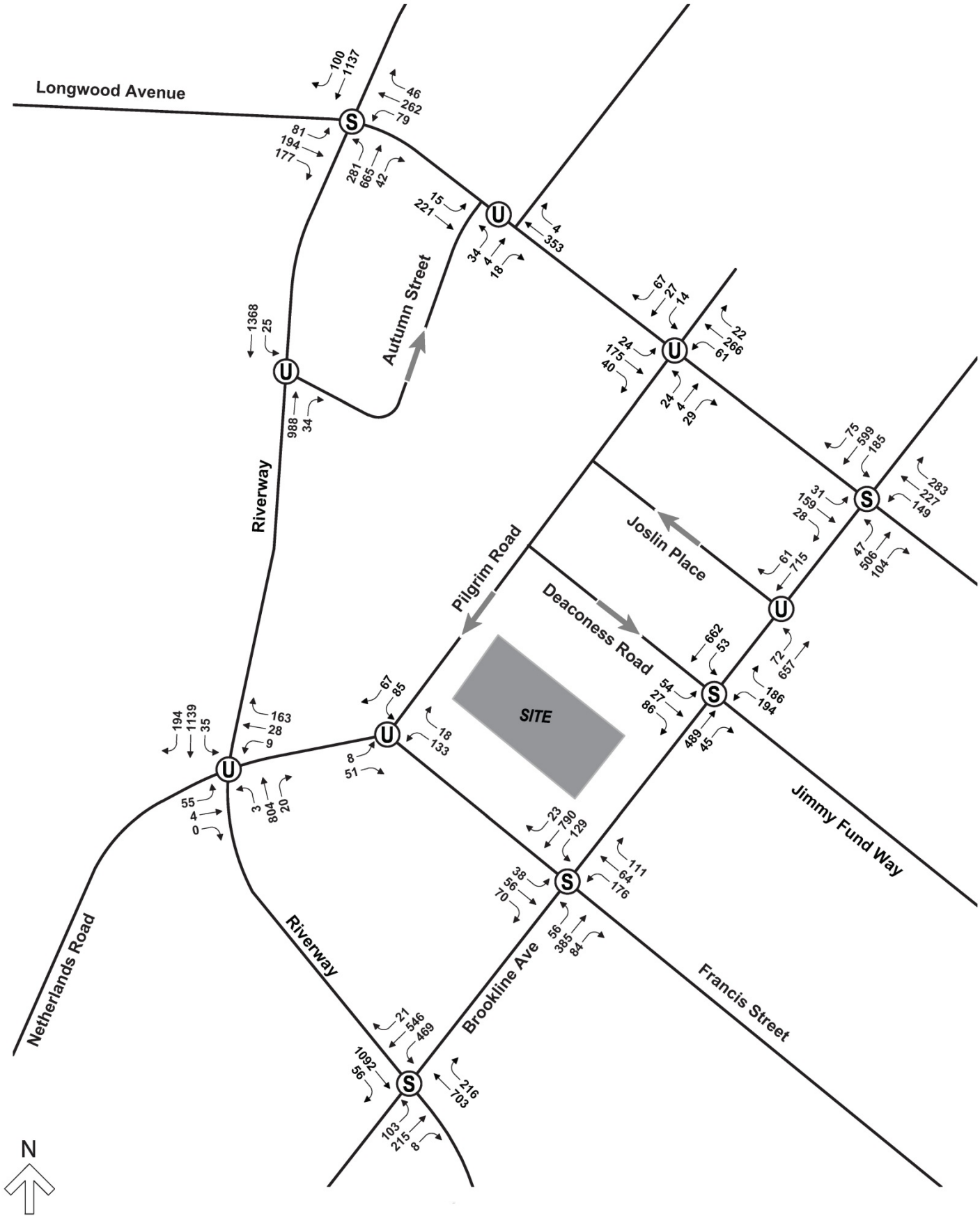
Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-7

2018 Existing Condition AM Peak Hour (7:15 AM – 8:15 AM) Traffic Volumes



Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-8

2018 Existing Condition – PM Peak Hour (3:45 PM – 4:45 PM) Traffic Volumes

The 2010 MassDOT average crash rates for signalized and unsignalized intersections for District 6 (the MassDOT district designation for Boston) are 0.77 and 0.57 crashes per million entering vehicles, respectively. Crash results are summarized in Table 3-3. Detailed accident data are presented in Appendix B.

Table 3-3 Vehicular Crash Summary (2013 - 2015)

Location	Crash Rate (crashes per million entering vehicles)	Prominent Type of Collision
Brookline Avenue / Riverway	0.53	Angle
Brookline Avenue / Francis Street	0.00	Single vehicle
Brookline Avenue / Jimmy Fund Way / Deaconess Road	0.03	Head on, unknown
Brookline Avenue / Joslin Place	0.07	Angle
Brookline Avenue / Longwood Avenue	0.02	Angle
Riverway / Pilgrim Road / Netherlands Road	0.34	Angle
Riverway/ Autumn Street	0.37	Angle, rear end
Riverway/ Longwood Avenue	0.59	Angle, rear end
Longwood Avenue / Autumn Street	0.00	
Longwood Avenue / MASCO Driveway / Pilgrim Road	0.00	
Pilgrim Road / Francis Street	0.14	Angle

Source: MassDOT.

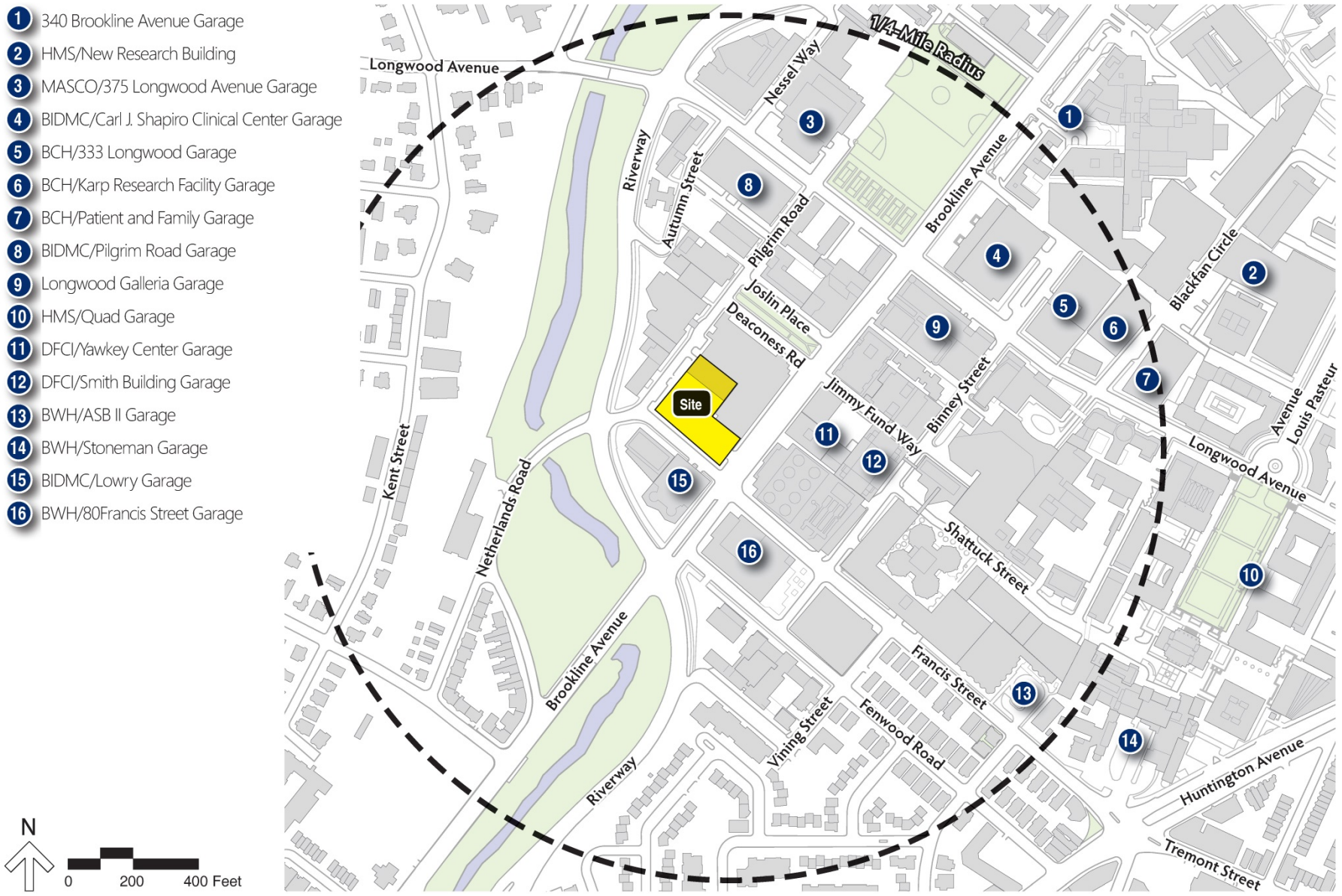
Of the reported accidents, most (44 percent) occurred during a weekday outside of the traditional peak hours of 7:00-9:00 a.m. and 4:00-6:00 p.m. The majority of the reported incidents occurred during dry pavement conditions. The severity ranged from personal injury to exclusively property damage. No fatalities were indicated by the data.

3.2.5 Area-wide Parking

This section identifies parking locations within the study area, including both off-street and on-street parking. Several off-street parking facilities, and a relatively small amount of on-street parking spaces, are located within the study area.

3.2.5.1 Off-Street Parking Facilities

Off-street parking areas within a quarter-mile of BIDMC are shown in Figure 3-9. In total, there are approximately 5,500 spaces provided in these facilities, which are exclusive of the on-campus spaces listed previously. Mid-day, there is generally little available parking at these facilities. This supply is further reduced by the number of spaces reserved for specific institutions or specific users within those institutions. Most of the hospital-controlled spaces are for each institution's employees, patients and visitors. Many LMA institutions maintain long waiting lists of employees seeking reserved off-street parking.



Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-9

Summary of Nearby Public Off-Street Parking Facilities

3.2.5.2 On-Street Parking

The majority of the area has no available on-street parking. There are some metered parking spots to the southeast on Brookline Avenue and northeast on both Joslin Place and Pilgrim Road. There is also residential parking to the southeast along Fenwood and Francis Streets. On-street parking regulations nearby in the LMA are illustrated in Figure 3-10.

3.2.6 Pedestrians and Bicycles

The high level of pedestrian activity in the area has prompted changes in traffic signal design and operation in recent years to include exclusive pedestrian phasing, and all area signalized intersections are now equipped with pedestrian push-buttons. In addition, all BIDMC buildings are ADA accessible. Figure 3-11 shows primary pedestrian routes. MASCO and its member institutions have a program of continuing to study and re-evaluate pedestrian and cyclist needs in the area. Later this summer, Longwood Avenue will be repaved and restriped to include dedicated bicycle lanes after lengthy planning and design by MASCO, with the active support of BIDMC, and the BTD. Future implementation of new bicycle lanes are planned for other corridors into the future.

Pedestrian intersection crossing volumes were conducted concurrently with traffic volume counts. Peak hour results are presented in Figures 3-12 and 3-13. Major pedestrian crossing locations are highlighted and summarized in the following bullets.

- As shown, the intersections of Brookline Avenue/Longwood Avenue, Longwood Avenue/Pilgrim Road, and Riverway/Longwood Avenue process approximately 1,000 pedestrian crossings during the morning peak hour.

- The greatest number of pedestrians were observed crossing diagonally at the Riverway and Longwood Avenue intersection. During the morning peak period, approximately 1,000 pedestrians crossed Brookline Avenue.

In addition, the LMA is an area that proactively supports bicycling as a commuting option to work. Peak hour bicycling activity in the LMA is presented in Figures 3-14 and 3-15.

3.2.7 Existing LMA Transit Infrastructure

BIDMC is well served by public transportation, including MBTA bus routes, MASCO shuttle routes, MBTA subways, and MBTA commuter rail lines as described in detail below. Note that it is possible to transfer between different routes and modes to travel from an origin to a destination.

3.2.7.1 MBTA Bus Route Service

In the LMA, eight bus routes provide service on Brookline, Longwood, and Huntington Avenues, with six of the bus routes including CT2, 8, 19, 47, 60, and 65 having a BIDMC stop. The BIDMC stops are at the East and West Campuses on Brookline Avenue. The routes are described in more detail below and are presented in Figure 3-16.

- **Crosstown 2 (CT2)** bus route operates on 20- to 25-minute, peak period, headways between Sullivan Square Station on the Orange Line and Ruggles Station on the Orange Line, with stops connecting to the Red Line at Kendall Square/MIT Station and the Green Line D Branch at Fenway Station. CT2 makes a stop on Brookline Avenue at the East Campus.

- **Crosstown 3 (CT3)** bus route operates on 20 minute, peak period, headways between Brookline Avenue at East Campus and Andrew Square Station on the Red Line Station in Dorchester. The route connects to the Orange Line and multiple commuter rail lines at Ruggles Station.

- **Route 8** operates on 15- to 20-minute, peak period, headways between Kenmore Square and Harbor Point/UMass Boston in Dorchester, with connections to the Green Line B, C and D Branches at Kenmore Square, the Orange Line and Commuter Rail at Ruggles Station and the Red Line at JFK/UMass Station. This route stops on Brookline Avenue at the East Campus.

- **Route 19** operates on 15- to 20-minute headways during the weekday peak period between Kenmore Square and Fields Corner in Dorchester. This route connects to the Green Line B, C and D Branches at Kenmore Square, the Orange Line and Commuter Rail at Ruggles Station and the Red Line at Fields Corner Station. The route stops on Brookline Avenue at the East Campus.

- **Route 39** provides service between the Forest Hills Station on the Orange Line and Back Bay Station on the Orange Line. It operates on 6-8 minute headways during peak periods, and 11- to 14-minute headways during off-peak periods. This route makes stops on Huntington Avenue at Brigham Circle and at Longwood Avenue.

- **Route 47** provides service between Central Square Station on the Red Line and Broadway Station on the Red Line via Ruggles Station on the Orange Line. It runs on 10-minute headways during peak hours, and 45-minute headways off-peak. This route stops on Brookline Avenue at the East Campus.



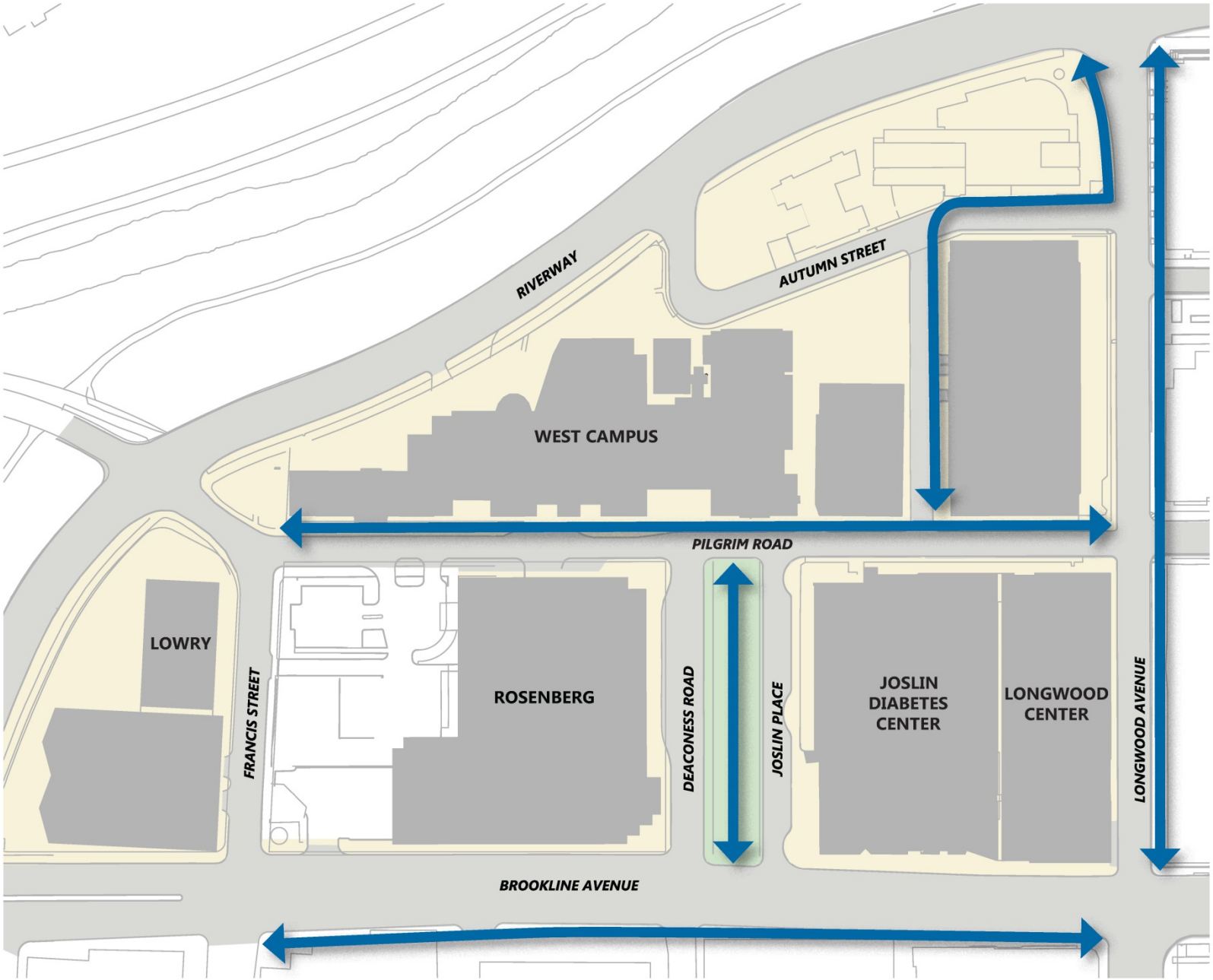
Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-10

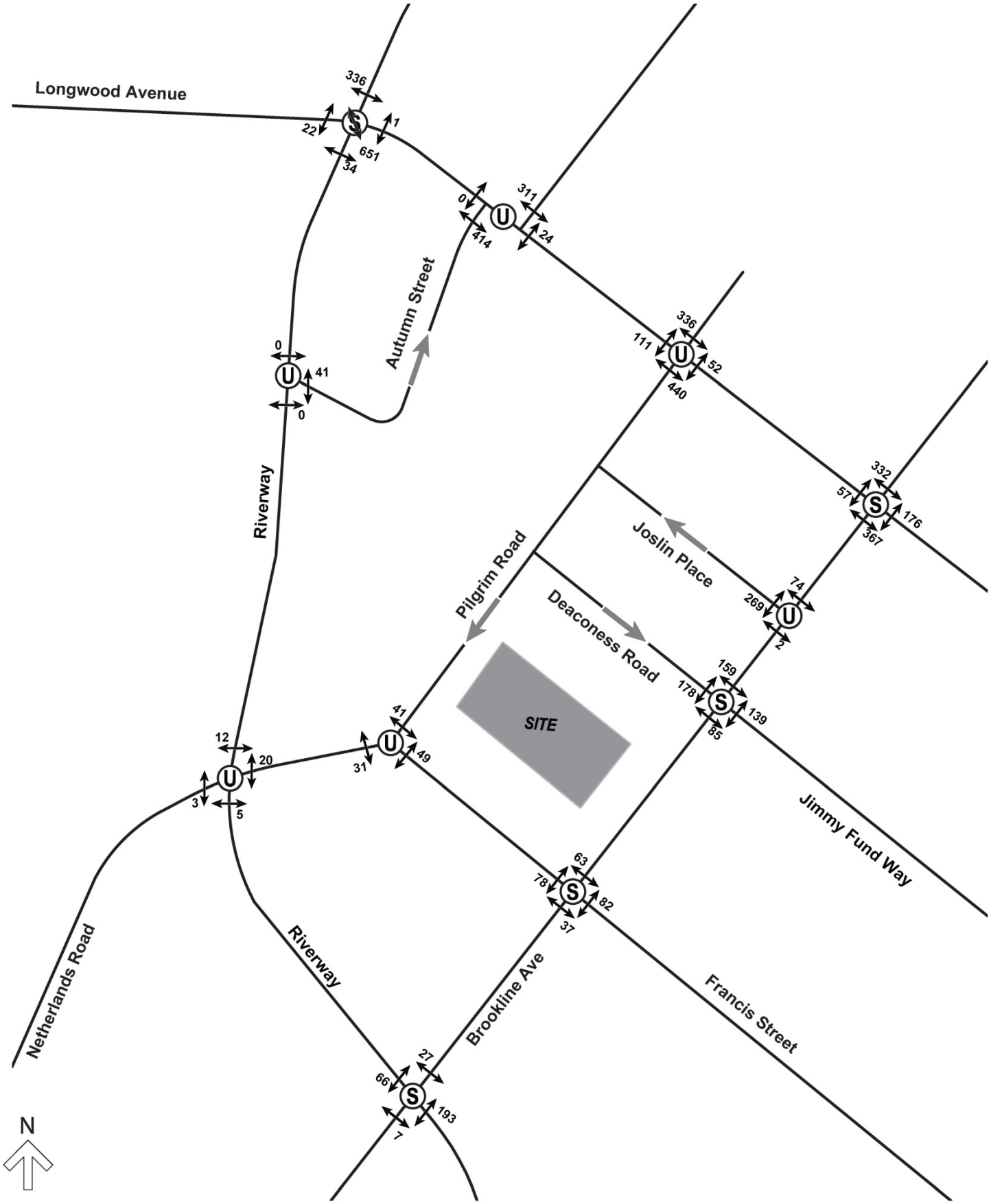
Summary of On-Street Parking in the Study Area



Beth Israel Deaconess Medical Center

vhb

Figure 3-11
Primary Pedestrian Routes



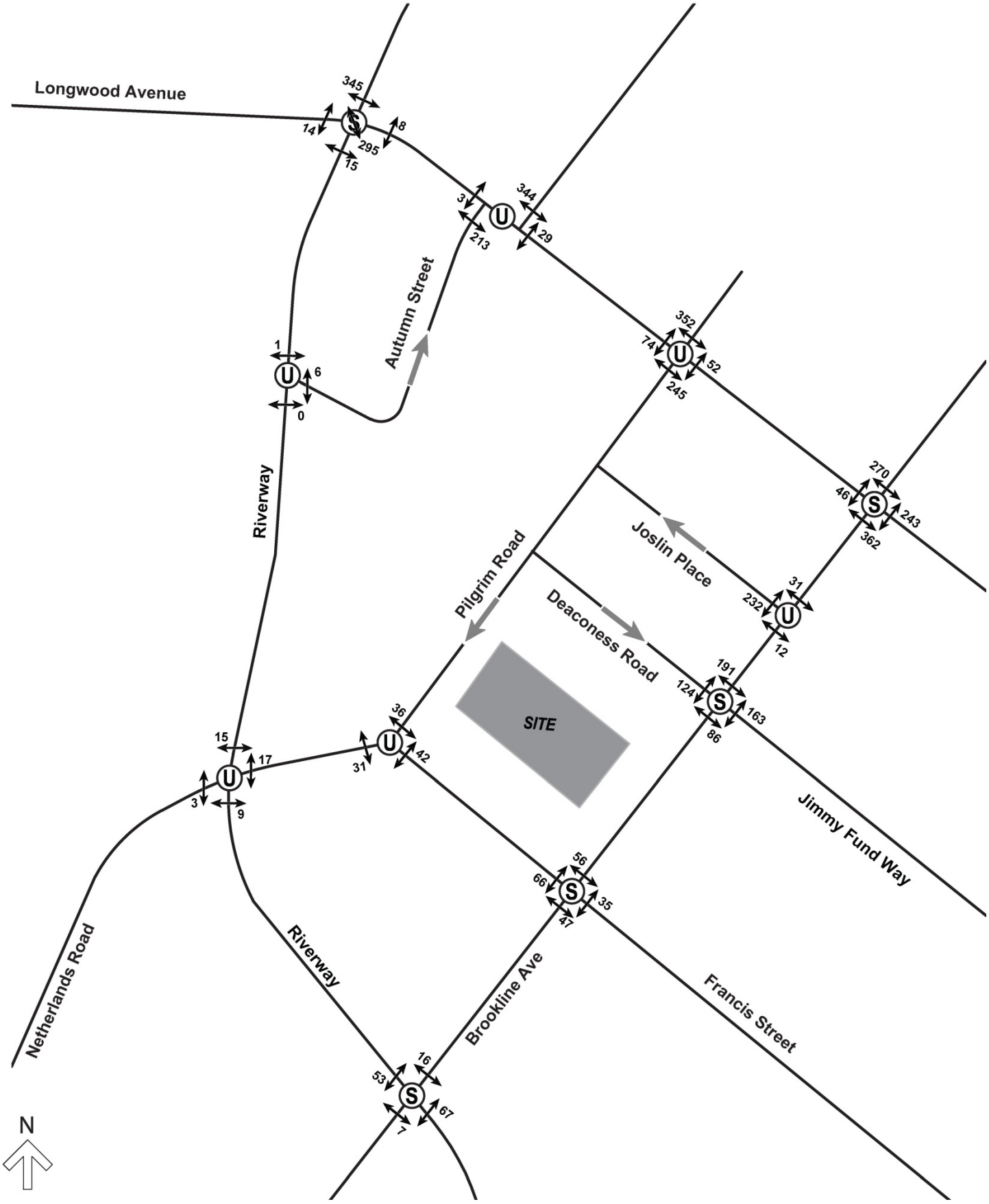
Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-12

2018 Existing Condition – AM Peak Hour (7:15 AM – 8:15 AM) Pedestrian Volumes



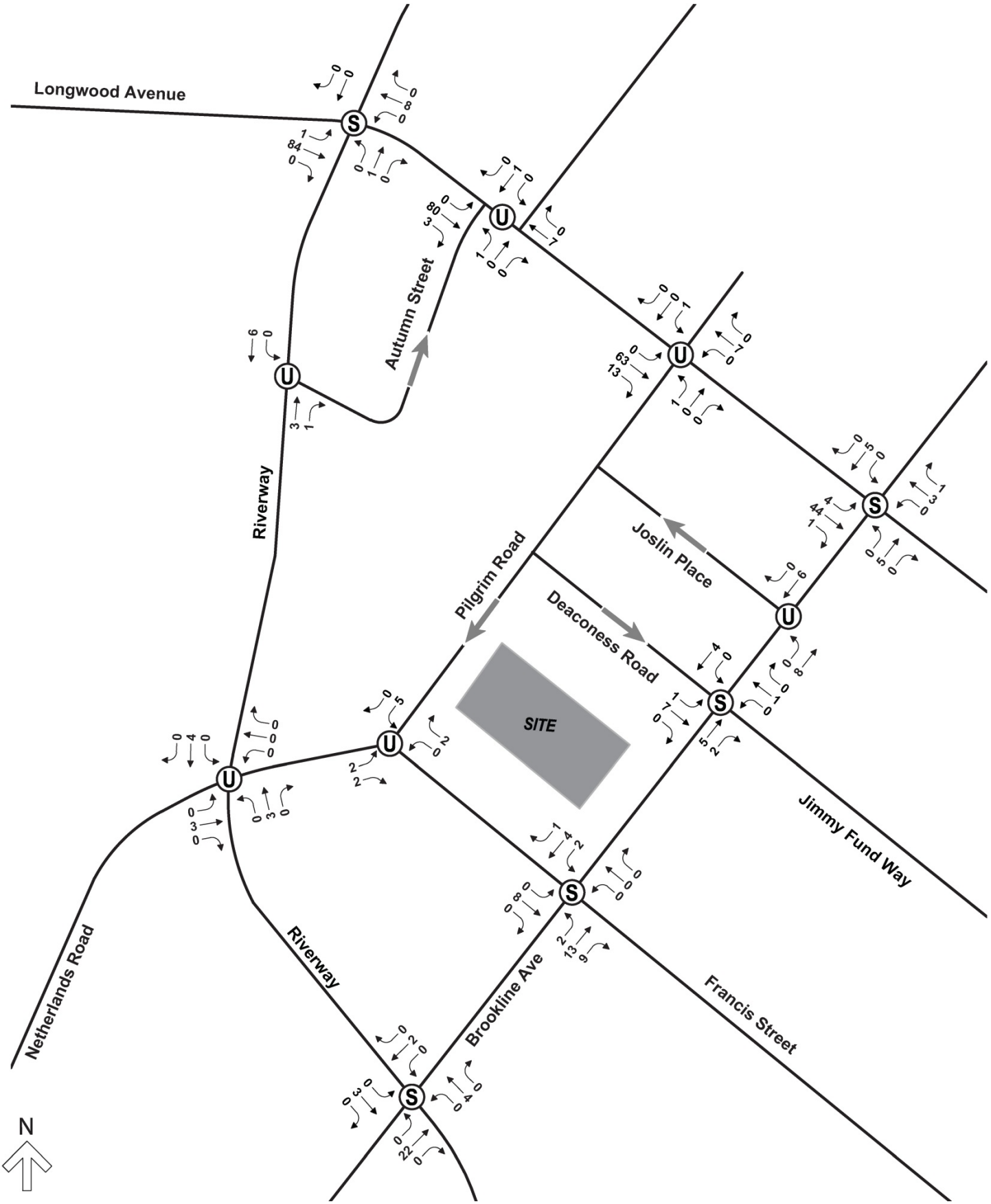
Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-13

2018 Existing Condition – PM Peak Hour (3:45 PM – 4:45 PM) Pedestrian Volumes



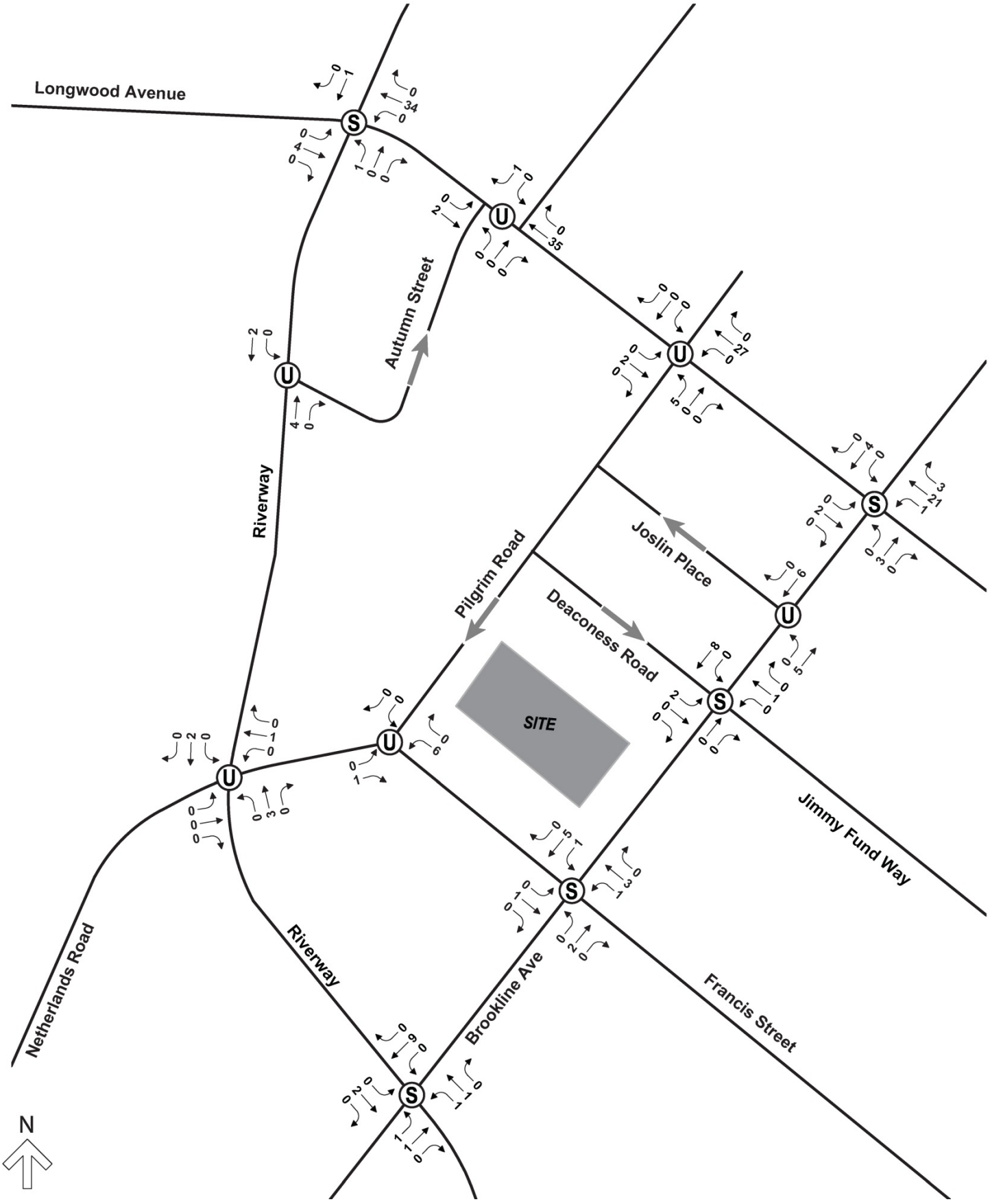
Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-14

2018 Existing Condition – AM Peak Hour (7:15 AM – 8:15 AM) Bicycle Volumes



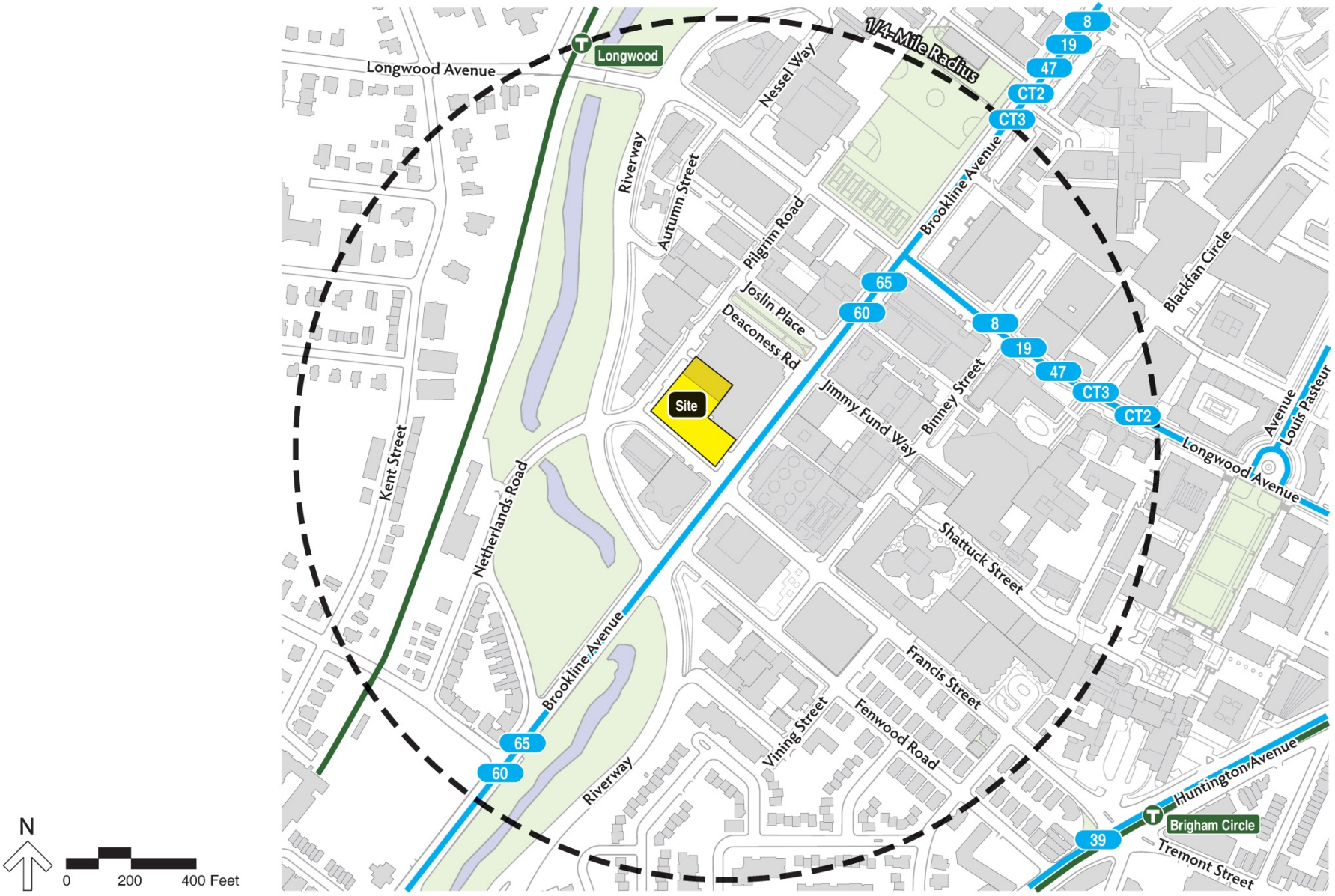
Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-15

2018 Existing Condition – PM Peak Hour (3:45 PM – 4:45 PM) Bicycle Volumes



Beth Israel Deaconess Medical Center

vhb

- **Route 60** provides service between Chestnut Hill in Newton and Kenmore Square via Brookline Village Station on the Green Line D Branch, and operates on 25-minute headways during peak periods, and on 60-minute headways during off-peak periods. This route makes stops on Brookline Avenue at both the West Campus and East Campus.

- **Route 65** provides service between Brighton Center and Kenmore Square via Washington Street Station on the Green Line B Branch, Washington Square Station on the Green Line C Branch, and Brookline Village Station on the Green Line D Branch. It operates on 10-minute headways during peak periods, and 60-minute headways during off-peak periods. This route makes stops on Brookline Avenue at both the West Campus and East Campus.

- **Route 66** provides service between Harvard Square in Cambridge and Dudley Square, and operates on 9-minute headways during peak periods and 16-minute headways during off-peak periods. This route stops at Brigham Circle.

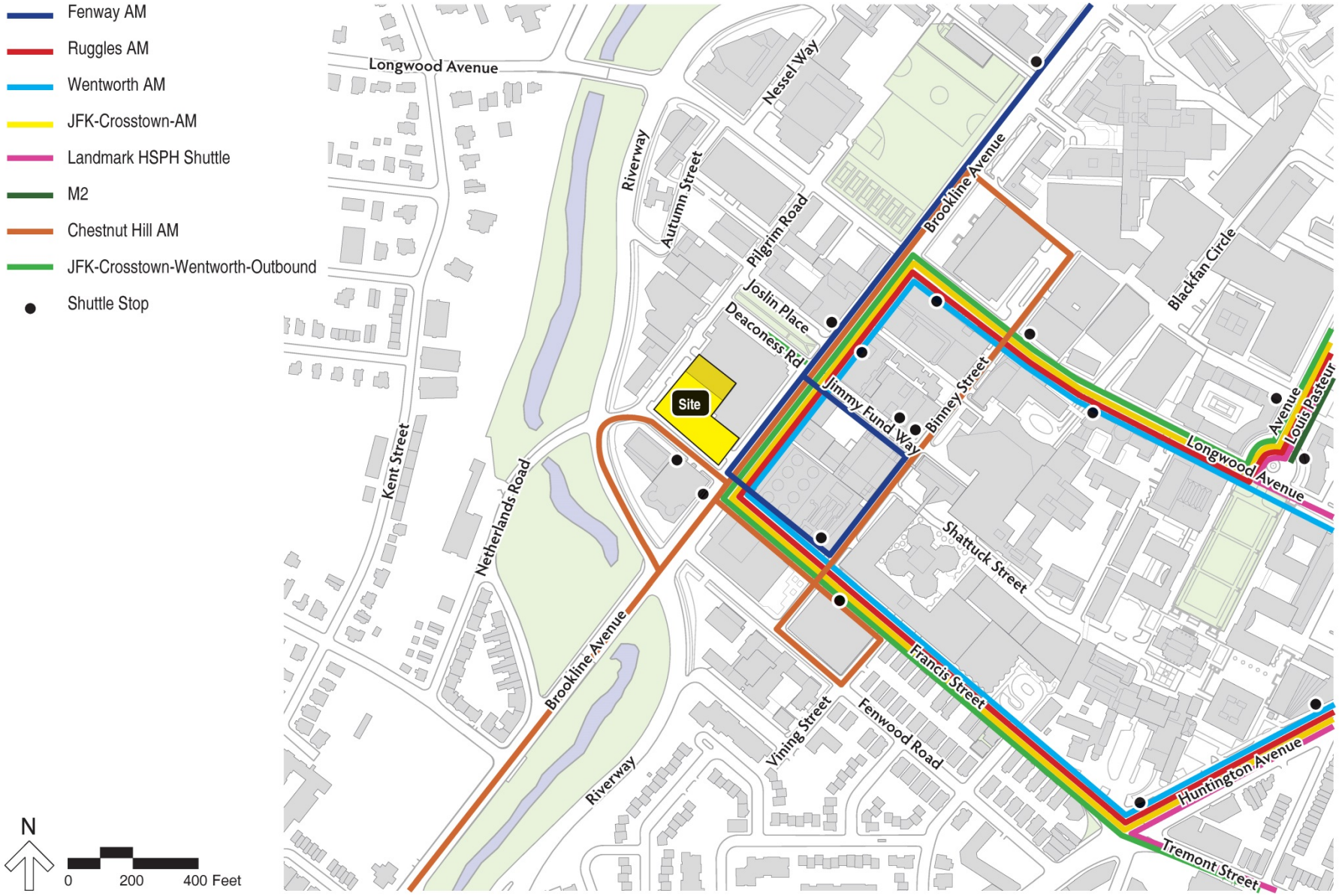
3.2.7.2 MASCO Shuttle Services

In addition to MBTA bus routes, MASCO operates nine bus routes that provide service within one-half mile of the East and West Campuses. These routes are described below and presented in Figures 3-17 and 3-18.

- **M2 Shuttle** connects the LMA to Harvard University in Cambridge. This shuttle is operated by MASCO for Harvard University and operates on approximately 10-minute headways during peak hours. The service runs weekdays, from 6:40 a.m. to 11:30 p.m., and Saturdays during the school year only from 8:30 a.m. to 11:00 p.m. with 60-minute headways.

- **Ruggles - AM/PM** provides continuous service between the MBTA's Ruggles Station and the LMA throughout the day, with 5- to 10-minute headways during peak periods. At Ruggles Station, passengers can connect to the Orange Line subway and the Needham, Franklin, Attleboro/Providence and Stoughton Commuter Rail Lines in addition to other buses. The shuttle runs Monday to Friday from 5:30 a.m. to 10:00 a.m., and from 2:30 p.m. to 8:52 p.m.

- **Ruggles BWH – PM** provides continuous service between the MBTA's Ruggles Station and the LMA. The shuttle operates on 15-minute headways. At Ruggles Station, passengers can connect to the Orange Line subway and the Needham, Franklin, Attleboro/Providence and Stoughton Commuter Rail Lines in addition to other buses. The shuttle runs Monday to Friday from 2:30 p.m. to 6:43 p.m.



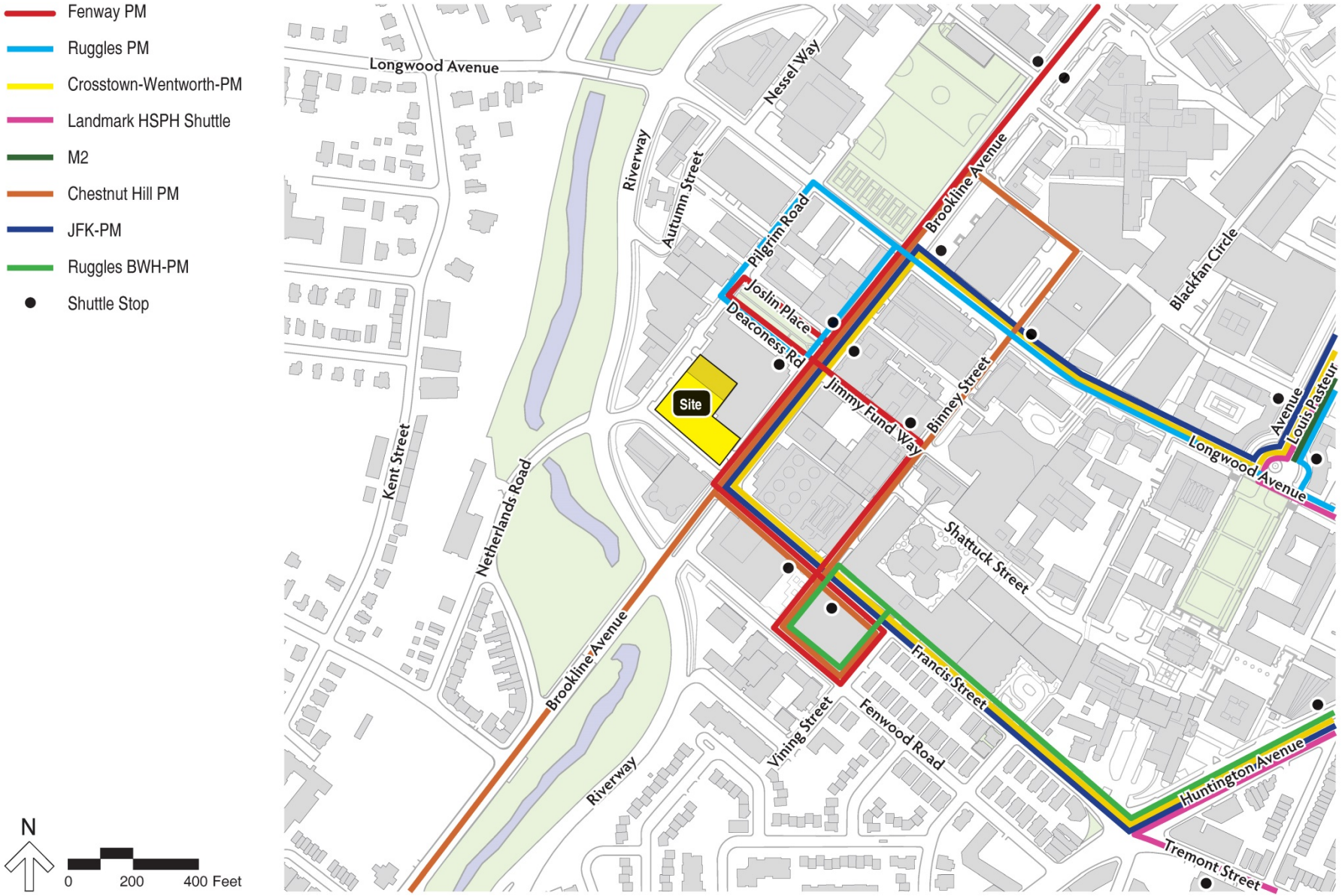
Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-17

MASCO Shuttle Bus Routes Morning Peak



Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-18

MASCO Shuttle Bus Routes Evening Peak

- **JFK/UMass (Crosstown Garage) Shuttle** - AM/PM connects the LMA and the JFK/UMass Station on the MBTA's Red Line and the Crosstown Garage, with 5- to 10-minute headways during peak periods. The JFK/UMass Shuttle runs Monday to Friday from 5:35 a.m. to 10:32 a.m. and 2:30 p.m. to 9:14 p.m.

- **Midday Evening Combo Shuttle** connects the LMA to satellite parking facilities. It operates on 80-minute headways between 10:00 a.m. and 3:10 p.m., and 15-minute headways between 7:30 p.m. and 9:05 p.m. when most other MASCO shuttle services are not running.

- **Fenway – AM/Midday/PM** connects the LMA to satellite Fenway parking facilities and the Yawkey MBTA station. It operates on 6-minute headways during morning peak periods and 8-minute headways during evening peak periods. The Fenway shuttle runs Monday to Friday from 5:05 a.m. to 9:54 p.m.

- **Chestnut Hill Lot Shuttle** connects the LMA to satellite Chestnut Hill Upper Lot. It operates on 15-minute headways during the peak periods. The Chestnut Hill Lot shuttle runs Monday to Friday from 5:30 a.m. to 10:22 a.m., and 2:30 p.m. to 8:56 p.m.

- **The Landmark HSPH Shuttle** provides service between Landmark Center and the Harvard School of Public Health with an interim stop at Vanderbilt Hall. The shuttle operates weekdays between 7:00 a.m. and 6:23 p.m. with 15- to 30-minute headways.

- **Wentworth - AM** connects the LMA and Wentworth Lots. It operates on 15-minute headways during the peak hours. The service runs Monday to Friday from 5:30 a.m. to 10:16 a.m.

3.2.7.3 MBTA Subway Services

The East and West Campuses in the LMA are well served by public transportation. BIDMC is located between the Heath Street (E) Branch and the Riverside (D) Branch of the MBTA Green Line, and is also served by several branches of the MBTA's Commuter Rail system, as described below:

- **Green Line D Branch** – The D (or Riverside) Branch of the Green Line light rail subway line runs on a dedicated right-of-way from Riverside Station in Newton through multiple stations in Newton, Brookline, and Boston before turning north along the Riverway and joining the main below-grade Green Line east of Fenway Station. The main line continues through the Back Bay, Government Center, and North Station to its terminus at Lechmere Station.

The LMA is served by the line's Longwood and Brookline Village stops, both located west of the Muddy River. Passengers traveling to BIDMC would likely walk a quarter mile from the Longwood stop.

- **Green Line E Branch** – The E (or Heath Street) Branch of the Green Line light rail subway line originates at Heath Street Station and runs east at grade within the median of Huntington Avenue. South of Massachusetts Avenue, the line descends below grade to serve Symphony and Prudential stations before joining the main Green Line (described previously in the D Branch section) at Copley. Children's is served by the line's Brigham Circle and Longwood stops. Passengers traveling to BIDMC from either of these stops would walk approximately a quarter to half a mile.

- **Orange Line** – The Orange Line heavy rail subway line runs from Oak Grove Station in Malden through Medford, Charlestown, downtown Boston, the South End, and Roxbury, before reaching Forest Hills Station in Jamaica Plain. The Orange Line connects with the Green Line and with all northern commuter rail lines at North Station, with the Green Line at Haymarket, with the Blue Line at State Street, and with the Red Line at Downtown Crossing. Orange Line passengers traveling to BIDMC would either walk approximately two-thirds of a mile from Roxbury Crossing Station or walk approximately three quarters of a mile, or take the MASCO Ruggles Express shuttle service, from Ruggles Station.

- **Framingham/Worcester Commuter Rail Line** – This commuter rail line runs from Boston's western suburbs, making stops in Natick, Wellesley, and Newton. Approximately half of the daily trains originate or terminate at Worcester; the other half originate or terminate at Framingham. The line makes Boston stops at Boston Landing Station, Yawkey Station, Back Bay Station, and South Station. The LMA is served by the line's Yawkey Station, located east of Fenway Park, approximately two-thirds of a mile from the LMA.

- **Needham Commuter Rail Line** – This commuter rail line serves the Boston suburb of Needham, making four stops there, before serving the Boston neighborhoods of West Roxbury, Roslindale, and Jamaica Plain en route to its downtown terminus at South Station. Needham Line passengers traveling to BIDMC would walk or take a shuttle from Ruggles Station.

- **Franklin Commuter Rail Line** – This commuter rail line serves suburbs southwest of Boston including Franklin, Norwood, and Dedham en route to its downtown terminus at South Station. Franklin Line passengers traveling to BIDMC would walk or take a shuttle from Ruggles Station.

- **Attleboro/Providence Commuter Rail Line** – This commuter rail line serves communities south of Boston including Providence (RI), Attleboro, and Sharon en route to its downtown terminus at South Station. The Attleboro Line merges with the Franklin Line at Readville Station in the Hyde Park neighborhood of Boston. Attleboro Line passengers traveling to BIDMC would walk or take a shuttle from Ruggles Station.

- **Stoughton Commuter Rail Line** – This commuter rail line serves southern suburbs of Boston including Stoughton and Canton en route to its downtown terminus at South Station. The Stoughton Line merges with the Attleboro Line at Canton Junction Station. Attleboro Line passengers traveling to BIDMC would walk or take a shuttle from Ruggles Station.

3.3 Evaluation of Long-Term Transportation Impacts

This section describes the future transportation infrastructure in the LMA including the impacts of the Project. Included is a summary of area transportation infrastructure improvements that are currently planned, are under design, or are under construction by area institutions/developers, the City of Boston, Commonwealth of Massachusetts, MBTA, and/or MASCO.

Also in this section is a detailed summary of the development of both the future 2023 No-Build and 2023 Build Conditions, including a detailed analysis of morning and evening peak hour traffic activity and operations, parking supply and demands, loading and service accommodations, future pedestrian and bicycle demands, future transit demands. The development and evaluation of the 2023 No-Build and Build Conditions has been conducted to help identify additional roadway, pedestrian, and transit improvements that may be needed to mitigate identified transportation impacts generated by future campus growth due to the Project.

3.3.1 Area Developments and Transportation Improvements

Like much of the City, the LMA continues to grow with new developments from academic and health care institutions, as well as other private developments. In addition, the LMA is an area of the City with a high concentration of both pedestrian and vehicular traffic, as well as a multitude of reconstruction projects. As such, there are many transportation infrastructure initiatives that are currently being put in place in connection with other nearby development projects by the City of Boston, Commonwealth of Massachusetts, the MBTA, and/or MASCO.

3.3.1.1 Area Developments

There are currently five approved or planned development projects that are expected to have an influence on future year peak hour traffic volumes on study area roadways and intersections. Except where specifically noted, their anticipated transportation impacts have been included within the analyses of the 2023 No-Build Condition. A description of each approved or planned project is provided below.

- **Boston Children's Hospital Institutional Master Plan** includes the construction of the Boston Children's Clinical Building (BCCB), an approximately 450,000 sf clinical building located on the main campus and an expansion (76 net-new parking spaces) of the Patient and Family Parking Garage. The BCCB is currently under construction, with an anticipated completion date of 2020.

- **Landmark Center NPC** is a phased transformation of the Landmark Center. Phase 1 includes improvements to the public realm and site access/circulation. Phase 2 includes the construction of a 14-story, approximately 500,000 sf mixed-use building with retail and office/lab space. No new parking is proposed on site. Phase 1 is currently underway with completion expected in Summer 2019. Due to Landmark Center's distance from the study area, project impacts are included in the background growth rate.

- **Winsor School Campus Projects** includes a two-phased development on the Winsor School LMA campus. Phase 1 of the redevelopment has already been constructed and included the construction of the 110,000 sf Center for Performing Arts and Wellness on the site of the existing gymnasium along Pilgrim Road. Phase 2 will include the privately developed Longwood Avenue Project, a 300,000 sf mixed-use building built on the location of the temporary parking lot. The building will contain a 225-space, below-grade parking facility in addition to the construction of a single level, 148-space below-grade parking garage for use by Winsor School. Phase 2's expected impacts have been included in future conditions.

- **Emmanuel College Campus Development Plan** proposes construction of the following projects: (1) Cardinal Cushing Library Expansion involves the demolition of approximately 17,800 sf of the existing 51,800 sf Cardinal Cushing Library building, and an addition of approximately 76,000 sf, resulting in a net increase of approximately 58,200 sf. In addition to new classrooms, faculty offices and meeting spaces, the new portion of the building will contain a 300+ seat auditorium that will replace an existing smaller auditorium; and (2) New Julie Hall is a 275,000 sf residence hall to be built on the site of the existing Julie Hall and just north of the Jean Yawkey Center. The ground level of the new residence hall will provide space for student dining areas as well as meeting space for student organizations and academic, student life and outreach activities. Additional meeting space will be provided on the second floor, while the remainder of the upper floors will contain

approximately 720 student beds in a variety of room formats. The 720 beds will replace 220 existing beds in the existing Julie Hall and another 100 beds that are leased from neighboring institutions for Emmanuel students. In total, New Julie Hall will accommodate 400 net new beds on the Emmanuel College Academic Campus. As these projects are student focused, project impacts are included in the background growth rate.

- **Wentworth Institute of Technology Institutional Master Plan** includes four projects: 46,000 sf Student Center, new student residence, 40,000 sf academic addition, and a 400-space parking structure. It is anticipated that this project will have a limited impact on future traffic activity within the LMA and is therefore included in the background growth rate.

3.3.1.2 Area Initiatives

MASCO and BTD have proposed improvements to the bicycle facilities along Longwood Avenue in the LMA. Bike lanes are proposed along the majority of both directions of Longwood Avenue to provide dedicated facilities to the growing bicyclists in the area. These roadway improvements are planned to be constructed in 2019 and are therefore included in the future conditions.

3.3.2 2023 No-Build Condition

The 2023 No-Build Condition was developed and analyzed to evaluate future transportation conditions in the study area, such as background traffic growth and development traffic growth, without taking into consideration anticipated campus growth due to the Project. This future analysis year represents a five-year horizon from the Existing Condition.

The 2023 No-Build Condition includes anticipated increases in traffic activity on study area roadways due to continued general area-wide traffic growth; approved developments in the area that are currently under construction; and other projects proposed for construction that have had, at a minimum, either a Project Notification Form or an Institutional Master Plan Notification Form filed on their behalf with the BPDA, formally initiating the City of Boston Article 80 Development Review process for their respective project(s).

A two-step process has been utilized to estimate the increases in traffic activity in the Project study area under the 2023 No-Build Condition. Under Step 1 of this process, general area-wide traffic growth was estimated based on regional traffic growth trends along major study area roadways. Therefore, an annualized growth rate was developed and applied to existing condition peak hour traffic volumes to reasonably account for future through traffic growth in the area. Under Step 2, peak hour traffic generation estimates for specific developments that are either currently under construction, are approved, or are planned projects that have formally initiated the City of Boston Article 80 Development

Review process were added to the resultant volumes produced under Step 1 to generate peak hour traffic volume estimates for the 2023 No-Build Condition. A more detailed discussion of this process is presented below.

3.3.2.1 Step 1 - Background Growth

In order to account for general background traffic growth, an annualized growth rate was developed and applied to the existing condition peak hour traffic volumes to reasonably account for future through traffic growth in the Project study area. An annual growth rate of 0.5 percent per year between 2018 and 2023 was applied to the 2018 Existing Condition. This rate has been used in support of recently approved development projects in this area.

3.3.2.2 Step 2 - Site-Specific Growth

The following projects have been included in the 2023 No-Build Condition due to anticipated site-specific background traffic growth.

- Boston Children's Hospital Institutional Master Plan
- Winsor School – Phase 2

3.3.2.3 2023 No-Build Peak Hour Traffic Volumes

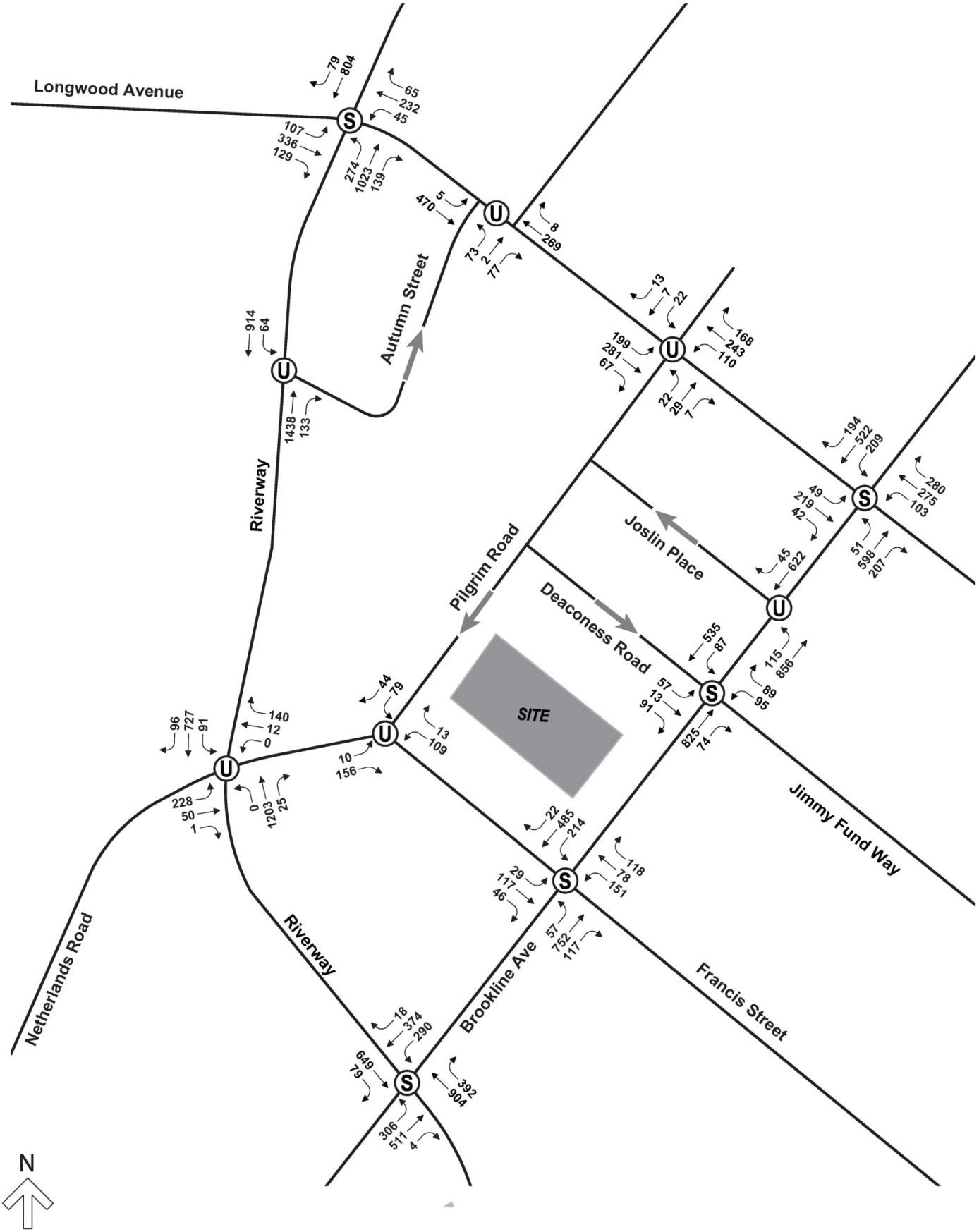
The 2023 No-Build Condition weekday morning and evening peak hour traffic volumes were developed by adding the general background traffic growth (Step 1) and the traffic volumes associated with the site-specific Projects (Step 2) to the 2018 Existing Condition volumes as previously described. The roadway network changes, as previously discussed in Section 3.3.1.2, were also included within this analysis condition. Figures 3-19 and 3-20 illustrate the morning and evening peak hour traffic volume networks for the 2023 No-Build Condition.

3.3.3 2023 Build Condition

The 2023 Build Condition was developed in order to evaluate future transportation conditions in the study area with the Project in place. The 2023 study year represents a five-year planning horizon. The Build Condition takes into account the changes and growth established as part of the 2023 No-Build Condition presented previously, and also accounts for the changes that will occur with the proposed Project.

3.3.3.1 Unadjusted Trip Generation

Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition) rates were used to estimate the trips to be generated by the Project. ITE Land Use Code (LUC) 610 - Hospital was determined to be the most applicable and appropriate LUC for this Project. Building gross floor area (GFA) was chosen as the independent metric to measure trip



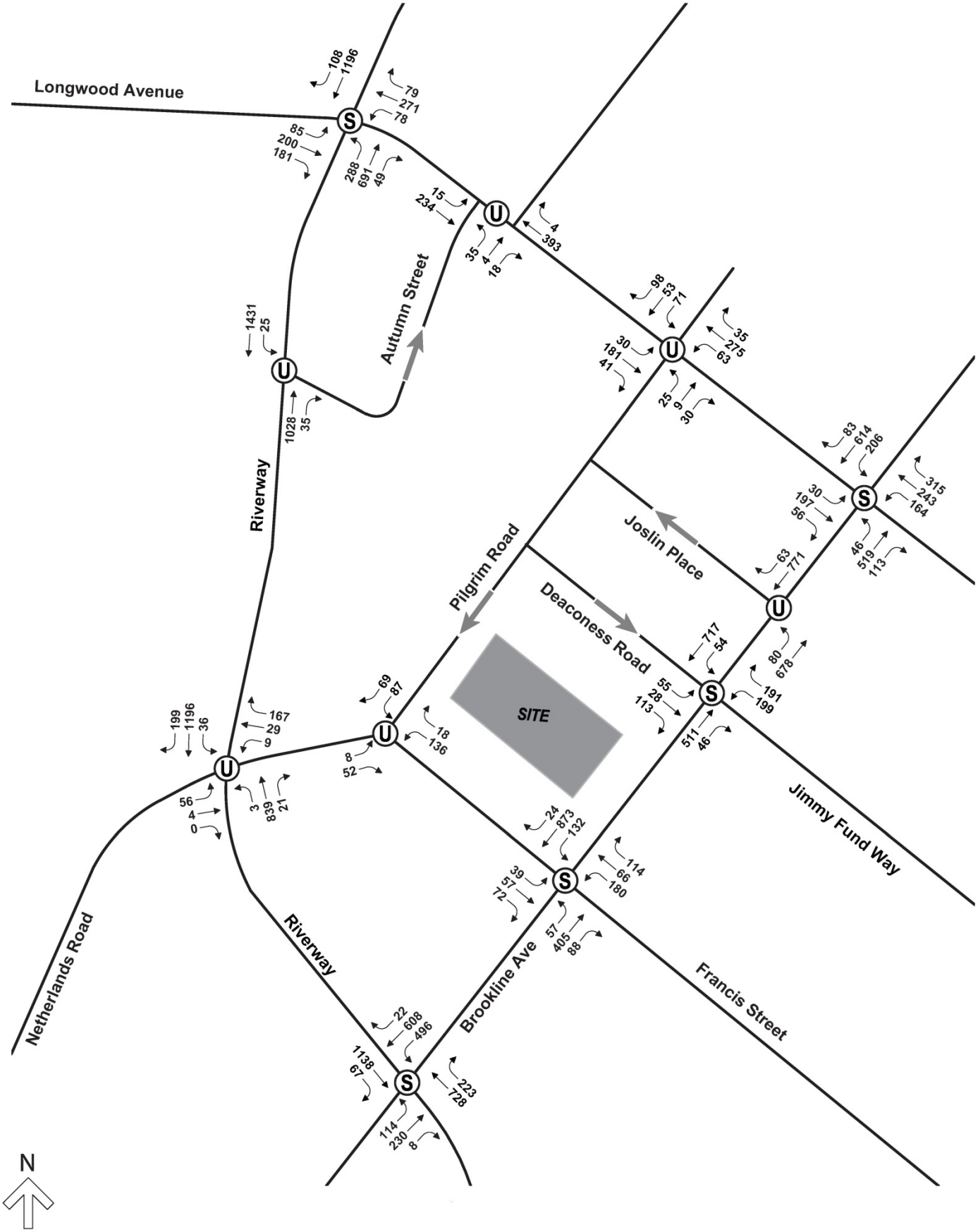
Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-19

2023 No-Build Condition – AM Peak Hour (7:15 AM – 8:15 AM) Traffic Volumes



Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-20

2023 No-Build Condition – PM Peak Hour (3:45 PM – 4:45 PM) Traffic Volumes

generation for the Project, as it is the best and most practical means to assess gross trip making by an entire, complex academic medical center campus, where there are diverse active uses and activities occurring that, independently, all have differing independent trip generating characteristics (inpatient, outpatient, emergency care, research, administrative, support). LUC 610 provides the most efficient means to account for all these subcomponents that comprise trip generation for a hospital use.

Since the proposed Project is an expansion of BIDMC's overall existing LMA campus, trip generation estimates are based on the net change of BIDMC's overall Hospital GFA from the existing condition (2,143,500 sf of Hospital space) to the proposed condition with the Project in place and operational (an additional 325,000 sf for a total of 2,468,500 sf of Hospital space).[1] For both the existing and the proposed conditions, unadjusted trip generation was computed using the ITE regression formula. The presented Project trip generation is the arithmetic difference between the two calculations and yields the "net-new trips" specifically associated with the Project. Because most of the core building staff (i.e., administrative, security, janitorial, etc.) is already located within the campus, the proposed Project will not be generating as many trips as a new stand-alone facility. Table 3-4 summarizes the total number of unadjusted (raw ITE) vehicle trips to be generated for an average weekday and during the morning and evening peak hours.

Table 3-4 Unadjusted Project Generated Net-New Vehicle Trips

	Unadjusted ITE Net-New Vehicle Trips
Daily Total	**2,384**
AM Peak Hour	
In	85
Out	50
Total	**135**
PM Peak Hour	
In	48
Out	78
Total	**126**

Source: ITE *Trip Generation Manual*, 9th Edition LUC 610 (Hospital)

As shown in Table 3-4, the Project is anticipated to generate 2,384 daily unadjusted vehicle trips. According to ITE rates, the Project is expected to generate 135 and 126 unadjusted vehicle trips during the morning and evening peak hours, respectively.

[1] As described in greater detail in Chapter 2, the Project will include 325,000 GSF. A slightly higher GSF assumption was utilized in the conduct of this Transportation Study, yielding a modestly conservative assessment of the anticipated transportation impacts of the Project.

3.3.3.2 Person Trip Generation

The first step to convert unadjusted trips into adjusted trips is to calculate the number of total person trips from the initial gross unadjusted trip generation estimate shown in Table 3-4. The Federal Highway Administration's 2009 National Household Travel Survey Summary of Travel Trends provides the national vehicle occupancy rates (VOR) of 1.67 for all-purpose trips. Table 3-5 summarizes the total number of person trips for a typical weekday.

Table 3-5 Project Generated Person Trips

	ITE Net-New Person Trips
Daily Total	**3,982**
AM Peak Hour	
In	142
Out	83
Total	**225**
PM Peak Hour	
In	79
Out	129
Total	**208**

Source: ITE *Trip Generation Manual*, 9th Edition LUC 610 (Hospital)
FHWA 2009 *National Household Travel Survey Summary of Travel Trends*

As shown in Table 3-5, the Project is anticipated to generate 3,982 daily person trips. According to ITE rates, the Project is expected to generate 225 and 208 person trips during the morning and evening peak hours, respectively.

3.3.3.3 Mode Shares

A characteristic of an urban environment, such as Boston and especially the LMA, is that actual trip making is likely to occur by an array of alternative mode choices other than driving an automobile. An adjusted generation estimate further refines base person trip estimates by appropriately parsing those total trips to other various commute choices, including public transportation, walking, and biking.

Mode shares, presented in Table 3-6, are based on trip making data for BTD Area 5, which includes the LMA.

Table 3-6 Mode Shares

Mode	Peak Hour	Weekday Daily
Public Transit	31%	20%
Walk/Bike/Other	26%	33%
Automobile	43%	47%

Source: BTD Guidelines, Zone 5

3.3.3.4 Adjusted Trip Generation

The mode share profile presented in Table 3-6 was applied to the person trips presented in Table 3-5. Again, a VOR of 1.67 was used to convert person trips back into vehicle trips specifically for the auto mode share. Table 3-7 summarizes the adjusted trip generation estimates.

Table 3-7 Project Generated Trips

Time Period/Direction	Walk/Bike/Other	Transit	Vehicle
Daily Total	**1,314**	**796**	**1,120**
AM Peak Hour			
In	37	44	37
Out	22	26	21
AM Total	**59**	**70**	**58**
PM Peak Hour			
In	21	25	21
Out	34	40	33
PM Total	**55**	**65**	**54**

Source: ITE *Trip Generation Manual*, 9th Edition LUC 610 (Hospital)

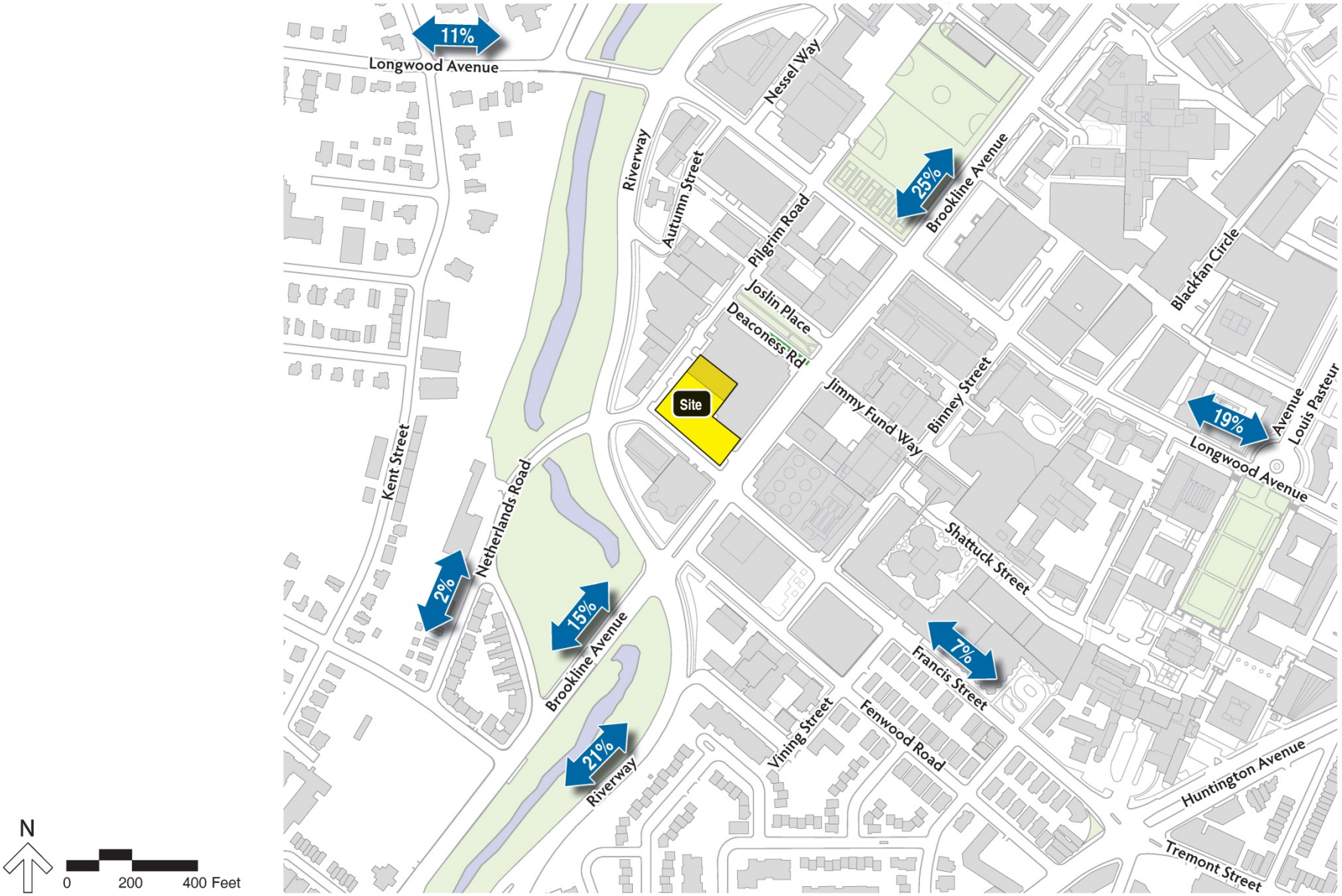
The Project is anticipated to generate 37 inbound and 21 outbound vehicle trips during the morning peak hour. As a conservative analysis, these estimates include patients, visitors, and employees. However, since no new parking will be provided on campus, vehicle trips may be less to the campus. In addition to these trips, the Project will generate approximately 37 inbound and 22 outbound walk/bike trips and approximately 44 inbound and 26 outbound transit trips.

During the evening peak hour, the Project will generate 21 inbound and 33 outbound vehicle trips. Walk/bike trips will total approximately 21 inbound and 34 outbound trips. Transit trips are estimated to be approximately 25 inbound and 40 outbound trips.

3.3.3.5 Auto Trip Distribution and Assignment

Having estimated increases in auto trips associated with the Project, the next step in the analysis involves the assignment of these trips to the local roadway network based on geographic distribution of Project traffic. The directional distribution of Project traffic is a function of several variables, including the relative locations and densities of population, competing uses, existing travel patterns, and the efficiency of the roadways leading to the site.

Trip distribution patterns were developed based on BTD's guidelines for Zone 5 trip distribution data. This distribution is summarized in Figure 3-21 and Table 3-8.



Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-21
Trip Distribution

Table 3-8 Auto Trip Distribution

Route	Percent
Brookline Ave to/from North	25%
Brookline Ave to/from South	15%
Longwood Ave to/from East	19%
Longwood Ave to/from West	11%
Riverway to/from South	21%
Francis St to/from East	7%
Netherland Rd to/from West	2%
TOTAL	**100%**

Source: BTD, Area 5

Project generated trips are assigned to the study area network by one of three typical arrival scenarios. Routing plans and their percentage break-up include:

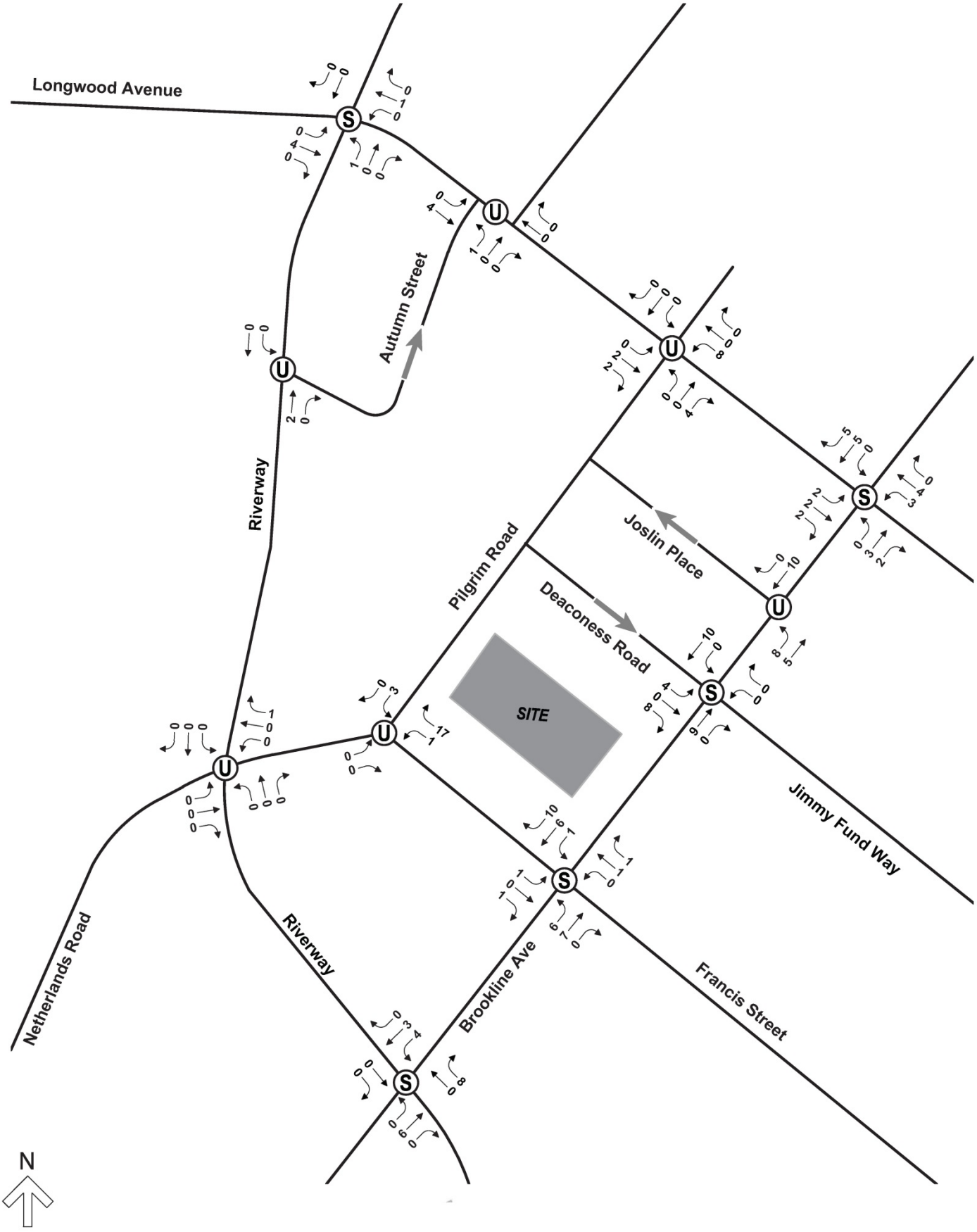
- 50% - Self-park directly within the Pilgrim Garage;
- 25% - Valet at the Project Drop-Off (vehicles are parked in the Pilgrim Road Garage); and
- 25% - Drop-off/Pick-up at the Project Drop-Off and leave the area.

3.3.3.6 Network Impacts of Pilgrim Road Two-Way Traffic

As part of the Project, the Proponent will allow two-way travel on the portion of Pilgrim Road between Deaconess Road and Francis Street that currently operates as a one-way road in the southbound direction. This directional change completes a connection between Riverway and Longwood Avenue allowing drivers to make a movement they cannot make in the Existing Condition. The 2023 Build Condition has accounted for a portion of vehicles travelling to the MASCO garage that may now use Pilgrim Road to get to the MASCO garage from the south.

3.3.3.7 2023 Build Condition Peak Hour Traffic Volumes

The 2023 Build Condition weekday morning and evening peak hour traffic volumes were developed by adding Project generated trips (represented in Figures 3-22 and 3-23) to the 2023 No-Build Condition traffic networks. Figures 3-24 and 3-25 present the resulting 2023 Build Condition traffic volume networks for the morning and evening peak hours.



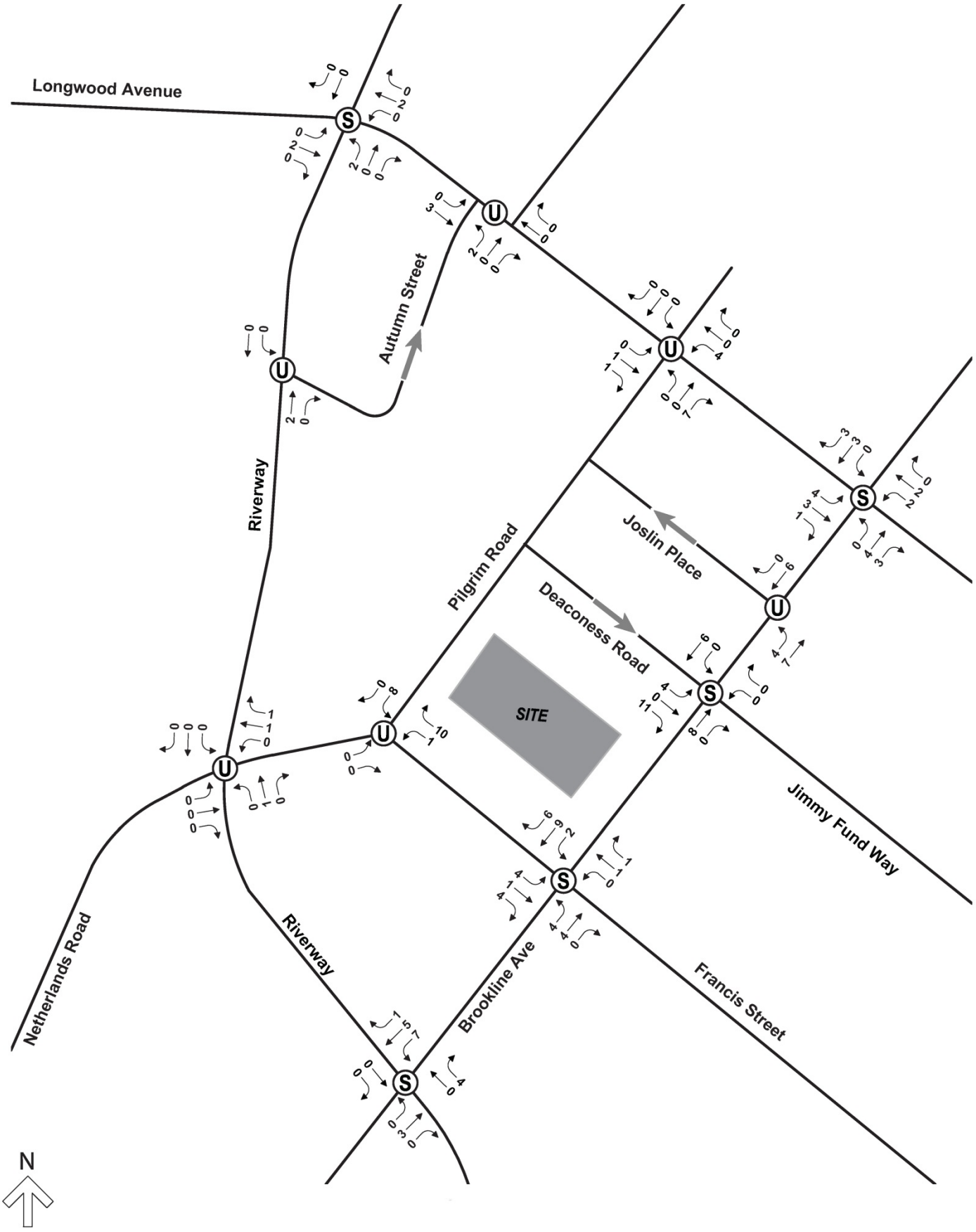
Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-22

Project Trips – AM Peak Hour (7:15 AM - 8:15 AM) Traffic Volumes



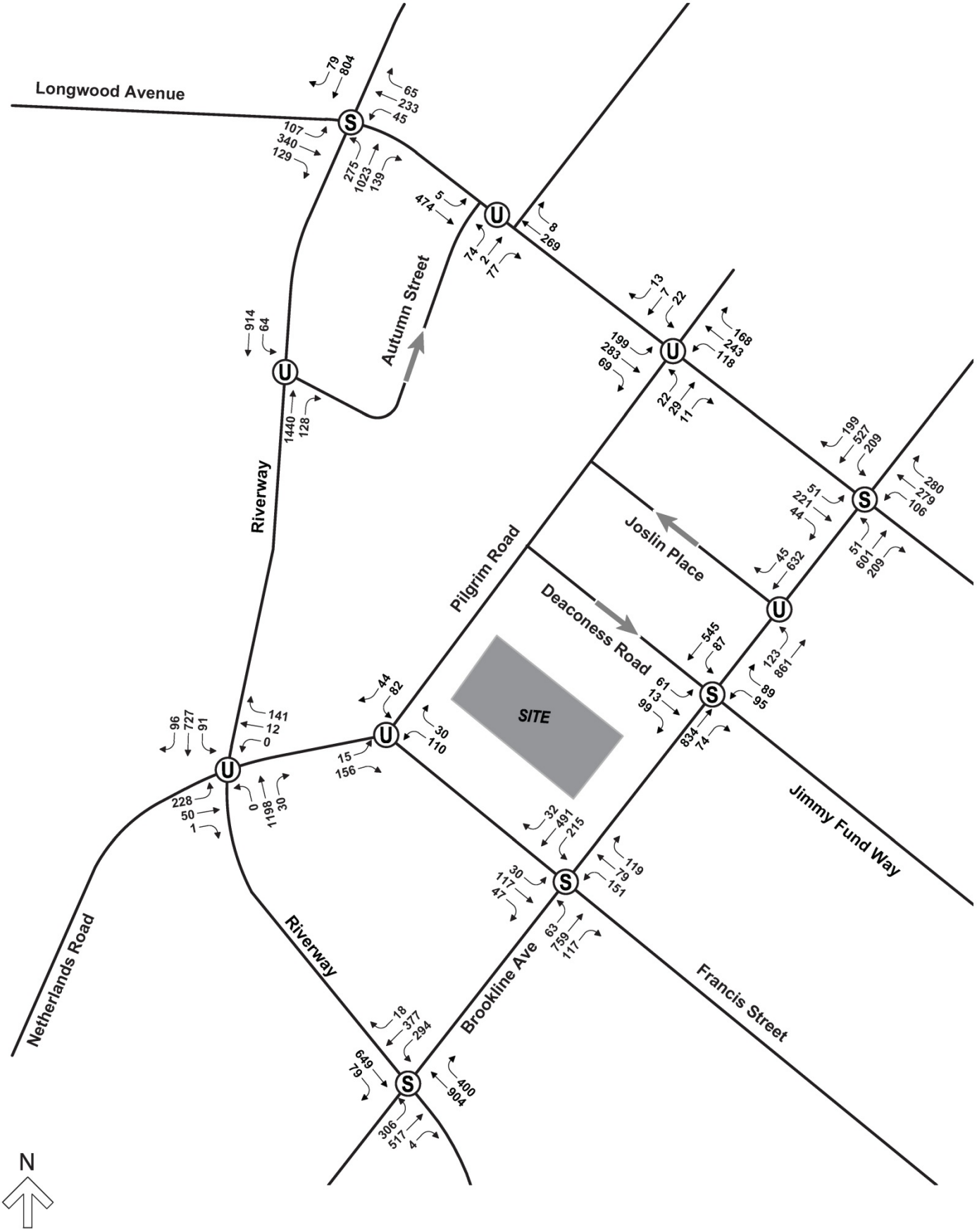
Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-23

Project Trips – PM Peak Hour (3:45 PM - 4:45 PM) Traffic Volumes



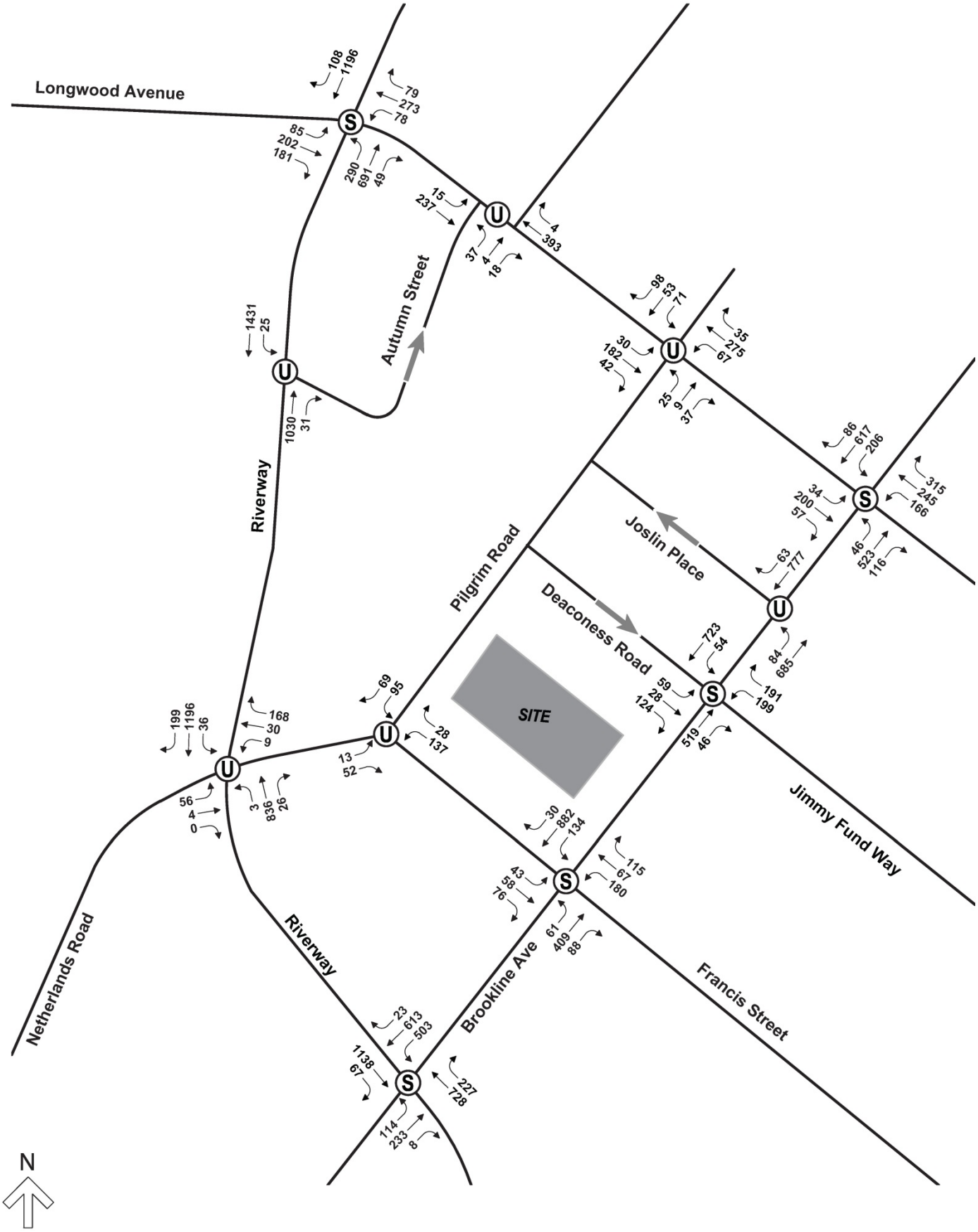
Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-24

2023 Build Condition AM Peak Hour (7:15 AM – 8:15 AM) Traffic Volumes



Beth Israel Deaconess Medical Center

vhb

BIDMC DPIR

Figure 3-25

2023 Build Condition PM Peak Hour (3:34 PM – 4:45 PM) Traffic Conditions

3.3.3.8 Public Transportation

The Project will generate approximately 70 and 65 new transit trips during the morning and evening peak hours, respectively (see Table 3-7). These trips will be distributed amongst the transit and bus lines in the area.

BIDMC will continue to promote public transportation for its employees by maintaining a 50 percent transit subsidy for its employees. The cost of passes is deducted on a pre-tax basis, resulting in an additional cost savings to employees. Currently, over 4,100 employees are enrolled in the pass program. BIDMC also has rolled out a new program, called "Three for Free", to promote the use of public transportation rather than driving. Employees who give up their parking spots for three months will receive a free T or commuter rail pass for that period.

Many patients are too sick to use public transportation. However, for those that are able, BIDMC provides them with detailed information on public transportation in the area. This will include posting transit schedules and maps in the Project and online.

3.3.3.9 Pedestrian and Bicycle Operations

The Project will generate approximately 59 walk and bike trips during the morning peak hour and 55 trips during the evening peak hour. BIDMC will continue to promote walking and bicycling as alternative modes of travel for employees. Additional bicycle spaces, per City of Boston guidelines, will be added to the campus to accommodate future bicycle users.

It is expected that the additional pedestrians will be accommodated by the existing sidewalks and crosswalks in the area, including BIDMC's plan to reconstruct sidewalks adjacent to the Project site along Brookline Avenue, Francis Street and Pilgrim Road. There will be no material changes to exterior pedestrian circulation as a result of the Project.

The planned pedestrian mitigation will help to improve the area's pedestrian infrastructure through several proposed pedestrian-related improvements and connections on the West Campus, including:

- Construction of new sidewalks and access ramps adjacent to the Project site.
- Significant pedestrian realm improvements along Francis Street and along Brookline Avenue adjacent to the Main Loading Facility.

3.3.3.10 Project Parking

The construction of the Project will require 26 parking spaces to be taken out of service. All 14 on-site parking spaces currently supporting the Emergency Department will be lost, and 12 spaces in the nearby Clicker Lot are expected to be lost due to the construction and use of the temporary loading dock and relocated oxygen tanks. These spaces will not be immediately replaced with the completion of the Project.

The proposed Project will provide no new parking on-site. Parking for the Project's patients, both self-park and valet, will be provided in the existing Lowry and Pilgrim garages. Any incremental staff parking needs would be accommodated through the use of leased, off-site parking facilities.

3.3.3.11 Loading and Service

Loading and service activities for the Project will be handled within the replacement Main Loading Facility off Brookline Avenue on the south side of the building. The dock's maneuvering area will be increased to provide larger trucks with the ability to drive head-in into the facility without needing to back in from Brookline Avenue. Access to the Main Loading Facility will be similar to existing operations, with access maintained from Brookline Avenue.

3.4 Transportation Operations Analyses

This section presents the transportation operations analyses for vehicular operations at study area intersections. These operations analyses provide a summary of transportation capacities and overall operations as they relate to delay and congestion.

3.4.1 Intersection Level of Service (LOS) Operations

Vehicle Level of Service (LOS) is a qualitative measure of control delay at an intersection providing an index to the operational qualities of a roadway or intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. LOS A through D are considered acceptable, while LOS E indicates vehicles endure significant delay and LOS F suggests unacceptable delay for the average vehicle. LOS thresholds differ for signalized and unsignalized intersections with longer delays at signalized intersections perceived as acceptable.

Table 3-9 below presents the LOS delay threshold criteria as defined in the 2000 Highway Capacity Manual (HCM). A LOS D is typically considered acceptable in an urban environment.

Table 3-9 Level of Service Criteria

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

Source: 2000 HCM

Consistent with BTD's guidelines, Synchro software was used to model LOS operations at the study area intersections. Adjustments were made to the Synchro model to include characteristics of each intersection, such as geometry, signal timings, heavy vehicles, bus operations, parking activity, and pedestrian crossings.

A summary of the results for each analysis scenario is presented in Tables 3-10 through 3-21. A comparison of the results is presented in Table 3-22. Overall intersection LOS and delay are only provided for signalized intersections by Synchro. Synchro calculation sheets are presented in Appendix B.

3.4.1.1 Existing (2018) AM Peak Hour LOS Summary

The study area is congested during the morning peak hour and therefore four of the five signalized intersections within the study area currently operate at LOS E or LOS F. Lengthy vehicle delay at signalized intersections along several corridors within the study area, especially Riverway and Brookline Avenue, has been observed through field observations and Synchro output. The minor approaches at the unsignalized intersections of Riverway/Pilgrim Road and Longwood Avenue/Pilgrim Road also operates at LOS F during the morning peak hour.

Table 3-10 Existing Condition (2018) Signalized Intersection LOS Summary – AM Peak Hour

Intersection	LOS	Delay (sec.)	V/C Ratio
Brookline Avenue at Riverway	**F**	**> 120**	**> 1.2**
EB Riverway Thru/Right	E	57.3	0.92
WB Riverway Thru	F	> 120	**> 1.2**
WB Riverway Right	C	28.1	0.44
NB Brookline Left	F	> 120	**> 1.2**
NB Brookline Thru/Right	D	54.4	0.80
SB Brookline Left	F	91.5	1.08
SB Brookline Thru/Right	B	19.2	0.43
Brookline Avenue at Francis Street	**F**	> 120	**1.08**
EB Francis Left/Thru/Right	F	> 120	**> 1.2**
WB Francis Left	F	> 120	**> 1.2**

Table 3-10 Existing Condition (2018) Signalized Intersection LOS Summary – AM Peak Hour (Continued)

Intersection	LOS	Delay (sec.)	V/C Ratio
Brookline Avenue at Francis Street	**F**	**> 120**	**1.08**
WB Francis Thru/Right	F	86.0	0.91
NB Brookline Left/Thru	F	> 120	**> 1.2**
NB Brookline Right	B	16.5	0.26
SB Brookline Left	F	109.2	1.07
SB Brookline Thru/Right	B	19.0	0.36
Brookline Avenue at Deaconess/Jimmy Fund	**C**	**31.5**	**0.57**
EB Deaconess Left	D	43.9	0.36
EB Deaconess Thru/Right	D	42.5	0.17
WB Jimmy Fund Left	E	77.1	0.82
WB Jimmy Fund Right	E	55.1	0.68
NB Brookline Thru/Right	C	34.0	0.77
SB Brookline Left/Thru	B	13.9	0.73
Brookline Avenue at Longwood Avenue	**E**	**57.6**	**0.79**
EB Longwood Left	D	53.7	0.49
EB Longwood Thru/Right	E	78.7	0.92
WB Longwood Left	F	> 120	1.16
WB Longwood Thru	E	67.2	0.86
WB Longwood Right	D	52.6	0.80
NB Brookline Left	F	> 120	1.04
NB Brookline Thru/Right	D	48.7	1.02
SB Brookline Left	F	92.7	1.01
SB Brookline Thru/Right	C	24.8	0.59
Riverway at Longwood Avenue	**F**	> 120	**> 1.2**
EB Longwood Left/Thru	F	> 120	**> 1.2**
EB Longwood Right	B	14.1	0.16
WB Longwood Left	E	65.4	0.74
WB Longwood Thru/Right	D	39.0	0.74
NB Riverway Left	C	21.8	0.66
NB Riverway Thru/Right	F	90.4	1.09
SB Riverway Thru	D	43.2	0.89
SB Riverway Right	C	23.2	0.06

~ Volume exceeds capacity, queue is theoretically infinite.
# 95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.

Table 3-11 Existing Condition (2018) Unsignalized Intersection LOS Summary – AM Peak Hour

Intersection	LOS	Delay (sec.)	V/C Ratio
Brookline Avenue at Joslin Place			
NB Brookline Left	B	10.5	0.13
NB Brookline Thru	A	0.0	0.25
SB Brookline Thru	A	0.0	0.25
SB Brookline Thru/Right	A	0.0	0.15
Riverway at Pilgrim Road/Netherlands			
EB Netherlands Left/Thru/Right	F	> 120	**> 1.2**
WB Pilgrim Left/Thru/Right	F	76.6	0.88
NB Riverway Left/Thru	A	0.0	0.00
NB Riverway Thru/Right	A	0.0	0.35
SB Riverway Left/Thru	A	4.7	0.17
SB Riverway Thru/Right	A	0.0	0.29
Riverway at Autumn Street			
NB Riverway Thru	A	0.0	0.54
NB Riverway Thru/Right	A	0.0	0.35
SB Riverway Left/Thru	A	5.6	0.18
SB Riverway Thru	A	0.0	0.38
Longwood Avenue at Autumn Street			
EB Longwood Thru	A	0.0	0.30
WB Longwood Thru	A	0.0	0.16
NB Autumn Left/Right	C	17.9	0.41
Longwood Ave at MASCO Driveway/Pilgrim Road			
EB Longwood Left	B	13.8	0.34
EB Longwood Thru/Right	A	0.0	0.24
WB Longwood Left	B	14.9	0.24
WB Longwood Thru/Right	A	0.0	0.21
NB Pilgrim Left/Thru/Right	F	> 120	**> 1.2**
SB MASCO Left/Thru/Right	F	> 120	**> 1.2**
Pilgrim Road at Francis Street			
EB Pilgrim Left/Thru	A	8.9	-
WB Francis Thru/Right	A	8.7	-
SB Pilgrim Left/Right	A	8.8	-

~ Volume exceeds capacity, queue is theoretically infinite.
# 95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.

3.4.1.2 Existing (2018) PM Peak Hour LOS Summary

Two of the five signalized intersections in the study area, Riverway/Brookline Avenue and Riverway/Longwood Avenue, currently operate at LOS F during the weekday evening peak hour. Lengthy vehicle delay at signalized intersections along several corridors of the study area have been observed through field observations and Synchro output. The minor approaches at the unsignalized intersections of Riverway/Pilgrim Road and Longwood Avenue/Pilgrim Road also operated at LOS F during the morning peak hour.

Table 3-12 Existing Condition (2018) Signalized Intersection LOS Summary – PM Peak Hour

Intersection	LOS	Delay (sec.)	V/C Ratio
Brookline Avenue at Riverway	**F**	> 120	**1.18**
EB Riverway Thru/Right	F	> 120	**> 1.2**
WB Riverway Thru	F	> 120	**> 1.2**
WB Riverway Right	B	17.4	0.20
NB Brookline Left	F	> 120	**> 1.2**
NB Brookline Thru/Right	E	62.2	0.71
SB Brookline Left	F	> 120	**> 1.2**
SB Brookline Thru/Right	C	20.2	0.66
Brookline Avenue at Francis Street	**D**	**44.6**	**0.76**
EB Francis Left/Thru/Right	D	45.7	0.64
WB Francis Left	F	104.7	0.99
WB Francis Thru/Right	D	42.6	0.58
NB Brookline Left/Thru	F	82.1	1.18dl
NB Brookline Right	C	21.2	0.24
SB Brookline Left	C	21.3	0.58
SB Brookline Thru/Right	B	17.0	0.72
Brookline Avenue at Deaconess/Jimmy Fund	**D**	**35.4**	**0.67**
EB Deaconess Left	D	36.4	0.21
EB Deaconess Thru/Right	D	36.1	0.17
WB Jimmy Fund Left	F	86.6	0.94
WB Jimmy Fund Right	D	48.1	0.71
NB Brookline Thru/Right	C	26.5	0.60
SB Brookline Left/Thru	C	24.2	0.84
Brookline Avenue at Longwood Avenue	**D**	**44.1**	**0.70**
EB Longwood Left	D	38.1	0.20
EB Longwood Thru/Right	D	45.8	0.58
WB Longwood Left	E	79.4	0.86
WB Longwood Thru	D	46.8	0.62
WB Longwood Right	D	49.0	0.75
NB Brookline Left	F	> 120	0.98
NB Brookline Thru/Right	C	34.2	0.75
SB Brookline Left	E	70.2	0.89
SB Brookline Thru/Right	D	27.9	0.58
Riverway at Longwood Avenue	**F**	**104.9**	**> 1.2**
EB Longwood Left/Thru	F	> 120	**> 1.2**
EB Longwood Right	B	15.5	0.25
WB Longwood Left	D	39.4	0.62
WB Longwood Thru/Right	D	51.9	0.86
NB Riverway Left	C	28.9	0.72
NB Riverway Thru/Right	C	32.9	0.72
SB Riverway Thru	F	> 120	1.17
SB Riverway Right	C	22.8	0.09
Brookline Avenue at Joslin Place			
NB Brookline Left	B	10.7	0.10
NB Brookline Thru	A	0.0	0.20
SB Brookline Thru	A	0.0	0.31
SB Brookline Thru/Right	A	0.0	0.19

Table 3-12 Existing Condition (2018) Signalized Intersection LOS Summary – PM Peak Hour (Continued)

Intersection	LOS	Delay (sec.)	V/C Ratio
Riverway at Pilgrim Road/Netherlands			
EB Netherlands Left/Thru/Right	F	> 120	**> 1.2**
WB Pilgrim Thru/Right	F	> 120	**> 1.2**
NB Riverway Left/Thru	A	0.1	0.00
NB Riverway Thru/Right	A	0.0	0.29
SB Riverway Left/Thru	A	1.4	0.05
SB Riverway Thru/Right	A	0.0	0.46
Riverway at Autumn Street			
NB Riverway Thru	A	0.0	0.44
NB Riverway Thru/Right	A	0.0	0.24
SB Riverway Left/Thru	A	1.5	0.05
SB Riverway Thru	A	0.0	0.58

~ Volume exceeds capacity, queue is theoretically infinite.
# 95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.

Table 3-13 Existing Condition (2018) Unsignalized Intersection LOS Summary – PM Peak Hour

Intersection	LOS	Delay (sec.)	V/C Ratio
Longwood Avenue at Autumn Street			
EB Longwood Thru	A	0.0	0.16
WB Longwood Thru	A	0.0	0.24
NB Autumn Left/Right	B	11.6	0.13
Longwood Ave at MASCO Driveway/Pilgrim Road			
EB Longwood Left	B	11.1	0.05
EB Longwood Thru/Right	A	0.0	0.15
WB Longwood Left	A	9.9	0.09
WB Longwood Thru/Right	A	0.0	0.19
NB Pilgrim Left/Thru/Right	F	> 120	**> 1.2**
SB MASCO Left/Thru/Right	F	> 120	**> 1.2**
Pilgrim Road at Francis Street			
EB Pilgrim Thru/Right	A	8.1	-
WB Francis Left/Right	A	8.6	-
SB Pilgrim Left/Thru	A	8.8	-

~ Volume exceeds capacity, queue is theoretically infinite.
# 95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.

3.4.1.3 No-Build (2023) AM Peak Hour LOS Summary

Of the five signalized intersections in the study area, four are expected to remain at the same overall LOS from the Existing Condition to the No-Build Condition during the morning peak hour. The only expected change is at the Brookline Avenue/Longwood Avenue intersection, which degrades from LOS E to LOS F.

The anticipated change is mostly caused by anticipated traffic growth due to other approved projects that will add traffic to the study area intersections.

For the unsignalized intersections, only one is expected to change LOS between the Existing and No-Build Conditions during the AM Peak hour. The eastbound and westbound lefts from Longwood Avenue onto Pilgrim Road/MASCO Driveway are expected to both decrease from LOS B to LOS C.

Table 3-14 No-Build Condition (2023) Signalized Intersection LOS Summary – AM Peak Hour

Intersection	LOS	Delay (sec.)	V/C Ratio
Brookline Avenue at Riverway	**F**	> 120	**> 1.2**
EB Riverway Thru/Right	E	61.9	0.95
WB Riverway Thru	F	> 120	**> 1.2**
WB Riverway Right	C	28.7	0.47
NB Brookline Left	F	> 120	**> 1.2**
NB Brookline Thru/Right	E	59.6	0.86
SB Brookline Left	F	> 120	**> 1.2**
SB Brookline Thru/Right	B	19.2	0.46
Brookline Avenue at Francis Street	**F**	> 120	**1.15**
EB Francis Left/Thru/Right	F	> 120	**> 1.2**
WB Francis Left	F	> 120	**> 1.2**
WB Francis Thru/Right	F	91.7	0.93
NB Brookline Left/Thru	F	> 120	**> 1.2**
NB Brookline Right	B	17.3	0.27
SB Brookline Left	F	> 120	1.16
SB Brookline Thru/Right	B	19.3	0.38
Brookline Avenue at Deaconess/Jimmy Fund	**C**	**33.3**	**0.60**
EB Deaconess Left	D	43.4	0.36
EB Deaconess Thru/Right	D	42.1	0.18
WB Jimmy Fund Left	F	83.4	0.85
WB Jimmy Fund Right	D	53.6	0.67
NB Brookline Thru/Right	D	36.9	0.82
SB Brookline Left/Thru	B	14.8	0.80
Brookline Avenue at Longwood Avenue	F	82.0	1.00
EB Longwood Left	F	97.7	0.78
EB Longwood Thru/Right	F	110.1	1.05
WB Longwood Left	F	> 120	> 1.2
WB Longwood Thru	F	97.0	1.01
WB Longwood Right	E	70.6	0.93
NB Brookline Left	F	101.7	0.96
NB Brookline Thru/Right	E	59.1	1.06
SB Brookline Left	F	> 120	> 1.2
SB Brookline Thru/Right	C	25.7	0.63
Riverway at Longwood Avenue	F	87.2	1.06
EB Longwood Left/Thru	E	69.0	0.85

Table 3-14 No-Build Condition (2023) Signalized Intersection LOS Summary – AM Peak Hour (Continued)

Intersection	LOS	Delay (sec.)	V/C Ratio
Brookline Avenue at Deaconess/Jimmy Fund	**C**	**33.3**	**0.60**
EB Longwood Right	F	> 120	> 1.2
WB Longwood Left	F	83.4	0.81
WB Longwood Thru/Right	D	40.5	0.76
NB Riverway Left	C	24.8	0.68
NB Riverway Thru/Right	F	> 120	1.18
SB Riverway Thru	D	46.4	0.92
SB Riverway Right	C	23.4	0.07

~ Volume exceeds capacity, queue is theoretically infinite.
# 95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.

Table 3-15 No-Build Condition (2023) Unsignalized Intersection LOS Summary – AM Peak Hour

Intersection	LOS	Delay (sec.)	V/C Ratio
Brookline Avenue at Joslin Place			
NB Brookline Left	B	11.9	0.19
NB Brookline Thru	A	0.0	0.26
SB Brookline Thru	A	0.0	0.27
SB Brookline Thru/Right	A	0.0	0.16
Riverway at Pilgrim Road/Netherlands			
EB Netherlands Left/Thru/Right	F	> 120	**> 1.2**
WB Pilgrim Left/Thru/Right	F	> 120	1.04
NB Riverway Left/Thru	A	0.0	0.0
NB Riverway Thru/Right	A	0.0	0.38
SB Riverway Left/Thru	A	5.2	0.18
SB Riverway Thru/Right	A	0.0	0.29
Riverway at Autumn Street			
NB Riverway Thru	A	0.0	0.58
NB Riverway Thru/Right	A	0.0	0.37
SB Riverway Left/Thru	A	6.2	0.19
SB Riverway Thru	A	0.0	0.39
Longwood Avenue at Autumn Street			
EB Longwood Thru	A	0.0	0.32
WB Longwood Thru	A	0.0	0.17
NB Autumn Left/Right	C	20.5	0.46
Longwood Ave at MASCO Driveway/Pilgrim Road			
EB Longwood Left	C	15.9	0.42
EB Longwood Thru/Right	A	0.0	0.25
WB Longwood Left	C	15.2	0.25
WB Longwood Thru/Right	A	0.0	0.26
NB Pilgrim Left/Thru/Right	F	> 120	**> 1.2**
SB MASCO Left/Thru/Right	F	> 120	**> 1.2**

Table 3-15 No-Build Condition (2023) Unsignalized Intersection LOS Summary – AM Peak Hour (Continued)

Intersection	LOS	Delay (sec.)	V/C Ratio
Pilgrim Road at Francis Street			
EB Pilgrim Left/Thru	A	9.0	-
WB Francis Thru/Right	A	8.7	-
SB Pilgrim Left/Right	A	8.9	-

~ Volume exceeds capacity, queue is theoretically infinite.
# 95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.

3.4.1.4 No-Build (2023) PM Peak Hour LOS Summary

Of the five signalized intersections in the study area, four are expected to remain at the same overall LOS from the Existing Condition to the No-Build Condition during the evening peak hour. The only expected change is at the Brookline Avenue/Longwood Avenue intersection, which degrades from LOS D to LOS E. The anticipated change is mostly caused by anticipated traffic growth due to other approved projects that will add traffic to the study area intersections.

There are no anticipated changes in LOS for the unsignalized intersection from the Existing Condition to the No-Build Condition during the evening peak hour.

Table 3-16 No-Build Condition (2023) Signalized Intersection LOS Summary – PM Peak Hour

Intersection	LOS	Delay (sec.)	V/C Ratio
Brookline Avenue at Riverway	**F**	> 120	**> 1.2**
EB Riverway Thru/Right	F	> 120	**> 1.2**
WB Riverway Thru	F	> 120	**> 1.2**
WB Riverway Right	B	17.5	0.22
NB Brookline Left	F	> 120	**> 1.2**
NB Brookline Thru/Right	E	65.3	0.76
SB Brookline Left	F	> 120	**> 1.2**
SB Brookline Thru/Right	C	22.8	0.74
Brookline Avenue at Francis Street	**D**	**49.5**	**0.80**
EB Francis Left/Thru/Right	D	47.5	0.68
WB Francis Left	F	116.0	1.03
WB Francis Thru/Right	D	43.2	0.60
NB Brookline Left/Thru	F	98.4	**> 1.2**
NB Brookline Right	C	21.4	0.26
SB Brookline Left	C	22.0	0.61
SB Brookline Thru/Right	B	19.1	0.79

Table 3-16 No-Build Condition (2023) Signalized Intersection LOS Summary – PM Peak Hour (Continued)

Intersection	LOS	Delay (sec.)	V/C Ratio
Brookline Avenue at Deaconess/Jimmy Fund	**D**	**42.6**	**0.74**
EB Deaconess Left	C	34.6	0.19
EB Deaconess Thru/Right	C	34.6	0.19
WB Jimmy Fund Left	F	94.9	0.97
WB Jimmy Fund Right	D	44.1	0.67
NB Brookline Thru/Right	C	27.8	0.66
SB Brookline Left/Thru	D	41.0	0.98
Brookline Avenue at Longwood Avenue	**E**	**61.3**	**0.89**
EB Longwood Left	D	38.9	0.22
EB Longwood Thru/Right	E	61.5	0.83
WB Longwood Left	F	> 120	**> 1.2**
WB Longwood Thru	D	48.6	0.66
WB Longwood Right	E	60.2	0.86
NB Brookline Left	F	> 120	0.94
NB Brookline Thru/Right	D	35.6	0.78
SB Brookline Left	F	102.7	1.02
SB Brookline Thru/Right	C	28.4	0.60
Riverway at Longwood Avenue	**F**	**100.5**	**1.14**
EB Longwood Left/Thru	F	> 120	1.13
EB Longwood Right	F	117.2	1.11
WB Longwood Left	F	> 120	**> 1.2**
WB Longwood Thru/Right	E	69.8	0.95
NB Riverway Left	C	29.6	0.73
NB Riverway Thru/Right	C	34.4	0.76
SB Riverway Thru	F	> 120	**> 1.2**
SB Riverway Right	C	23.1	0.11

Table 3-17 No-Build Condition (2023) Unsignalized Intersection LOS Summary – PM Peak Hour

Intersection	LOS	Delay (sec.)	V/C Ratio
Brookline Avenue at Joslin Place			
NB Brookline Left	B	11.1	0.12
NB Brookline Thru	A	0.0	0.21
SB Brookline Thru	A	0.0	0.33
SB Brookline Thru/Right	A	0.0	0.21
Riverway at Pilgrim Road/Netherlands			
EB Netherlands Left/Thru/Right	F	> 120	**> 1.2**
WB Pilgrim Left/Thru/Right	F	> 120	**> 1.2**
NB Riverway Left/Thru	A	0.1	0.01
NB Riverway Thru/Right	A	0.0	0.30
SB Riverway Left/Thru	A	1.5	0.06
SB Riverway Thru/Right	A	0.0	0.48

Table 3-17 No-Build Condition (2023) Unsignalized Intersection LOS Summary – PM Peak Hour (Continued)

Intersection	LOS	Delay (sec.)	V/C Ratio
Riverway at Autumn Street			
NB Riverway Thru	A	0.0	0.46
NB Riverway Thru/Right	A	0.0	0.25
SB Riverway Left/Thru	A	1.6	0.05
SB Riverway Thru	A	0.0	0.61
Longwood Avenue at Autumn Street			
EB Longwood Thru	A	0.0	0.17
WB Longwood Thru	A	0.0	0.26
NB Autumn Left/Right	B	14.2	0.16
Longwood Ave at MASCO Driveway/Pilgrim Road			
EB Longwood Left	B	11.3	0.06
EB Longwood Thru/Right	A	0.0	0.15
WB Longwood Left	A	9.9	0.09
WB Longwood Thru/Right	A	0.0	0.21
NB Pilgrim Left/Thru/Right	F	> 120	**> 1.2**
SB MASCO Left/Thru/Right	F	> 120	**> 1.2**
Pilgrim Road at Francis Street			
EB Pilgrim Left/Thru	A	8.1	-
WB Francis Thru/Right	A	8.6	-
SB Pilgrim Left/Right	A	8.8	-

~ Volume exceeds capacity, queue is theoretically infinite.
# 95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.

3.4.1.5 Build (2023) AM Peak Hour LOS Summary

Under the future Build Condition, no intersections, signalized or unsignalized, are expected to experience an increase in overall LOS from the No-Build Condition during the morning peak hour.

Table 3-18 Build Condition (2023) Signalized Intersection LOS Summary – AM Peak Hour

Intersection	LOS	Delay (sec.)	V/C Ratio
Brookline Avenue at Riverway	**F**	> 120	**> 1.2**
EB Riverway Thru/Right	E	62	0.95
WB Riverway Thru	F	> 120	**> 1.2**
WB Riverway Right	C	29	0.48
NB Brookline Left	F	> 120	**> 1.2**
NB Brookline Thru/Right	E	61	0.87
SB Brookline Left	F	> 120	**> 1.2**
SB Brookline Thru/Right	B	19	0.46
Brookline Avenue at Francis Street	**F**	> 120	**1.18**
EB Francis Left/Thru/Right	F	> 120	**> 1.2**
WB Francis Left	F	> 120	**> 1.2**
WB Francis Thru/Right	F	94	0.94
NB Brookline Left/Thru	F	> 120	**> 1.2**
NB Brookline Right	B	17	0.27
SB Brookline Left	F	> 120	1.19
SB Brookline Thru/Right	B	20	0.40
Brookline Avenue at Deaconess/Jimmy Fund	**C**	**34**	**0.62**
EB Deaconess Left	D	43	0.37
EB Deaconess Thru/Right	D	42	0.18
WB Jimmy Fund Left	F	91	0.88
WB Jimmy Fund Right	D	53	0.66
NB Brookline Thru/Right	D	38	0.84
SB Brookline Left/Thru	B	15	0.82
Brookline Avenue at Longwood Avenue	**F**	**86**	**1.02**
EB Longwood Left	F	109	0.83
EB Longwood Thru/Right	F	115	1.07
WB Longwood Left	F	> 120	**> 1.2**
WB Longwood Thru	F	100	1.02
WB Longwood Right	E	71	0.93
NB Brookline Left	F	101	0.96
NB Brookline Thru/Right	E	61	1.07
SB Brookline Left	F	> 120	**> 1.2**
SB Brookline Thru/Right	C	26	0.64
Riverway at Longwood Avenue	**F**	**89**	**1.06**
EB Longwood Left	E	71	0.86
EB Longwood Thru/Right	F	> 120	**> 1.2**
WB Longwood Left	F	83	0.81
WB Longwood Thru/Right	D	41	0.76
NB Riverway Left	C	25	0.69
NB Riverway Thru/Right	F	> 120	1.18
SB Riverway Thru	D	47	0.92
SB Riverway Right	C	23	0.07

~ Volume exceeds capacity, queue is theoretically infinite.
# 95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.

Table 3-19 Build Condition (2023) Unsignalized Intersection LOS Summary – AM Peak Hour

Intersection	LOS	Delay (sec.)	V/C Ratio
Brookline Avenue at Joslin Place			
NB Brookline Left	B	12	0.20
NB Brookline Thru	A	0	0.26
SB Brookline Thru	A	0	0.27
SB Brookline Thru/Right	A	0	0.16
Riverway at Pilgrim Road/Netherlands			
EB Netherlands Left/Thru/Right	F	> 120	**> 1.2**
WB Pilgrim Left/Thru/Right	F	> 120	1.04
NB Riverway Left/Thru	A	0	-
NB Riverway Thru/Right	A	0	0.38
SB Riverway Left/Thru	A	5	0.18
SB Riverway Thru/Right	A	0	0.29
Riverway at Autumn Street			
NB Riverway Thru	A	0	0.58
NB Riverway Thru/Right	A	0	0.37
SB Riverway Left/Thru	A	6	0.19
SB Riverway Thru	A	0	0.39
Longwood Avenue at Autumn Street			
EB Longwood Thru	A	0	0.33
WB Longwood Thru	A	0	0.17
NB Autumn Left/Right	C	21	0.47
Longwood Ave at MASCO Driveway/Pilgrim Road			
EB Longwood Left	C	16	0.42
EB Longwood Thru/Right	A	0	0.25
WB Longwood Left	C	16	0.27
WB Longwood Thru/Right	A	0	0.26
NB Pilgrim Left/Thru/Right	F	> 120	**> 1.2**
SB MASCO Left/Thru/Right	F	> 120	**> 1.2**
Pilgrim Road at Francis Street			
EB Pilgrim Left/Thru	A	9	-
WB Francis Thru/Right	A	9	-
SB Pilgrim Left/Right	A	9	-

~ Volume exceeds capacity, queue is theoretically infinite.
# 95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.

3.4.1.6 Build (2023) PM Peak Hour LOS Summary

Under the future Build Condition, no intersections, signalized or unsignalized, are expected to experience an increase in overall LOS from the No-Build Condition during the morning peak hour.

Table 3-20 Build Condition (2023) Signalized Intersection LOS Summary – PM Peak Hour

Intersection	LOS	Delay (sec.)	V/C Ratio
Brookline Avenue at Riverway	**F**	> 120	**> 1.2**
EB Riverway Thru/Right	F	> 120	**> 1.2**
WB Riverway Thru	F	> 120	**> 1.2**
WB Riverway Right	B	18	0.22
NB Brookline Left	F	> 120	**> 1.2**
NB Brookline Thru/Right	E	66	0.77
SB Brookline Left	F	> 120	**> 1.2**
SB Brookline Thru/Right	C	23	0.74
Brookline Avenue at Francis Street	**D**	**52**	**0.81**
EB Francis Left/Thru/Right	D	52	0.74
WB Francis Left	F	> 120	1.05
WB Francis Thru/Right	D	43	0.61
NB Brookline Left/Thru	F	103	**> 1.2**
NB Brookline Right	C	22	0.26
SB Brookline Left	C	22	0.63
SB Brookline Thru/Right	B	20	0.80
Brookline Avenue at Deaconess/Jimmy Fund	**D**	**45**	**0.76**
EB Deaconess Left	C	35	0.20
EB Deaconess Thru/Right	C	35	0.20
WB Jimmy Fund Left	F	105	1.00
WB Jimmy Fund Right	D	44	0.67
NB Brookline Thru/Right	C	28	0.68
SB Brookline Left/Thru	D	45	0.99
Brookline Avenue at Longwood Avenue	**E**	**63**	**0.91**
EB Longwood Left	D	40	0.25
EB Longwood Thru/Right	E	63	0.84
WB Longwood Left	F	> 120	**> 1.2**
WB Longwood Thru	D	49	0.66
WB Longwood Right	E	60	0.86
NB Brookline Left	F	> 120	0.94
NB Brookline Thru/Right	D	36	0.79
SB Brookline Left	F	107	1.04
SB Brookline Thru/Right	C	29	0.60
Riverway at Longwood Avenue	**F**	**102**	**1.14**
EB Longwood Left	F	> 120	1.14
EB Longwood Thru/Right	F	119	1.11
WB Longwood Left	F	> 120	**> 1.2**
WB Longwood Thru/Right	E	70	0.96
NB Riverway Left	C	30	0.74
NB Riverway Thru/Right	C	35	0.76
SB Riverway Thru	F	> 120	**> 1.2**
SB Riverway Right	C	23	0.11

~ Volume exceeds capacity, queue is theoretically infinite.
# 95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.

Table 3-21 Build Condition (2023) Unsignalized Intersection LOS Summary – PM Peak Hour

Intersection	LOS	Delay (sec.)	V/C Ratio
Brookline Avenue at Joslin Place			
NB Brookline Left	B	11	0.13
NB Brookline Thru	A	0	0.21
SB Brookline Thru	A	0	0.33
SB Brookline Thru/Right	A	0	0.21
Riverway at Pilgrim Road/Netherlands			
EB Netherlands Left/Thru/Right	F	> 120	**> 1.2**
WB Pilgrim Left/Thru/Right	F	> 120	**> 1.2**
NB Riverway Left/Thru	A	1	0.01
NB Riverway Thru/Right	A	0	0.30
SB Riverway Left/Thru	A	2	0.06
SB Riverway Thru/Right	A	0	0.48
Riverway at Autumn Street			
NB Riverway Thru	A	0	0.46
NB Riverway Thru/Right	A	0	0.25
SB Riverway Left/Thru	A	2	0.05
SB Riverway Thru	A	0	0.61
Longwood Avenue at Autumn Street			
EB Longwood Thru	A	0	0.17
WB Longwood Thru	A	0	0.26
NB Autumn Left/Right	B	14	0.17
Longwood Ave at MASCO Driveway/Pilgrim Road			
EB Longwood Left	B	11	0.06
EB Longwood Thru/Right	A	0	0.15
WB Longwood Left	A	10	0.09
WB Longwood Thru/Right	A	0	0.21
NB Pilgrim Left/Thru/Right	F	> 120	**> 1.2**
SB MASCO Left/Thru/Right	F	> 120	**> 1.2**
Pilgrim Road at Francis Street			
EB Pilgrim Left/Thru	A	8	-
WB Francis Thru/Right	A	9	-
SB Pilgrim Left/Right	A	9	-

~ Volume exceeds capacity, queue is theoretically infinite.
# 95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.

3.4.2 Level of Service Summary

The Project is expected to have a minimal impact on the future study area intersections. The overall LOS is not expected to materially change at any of the study intersections during the peak hours from the No-Build (2023) Condition to the Build (2023) Condition.

Tables 3-22 and 3-23 present a LOS comparison of the 2018 Existing, 2023 No-Build, and 2023 Build conditions for both morning and evening peak hours.

Table 3-22 LOS Summary Comparison – Signalized Intersections

Intersection	AM Peak Hour Operations Existing	AM Peak Hour Operations No-Build	AM Peak Hour Operations Build	PM Peak Hour Operations Existing	PM Peak Hour Operations No-Build	PM Peak Hour Operations Build
Signalized Intersections						
Brookline Avenue at Riverway	**F**	**F**	**F**	**F**	**F**	**F**
EB Riverway Thru/Right	E	E	E	F	F	F
WB Riverway Thru	F	F	F	F	F	F
WB Riverway Right	C	C	C	B	B	B
NB Brookline Left	F	F	F	F	F	F
NB Brookline Thru/Right	D	E	E	E	E	E
SB Brookline Left	F	F	F	F	F	F
SB Brookline Thru/Right	B	B	B	C	C	C
Brookline Avenue at Francis Street	**F**	**F**	**F**	**D**	**D**	**D**
EB Francis Left/Thru/Right	F	F	F	D	D	D
WB Francis Left	F	F	F	F	F	F
WB Francis Thru/Right	F	F	F	D	D	D
NB Brookline Left/Thru	F	F	F	F	F	F
NB Brookline Right	B	B	B	C	C	C
SB Brookline Left	F	F	F	C	C	C
SB Brookline Thru/Right	B	B	B	B	B	B
Brookline Avenue at Deaconess/Jimmy Fund	**C**	**C**	**C**	**D**	**D**	**D**
EB Deaconess Left	D	D	D	D	C	C
EB Deaconess Thru/Right	D	D	D	D	C	C
WB Jimmy Fund Left	E	F	F	F	F	F
WB Jimmy Fund Right	E	D	D	D	D	D
NB Brookline Thru/Right	C	D	D	C	C	C
SB Brookline Left/Thru	B	B	B	C	D	D
Brookline Avenue at Longwood Avenue	**E**	**F**	**F**	**D**	**E**	**E**
EB Longwood Left	D	F	F	D	D	D
EB Longwood Thru/Right	E	F	F	D	E	E
WB Longwood Left	F	F	F	E	F	F
WB Longwood Thru	E	F	F	D	D	D
WB Longwood Right	D	E	E	D	E	E
NB Brookline Left	F	F	F	F	F	F
NB Brookline Thru/Right	D	E	E	C	D	D
SB Brookline Left	F	F	F	E	F	F
SB Brookline Thru/Right	C	C	C	D	C	C
Riverway at Longwood Avenue	**F**	**F**	**F**	**F**	**F**	**F**
EB Longwood Left	F	E	E	F	F	F
EB Longwood Thru/Right	B	F	F	B	F	F
WB Longwood Left	E	F	F	D	F	F
WB Longwood Thru/Right	D	D	D	D	E	E
NB Riverway Left	C	C	C	C	C	C
NB Riverway Thru/Right	F	F	F	C	C	C
SB Riverway Thru	D	D	D	F	F	F
SB Riverway Right	C	C	C	C	C	C

Table 3-23 LOS Summary Comparison – Unsignalized Intersections

Intersection	AM Peak Hour Operations			PM Peak Hour Operations		
	Existing	No-Build	Build	Existing	No-Build	Build
Unsignalized Intersections						
Brookline Avenue at Joslin Place						
NB Brookline Left	B	B	B	B	B	B
NB Brookline Thru	A	A	A	A	A	A
SB Brookline Thru	A	A	A	A	A	A
SB Brookline Thru/Right	A	A	A	A	A	A
Riverway at Pilgrim Road/Netherlands						
EB Netherlands Left/Thru/Right	F	F	F	F	F	F
WB Pilgrim Left/Thru/Right	F	F	F	F	F	F
NB Riverway Left/Thru	A	A	A	A	A	A
NB Riverway Thru/Right	A	A	A	A	A	A
SB Riverway Left/Thru	A	A	A	A	A	A
SB Riverway Thru/Right	A	A	A	A	A	A
Riverway at Autumn Street						
NB Riverway Thru	A	A	A	A	A	A
NB Riverway Thru/Right	A	A	A	A	A	A
SB Riverway Left/Thru	A	A	A	A	A	A
SB Riverway Thru	A	A	A	A	A	A
Longwood Avenue at Autumn Street						
EB Longwood Thru	A	A	A	A	A	A
WB Longwood Thru	A	A	A	A	A	A
NB Autumn Left/Right	C	C	C	B	B	B
Longwood Ave at MASCO Driveway/Pilgrim Road						
EB Longwood Left	B	C	C	B	B	B
EB Longwood Thru/Right	A	A	A	A	A	A
WB Longwood Left	B	C	C	A	A	A
WB Longwood Thru/Right	A	A	A	A	A	A
NB Pilgrim Left/Thru/Right	F	F	F	F	F	F
SB MASCO Left/Thru/Right	F	F	F	F	F	F
Pilgrim Road at Francis Street						
EB Pilgrim Left/Thru	A	A	A	A	A	A
WB Francis Thru/Right	A	A	A	A	A	A
SB Pilgrim Left/Right	A	A	A	A	A	A

1. Approach is a single lane in the Existing and No-Build Conditions.
2. Approach is a single lane in the Existing Conditions.
3. Intersection is unsignalized in the Existing Condition, LOS for the unsignalized configuration.

3.5 Construction Management Plan

BIDMC will develop a detailed evaluation of potential short-term construction-related transportation impacts during the course of the Project, including construction vehicle traffic, parking supply and demand, and pedestrian access to the campus. A detailed Construction Management Plan will be developed and submitted to BTD for its approval.

3.5.1 Construction Vehicle Traffic

Construction vehicles will be necessary to move construction materials to and from the Project site. BIDMC recognizes that construction traffic is a concern to area residents, other institutions, and to the medical center itself. Every effort will be made to reduce the noise, control fugitive dust, and minimize other disturbances associated with construction traffic. It is anticipated that Brookline Avenue, Francis Street, and Pilgrim Road will serve as the principal construction traffic routes to the Project site, and that trucks will be routed to avoid nearby residential areas and the intersections along Longwood Avenue west of Brookline Avenue. Truck staging and lay-down areas for the Project will be carefully planned. The need for street occupancy along roadways adjacent to the Project site is not known at this time.

3.5.2 Construction Parking Issues

Contractors will be encouraged to devise access plans for their personnel that de-emphasize auto use (such as seeking off-site parking, provide transit subsidies, etc.). Construction workers will also be encouraged to use public transportation to access the Project site because no new parking will be provided for them. BIDMC will work with BTD and Boston Police Department to ensure that parking regulations in the area and in designated residential parking areas are enforced. It is expected, as has been the case in past construction projects, that this will be a considerable disincentive.

3.5.3 Pedestrian Access During Construction

During the construction period, pedestrian access on the campuses may need to be re-routed around the construction site. A variety of measures will be considered and implemented to protect the safety of pedestrians traversing those portions of the campus affected by construction. Where necessary, protective barriers around the construction site, replacement of walkways, appropriate lighting, and new directional and informational signage to direct pedestrians around the construction site will be provided. Sidewalks around the Project site will be reconstructed as part of the Project, and will be ADA-compliant.

Chapter 4

Environmental Protection Component

4.0 ENVIRONMENTAL PROTECTION COMPONENT

4.1 Wind

4.1.1 Introduction

The objective of the pedestrian wind study conducted by RWDI for the Project was to assess the effect of the proposed Project on local conditions in pedestrian areas around the Project site and provide recommendations for minimizing adverse effects.

The results of the wind study show that the Project will generally have a minimal impact on pedestrian wind conditions in the surrounding area, with the exception of Pilgrim Road. The Project team will continue to study potential measures, such as landscaping or wind screens, as the design progresses to mitigate these wind conditions. The roof garden will also be studied to determine the appropriate measures to make the space a welcoming environment for patients and staff.

4.1.2 Methodology

4.1.2.1 Physical Modelling

To assess the wind environment around the proposed project, a 1:300 scale model of the site and surroundings was constructed for the wind tunnel test with the following configurations tested:

A – No-Build: Existing site with existing surroundings and BPDA approved projects, (see Figure 4.1-1); and

B - Build: No-Build condition with the proposed Project included (see Figure 4.1-2).

The scale model of the proposed Project was constructed using the design information and drawings provided by the Project team. The wind tunnel model included all relevant surrounding buildings and topography within an approximately 1,200 foot radius of the Project site. The mean speed profile and turbulence of the natural wind approaching the modelled area were also simulated in RWDI's boundary layer wind tunnel. The scale model was equipped with 114 specially designed wind speed sensors that were connected to the wind tunnel's data acquisition system to record the mean and fluctuating components of wind speed at a full scale height of five feet above grade in pedestrian areas throughout the study area. Wind speeds were measured for 36 wind directions, in 10 degree increments. The measurements at each sensor location were recorded in the form of ratios of local mean and gust speeds to the reference wind speed in the free stream above the model. The placement of wind measurement locations was based on RWDI's experience and understanding of the pedestrian usage for the Project site, and reviewed by the BPDA and Project design team.

4.1.2.2 Meteorological Data

The results were then combined with long term meteorological data, recorded during the years 1988 through 2018 at Boston's Logan International Airport to predict full scale wind conditions. The analysis was performed separately for each of the four seasons and for the entire year. Figures 4.1-3 and 4.1-4 present "wind roses", summarizing the seasonal and annual wind climates in the Boston area respectively, based on the data from Logan Airport.

For example, the first wind rose in Figure 4.1-3 summarizes the spring (March, April, and May) wind data which in general, indicate prevailing winds occurring from the northwest to south-southwest and northeast to east-southeast, and strong winds (red bands) primarily occurring from the west-northwest, northwest, south-southwest and west directions.

On an annual basis, the most common wind directions are those between north-northwest and south-southwest. Winds from the east-northeast to the east-southeast are also relatively common. In the case of strong winds, west-northwest, northwest and west are the dominant wind directions.

4.1.2.3 Wind Criteria

The BPDA has adopted two standards for assessing the relative wind comfort of pedestrians. First, the BPDA wind design guidance criterion states that an effective gust velocity (hourly mean wind speed +1.5 times the root mean square wind speed) of 31 mph should not be exceeded more than one percent of the time. The second set of criteria used by the BPDA to determine the acceptability of specific locations is based on the work of Melbourne. This set of criteria is used to determine the relative level of pedestrian wind comfort for activities such as sitting, standing, or walking. The criteria, as shown in Table 4.1-1, are expressed in terms of benchmarks for the one-hour mean wind speed exceeded one percent of the time (i.e., the 99-percentile mean wind speed).

Table 4.1-1 BPDA Mean Wind Speed Criteria*

Level of Comfort	Wind Speed
Dangerous	> 27 mph
Uncomfortable for Walking	>19 and ≤27 mph
Comfortable for Walking	>15 and ≤19 mph
Comfortable for Standing	>12 and ≤15 mph
Comfortable for Sitting	<12 mph

* Applicable to the hourly mean wind speed exceeded one percent of the time.

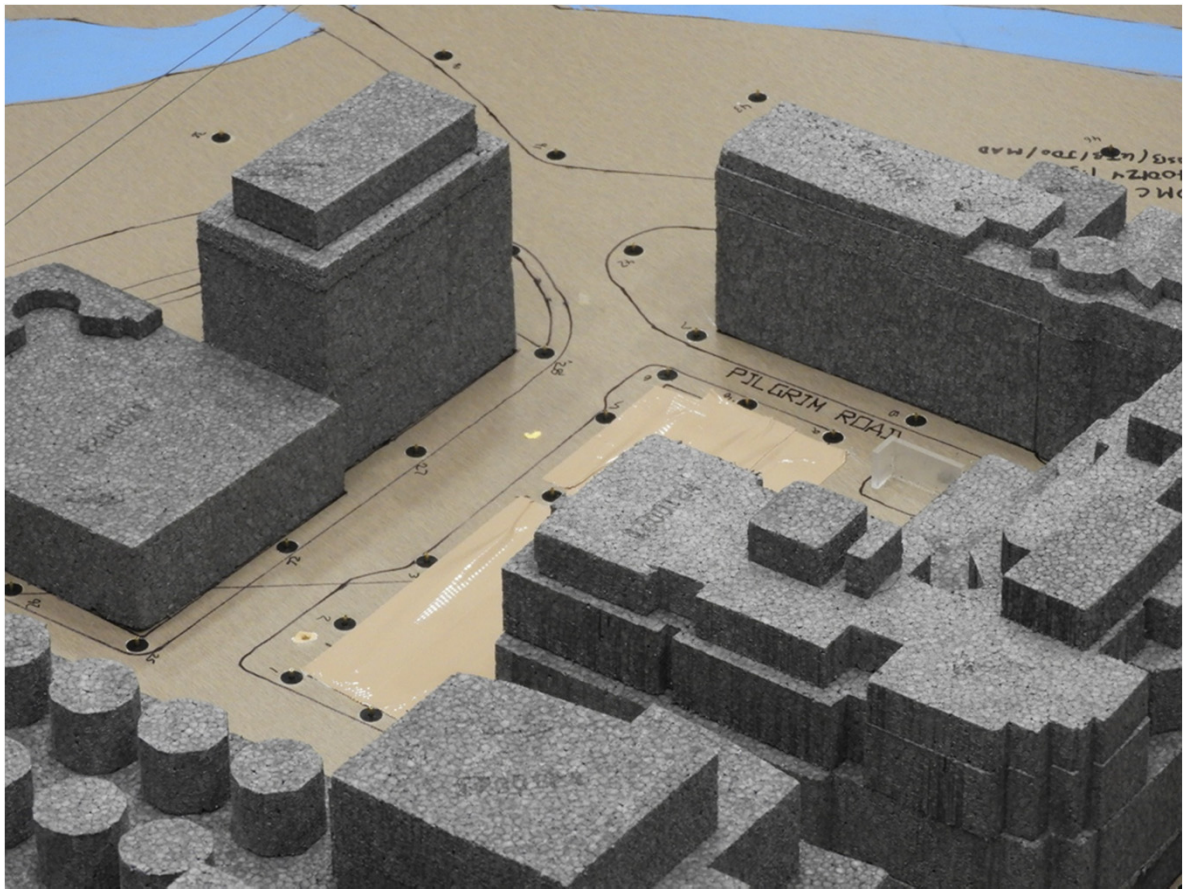
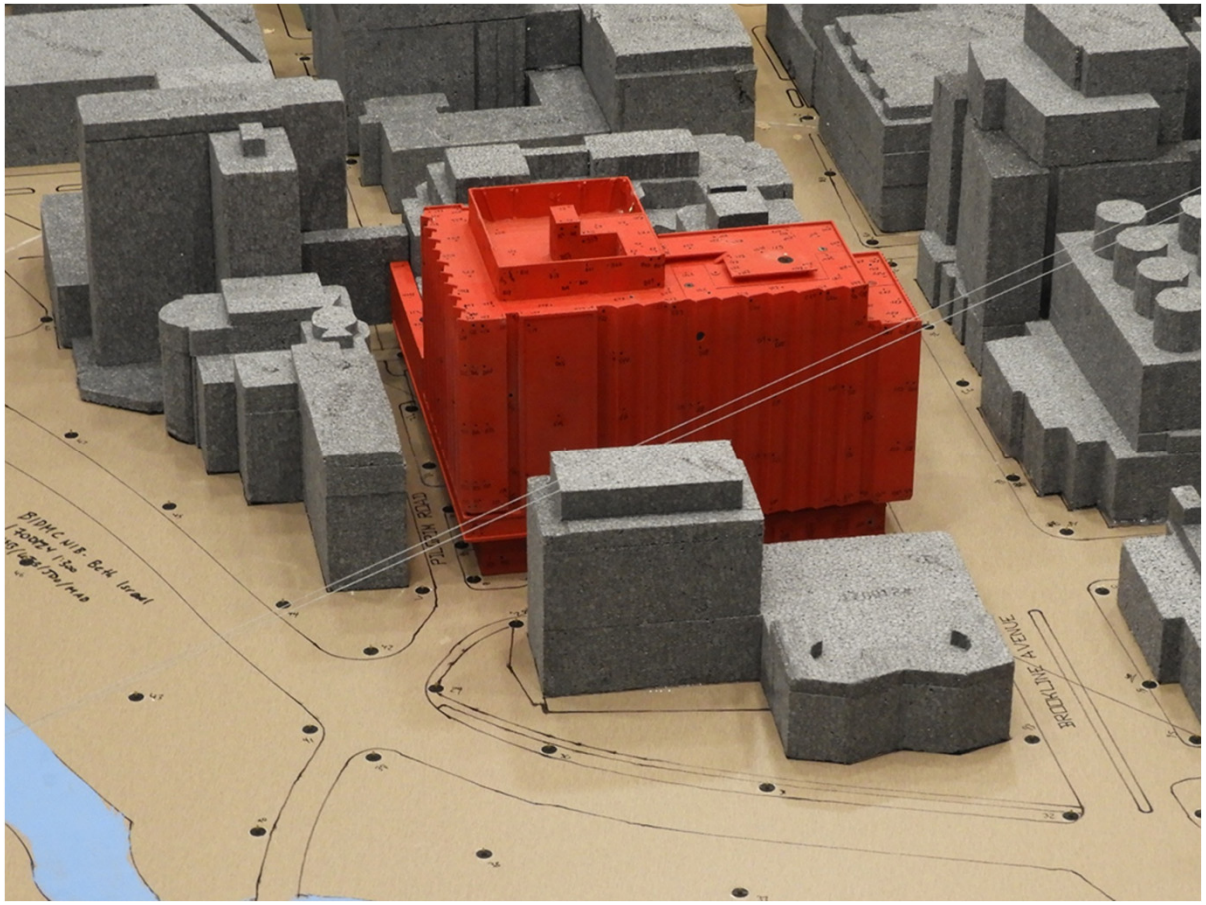




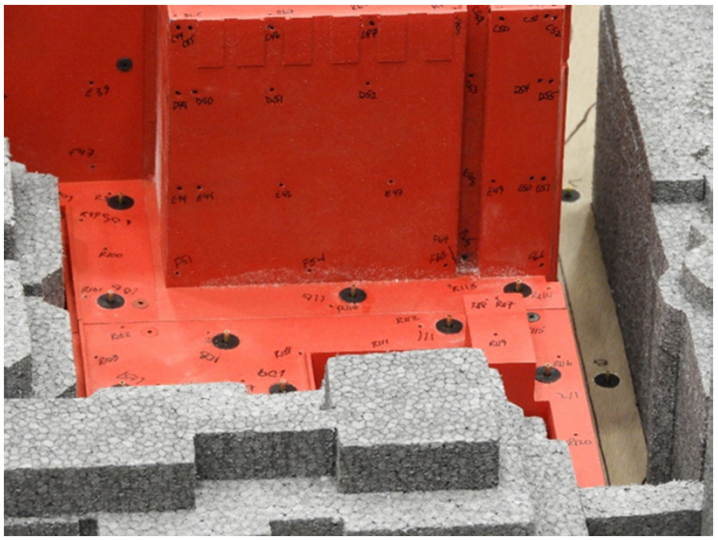


Figure 4.1-1

Wind Tunnel Study Model – No Build Configuration



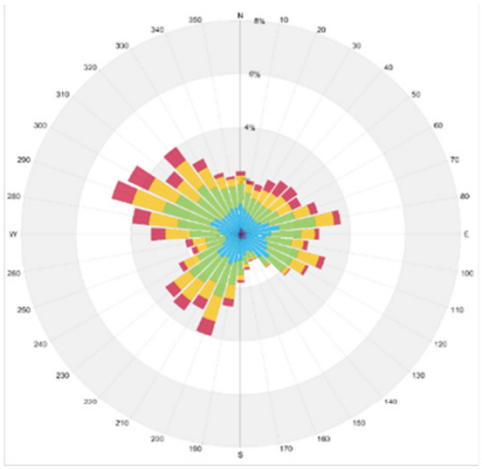




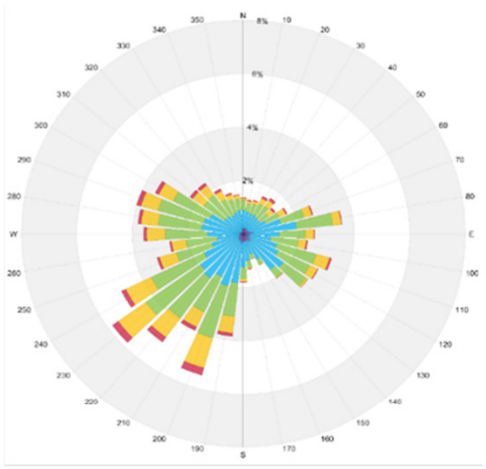
Beth Israel Deaconess Medical Center

Figure 4.1-2

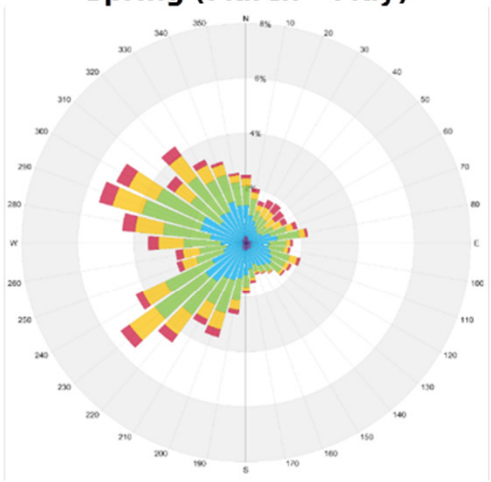
Wind Tunnel Study Model – Build Configuration



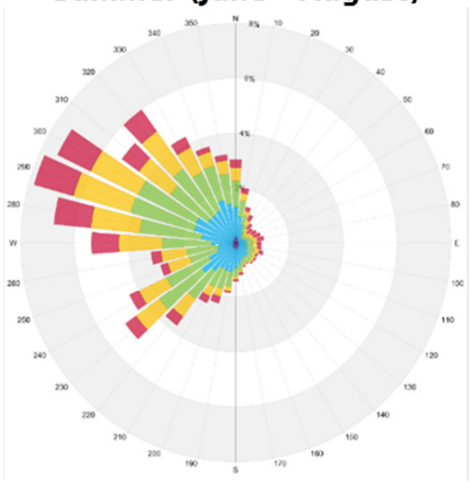
Spring (March – May)



Summer (June – August)



Fall (September – November)

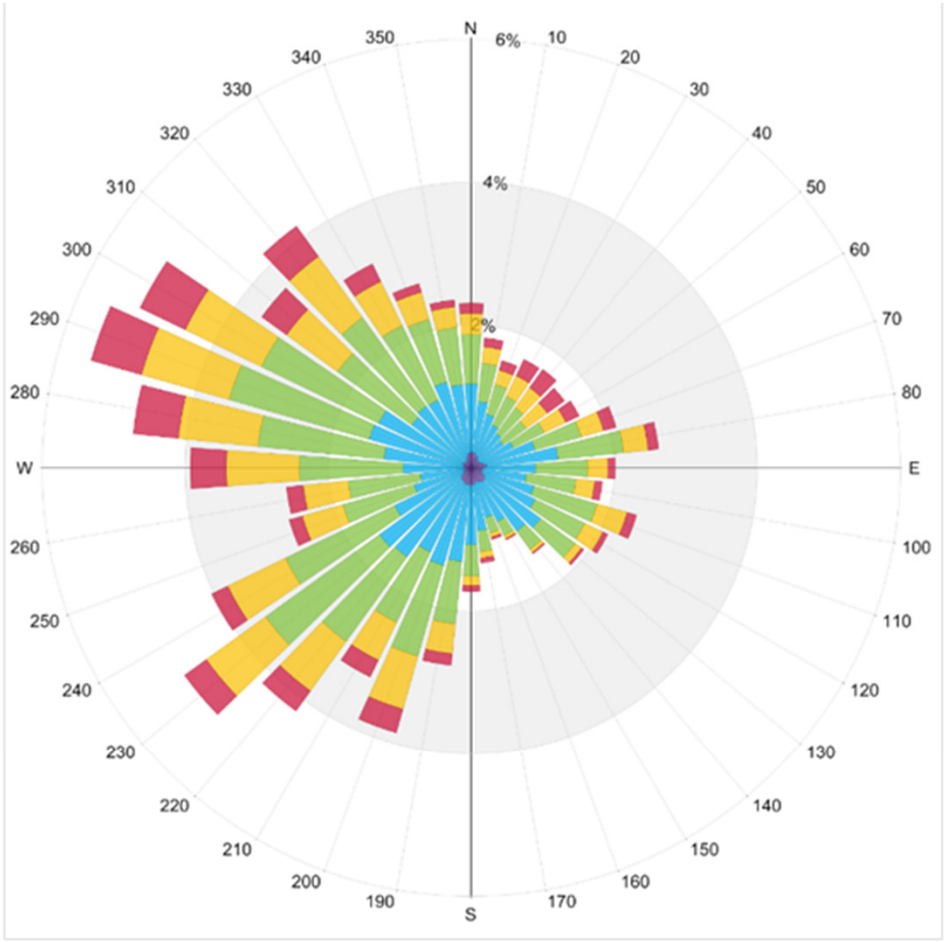


Winter (December – February)

Wind Speed (mph)	Probability (%)			
	Spring	Summer	Fall	Winter
Calm	2.2	2.4	2.7	2.1
1-5	5.9	8.0	7.4	5.7
6-10	27.7	37.6	33.4	26.7
11-15	32.6	35.4	32.8	31.3
16-20	20.5	13.7	16.2	20.9
>20	11.0	2.9	7.5	13.3

Figure 4.1-4

Seasonal Directional Distribution of Winds Approaching Boston Logan International Airport from 1988 Through 2018



Wind Speed (mph)	Probability (%) Annual
Calm	2.4
1-5	6.8
6-10	31.3
11-15	33.0
16-20	17.8
>20	8.7

The consideration of wind in planning outdoor activity areas is important since high winds in an area tend to deter pedestrian use. For example, winds should be light or relatively light in areas where people would be sitting, such as outdoor cafes or playgrounds. For bus stops and other locations where people would be standing, somewhat higher winds can be tolerated. For frequently used sidewalks, where people are primarily walking, stronger winds are acceptable. For infrequently used areas, the wind comfort criteria can be relaxed even further.

The wind climate found in a typical downtown location in Boston is generally comfortable for the pedestrian use of sidewalks and thoroughfares, and meets the BPDA effective gust velocity criterion of 31 mph. However, without any mitigation measures, this wind climate is likely to be frequently uncomfortable for more passive activities such as sitting.

4.1.2.4 General Wind Flow Patterns

In discussion of wind conditions, reference may be made to the generalized wind flows shown in Figure 4.1-5. If these building/wind combinations occur for prevailing winds, there is a greater potential for increased wind activity. Design details such as setting back a tall tower from the edges of a podium, deep canopies close to ground level, wind screens, tall trees with dense landscaping, etc. can help reduce wind speeds. The choice and effectiveness of these measures would depend on the exposure and orientation of the site with respect to the prevailing wind directions and the size and massing of the proposed buildings.

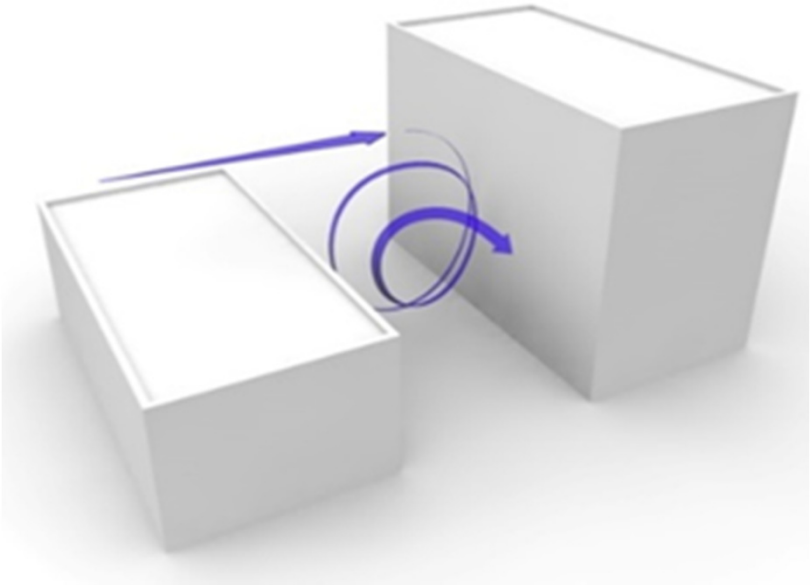
4.1.3 Results and Discussion

The predicted wind conditions pertaining to the two tested configurations assessed are graphically depicted in Figures 4.1-6 to 4.1-9. These conditions and the associated wind speeds are also numerically presented in Tables 1 and 2, located in Appendix C. Typically, the summer and fall winds tend to be more comfortable than the annual winds, while the winter and spring winds are less comfortable than the annual winds. The following summary of pedestrian wind conditions is based on the annual winds for each configuration tested, except where noted below in the text.

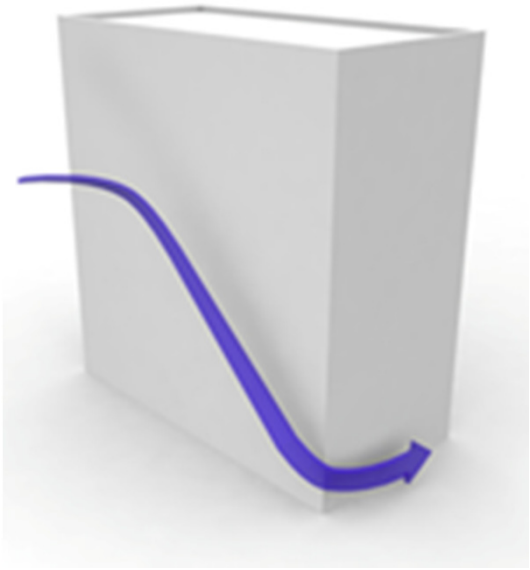
The following is a detailed discussion of the suitability of the predicted wind comfort conditions for the anticipated pedestrian use of each area of interest.

4.1.3.1 Grade Level (Locations 1 through 102)

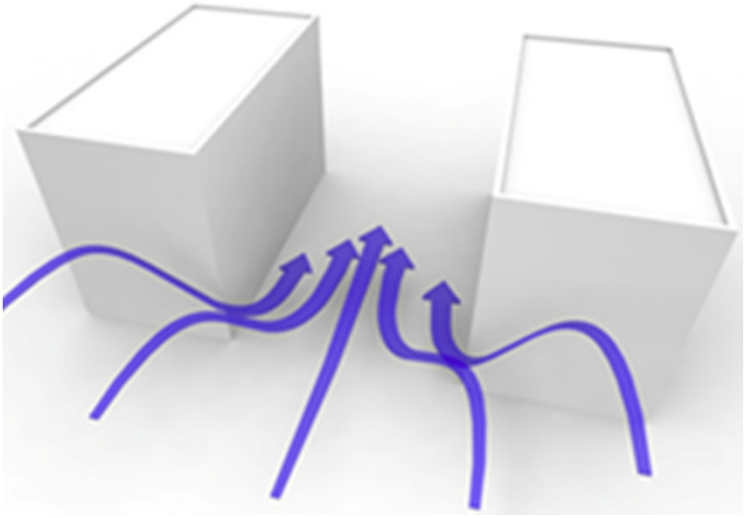
Wind conditions comfortable for walking are appropriate for sidewalks and walkways as pedestrians will be active and less likely to remain in one area for prolonged periods of time. Lower wind speeds conducive to standing are preferred at main entrances where pedestrians are apt to linger, while wind speeds comfortable for sitting are appropriate for areas intended for passive activities.



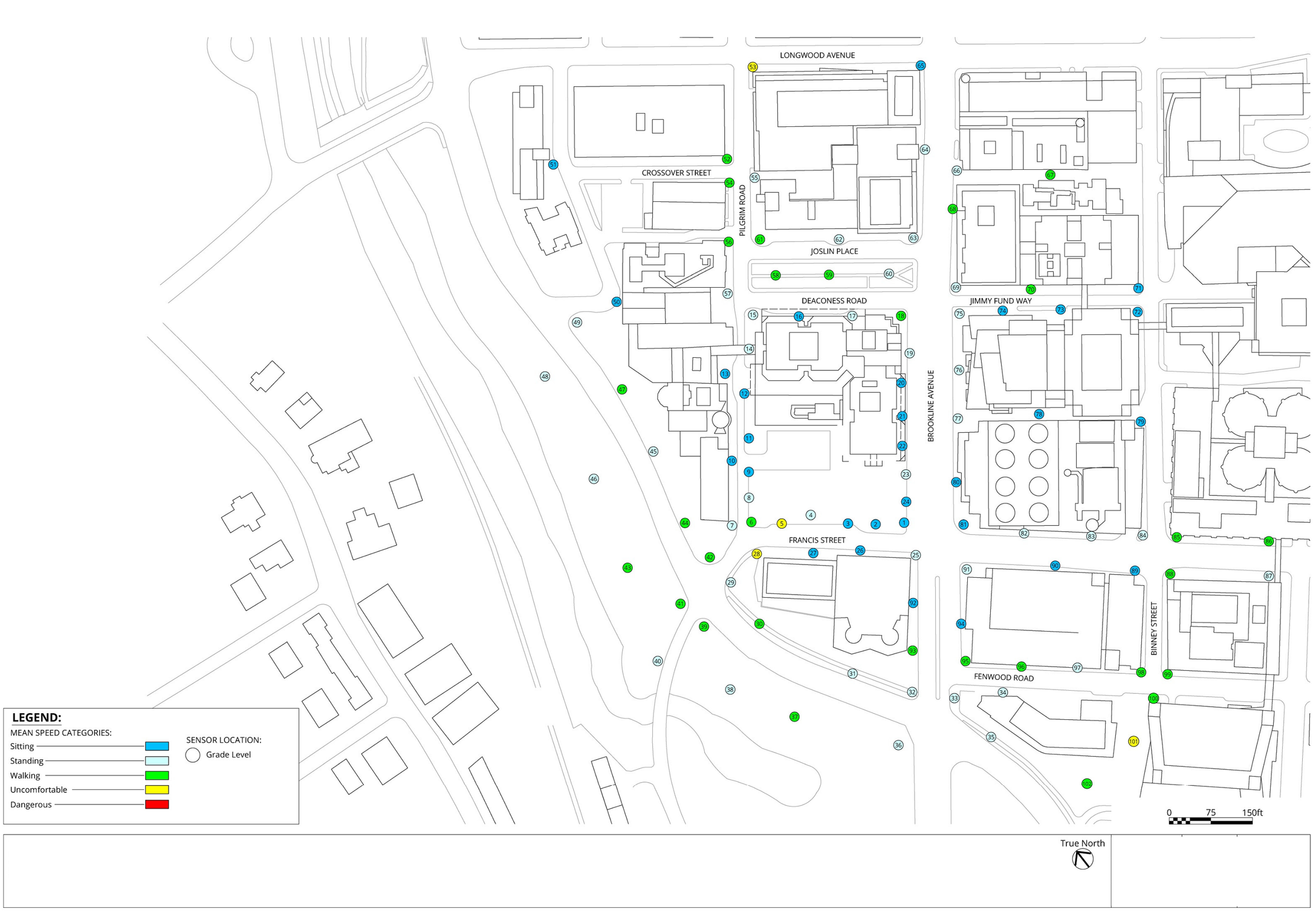
a. Downwashing Flow

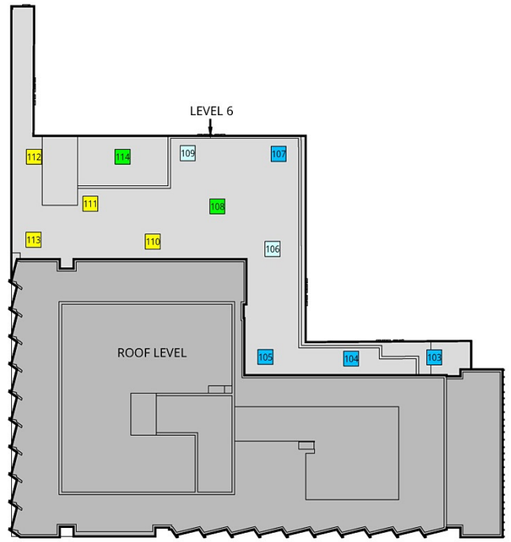


b. Corner Acceleration

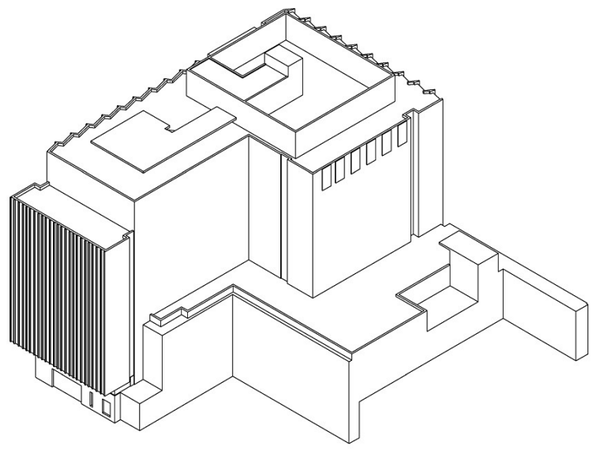


c. Channeling Effect


LONGWOOD AVENUE
CROSSOVER STREET
PILGRIM ROAD
JOSLIN PLACE
DEACONESS ROAD
JIMMY FUND WAY
BROOKLINE AVENUE
FRANCIS STREET
BINNEY STREET
FENWOOD ROAD
LEGEND:
MEAN SPEED CATEGORIES:
Sitting
Standing
Walking
Uncomfortable
Dangerous
SENSOR LOCATION:
Grade Level
0
75
150ft
True North



Level 6
Approx. Scale: 1"=80'

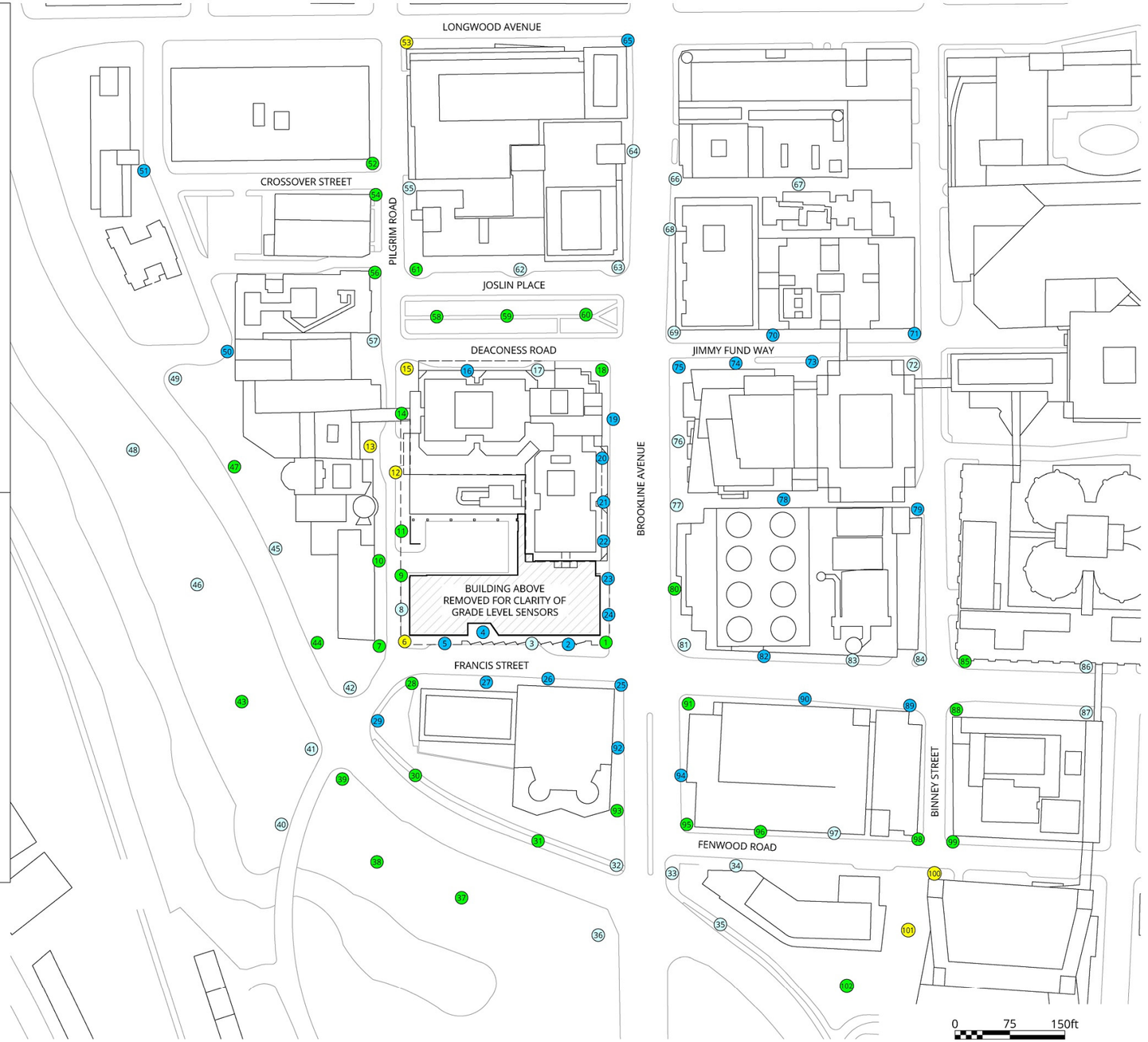


Isometric View

LEGEND:

MEAN SPEED CATEGORIES:
- Sitting
- Standing
- Walking
- Uncomfortable
- Dangerous

SENSOR LOCATION:
- Grade Level
- Level 6

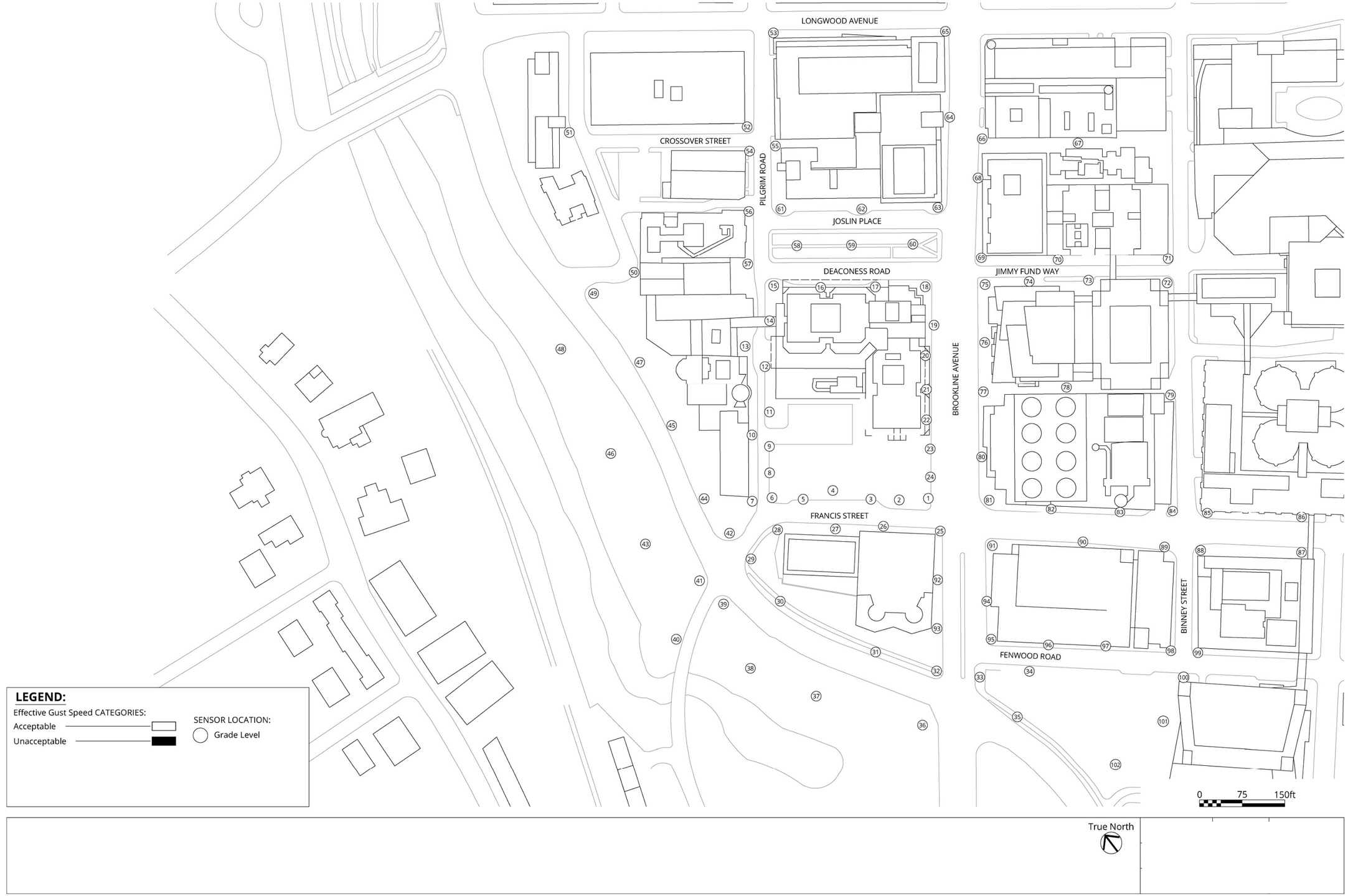


True North

Beth Israel Deaconess Medical Center

Figure 4.1-7

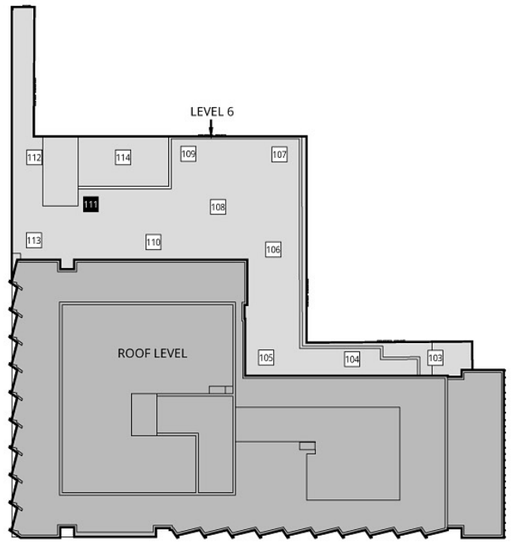
Pedestrian Wind Conditions – Mean Speed – Build, Annual



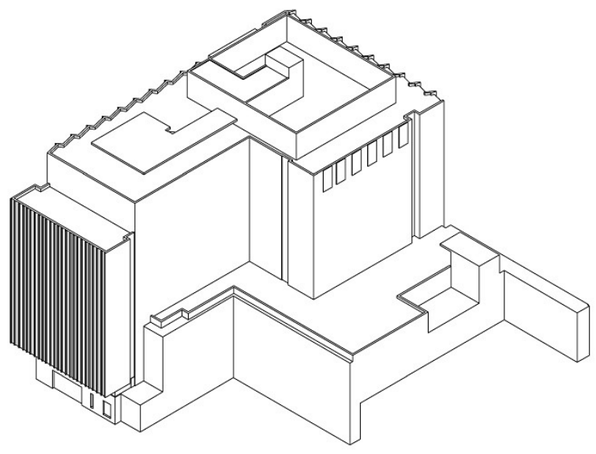
Beth Israel Deaconess Medical Center

Figure 4.1-8

Pedestrian Wind Conditions – Effective Gust – No Build, Annual



Level 6
Approx. Scale: 1"=80'

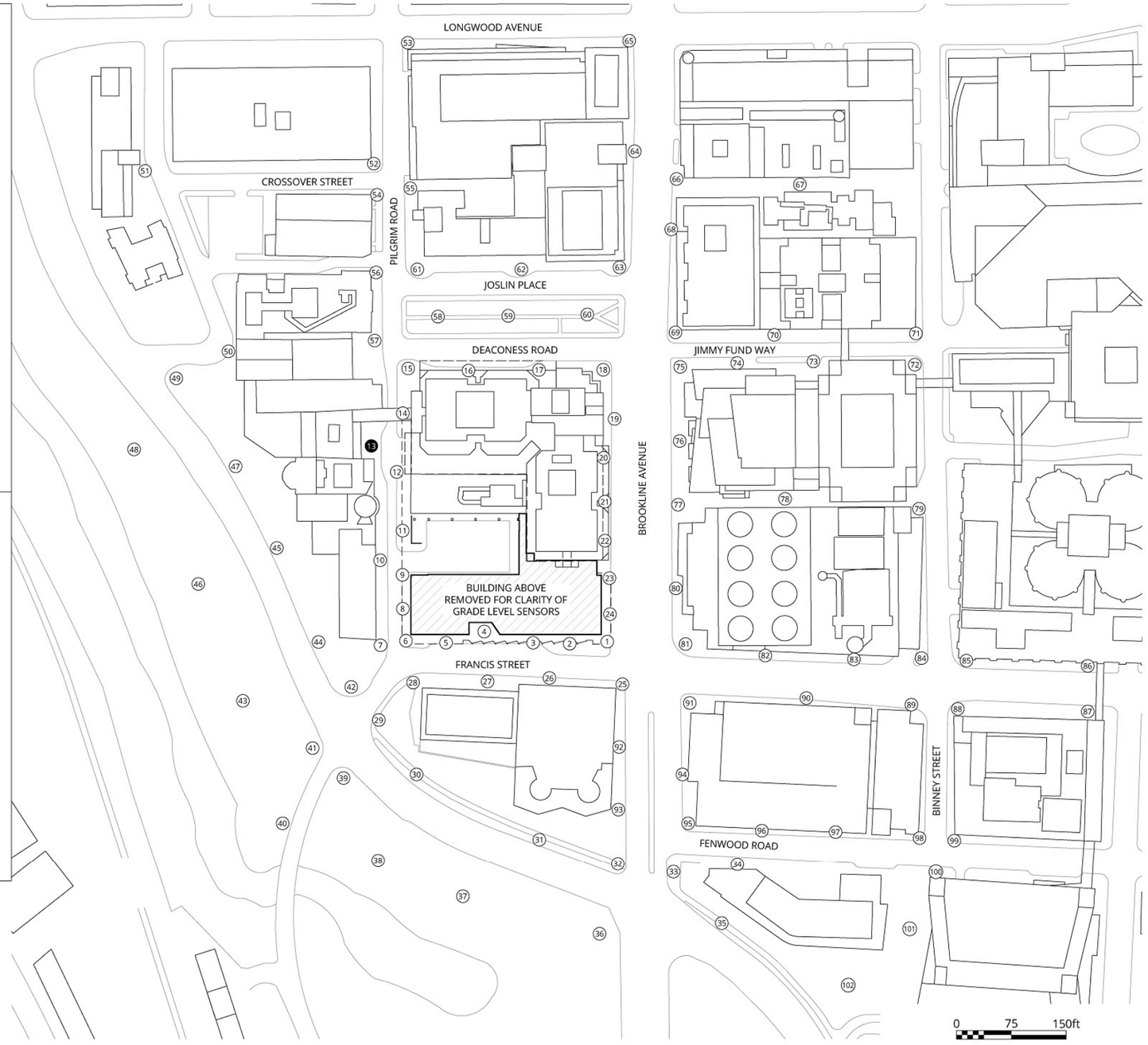


Isometric View

LEGEND:

Effective Gust Speed CATEGORIES:
- Acceptable
- Unacceptable

SENSOR LOCATION:
- Grade Level
- Level 6



True North

It should be noted that although there is existing landscaping along surrounding sidewalks and proposed landscaping associated with the Project, this was not modelled in the wind tunnel test. Landscaping is not initially included on the model in order to quantify the worst-case baseline condition. The benefit of landscaping is subject both to seasonal variations, and to growing conditions, maintenance and species.

No-Build Configuration

The effective gust criterion (for pedestrian safety) is expected to be met at all sensor locations around the existing site (Figure 4.1-8). Wind conditions along the surrounding sidewalks are generally expected to be comfortable for walking, strolling, standing and sitting with the exception of multiple locations along Francis Street, south of the site off Fenwood Road and north of the site along Pilgrim Road. Wind conditions in these areas are expected to be uncomfortable at some points throughout the year (Locations 5, 28, 53 and 101 respectively in Figure 4.1-6).

Build Configuration

With the addition of the Project, wind conditions are expected to generally remain similar to those that currently prevail around the site. The effective gust criterion is expected to be met at all sensor locations except near the entrance to the Palmer Building (Location 13 in Figure 4.1-9). The pedestrian wind environment is also expected to generally remain comfortable for walking, strolling, standing and sitting, with recurring uncomfortable conditions along Francis Street, south of the site off Fenwood Road, and north of the site along Pilgrim Road (Locations 6, 53, 100 and 101 respectively in Figure 4.1-7). The Project is taller than the buildings to the west, and as a result southwesterly winds are intercepted and directed towards grade level (see Figure 4.1-5 for reference). Winds are also channeled at grade level between the Project and the Palmer Building across the road (see Figure 4.1-5 for reference). These wind flows result in increased wind speeds and additional uncomfortable conditions expected to occur along Pilgrim Road (Locations 12, 13 and 15 in Figure 4.1-7).

The Project team will study the landscape plan and potential inclusion of additional landscaping or wind screens to mitigate wind conditions along Pilgrim Road as the design progresses.

4.1.3.2 Level 6 Roof Garden (Locations 103 through 114)

It is generally desirable for wind conditions on terraces intended for passive activities to be comfortable for sitting or standing in the summer. During the winter, the area would not be used frequently and increased wind activity would be considered appropriate.

The effective gust criterion is expected to be met at all sensor locations on the Level 6 roof garden except at Location 111 (in Figure 4.1-9). Wind conditions are also expected to be

comfortable for standing and sitting on the easterly sections of the terrace, but be rated as uncomfortable on the north section (Locations 110 through 113 in Figure 4.1-7). These elevated wind conditions are the result of winds from the southwesterly directions accelerating around the northwest corner of the tower and flowing horizontally across the deck.

As landscaping was not initially modeled to reflect the worst-case baseline conditions, the proposed landscaping plan for the Level 6 roof garden is expected to reduce the wind activity anticipated. In addition, solid railings will be studied which would mitigate wind conditions immediately adjacent to the railings.

4.1.4 Conclusion

The wind study shows that the Project will generally have a minimal impact on pedestrian level wind conditions in the area, with the exception of locations along Pilgrim Road. These areas will continue to be studied to determine the appropriate mitigation measures, including additional landscaping or wind screens. The roof garden will also be studied to determine the appropriate measures to make the space a welcoming environment for patients and staff.

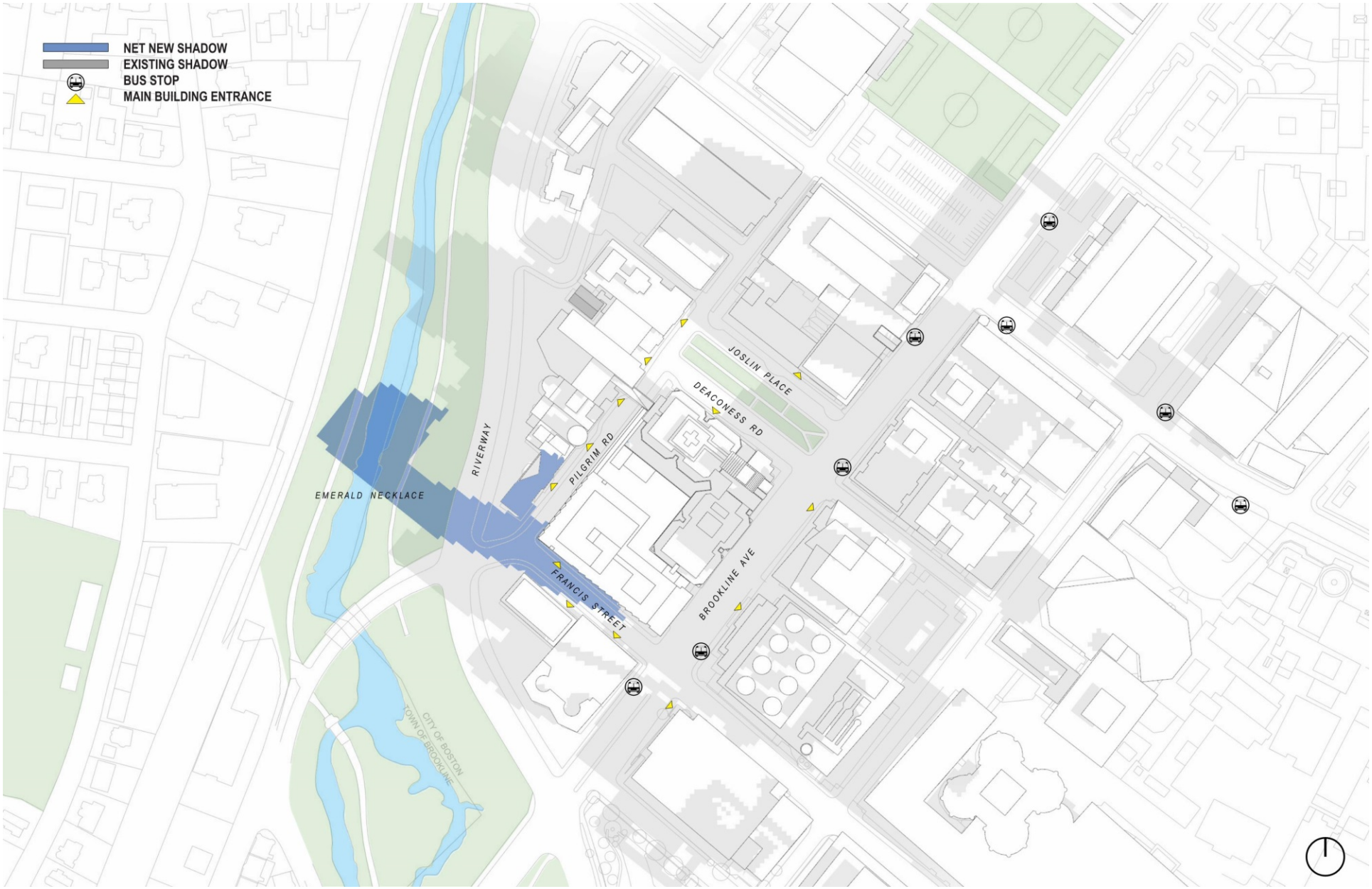
4.2 Shadow

As initially described in the IMPNF/PNF, it was contemplated that the Project would contain up to 345,000 sf of gross floor area and have a height of up to 200 feet to the top of the highest occupied floor. However, to minimize the Project's visual and shadow impact, BIDMC diligently reviewed the design and its impacts in coordination with the need to construct a viable project that meets BIDMC's programmatic goals and has reduced the building height to approximately 178 feet.

4.2.1 Introduction and Methodology

As required by the Scoping Determination, a shadow impact analysis was conducted to investigate shadow impacts from the Project during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the vernal equinox (March 21), summer solstice (June 21), autumnal equinox (September 21), and winter solstice (December 21), and at 6:00 p.m. during the summer solstice and autumnal equinox.

The shadow analysis presents the existing shadow and new shadow that would be created by the proposed Project, illustrating the incremental impact of the Project. The analysis focuses on nearby open spaces, sidewalks and bus stops adjacent to and in the vicinity of the Project site. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. Figures showing the net new shadow from the Project are provided in Figures 4.2-1 to 4.2-14. The shadow study shows that new shadow will mainly be cast onto surrounding streets and sidewalks. New shadow will be cast onto the Emerald Necklace during the morning time periods, but will not be cast onto other area open spaces.



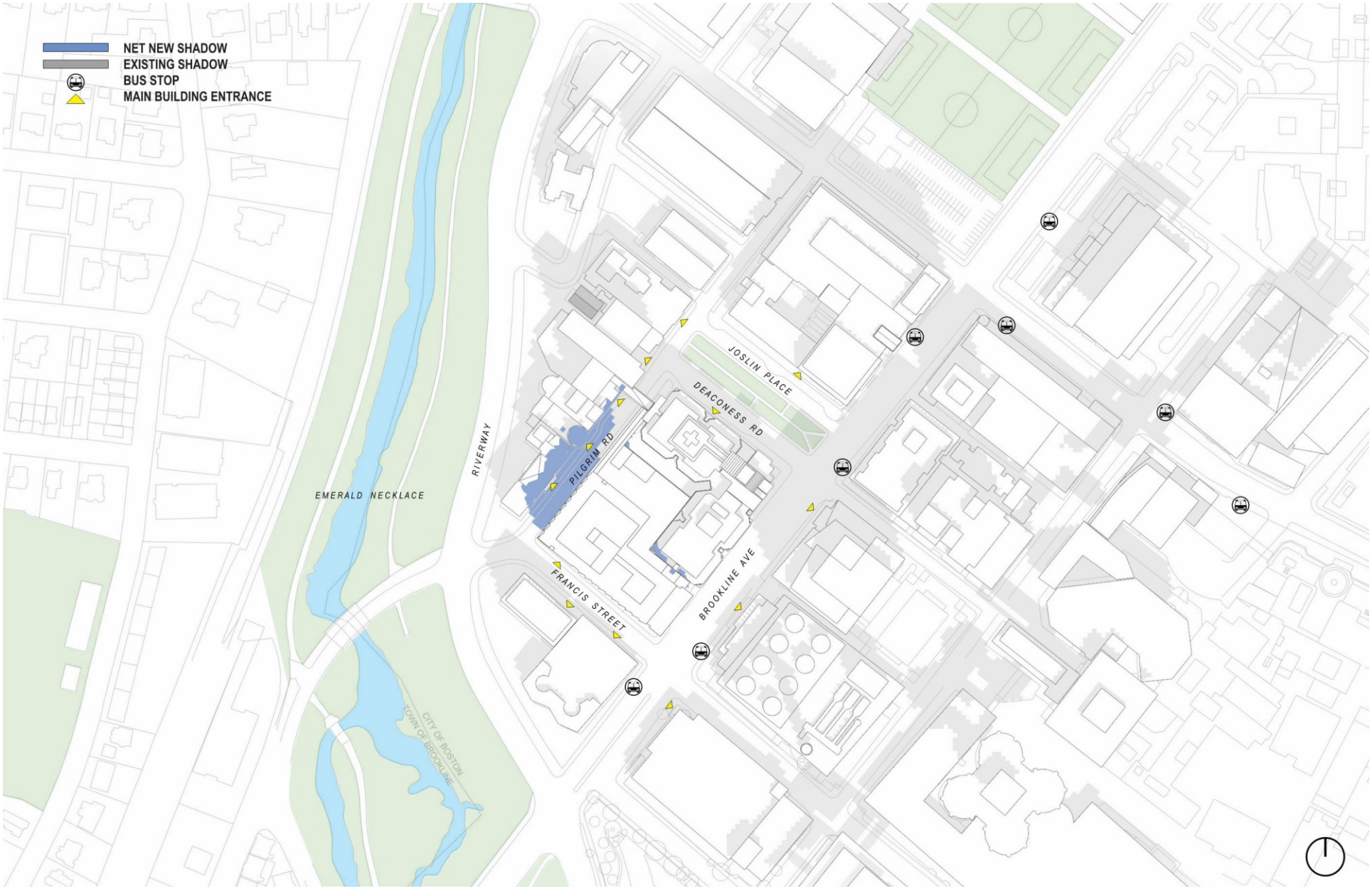
Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 4.2-1

Shadow Study: March 21, 9:00 a.m.



Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 4.2-2

Shadow Study: March 21, 12:00 p.m.



Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 4.2-3

Shadow Study: March 21, 3:00 p.m.



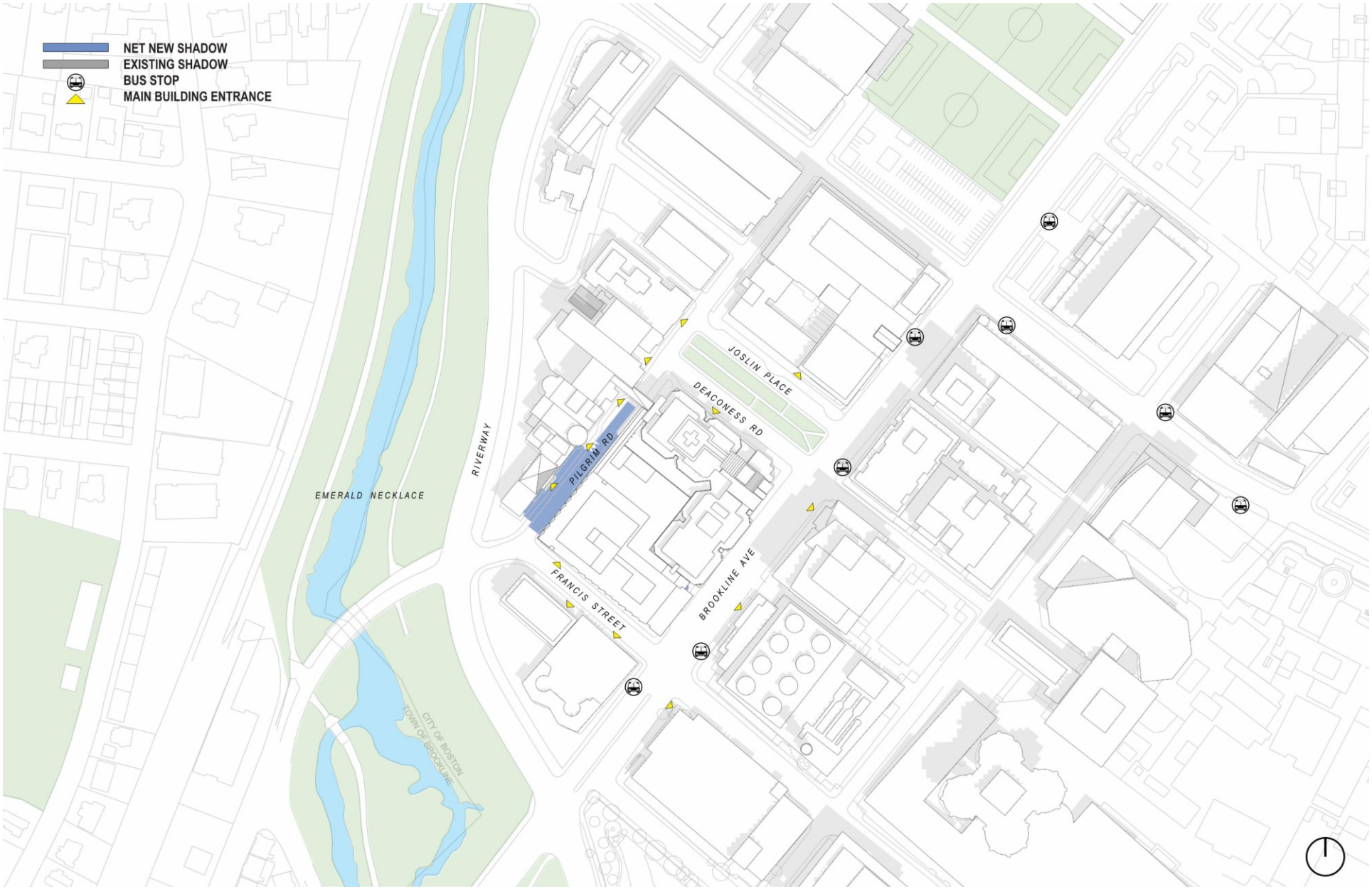
Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 4.2-4

Shadow Study: June 21, 9:00 a.m.



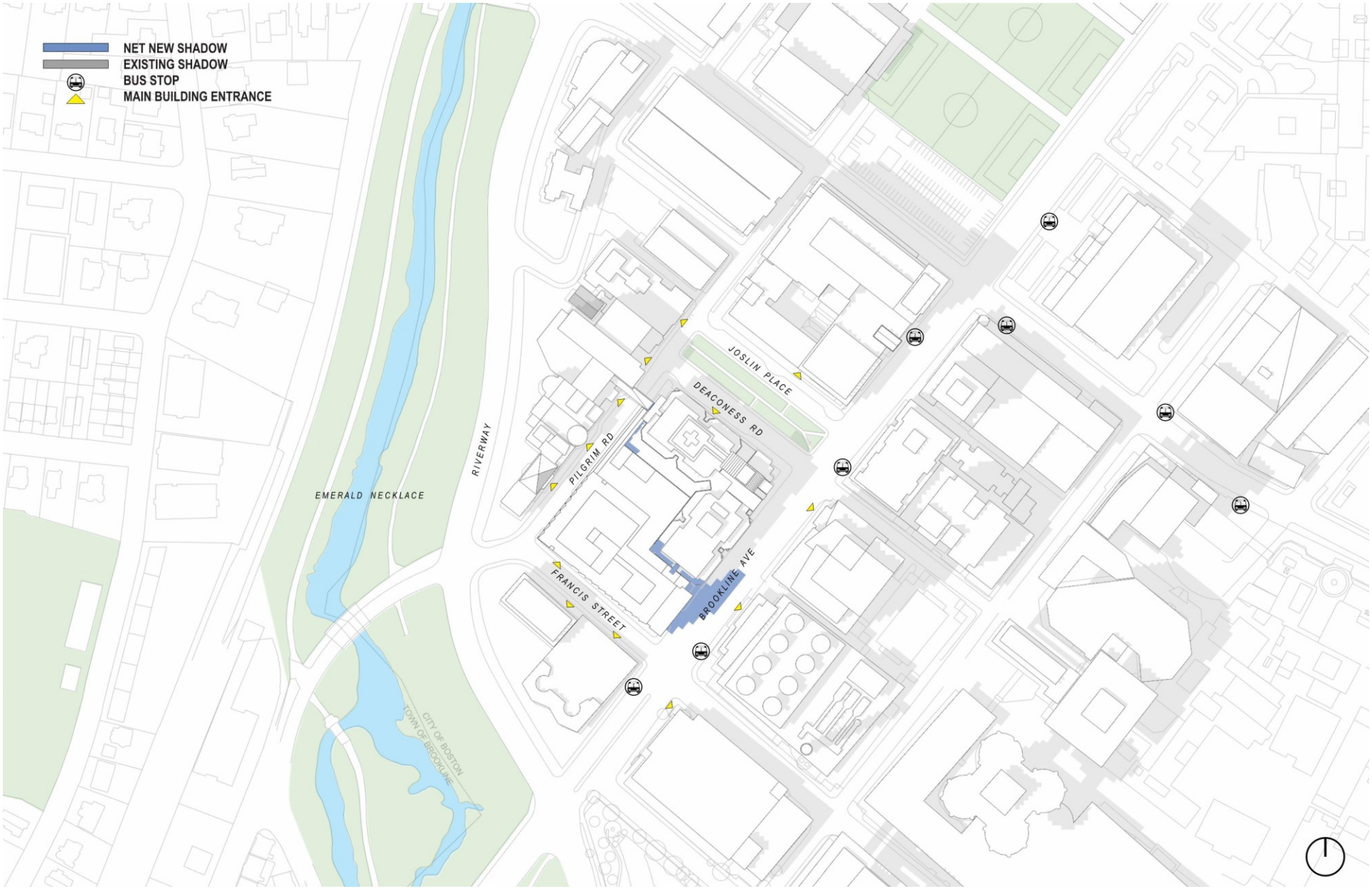
Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 4.2-5

Shadow Study: June 21, 12:00 p.m.



Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 4.2-6

Shadow Study: June 21, 3:00 p.m.



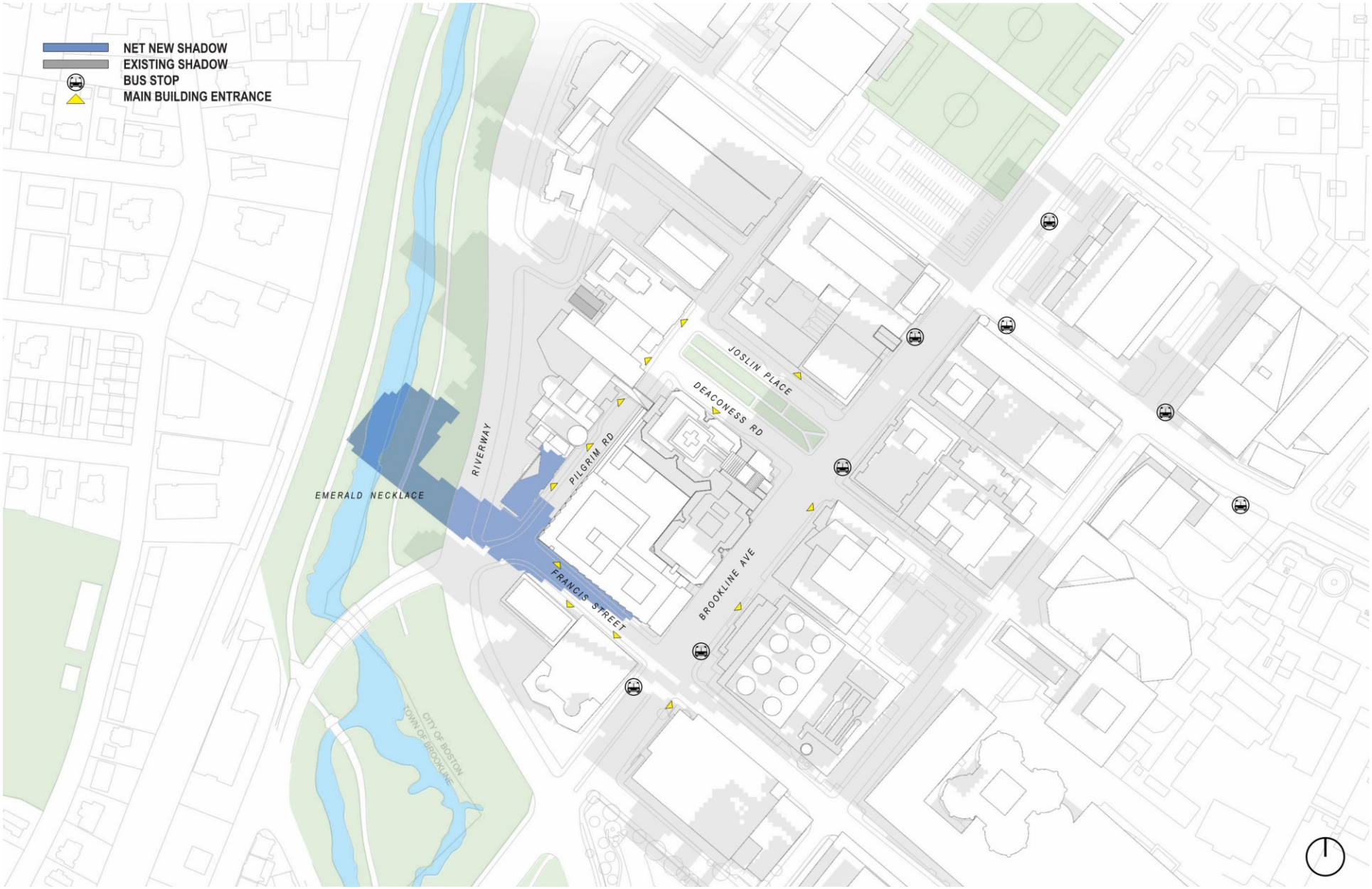
Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 4.2-7

Shadow Study: June 21, 6:00 p.m.



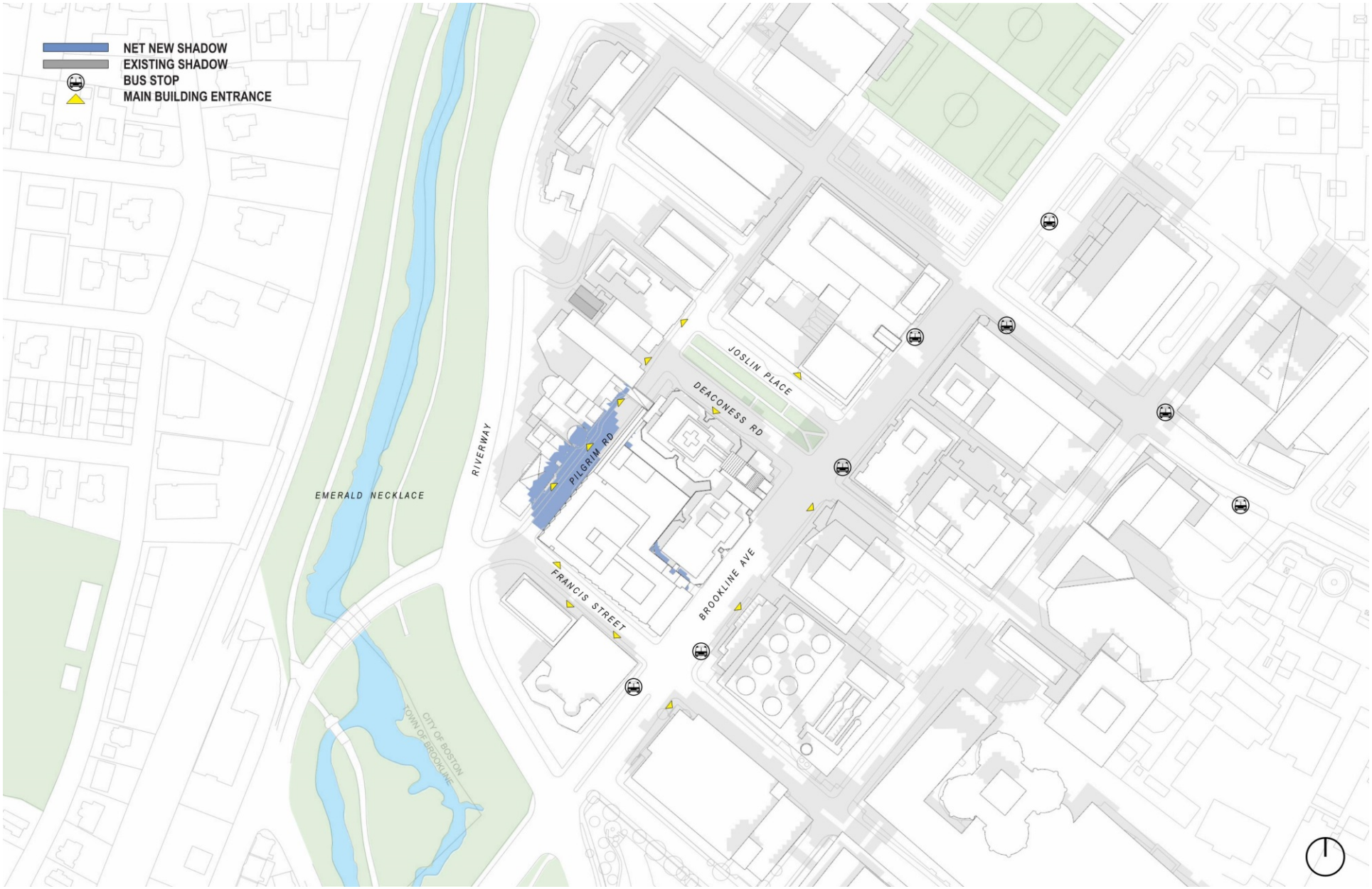
Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 4.2-8

Shadow Study: September 21, 9:00 a.m.



Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 4.2-9

Shadow Study: September 21, 12:00 p.m.



Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 4.2-10

Shadow Study: September 21, 3:00 p.m.



Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 4.2-11

Shadow Study: September 21, 6:00 p.m.



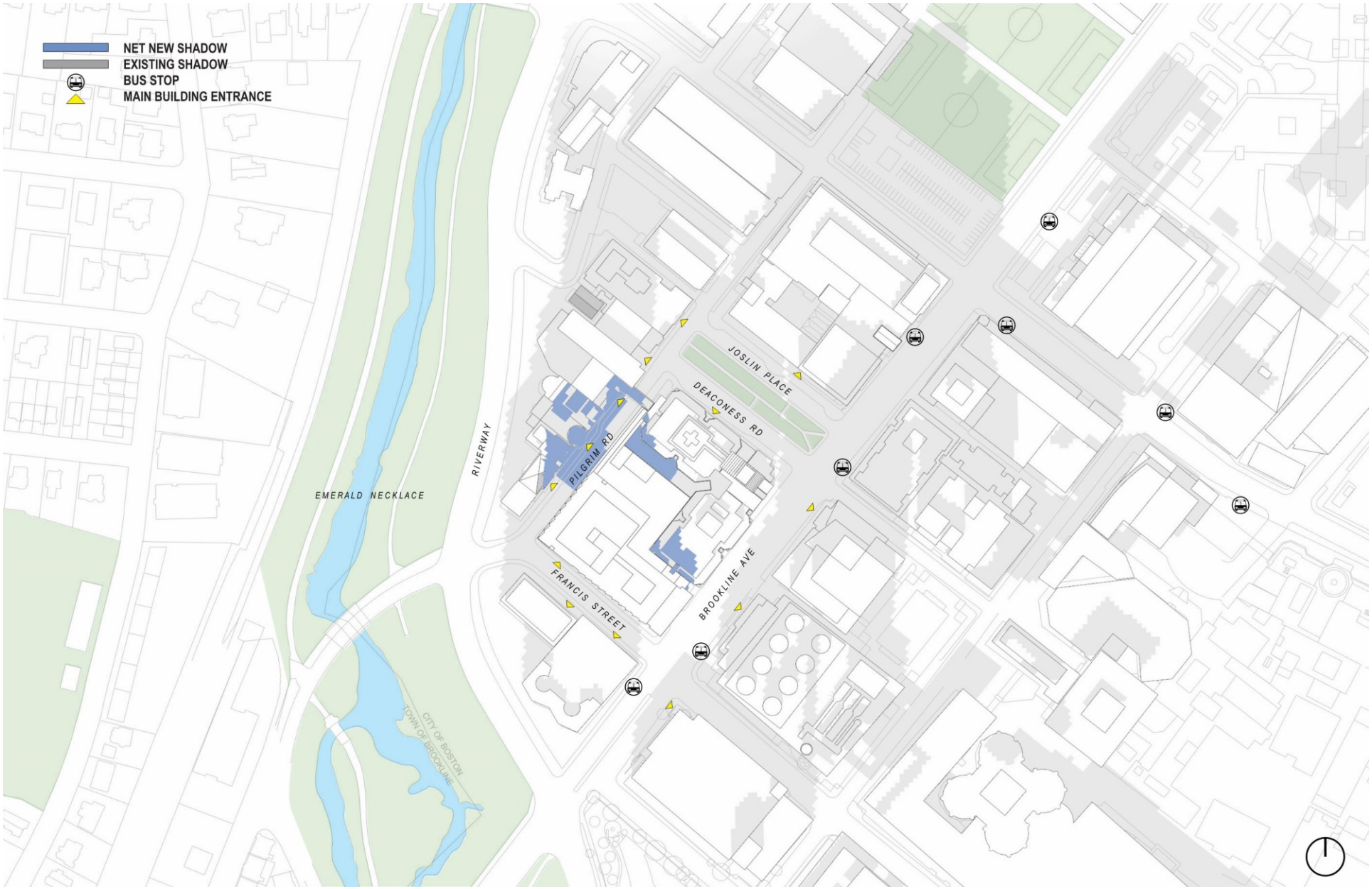
Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 4.2-12

Shadow Study: December 21, 9:00 a.m.



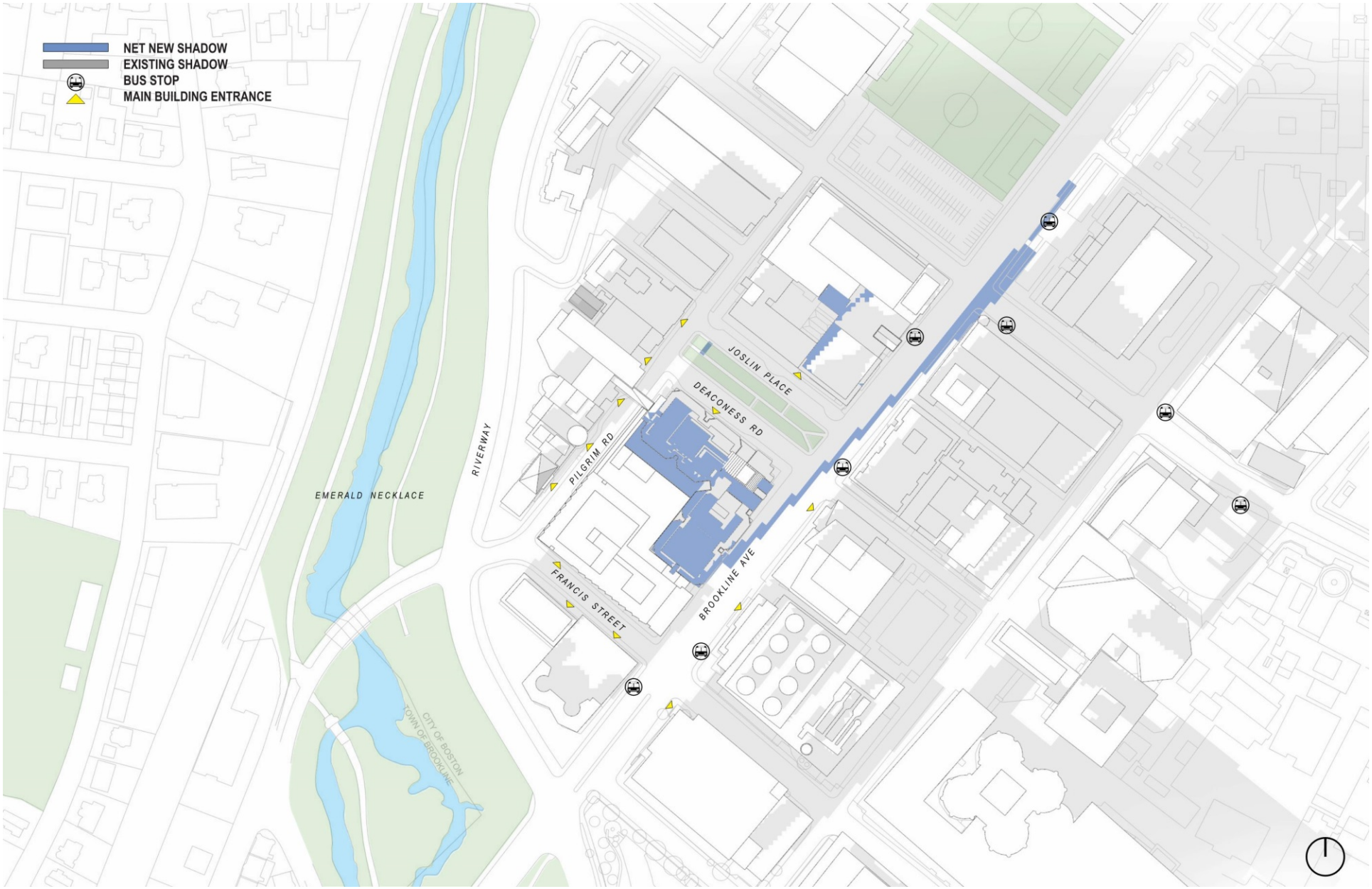
Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 4.2-13

Shadow Study: December 21, 12:00 p.m.



Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 4.2-14

Shadow Study: December 21, 3:00 p.m.

4.2.2 Vernal Equinox (March 21)

At 9:00 a.m. during the vernal equinox, shadows will be cast to the northwest, with new shadow from the Project cast onto Francis Street and its sidewalks, Pilgrim Road and its sidewalks, and onto Riverway and its sidewalk. New shadow will be cast onto a portion of the Emerald Necklace.

At 12:00 p.m., shadows will be cast to the north, with new shadow from the Project cast onto Pilgrim Road and its sidewalks. No new shadow will be cast onto nearby open spaces.

At 3:00 p.m., shadows will be cast to the northeast, with new shadow from the Project cast onto Brookline Avenue and its western sidewalk, as well as a minor portion of the southern Pilgrim Road sidewalk. No new shadow will be cast onto nearby open spaces.

4.2.3 Summer Solstice (June 21)

At 9:00 a.m. during the summer solstice, shadows will be cast to the west, with new shadow from the Project cast onto Francis Street and its sidewalks, Pilgrim Road and its sidewalks, and Riverway and its sidewalk. New shadow will be cast onto a minor portion of the Emerald Necklace.

At 12:00 p.m., shadows will be cast to the north, with new shadow from the Project cast onto Pilgrim Road and its sidewalks. No new shadow will be cast onto nearby open spaces.

At 3:00 p.m., shadows will be cast to the northeast, with new shadow from the Project cast onto a minor portion of Brookline Avenue and its western sidewalk. No new shadow will be cast onto nearby open spaces.

At 6:00 p.m., shadows will be cast to the southeast, with new shadow from the Project cast onto Brookline Avenue and its sidewalks. No new shadow will be cast onto nearby open spaces.

4.2.4 Autumnal Equinox (September 21)

At 9:00 a.m. during the autumnal equinox, shadows will be cast to the northwest, with new shadow from the Project cast onto Francis Street and its sidewalks, Pilgrim Road and its sidewalks, and Riverway and its sidewalks. New shadow will be cast onto the Emerald Necklace.

At 12:00 p.m., shadows will be cast to the north, with new shadow from the Project cast onto Pilgrim Road and its sidewalks. No new shadow will be cast onto nearby open spaces.

At 3:00 p.m., shadows will be cast to the northeast, with new shadow from the Project cast onto a minor portion of Brookline Avenue and its western sidewalk. No new shadow will be cast onto nearby open spaces.

At 6:00 p.m., most of the area is under existing shadow. New shadow from the Project will be limited to small portions of rooftops. No new shadow will be cast onto nearby streets, sidewalks, or open spaces.

4.2.5 Winter Solstice (December 21)

The winter solstice creates the least favorable conditions for sunlight in New England. The sun angle during the winter is lower than in any other season, causing the shadows in urban areas to elongate and be cast onto large portions of the surrounding area.

At 9:00 a.m., shadows will be cast to the northwest, with new shadow from the Project cast onto Pilgrim Road and its sidewalks. New shadow will be cast onto the Emerald Necklace.

At 12:00 p.m., shadows will be cast to the north, with new shadow from the Project cast onto Pilgrim Road and its sidewalks. No new shadow will be cast onto nearby open spaces.

At 3:00 p.m., shadows will be cast to the northeast, with new shadow from the Project cast onto Brookline Avenue and its sidewalks, as well as one bus stop on Brookline Avenue. No new shadow will be cast onto nearby open spaces.

4.2.6 Conclusions

The shadow impact analysis looked at net new shadow created by the Project during fourteen time periods. New shadow will mainly be cast on surrounding streets and sidewalks throughout the year. New shadow on the Emerald Necklace will be limited to the four morning time periods. No other open spaces will be impacted by new shadow from the Project.

4.3 Daylight

4.3.1 Introduction

The purpose of the daylight analysis is to estimate the extent to which a proposed project will affect the amount of daylight reaching the streets and the sidewalks in the immediate vicinity of a project site.

Because the Project site currently consists of surface parking, loading docks, and ambulance bays, the proposed Project will inherently increase daylight obstruction; however, the resulting conditions will be similar to what is typical of the LMA and other urban areas.

4.3.2 Methodology

The daylight analysis was performed using the Boston Redevelopment Authority Daylight Analysis (BRADA) computer program[1]. This program measures the percentage of sky-dome that is obstructed by a project and is a useful tool in evaluating the net change in obstruction from existing to build conditions at a specific site.

Using BRADA, a silhouette view of the building is taken at ground level from the middle of the adjacent city streets or pedestrian ways centered on the proposed building. The façade of the building facing the viewpoint, including heights, setbacks, corners and other features, is plotted onto a base map using lateral and elevation angles. The two-dimensional base map generated by BRADA represents a figure of the building in the "sky-dome" from the viewpoint chosen. The BRADA program calculates the percentage of daylight that will be obstructed on a scale of zero to 100 percent based on the width of the view, the distance between the viewpoint and the building, and the massing and setbacks incorporated into the design of the building; the lower the number, the lower the percentage of obstruction of daylight from any given viewpoint.

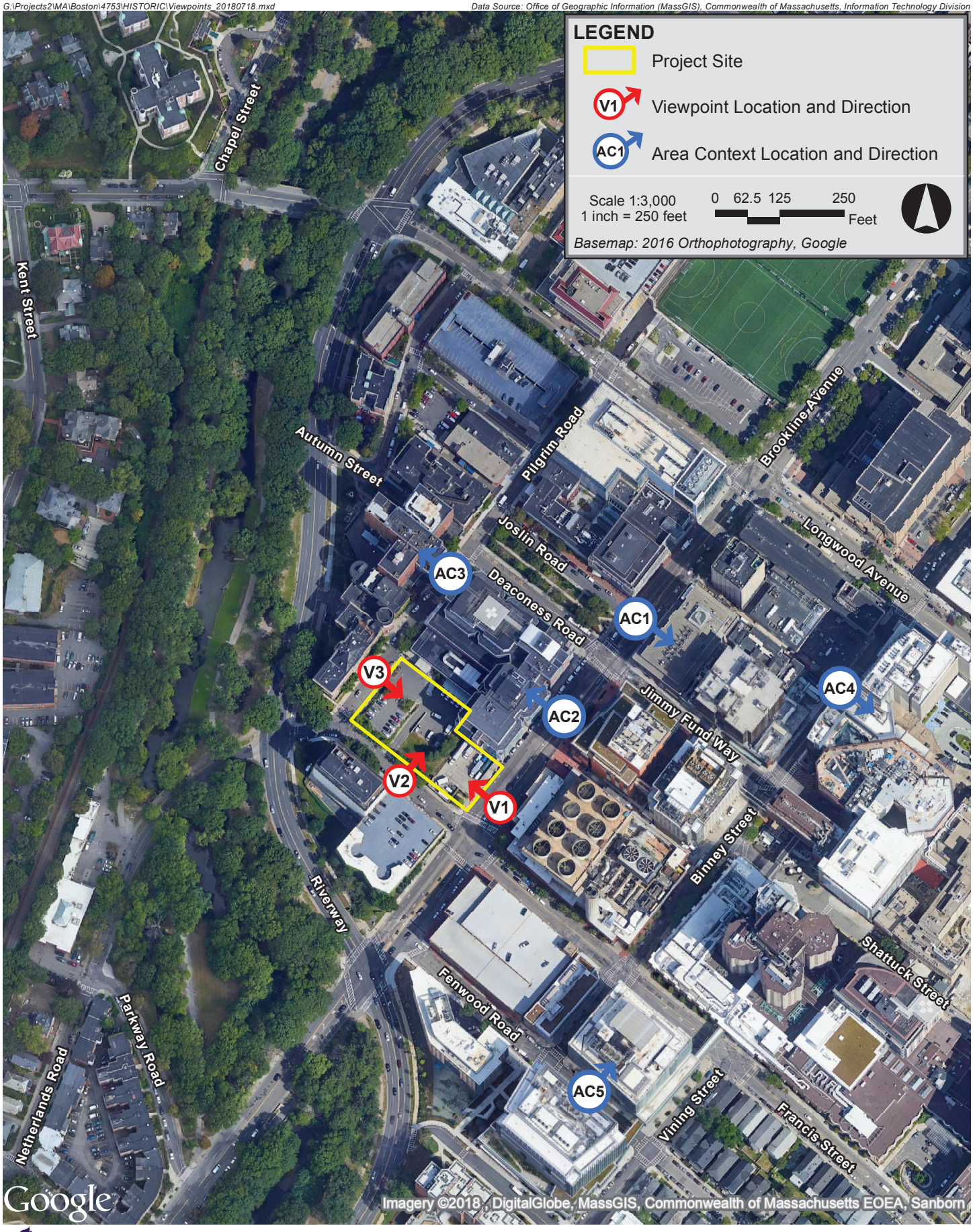
Since the Project site currently does not contain buildings, there is no daylight obstruction in the existing condition, and the analysis compares the proposed conditions to the context of the area.

Three viewpoints were chosen to evaluate the daylight obstruction for the proposed conditions, one from Brookline Avenue, one from Francis Street, and one from Pilgrim Road. Five Area Context Viewpoints, representing various conditions around the LMA, were considered in order to provide a basis of comparison to existing conditions in the surrounding area. The viewpoint and area context viewpoints were taken in the following locations and are shown on Figure 4.3-1.

- **Viewpoint 1:** View from Brookline Avenue facing northwest toward the Project site.
- **Viewpoint 2:** View from Francis Street facing northeast toward the Project site.
- **Viewpoint 3:** View from Pilgrim Road facing southeast toward the Project site.
- **Area Context Viewpoint AC1:** View from Brookline Avenue facing southeast toward the building at 440 Brookline Avenue.
- **Area Context Viewpoint AC2:** View from Brookline Avenue facing northwest toward the Rosenburg Building.

---

[1] Method developed by Harvey Bryan and Susan Stuebing, computer program developed by Ronald Fergle, Massachusetts Institute of Technology, Cambridge, MA, September 1984.



Beth Israel Deaconess Medical Center

Epsilon Associates Inc.

BIDMC DPIR

Figure 4.3-1

Viewpoint and Area Context Locations

- **Area Context Viewpoint AC3:** View from Pilgrim Road facing northwest toward the building at 185 Pilgrim Road.

- **Area Context Viewpoint AC4:** View from Binney Street facing southeast toward the building at 300 Longwood Avenue.

- **Area Context Viewpoint AC5:** View from the Fenwood Road facing northeast toward the building at 65 Fenwood Road.

4.3.3 Results

The results for each viewpoint are described in Table 4.3-1. Figures 4.3-2 to 4.3-4 illustrate the BRADA results for each analysis.

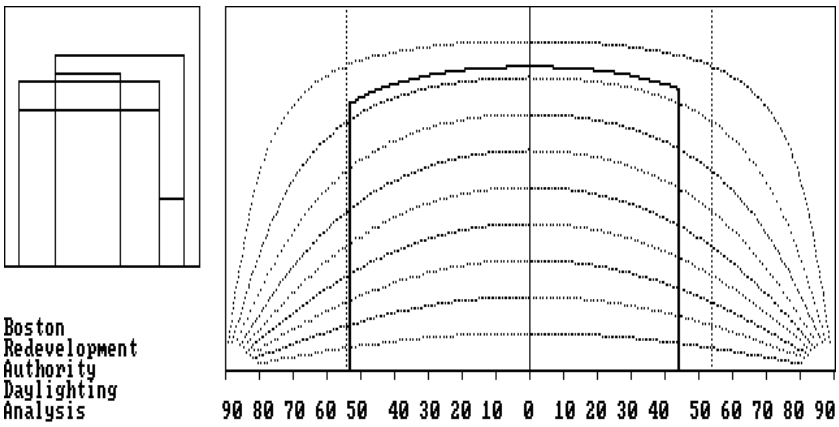
Table 4.3-1 Daylight Analysis Results

Viewpoint Locations		Existing Conditions	Proposed Conditions
Viewpoint 1	View from Brookline Avenue facing northwest toward the Project site	N/A	75.4%
Viewpoint 2	View from Francis Street facing northeast toward the Project site	N/A	92.7%
Viewpoint 3	View from Pilgrim Road facing southeast toward the Project site	N/A	90.0%
Area Context Points			
AC1	View from Brookline Avenue facing southeast toward the building at 440 Brookline Avenue	75.5%	N/A
AC2	View from Brookline Avenue facing northwest toward the Rosenburg Building	70.8%	N/A
AC3	View from Pilgrim Road facing northwest toward the building at 185 Pilgrim Road	96.9%	N/A
AC4	View from Binney Street facing southeast toward the building at 300 Longwood Avenue	92.7%	N/A
AC5	View from Fenwood Road facing northeast toward the building at 65 Fenwood Road	92.1%	N/A

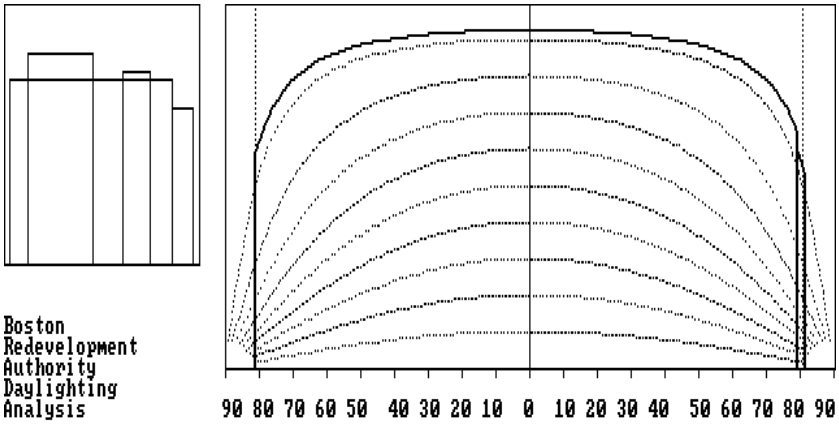
Viewpoint 1 – Brookline Avenue

Brookline Avenue runs along the southeastern edge of the Project site. Viewpoint 1 was taken from the center of Brookline Avenue facing northwest toward the Project site. The development of the Project will result in a daylight obstruction value of 75.4 percent, which is similar to the daylight obstruction found at the two Area Context Viewpoints along Brookline Avenue (AC1 and AC2).

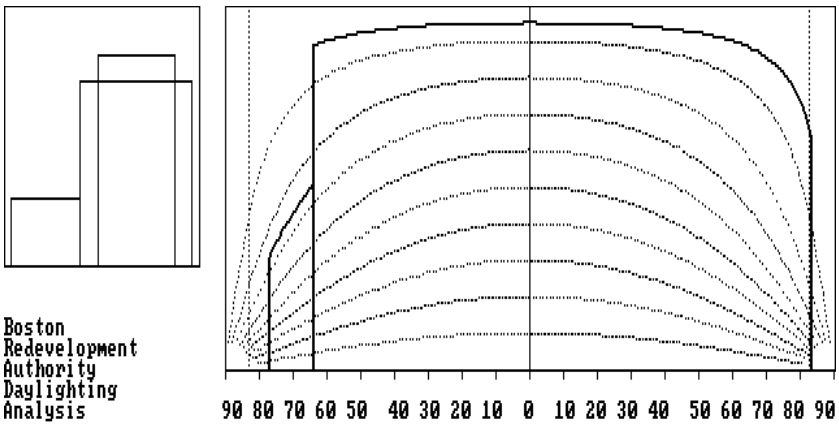
Viewpoint 1:View from Brookline Avenue facing northwest toward the Project site



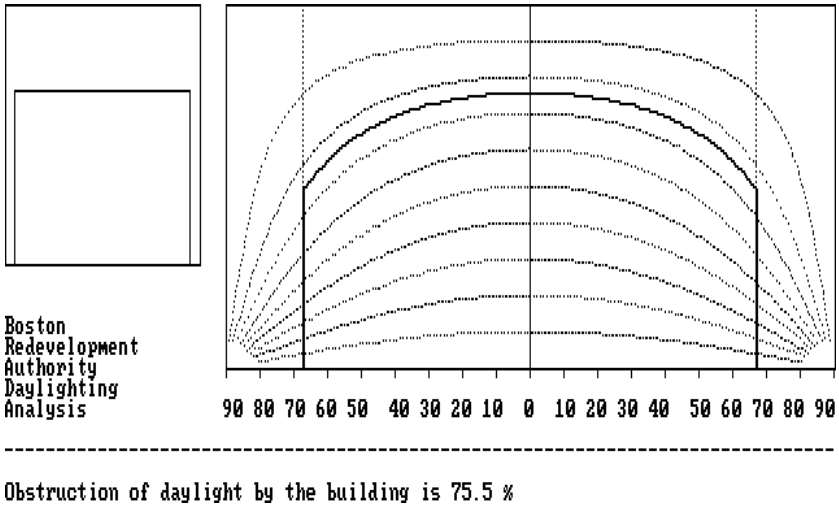
Viewpoint 2: View from Francis Street facing northeast toward the Project site



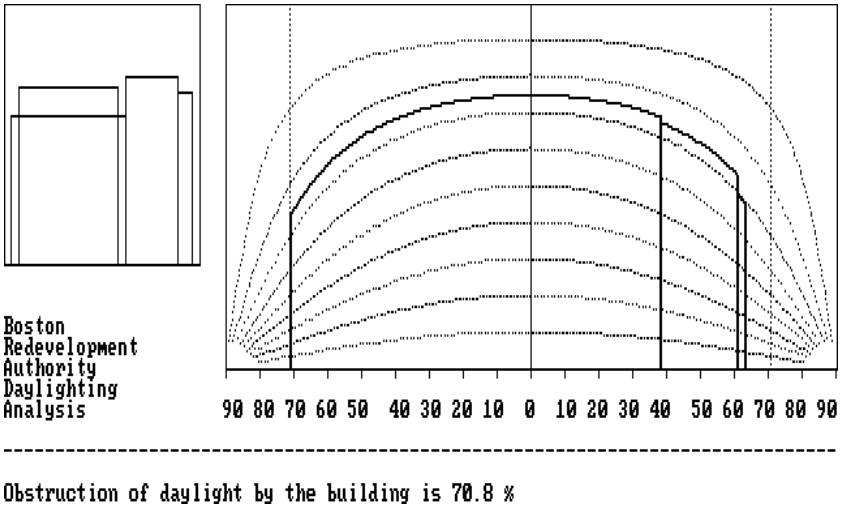
Viewpoint 3: View from Pilgrim Road facing southeast toward the Project site



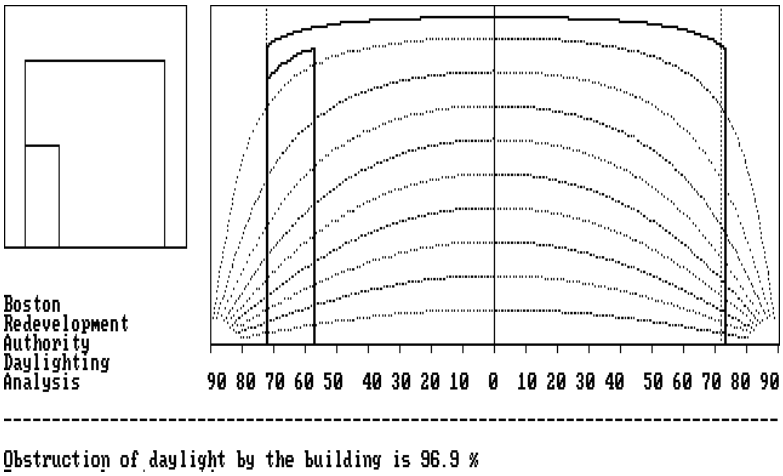
Area Context Viewpoint A1: View from Brookline Avenue facing southeast toward the building at 440 Brookline Avenue



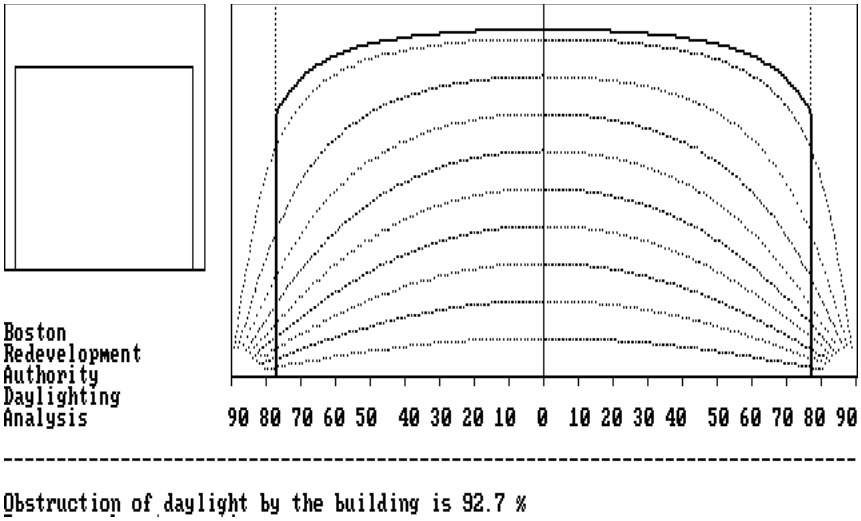
Area Context Viewpoint AC2: View from Brookline Avenue facing northwest toward the Rosenburg Building



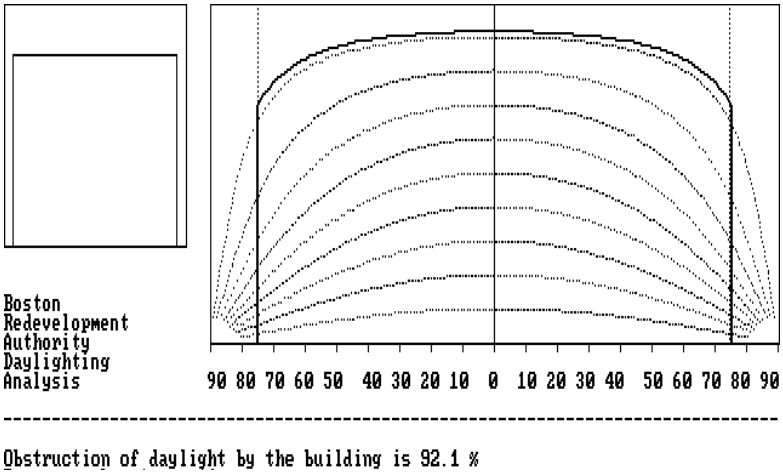
Area Context Viewpoint AC3: View from Pilgrim Road facing northwest toward the building at 185 Pilgrim Road



Area Context Viewpoint A4: View from Binney Street facing southeast toward the building at 300 Longwood Avenue



Area Context Viewpoint AC5: View from Fenwood Road facing northeast toward the building at 65 Fenwood Road



Viewpoint 2 – Francis Street

Francis Street runs along the southwestern edge of the Project site. Viewpoint 2 was taken from the center of Francis Street facing northeast toward the Project site. The development of the Project will result in a daylight obstruction value of 92.7 percent. This daylight obstruction is similar to the daylight obstruction on many of the roadways that weave through the LMA, such as the daylight obstruction along Fenwood Avenue (AC5).

Viewpoint 3 – Pilgrim Road

Pilgrim Road runs along the northwestern edge of the Project site. Viewpoint 3 was taken from the center of Pilgrim Road facing southeast toward the Project site. The development of the Project will result in a daylight obstruction value of 90.0 percent. This is similar to the daylight obstruction at similar narrow roadways within the LMA, such as the daylight obstruction along the length of Pilgrim Road (AC3) and Binney Street (AC4).

Area Context Views

The Project area currently consists of a mix of mid- and high-rise institutional buildings. To provide a larger context for comparison of daylight conditions, obstruction values were calculated for the three Area Context Viewpoints described above and shown on Figure 4.3-1. The daylight obstruction values ranged from 70.8 percent for AC2 to 96.9 percent for AC3. Daylight obstruction values on Brookline Avenue, which is a wide, main street is on the lower end, while the daylight obstruction value along the narrower streets that weave through the LMA is higher.

4.3.4 Conclusions

The daylight analysis conducted for the Project describes proposed daylight obstruction conditions at the Project site and existing conditions in the surrounding area. The results of the BRADA analysis indicate that while the development of the Project will result in increased daylight obstruction over existing conditions, the resulting conditions with be similar to the daylight obstruction found along similar roadways throughout the LMA.

4.4 Air Quality

This section provides an air quality analysis that assesses the impact on air quality at nearby intersections from trips generated by the Project.

The Project does not generate enough traffic to require a mesoscale vehicle emissions quantification analysis. However, the Project creates new trips through local intersections operating at LOS D or worse. Therefore, a microscale analysis of carbon monoxide has been completed to provide information on the Project's impact to air quality from mobile sources.

Any new stationary sources will be reviewed by the Massachusetts Department of Environmental Protection (MassDEP) under the Environmental Results Program, as required. It is expected that all stationary sources will be small, and any impacts from stationary sources would be minimal.

4.4.1 National Ambient Air Quality Standards and Background Concentrations

Background air quality concentrations and federal air quality standards were utilized to conduct the microscale analysis. Federal National Ambient Air Quality Standards (NAAQS) were developed by the U.S. Environmental Protection Agency (EPA) to protect the human health against adverse health effects with a margin of safety. The modeling methodologies were developed in accordance with the latest MassDEP modeling policies and Federal modeling guidelines.[2] The following sections outline the NAAQS standards and detail the sources of background air quality data.

4.4.1.1 National Ambient Air Quality Standards

The 1970 Clean Air Act was enacted by the U.S. Congress to protect the health and welfare of the public from the adverse effects of air pollution. As required by the Clean Air Act, the EPA promulgated NAAQS for the following criteria pollutants: nitrogen dioxide (NO2), sulfur dioxide (SO2), particulate matter (PM) (PM-10 and PM-2.5), carbon monoxide (CO), ozone (O3), and lead (Pb). The NAAQS are listed in Table 4.4-1. Massachusetts Ambient Air Quality Standards (MAAQS) are typically identical to NAAQS (differences are highlighted in **bold** in Table 4.4-1).

NAAQS specify concentration levels for various averaging times and include both "primary" and "secondary" standards. Primary standards are intended to protect human health, whereas secondary standards are intended to protect public welfare from any known or anticipated adverse effects associated with the presence of air pollutants, such as damage to vegetation. The more stringent of the primary or secondary standards were applied when comparing to the modeling results for this Project.

[2] 40 CFR 51 Appendix W, Guideline on Air Quality Models, 70 FR 68228, Nov. 9, 2005

Table 4.4-1 National (NAAQS) and Massachusetts (MAAQS) Ambient Air Quality Standards

Pollutant	Averaging Period	NAAQS ($\mu g/m^3$) Primary	NAAQS ($\mu g/m^3$) Secondary	MAAQS ($\mu g/m^3$) Primary	MAAQS ($\mu g/m^3$) Secondary
NO_2	Annual [1]	100	Same	100	Same
	1-hour [2]	**188**	None	**None**	None
SO_2	Annual [1][9]	80	None	80	None
	24-hour [3][9]	365	None	365	None
	3-hour [3]	None	1300	None	1300
	1-hour [4]	**196**	None	**None**	None
PM-2.5	Annual [1]	**12**	**15**	**None**	**None**
	24-hour [5]	**35**	**Same**	**None**	**None**
PM-10	Annual [1][6]	**None**	None	**50**	Same
	24-hour [3][7]	150	Same	150	Same
CO	8-hour [3]	10,000	Same	10,000	Same
	1-hour [3]	40,000	Same	40,000	Same
Ozone	8-hour [8]	**147**	Same	**235**	Same
Pb	3-month [1]	1.5	Same	1.5	Same

[1] Not to be exceeded.
[2] 98th percentile of one-hour daily maximum concentrations, averaged over three years.
[3] Not to be exceeded more than once per year.
[4] 99th percentile of one-hour daily maximum concentrations, averaged over three years.
[5] 98th percentile, averaged over three years.
[6] EPA revoked the annual PM-10 NAAQS in 2006.
[7] Not to be exceeded more than once per year on average over three years.
[8] Annual fourth-highest daily maximum eight-hour concentration, averaged over three years.
[9] EPA revoked the annual and 24-hour SO_2 NAAQS in 2010. However, they remain in effect until one year after the area's initial attainment designation, unless designated as "nonattainment".

Source: http://www.epa.gov/ttn/naaqs/criteria.html and 310 CMR 6.04

The NAAQS also reflect various durations of exposure. The non-probabilistic short-term periods (24 hours or less) refer to exposure levels not to be exceeded more than once a year. Long-term periods refer to limits that cannot be exceeded for exposure averaged over three months or longer.

4.4.1.2 Background Concentrations

To estimate background pollutant levels representative of the area, the most recent air quality monitor data reported by the MassDEP to EPA was obtained for 2014 to 2016. Data for the pollutant and averaging time combinations were obtained from MassDEP's annual reports and the EPA's AirData website.

The Clean Air Act allows for one exceedance per year of the CO and SO_2 short-term NAAQS per year. The highest second-high accounts for the one exceedance. Annual NAAQS are never to be exceeded. The 24-hour PM-10 standard is not to be exceeded more than once per year on average over three years. To attain the 24-hour PM-2.5 standard, the three-year average of the 98th percentile of 24-hour concentrations must not exceed 35 $\mu g/m^3$. For annual PM-2.5 averages, the average of the highest yearly

observations was used as the background concentration. To attain the one-hour NO_2 standard, the three-year average of the 98th percentile of the maximum daily one-hour concentrations must not exceed 188 $\mu g/m^3$.

Background concentrations were determined from the closest available monitoring stations to the Project site. All pollutants are not monitored at every station, so data from multiple locations are necessary. The closest monitor is at Kenmore Square in Boston, roughly 0.85 miles northeast of the Project site. The next closest monitor is at Harrison Avenue, roughly 1.43 miles east-southeast of the Project site. A summary of the background air quality concentrations are presented in Table 4.4-2. The specific monitor sites associated with each pollutant are presented in Appendix D. Air quality in the vicinity of the site is generally good, with all local background concentrations found to be well below the NAAQS.

Table 4.4-2 Observed Ambient Air Quality Concentrations and Selected Background Levels

Pollutant	Averaging Time	2014	2015	2016	Background Concentration ($\mu g/m^3$)	NAAQS	Percent of NAAQS
SO_2 [1][6]	1-Hour [5]	25.4	14.4	10.7	16.9	196.0	9%
	3-Hour [6]	24.6	11.5	10.0	24.6	1300.0	2%
	24-Hour	13.1	7.6	5.2	13.1	365.0	4%
	Annual	2.5	1.4	1.1	2.5	80.0	3%
PM-10	24-Hour	53.0	30.0	30.0	53.0	150.0	35%
	Annual	15.0	14.2	14.1	15.0	50.0	30%
PM-2.5	24-Hour [5]	14.6	14.5	13.0	14.0	35.0	40%
	Annual [5]	6.1	6.5	6.2	6.3	12.0	52%
NO_2 [3]	1-Hour [5]	92.1	105.3	88.4	95.3	188.0	51%
	Annual	32.3	32.5	28.3	32.5	100.0	33%
CO [2][7]	1-Hour	1489.8	1560.9	2760.7	2760.7	40000.0	7%
	8-Hour	1260.6	1031.4	2062.8	2062.8	10000.0	21%
Ozone [4]	8-Hour	106.0	109.9	113.9	113.9	147.0	77%
Lead	Rolling 3-Month	0.014	0.016	0.017	0.017	0.15	12%

Notes:
From 2014-2016 EPA's AirData Website
[1] SO_2 reported ppb. Converted to $\mu g/m^3$ using factor of 1 ppm = 2.62 $\mu g/m^3$.
[2] CO reported in ppm. Converted to $\mu g/m^3$ using factor of 1 ppm = 1146 $\mu g/m^3$.
[3] NO_2 reported in ppb. Converted to $\mu g/m^3$ using factor of 1 ppm = 1.88 $\mu g/m^3$.
[4] O_3 reported in ppm. Converted to $\mu g/m^3$ using factor of 1 ppm = 1963 $\mu g/m^3$.
[5] Background level is the average concentration of the three years.
[6] The 24-hour and Annual standards were revoked by EPA on June 22, 2010, Federal Register 75-119, p. 35520.
[7] CO monitor at Kenmore Square was deactivated in January 2015. Harrison Avenue monitor used for 2015 and 2016.

4.4.2 Mobile Sources

Mobile sources of air pollution include emissions from gasoline, diesel, and natural gas fueled vehicle traffic. Emissions from mobile sources have continually decreased as engine technology and efficiency have been improved.

4.4.2.1 Methodology

The "microscale" analysis has been required by the Scoping Determination, and is typically required for any intersection where (1) Project traffic would impact intersections or roadway links currently operating at LOS D, E, or F, or would cause LOS to decline to D, E, or F; (2) Project traffic would increase traffic volumes on nearby roadways by 10 percent or more (unless the increase in traffic volume is less than 100 vehicles per hour); or, (3) the Project will generate 3,000 or more new average daily trips on roadways providing access to a single location. The microscale analysis involves modeling of CO emissions from vehicles idling at and traveling through signaled intersections. Predicted ambient concentrations of CO for the Build and No-Build cases are compared with federal (and state) ambient air quality standards for CO.

The microscale analysis typically examines ground-level CO impacts due to traffic queues in the immediate vicinity of a project. CO is used in microscale studies to indicate roadway pollutant levels since it is the most abundant pollutant emitted by motor vehicles and can result in so-called "hot spot" (high concentration) locations around congested intersections. The NAAQS standards do not allow ambient CO concentrations to exceed 35 parts per million (ppm) for a one-hour averaging period, and 9 ppm for an eight-hour averaging period, more than once per year at any location. The widespread use of CO catalysts on current vehicles has reduced the occurrences of CO hotspots. Air quality modeling techniques (computer simulation programs) are typically used to predict CO levels for both existing and future conditions to evaluate compliance of the roadways with the standards. The microscale analysis has been conducted using the latest versions of EPA's MOVES and CAL3QHC programs to estimate CO concentrations at sidewalk receptor locations. Baseline (2018) and future year (2025) emission factor data calculated from the MOVES model, along with traffic data, were input into the CAL3QHC program to determine CO concentrations due to traffic flowing through the selected intersections. The modeling methodology was developed in accordance with the latest MassDEP modeling policies and Federal modeling guidelines.[3]

Existing background values of CO at the nearest monitor location at Harrison Avenue were obtained from MassDEP. CAL3QHC results were then added to background CO values of 2.4 ppm (one-hour) and 1.8 ppm (eight-hour), as provided by MassDEP, to determine total

[3] 40 CFR 51 Appendix W, Guideline on Air Quality Models, 70 FR 68228, Nov. 9, 2005

air quality impacts due to the Project. These values were compared to the NAAQS for CO of 35 ppm (one-hour) and 9 ppm (eight-hour).

Modeling assumptions and backup data for results presented in this section are provided in Appendix D.

Intersection Selection

Four signalized intersections included in the traffic study meets the conditions described at the beginning of this section (see Chapter 3). The traffic volumes and LOS calculations provided in Chapter 3 form the basis of evaluating the traffic data versus the microscale thresholds. The intersections found to meet the criteria are:

- the intersection of Brookline Avenue and Francis Street;
- the intersection of Brookline Avenue and Longwood Avenue;
- the intersection of Brookline Avenue and Riverway; and
- the intersection of Riverway and Longwood Avenue.

Microscale modeling was performed for the intersections based on the aforementioned methodology. The 2018 Existing Condition and the 2025 No-Build and Build conditions were each evaluated for both morning (a.m.) and afternoon (p.m.) peak.

Emissions Calculations (MOVES)

The EPA MOVES computer program was used to estimate motor vehicle emission factors on the roadway network. Emission factors calculated by the MOVES model are based on motor vehicle operations typical of daily periods. The Commonwealth's statewide annual Inspection and Maintenance (I&M) program was included, as well as the county specific vehicle age registration distribution, fleet mix, meteorology, and other inputs. The inputs for MOVES for the existing (2018) and future year (2025) are provided by MassDEP.

All link types for the modeled intersections were input into MOVES. Idle emission factors are obtained from factors for a link average speed of 0 miles per hour (mph). Moving emissions are calculated based on speeds at which free-flowing vehicles travel through the intersection as stated in traffic modeling (Synchro) reports. A speed of 25 mph is used for all free-flow traffic, consistent with the City of Boston speed limit. Speeds of 10 and 15 mph were used for right (and U-turns, if necessary), and left turns, respectively. Roadway emissions factors were obtained from MOVES using EPA guidance.[4]

[4] U.S. EPA, 2010. Using MOVES in Project-Level Carbon Monoxide Analyses. EPA-420-B-10-041

Winter CO emission factors are typically higher than summer. Therefore, January weekday emission factors were conservatively used in the microscale analysis.

Receptors and Meteorology Inputs

Sets of up to 160 receptors were placed in the vicinity of the modeled intersections. Receptors extended approximately 300 feet on the sidewalks along the roadways approaching the intersections. The roadway links and receptor locations of the modeled intersection are presented in Figures 4.4-1 through 4.4-4.

For the CAL3QHC model, limited meteorological inputs are required. Following EPA guidance[5], a wind speed of one meter per second, stability class D(4), and a mixing height of 1,000 meters were used. To account for the intersection geometry, wind directions from 0° to 350°, at every 10° were selected. A surface roughness length of 321 centimeters was selected due to the urban environment.[6]

Impact Calculations (CAL3QHC)

The CAL3QHC model predicts one-hour concentrations using queue-links at signalized intersections, worst-case meteorological conditions, and traffic input data. The one-hour concentrations were scaled by a factor of 0.9 to estimate eight-hour concentrations.[7] The CAL3QHC methodology was based on EPA CO modeling guidance. Signal timings were provided directly from the traffic modeling outputs.

For use in the microscale analysis, background concentrations of CO in ppm were required. The corresponding maximum background concentrations in ppm were 2.4 ppm (2,750 $\mu g/m^3$) for one-hour and 1.8 ppm (2,062 $\mu g/m^3$) for eight-hour CO.

4.4.2.2 Air Quality Results

The results of the maximum one-hour predicted CO concentrations from CAL3QHC are provided in Tables 4.4-3 through 4.4-5 for the 2018 and 2025 scenarios. Eight-hour average concentrations are calculated by multiplying the maximum one-hour concentrations by a factor of 0.9.[8]

---

5 U.S. EPA, Guideline for Modeling Carbon Monoxide from Roadway Intersections. EPA-454/R-92-005, November 1992.

6 U.S. EPA, User's Guide for CAL3QHC Version 2: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections. EPA –454/R-92-006 (Revised), September 1995.

7 U.S. EPA, AERSCREEN User's Guide; EPA-454/B-11-001, March 2011.

8 U.S. EPA, AERSCREEN User's Guide; EPA-454/B-11-001, March 2011.

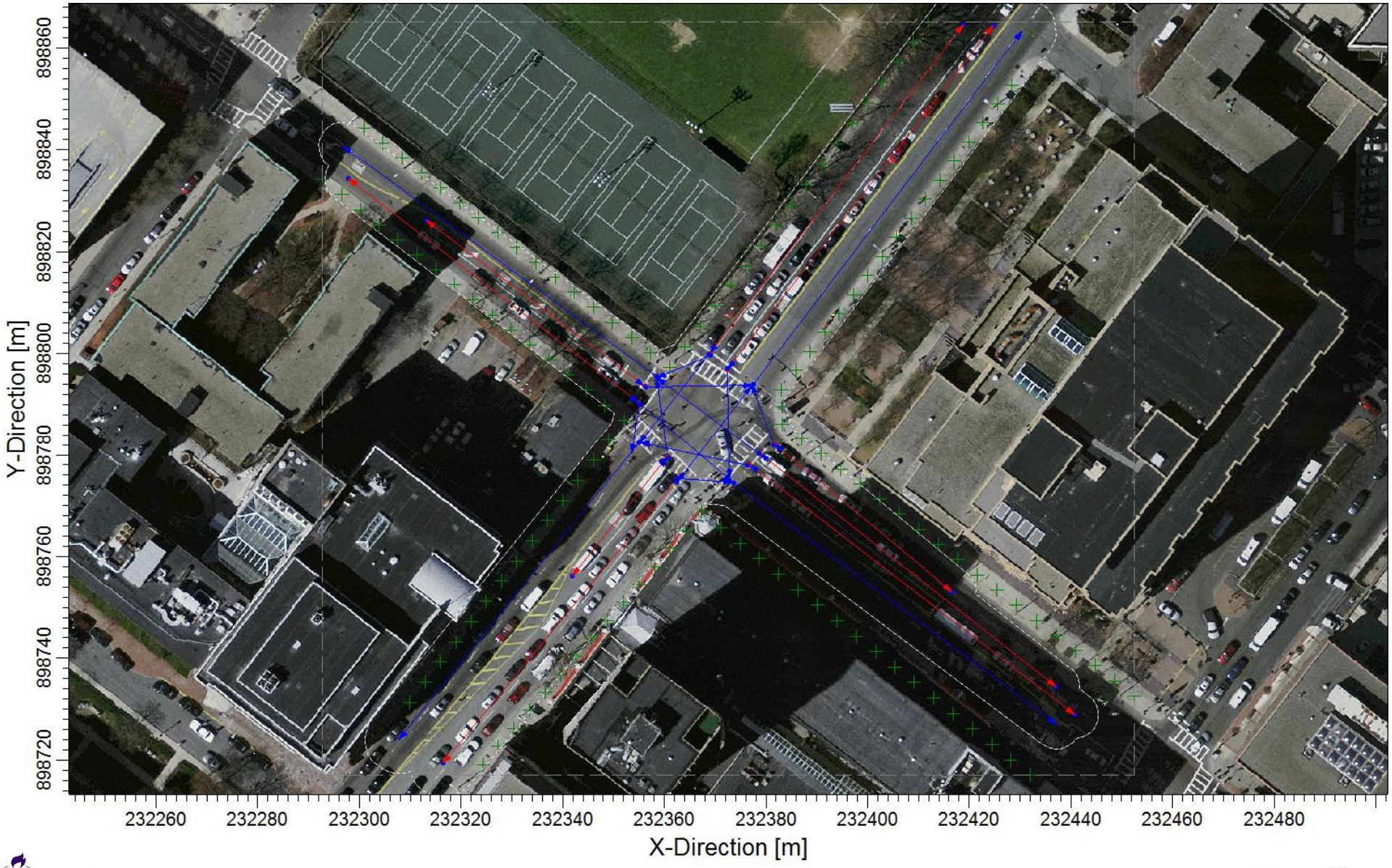


Beth Israel Deaconess Medical Center

Epsilon ASSOCIATES INC.

Figure 4.4-1

Intersection of Brookline Avenue and Francis Street



Beth Israel Deaconess Medical Center

Epsilon ASSOCIATES INC.

BIDMC DPIR

Figure 4.4-2

Intersection of Brookline Avenue and Longwood Avenue

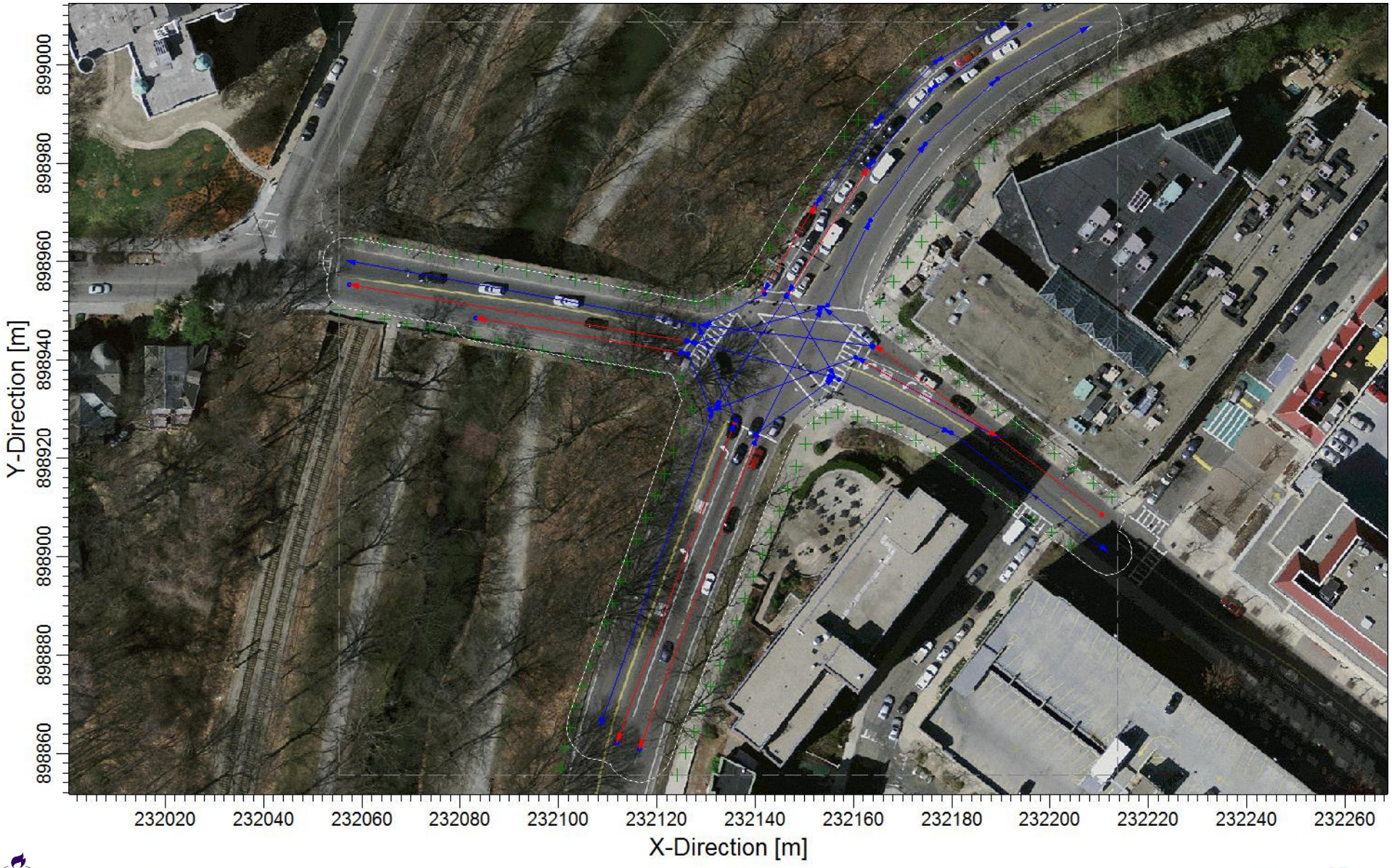


Beth Israel Deaconess Medical Center

Epsilon ASSOCIATES INC.

Figure 4.4-3

Intersection of Brookline Avenue and Riverway



Beth Israel Deaconess Medical Center

Epsilon ASSOCIATES INC.

Figure 4.4-4

Intersection of Riverway and Longwood Avenue

Table 4.4-3 Summary of Microscale Modeling Analysis (Existing 2018)

Intersection	Peak	CAL3QHC Modeled CO Impacts (ppm)	Monitored Background Concentration (ppm)	Total CO Impacts (ppm)	NAAQS (ppm)
1-Hour					
Brookline Avenue and Francis Street	AM	0.2	2.4	2.6	35
	PM	0.2	2.4	2.6	35
Brookline Avenue and Longwood Avenue	AM	0.3	2.4	2.7	35
	PM	0.4	2.4	2.8	35
Brookline Avenue and Riverway	AM	0.3	2.4	2.7	35
	PM	0.3	2.4	2.7	35
Riverway and Longwood Avenue	AM	0.4	2.4	2.8	35
	PM	0.4	2.4	2.8	35
8-Hour					
Brookline Avenue and Francis Street	AM	0.2	1.8	2.0	9
	PM	0.2	1.8	2.0	9
Brookline Avenue and Longwood Avenue	AM	0.3	1.8	2.1	9
	PM	0.4	1.8	2.2	9
Brookline Avenue and Riverway	AM	0.3	1.8	2.1	9
	PM	0.3	1.8	2.1	9
Riverway and Longwood Avenue	AM	0.4	1.8	2.2	9
	PM	0.4	1.8	2.2	9

Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.9.

Table 4.4-4 Summary of Microscale Modeling Analysis (No-Build 2025)

Intersection	Peak	CAL3QHC Modeled CO Impacts (ppm)	Monitored Background Concentration (ppm)	Total CO Impacts (ppm)	NAAQS (ppm)
1-Hour					
Brookline Avenue and Francis Street	AM	0.1	2.4	2.5	35
	PM	0.2	2.4	2.6	35
Brookline Avenue and Longwood Avenue	AM	0.1	2.4	2.5	35
	PM	0.1	2.4	2.5	35
Brookline Avenue and Riverway	AM	0.2	2.4	2.6	35
	PM	0.2	2.4	2.6	35
Riverway and Longwood Avenue	AM	0.2	2.4	2.6	35
	PM	0.2	2.4	2.6	35
8-Hour					
Brookline Avenue and Francis Street	AM	0.1	1.8	1.9	9
	PM	0.2	1.8	2.0	9
Brookline Avenue and Longwood Avenue	AM	0.1	1.8	1.9	9
	PM	0.1	1.8	1.9	9
Brookline Avenue and Riverway	AM	0.2	1.8	2.0	9
	PM	0.2	1.8	2.0	9
Riverway and Longwood Avenue	AM	0.2	1.8	2.0	9
	PM	0.2	1.8	2.0	9

Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.9.

Table 4.4-5 Summary of Microscale Modeling Analysis (Build 2025)

Intersection	Peak	CAL3QHC Modeled CO Impacts (ppm)	Monitored Background Concentration (ppm)	Total CO Impacts (ppm)	NAAQS (ppm)
1-Hour					
Brookline Avenue and Francis Street	AM	0.1	2.4	2.5	35
	PM	0.1	2.4	2.5	35
Brookline Avenue and Longwood Avenue	AM	0.1	2.4	2.5	35
	PM	0.1	2.4	2.5	35
Brookline Avenue and Riverway	AM	0.2	2.4	2.6	35
	PM	0.2	2.4	2.6	35
Riverway and Longwood Avenue	AM	0.2	2.4	2.6	35
	PM	0.2	2.4	2.6	35
8-Hour					
Brookline Avenue and Francis Street	AM	0.1	1.8	1.9	9
	PM	0.1	1.8	1.9	9
Brookline Avenue and Longwood Avenue	AM	0.1	1.8	1.9	9
	PM	0.1	1.8	1.9	9
Brookline Avenue and Riverway	AM	0.2	1.8	2.0	9
	PM	0.2	1.8	2.0	9
Riverway and Longwood Avenue	AM	0.2	1.8	2.0	9
	PM	0.2	1.8	2.0	9

Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.9.

The results of the one-hour and eight-hour maximum modeled CO ground-level concentrations from CAL3QHC were added to EPA supplied background levels for comparison to the NAAQS. These values represent the highest potential concentrations at the intersection as they are predicted during the simultaneous occurrence of "defined" worst case meteorology. The highest one-hour traffic-related concentration predicted in the area of the Project for the modeled Build conditions (0.2 ppm) plus background (2.4 ppm) is 2.6 ppm. The highest eight-hour traffic-related concentration predicted in the area of the Project for the modeled conditions (0.4 ppm) plus background (1.8 ppm) is 2.2 ppm. All

concentrations are well below the one-hour NAAQS of 35 ppm and the eight-hour NAAQS of 9 ppm.

4.4.2.3 Conclusions

Results of the microscale analysis show that all predicted CO concentrations are well below one-hour and eight-hour NAAQS. Therefore, it can be concluded that there are no anticipated adverse air quality impacts resulting from increased traffic from the Project.

4.5 Solid and Hazardous Wastes

4.5.1 Site Hazardous Wastes

Based on environmental site assessment work completed to date and historic information, there is one known historic source of soil contamination at the site consisting of a Massachusetts Department of Environmental Protection (MassDEP) disposal site tracked under Release Tracking Number (RTN) 3-1470 on the southwest portion of the Project site. The disposal site was a historic gasoline station, and contamination at the site was associated with former leaking gasoline and waste oil underground storage tanks (USTs). Gasoline-related contaminants (i.e., benzene, toluene, ethylbenzene, and xylenes [BTEX]; methyl-tertiary-butyl ether, and non-specific petroleum hydrocarbons) were detected in subsurface soils at the former tank location and groundwater on the site. The leaking tanks and contaminated soils were excavated and disposed off-site. The disposal site was closed with a Waiver Completion Statement submitted to MassDEP in 1996. The remainder of the Project site is not currently a MassDEP disposal site, and there are no known sources of soil contamination on the site.

The construction of the Project will include significant excavation activities at the site, and the removal of excess soils that will be disposed off-site. Prior to the commencement of construction of the Project, soil pre-characterization will be performed including chemical testing of excess soils. Excavated excess soils will be handled, managed, and disposed of in a manner that is consistent with applicable laws and regulations.

4.5.2 Operational Solid and Hazardous Wastes

The Project is anticipated to generated approximately 950 tons of solid waste per year. The Project will generate solid waste typical of institutional hospital uses. All waste will be segregated at the point of origin into separate streams. Solid waste is expected to include wastepaper, styrofoam, cardboard, glass bottles, cans and food. The Project will also generate biomedical and infectious wastes typical of medical facilities. Management of hazardous waste is highly regulated for the safety of the public, the environment and the hospital community. BIDMC has an existing hazardous waste collection program, which will be used to handle and dispose of all wastes generated by existing and proposed hospital facilities in accordance with applicable laws and regulations.

Solid and hazardous waste generated by the Project will be handled according to BIDMC's current waste management policy.

4.5.3 Recycling

For 2016, BIDMC set a goal of diverting 30 percent of all solid waste from landfills. BIDMC achieved a 31 percent diversion rate in 2016 based on its recycling and composting efforts. In 2017, BIDMC maintained a 30 percent diversion rate and anticipate exceeding 31 percent for 2018.

BIDMC will continue its waste recycling and diversion programs throughout its LMA campus, and will incorporate the Project into those programs.

4.6 Noise

4.6.1 Introduction

A sound level assessment was conducted that included a baseline sound monitoring program to measure existing sound levels in the vicinity of the Project, computer modeling to predict operational sound levels from proposed mechanical equipment, and a comparison of future Project sound levels to applicable City of Boston Zoning District Noise Standards.

This analysis, which is consistent with BPDA requirements for noise studies, indicates that with appropriate noise controls, predicted sound levels from the Project will comply with local noise regulations.

4.6.2 Noise Terminology

There are several ways in which sound (noise) levels are measured and quantified. All of them use the logarithmic decibel (dB) scale. The following information defines the sound level measurement terminology used in this analysis.

The decibel scale is logarithmic to accommodate the wide range of sound intensities found in the environment. A property of the decibel scale is that the sound pressure levels of two or more separate sounds are not directly additive. For example, if a sound of 50 dB is added to another sound of 50 dB, the total is only a three-dB increase (53 dB), which is equal to a doubling in sound energy, but not equal to a doubling in quantity (100 dB). Thus, every three-dB change in sound level represents a doubling or halving of sound energy. Relative to this characteristic, a change in sound levels of less than three dB is imperceptible to the human ear.

Another property of decibels is that if one source of noise is 10 dB (or more) louder than another source, then the total sound level is simply the sound level of the higher-level

source. For example, a sound source at 60 dB plus another sound source at 47 dB is equal to 60 dB.

A sound level meter (SLM) that is used to measure noise is a standardized instrument.[9] It contains "weighting networks" to adjust the frequency response of the instrument to approximate that of the human ear under various circumstances. The most commonly used weighting network is the A-weighting (there are also C-, and Z-weighting networks) because it most closely approximates how the human ear responds to sound at various frequencies, described in Hertz (Hz). The A-weighting network is the accepted scale used for community sound level measurements, and sounds are frequently reported as detected with a sound level meter with this weighting. A-weighted sound levels emphasize middle frequency sounds (i.e., middle pitched – around 1,000 Hz), and de-emphasize low and high frequency sounds. A-weighted sound levels are reported in decibels designated as "dBA".

Because the sounds in the environment vary with time, many different sound metrics may be used to quantify them. There are two typical methods used for describing variable sounds. These are exceedance levels and equivalent levels, both of which are derived from a large number of moment-to-moment A-weighted sound pressure level measurements. Exceedance levels are values from the cumulative amplitude distribution of all of the sound levels observed during a measurement period. Exceedance levels are designated Ln, where "n" can have a value between 0 and 100 in terms of percentage. Equivalent levels are designated L_{eq} and quantify a hypothetical steady sound that would have the same energy as the actual fluctuating sound observed. The several sound level metrics that are commonly reported in community noise monitoring and are presented in this report are described below.

- L_{90} is the sound level in dBA exceeded 90 percent of the time during a measurement period. The L_{90} is close to the lowest sound level observed. It is essentially the same as the residual sound level, which is the sound level observed when there are no obvious nearby intermittent noise sources.

- L_{50} is the median sound level, the sound level in dBA exceeded 50 percent of the time during the measurement period.

- L_{10} is the sound level in dBA exceeded only 10 percent of the time. It is close to the maximum level observed during the measurement period. The L_{10} is sometimes called the intrusive sound level because it is caused by occasional louder noises like those from passing motor vehicles.

---

[9] *American National Standard Specification for Sound Level Meters*, ANSI S1.4-1983, published by the Standards Secretariat of the Acoustical Society of America, Melville, NY.

- L_{max} is the maximum instantaneous sound level observed over a given period.

- L_{eq} is a sound pressure level commonly A-weighted and presented in dBA. The equivalent level represents the time average of the fluctuating sound pressure, but because sound is represented on a logarithmic scale and the averaging is done with time-averaged mean square sound pressure values, the L_{eq} is primarily controlled by loud noises if there are fluctuating sound levels.

In the design of noise controls, which do not function quite like the human ear, it is important to understand the frequency spectrum of the noise source of interest. The spectra of noises are usually stated in terms of octave-band sound pressure levels, in dB, with the frequency bands being those established by standard (American National Standards Institute [ANSI] S1.11, 1986). To facilitate the noise control design process, the estimates of noise levels in this analysis are also presented in terms of octave-band sound pressure levels. Octave-band measurements and modeling are used in assessing compliance with the City of Boston noise regulations.

4.6.3 Noise Regulations and Criteria

The City of Boston has both a noise ordinance and noise regulations. Chapter 16 §26 of the Boston Municipal Code sets the general standard for noise that is unreasonable or excessive: louder than 50 decibels between the hours of 11:00 p.m. and 7:00 a.m., or louder than 70 decibels at all other hours. The Boston Air Pollution Control Commission (BAPCC) has adopted regulations based on the city's ordinance - "Regulations for the Control of Noise in the City of Boston", which distinguish among residential, business, and industrial districts in the City. In particular, BAPCC Regulation 2 is applicable to the sounds from the Project and is considered in this noise study.

Table 4.6-1 below presents the "Zoning District Noise Standards" contained in Regulation 2.5 of the BAPCC "Regulations for the Control of Noise in the City of Boston," adopted December 17, 1976. These maximum allowable sound pressure levels apply at the property line of the receiving property. The "Residential Zoning District" limits apply to any lot located within a residential zoning district or to any residential use located in another zone except an Industrial Zoning District, according to Regulation 2.2. Similarly, per Regulation 2.3, business limits apply to any lot located within a business zoning district not in residential or institutional use.

Table 4.6-1 City Noise Standards, Maximum Allowable Sound Pressure Levels

Octave-band Center	Residential Zoning District		Residential Industrial Zoning District		Business Zoning District	Industrial Zoning District
Frequency (Hz)	Daytime (dB)	All Other Times (dB)	Daytime (dB)	All Other Times (dB)	Anytime (dB)	Anytime (dB)
32	76	68	79	72	79	83
63	75	67	78	71	78	82
125	69	61	73	65	73	77
250	62	52	68	57	68	73
500	56	46	62	51	62	67
1000	50	40	56	45	56	61
2000	45	33	51	39	51	57
4000	40	28	47	34	47	53
8000	38	26	44	32	44	50
A-Weighted (dBA)	**60**	**50**	**65**	**55**	**65**	**70**

Notes:
1. Noise standards from Regulation 2.5 "Zoning District Noise Standards", City of Boston Air Pollution Control Commission, "Regulations for the Control of Noise in the City of Boston", adopted December 17, 1976.
2. All standards apply at the property line of the receiving property.
3. dB and dBA based on a reference pressure of 20 micropascals.
4. Daytime refers to the period between 7:00 a.m. and 6:00 p.m. daily, except Sunday.

4.6.4 Existing Conditions

A background noise level survey was conducted to characterize the existing "baseline" acoustical environment in the vicinity of the Project. Existing noise sources around the site include: vehicular and truck traffic along local streets, ambulance sirens, nearby passing trains, pedestrian traffic, push to cross signals at crosswalks, mechanical noise from surrounding buildings, overhead planes, daytime & nighttime construction activity and equipment operation, garage exit alarms, wind, geese/birds, and the general city soundscape.

4.6.5 Noise Monitoring Methodology

Since noise impacts from the Project on the community will be highest when background noise levels are the lowest, the study was designed to measure community noise levels under conditions typical of a "quiet period" for the area. Therefore, daytime measurements were scheduled to avoid peak traffic conditions. Sound level measurements were made on Tuesday, April 3, 2018 during the daytime (1:30 p.m. to 3:30 p.m.) and on Tuesday, April 3, 2018 during nighttime hours (12:30 a.m. to 3:00 a.m.). All measurements were 20 minutes in duration.

Sound levels were measured at publicly accessible locations at a height of five feet (1.5 meters) above ground level, under low wind conditions, and with dry roadway surfaces.

Wind speed measurements were made with a Davis Instruments TurboMeter electronic wind speed indicator, and temperature and humidity measurements were made using a General Tools digital psychrometer. Unofficial observations about meteorology or land use in the community were made solely to characterize the existing sound levels in the area and to estimate the noise sensitivity at properties near the Project site.

4.6.6 Noise Monitoring Locations

The selection of the noise monitoring locations was based upon a review of zoning and land use in the Project area. Four noise monitoring locations were selected as representative sites to obtain a sampling of the ambient baseline noise environment. These measurement locations are depicted on Figure 4.6-1 and described below.

- **Location 1** is located on the southern sidewalk of Fenwood Road near the corner of Brookline Avenue, next to the Mosaic Residential Building. This location is representative of the closest residential receptors to the south of the Project.

- **Location 2** is located on the eastern sidewalk of Brookline Avenue at 450 Brookline Avenue, in front of the Dana-Farber Yawkey Center for Cancer Care. This location represents the closest institutional receptors to the east of the Project.

- **Location 3** is located on the southern sidewalk of Francis Street at 80 Francis Street, near the corner of Francis Street and Binney Street. This location is representative of the closest residential receptors to the southeast of the Project.

- **Location 4** is located along the western sidewalk of Riverway, near the corner of Riverway and south of Netherlands Road. This location is representative of The Olmsted Necklace and the closest residential receptors to the west of the Project.

4.6.7 Noise Monitoring Equipment

A Larson Davis Model 831 sound level meter equipped with a PCB PRM831 preamplifier, a PCB 377B20 half-inch microphone, and manufacturer-provided windscreen was used to collect background sound pressure level data. This instrumentation meets the "Type 1 - Precision" requirements set forth in ANSI S1.4 for acoustical measuring devices. The measurement equipment was calibrated in the field before and after the surveys with a Larson Davis CAL200 acoustical calibrator which meets the standards of IEC 942 Class 1L and ANSI S1.40-1984. Statistical descriptors (e.g., L_{eq}, L_{90}, etc.) were measured for each 20-minute sampling period, with octave-band sound levels corresponding to the same data set processed for the broadband levels.

4.6.8 Measured Background Sound Levels

Baseline noise monitoring results are presented in Table 4.6-2 and summarized below:

- The daytime residual background (L_{90}) measurements ranged from 60 to 67 dBA;
- The nighttime residual background (L_{90}) measurements ranged from 54 to 65 dBA;
- The daytime equivalent level (L_{eq}) measurements ranged from 67 to 73 dBA;
- The nighttime equivalent level (L_{eq}) measurements ranged from 60 to 67 dBA.

G:\Projects2\MA\Boston\4753\NOISE\MXD\Sound_Monitoring_Locations_20180718.mxd

Data Source: Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division



Beth Israel Deaconess Medical Center

Epsilon Associates Inc.

BIDMC DPIR

Figure 4.6-1

Sound Monitoring Locations

Table 4.6-2 Summary of Measured Background Noise Levels – April 3, 2018 (Daytime) & (Nighttime)

Location	Period	Start Time	LA_{eq}	LA_{max}	LA_{10}	LA_{50}	LA_{90}	L_{90} Sound Pressure Level by Octave-Band Center Frequency (Hz)									
								31.5	63	125	250	500	1000	2000	4000	8000	16000
			dBA	dBA	dBA	dBA	dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB	dB
1	Day	1:58 p.m.	67	82	69	65	62	70	67	64	61	59	58	52	45	33	23
2	Day	2:41 p.m.	70	90	72	69	67	73	69	66	63	63	63	60	52	41	30
3	Day	2:19 p.m.	73	92	73	68	66	71	68	65	65	63	62	57	52	40	29
4	Day	1:37 p.m.	69	81	72	68	60	67	64	61	58	56	56	51	42	31	24
1	Night	1:34 a.m.	67	79	69	66	64	75	67	68	62	58	60	57	49	39	26
2	Night	2:42 a.m.	67	79	68	66	65	67	64	64	63	62	61	58	49	37	23
3	Night	1:12 a.m.	66	79	67	65	64	71	65	64	64	62	60	54	47	28	21
4	Night	1:56 a.m.	60	74	55	54	54	60	58	61	54	51	48	44	36	20	21

Note: Sound pressure levels are rounded to the nearest whole decibel.

Weather Conditions:

	Date	Temperature	RH	Sky	Wind
Daytime	Tuesday, April 3, 2018	48°F	39%	Overcast	S @ 5 mph
Nighttime	Tuesday, April 3, 2018	35°F	33%	Mostly Clear	Calm

Monitoring Equipment Used:

	Manufacturer	Model	S/N
Sound Level Meter	Larson Davis	LD831	2155
Microphone	Larson Davis	377B20	112256
Preamp	Larson Davis	PRM831	16478
Calibrator	Larson Davis	Cal200	2853

4.6.9 Future Conditions – Overview of Potential Project Noise Sources

The primary sources of continuous sound exterior to the Project will consist of ventilation, heating, cooling, and emergency power noise sources. Multiple noise sources will be located on the rooftop, and intake louvers will be located on the façades of the building between the first and second floors, along with the eleventh floor and mechanical penthouse level. Chillers located in the building will be fully enclosed in the mechanical penthouse level, and therefore are not included as an exterior noise source.

Table 4.6-3 provides an anticipated list of the major sources of sound. Sound power levels used in the acoustical modeling of each piece of equipment are presented in Table 4.6-4. Sound power level data were provided by the respective manufacturer of each piece of equipment, or by calculations based on equipment size and capacity.

The Project includes select noise-control measures that are necessary to achieve compliance with the applicable noise regulations. As the design progresses, specifications for mechanical equipment may change; however, appropriate measures will be taken to ensure compliance with the City Noise Standards. All exhaust fans, outside of those located on the upper roof, will be attenuated through acoustical louvers. The emergency generators' sound levels will be controlled using acoustical louvers, exhaust silencers and each will be fully enclosed. To further limit impacts from the standby generators, required periodic, routine testing will be conducted during daytime hours, when background sound levels are highest. A summary of the noise mitigation proposed for the Project is presented in Table 4.6-5.

Table 4.6-3 Modeled Noise Sources

Noise Source	Quantity	Approximate Location & Elevation	Size/Capacity
Cooling Tower	4	Upper roof	529,500 CFM
Air Handling Unit	2	Upper roof	60,000 CFM
Garage, Ground Level, & Roof Exhaust Fan	5	Ground level east facade, ground level west facade & upper roof	10,000 CFM
Ground Level, HVAC & Roof Exhaust Fan	7	Ground level east facade, south facade & upper roof	5,000 CFM
Roof Exhaust Fan	1	Upper roof	1,000 CFM
Emergency Generator	3	Upper roof & east facade	2000 kW

Table 4.6-4 Modeled Sound Power Levels per Noise Source

Noise Source	Broad-band (dBA)	Sound Level (dB) per Octave-Band Center Frequency (Hz)								
		31.5	63	125	250	500	1k	2k	4k	8k
Cooling Tower	92	99[1]	99	93	92	88	87	84	79	72
Air Handling Unit	92	94[1]	94	89	90	91	85	84	83	74
10,000 CFM Exhaust Fan	84	81[1]	81	83	80	82	81	75	68	61
5,000 CFM Exhaust Fan	86	98[1]	98	92	90	83	80	75	68	63
1,000 CFM Exhaust Fan[4]	66	63[1]	63	65	62	64	63	57	50	43
Emergency Generator (Exhaust)[3]	129	137[1]	137[2]	137	131	122	121	121	121	118
Emergency Generator (Mechanical)[3]	122	115[1]	115[2]	115	116	114	115	116	114	118

Notes: Sound power levels assumes equipment operating at maximum load.

1. No data provided by manufacturer. Octave-band sound level assumed to be equal to the 63 Hz band level.
2. No data provided by manufacturer. Octave-band sound level assumed to be equal to the 125 Hz band level.
3. Sound power levels calculated from sound pressure level data measured at a distance of 15 meters.
4. Only broadband power level data provided. Octave band data created from scaling 10,000 CFM Exhaust Fan.

Table 4.6-5 Attenuation Values Applied to Mitigate Each Noise Source

Noise Source	Form of Mitigation	Broad-band (dBA)	Sound Level (dB) per Octave-Band Center Frequency (Hz)								
			31.5	63	125	250	500	1k	2k	4k	8k
Exhaust Fans	Louver[1]		0	5	10	9	13	20	29	10	5
Generator Exhausts	Silencer[2]		22	22	27	32	37	38	36	35	34
Generator Enclosure	Enclosure	25									

Notes:

1. Greenheck model AFJ-120 acoustical louver transmission loss
2. Miratech DHK-18-205357 Disk Hospital Grade Silencer

4.6.10 Noise Modeling Methodology

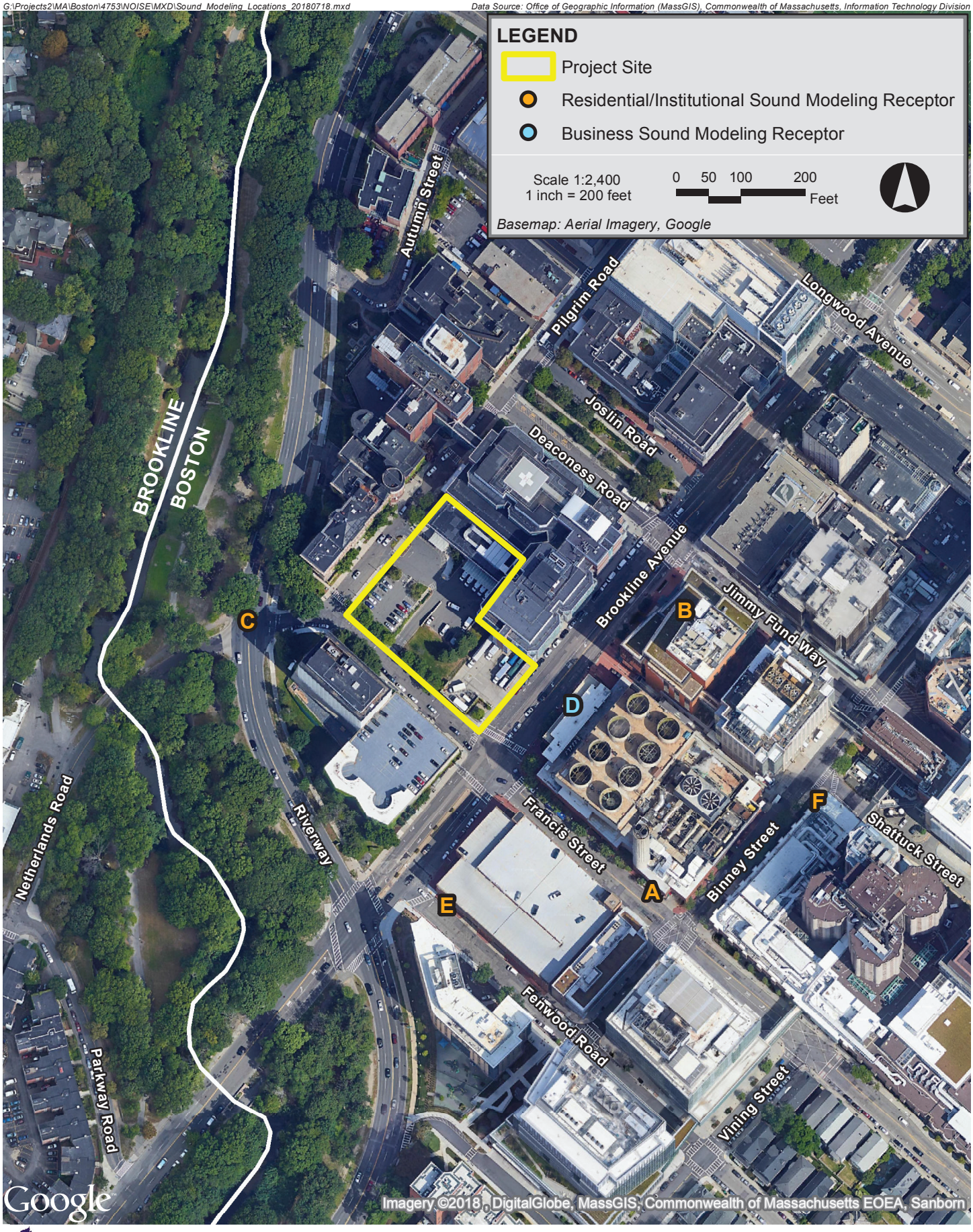
The noise impacts associated with the Project were predicted at the nearest and most representative receptors using the CadnaA noise calculation software developed by DataKustik GmbH. This software uses the ISO 9613-2 international standard for sound propagation (Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation). The benefits of this software are a refined set of computations due to the inclusion of topography, ground attenuation, multiple building reflections, drop-off with distance, and atmospheric absorption. The CadnaA software allows for octave-band calculation of noise from multiple noise sources, as well as computation of diffraction around building edges.

4.6.11 Future Sound Levels – Nighttime

The analysis of sound levels at night included all the mechanical equipment operating at max loads, except the emergency generators, to simulate worst-case nighttime operation conditions at nearby receptors. Five modeling locations were included in the analysis. Modeling receptor A is near a residential/institutional property located at 80 Francis Street to the southeast of the Project, and is near monitoring location 3. Modeling location B is a residential/institutional zoned property located at 450 Brookline Avenue to the east of the Project site, and is near monitoring location 2. Modeling location C is adjacent to the Project site just to the west, representing the Olmsted Necklace's closest property line. This is a residential/institutional zoned property and is near monitoring location 4. Modeling location D is a business property located at 474 Brookline Avenue to the east of the Project site. Modeling location E is a residential/institutional zoned building to the south of the Project site, and is the closest residential property in the surrounding area, which is where monitoring location 1 occurred as well. Modeling location F is a hospital building, along Binney Street within the line of sight to the Project site. This is a residential/institutional zoned property. The modeling receptors, which correspond to residential/institutional and business uses in the community, are depicted in Figure 4.6-2. The predicted exterior Project-only sound levels range from 27 to 50 dBA at nearby receptors. The City of Boston Residential and Business limits have been applied to the appropriate locations. Predicted sound levels from Project-related equipment are within the broadband and octave-band nighttime limits under the City Noise Standards at all modeling locations. The evaluation is presented in Table 4.6-6.

Table 4.6-6 Comparison of Future Predicted Project-Only Nighttime Sound Levels to the City of Boston Limits

Modeling Location ID	Zoning / Land Use	Broadband (dBA)	Sound Level (dB) per Octave-Band Center Frequency (Hz)								
			31.5	63	125	250	500	1k	2k	4k	8k
A	Residential/Institutional	33	54	49	40	38	29	21	15	14	1
B	Residential/Institutional	42	62	58	48	47	38	31	23	24	16
C	Residential/Institutional	32	51	47	38	34	31	24	19	17	7
D	Business	50	72	67	57	55	47	38	26	34	31
E	Residential/Institutional	35	57	52	42	40	31	23	17	14	0
F	Residential/Institutional	27	47	43	34	30	25	20	14	5	-21
City of Boston Limits	**Residential/Institutional**	**50**	**68**	**67**	**61**	**52**	**46**	**40**	**33**	**28**	**26**
	Business	**65**	**79**	**78**	**73**	**68**	**62**	**56**	**51**	**47**	**44**



Beth Israel Deaconess Medical Center

Epsilon Associates Inc.

BIDMC DPIR

Figure 4.6-2

Sound Modeling Locations

4.6.12 Future Sound Levels – Daytime

As previously noted, the emergency generators will only operate during the day for brief, routine testing when the background sound levels are high, or during an interruption of power from the electrical grid. A second analysis combined noise from the Project's mechanical equipment and its emergency generators to reflect worst-case conditions during a period of equipment testing. The sound levels were calculated at the same receptors as in the nighttime analysis, and then evaluated against daytime limits. The predicted exterior Project-only daytime sound levels range from 31 to 50 dBA at nearby receptors. Predicted sound levels from Project-related equipment are within the daytime broadband and octave-band limits under the City Noise Standards at each of the modeled locations. This evaluation is presented in Table 4.6-7.

Table 4.6-7 Comparison of Future Predicted Project-Only Daytime Sound Levels to City Noise Standards

Modeling Location ID	Zoning / Land Use	Broadband (dBA)	Sound Level (dB) per Octave-Band Center Frequency (Hz)								
			31.5	63	125	250	500	1k	2k	4k	8k
A	Residential/Institutional	34	56	53	44	39	29	22	17	15	2
B	Residential/Institutional	42	63	59	50	47	38	31	23	24	16
C	Residential/Institutional	43	60	56	49	44	38	32	25	37	36
D	Business	50	72	67	57	55	47	38	27	34	31
E	Residential/Institutional	38	61	58	49	41	31	24	20	16	2
F	Residential/Institutional	31	53	50	42	32	25	20	16	9	-10
City of Boston Limits	**Residential/Institutional**	**60**	**76**	**75**	**69**	**62**	**56**	**50**	**45**	**40**	**38**
	Business	**65**	**79**	**78**	**73**	**68**	**62**	**56**	**51**	**47**	**44**

4.6.13 Conclusions

Baseline noise levels were measured in the vicinity of the Project during the day and at night. At these and additional locations, future Project-only sound levels were calculated based on information provided on the expected mechanical equipment. Project-only sound levels were compared to applicable limits.

Predicted mechanical equipment noise levels from the proposed Project at each receptor location, taking into account attenuation due to distance, structures, and noise-control measures, will be at or below the octave-band requirements of the City Noise Standards. The predicted sound levels from Project-related equipment, as modeled, are expected to remain below 50 dBA at residences; therefore, within the nighttime residential zoning limits for the City of Boston at the nearest residential receptors. The results indicate that the Project can operate without substantial impact on the existing acoustical environment.

At this time, while the mechanical equipment and noise controls have been refined, they are still conceptual in nature. During the final design phase of the Project, mechanical equipment and noise controls will be specified and designed to meet the applicable broadband limit and the corresponding octave-band limits of the City Noise Standards.

4.7 Nighttime Lighting

4.7.1 Exterior Lighting

It is not currently anticipated that the Project will have significant nighttime lighting of any building facades. Street-level lighting will be designed to illuminate the ground plane as required to provide for safe night-time navigation of the site by pedestrians, and to support the vehicular drop-off along Francis Street. Street-level lighting will be selected to have horizontal cut-off and will be positioned to limit the amount of light that spills beyond the BIDMC property line. A limited amount of low-level accent lighting may also be provided to highlight the landscaped edge where the building meets the ground along Brookline Avenue, Francis Street and Pilgrim Road. Lighting will also be provided in the ambulance drop-off area which, though technically an exterior space, is completely covered by upper floors of the Project and partially enclosed by screen walls. Additional exterior lighting may be provided in the roof garden, though this area will also be designed to provide for safe pedestrian navigation of the garden and thus will be primarily focused on properly illuminating the ground plane.

4.7.2 Interior Lighting

By its very nature, hospitals are open and operational 24 hours a day, 365 days a year and thus it is to be expected that interior lights in many locations may be on at any time of the day or night. Typically, the inpatient floors of the building (Levels 4 through 9) will have minimal interior lighting during the late evening/early morning hours when most patients will be sleeping. Interior lights in patient rooms may be turned on during late evening/early morning hours as patient care needs dictate.

The radiology and peri-operative floors (Levels 3 and 4) typically have perimeter corridors which will be illuminated during normal waking hours, but will be set back to lower levels of illumination in the late evening/early morning time periods. Similar to the patient rooms, it is possible that perimeter corridors will be illuminated during 'off-hours' if patient care needs dictate the use of those spaces during those periods of time. It is expected that the major patient/visitor and staff spaces located along the perimeter of the building (main entrance lobby, sky lobbies on elevated floors, pedestrian connectors at Levels 3 and 4, etc.) will be illuminated during normal waking hours, but will be set back to lower levels of illumination in the late evening/early morning time periods.

Interior lighting will generally make use of LED fixtures, though fluorescent fixtures may be used in some circumstances. Incandescent lighting will not be used. Most occupied spaces

will use recessed light fixtures, though surface-mounted wall sconces, surface-mounted linear up-lights and recessed cove lighting may also be used in some locations (typically corridors). Public lobbies are likely to use a combination of fixture types including recessed, pendant and cove lighting fixtures.

4.8 Flood Hazards/Wetlands

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the site located in the City of Boston - Community Panel Number 25025C0078G, effective September 25, 2009, indicates the FEMA Flood Zone Designations for the site area. The map shows that the Project is located in a Zone X, "Areas determined to be outside the 0.2 percent annual chance floodplain."

The site does not contain wetlands.

4.9 Geotechnical/Groundwater

Historic subsurface information is available from subsurface explorations for the following completed projects: BIDMC Rosenberg Building and Emergency Room Expansion (2000), the MATEP power plant (1990), and the Dana-Farber Yawkey Center Building. In addition, a preliminary subsurface investigation for the Project was performed in Fall 2017. The Project is not located in the Groundwater Conservation Overlay District.

Sub-surface soil conditions within the proposed building footprint are expected to generally consist of up to 30 feet of fill, approximately 40 feet of interbedded silty sand and sandy lean clay, more than 50 feet of widely graded gravel and medium dense sand, and a thin layer of glacial till overlying bedrock. The depth to the conglomerate bedrock is expected to vary across the site from about 100 feet to over 160 feet.

An upper and lower groundwater aquifer are present at the site with the upper aquifer perched on the upper clay layer at about El. 30. The lower aquifer in the gravel and sand layer below the interbedded silty sand and clay is at about El. 10.

The Project is intended to maximize the allowable build-out of the site with two levels of below grade space. A portion of the basement will be used for hospital operations, and a portion will be used to house a fire protection tank, stormwater storage tank, and fuel storage tanks. The top of the lowest floor level is expected to be at about El. 10.

Approximately 38,300 cubic yards of soil will need to be excavated and disposed off-site. To minimize delays in construction, the displaced soils will be pre-characterized so that they can be directly loaded onto trucks for off-site disposal.

Due to the proximity of nearby structures, roadways, and utilities in the roadways, excavation support will be required. As an alternative to sheet piles, which could produce vibrations during installation that are disruptive to hospital operations, the excavation will

be supported using internally braced slurry walls. Existing utilities and remnant foundations in the building footprint will be excavated and removed prior to construction of the Project.

Given the depth of the excavation and planned use of slurry walls, it is anticipated that limited construction dewatering and discharge of dewatering effluent will be required. Since a portion of the site is a closed MassDEP disposal site, dewatering discharge will be performed under a NPDES Remediation General Permit (RGP).

The Project will be supported on deep foundations bearing in the bedrock. A perimeter slurry wall extending at least 15 feet into the interbedded sand and clay layer will surround the entire below grade space of the building and serve as a groundwater cutoff. The lowest level floor slab is expected to be waterproofed in the occupied areas of the building. A pressure relief system to relieve groundwater pressures during periods of high groundwater may be installed below the lowest level floor slab. The pressure relief system will be designed to not lower groundwater levels outside the building footprint below their current levels.

Seismic Considerations

A Site Class D for seismic design in accordance with Section 1613.3.2 of the 9th Edition of the Massachusetts Building Code has been proposed for the Project. Based on criteria provided in Section 1806.4 of the Building Code (Massachusetts Amendments to the IBC), the soils below the foundation level are not considered susceptible to earthquake-induced liquefaction.

4.10 Construction Impacts

4.10.1 Introduction

A Construction Management Plan (CMP) in compliance with the City's Construction Management Program will be submitted to BTD once final plans are developed and the construction schedule is fixed. The construction manager will be required to comply with the details and conditions of the approved CMP.

Proper pre-planning with the City and neighborhood will be essential to the successful construction of the Project. Construction methodologies which ensure public safety and protect nearby businesses, will be employed. Techniques such as barricades, walkways and signage will also be used. The CMP will include routing plans for trucking and deliveries, plans for the protection of existing utilities, and methods for the control of noise and dust.

During the construction phase of the Project, the Proponent will provide the name, telephone number and address of a contact person to communicate with on issues related to the construction.

4.10.2 Construction Methodology / Public Safety

Construction methodologies that ensure public safety and protect nearby pedestrians, bicyclists and vehicles will be employed. Techniques such as barricades and signage will be used. Construction management and scheduling will minimize impacts on the surrounding environment and will include plans for construction worker commuting and parking, routing plans for trucking and deliveries, and the control of noise and dust.

As the design of the Project progresses, the Proponent will meet with BTD to discuss the specific location of barricades, the need for lane closures, pedestrian walkways, and truck queuing areas. Secure fencing, signage, and covered walkways may be employed to ensure the safety and efficiency of all pedestrian and vehicular traffic flows. In addition, sidewalk areas and walkways near construction activities will be well marked and lighted to protect pedestrians and ensure their safety. Public safety for pedestrians on abutting sidewalks will also include covered pedestrian walkways when appropriate. If required by BTD and the Boston Police Department, police details will be provided to facilitate traffic flow. These measures will be incorporated into the CMP which will be submitted to BTD for approval prior to the commencement of construction work.

4.10.3 Construction Schedule

Construction will begin at the receipt of all necessary approvals (anticipated to be in 2019), with operations starting in the fourth quarter of 2022.

Typical construction hours will be from 7:00 a.m. to 6:00 p.m., Monday through Friday, with most shifts ordinarily ending at 3:30 p.m. No substantial sound-generating activity will occur before 7:00 a.m. If longer hours, additional shifts, or Saturday work is required, the construction manager will place a work permit request to the Boston Air Pollution Control Commission and BTD in advance. Some activities such as finishing activities could run beyond 6:00 p.m. to ensure the structural integrity of the finished product; for example, certain components must be completed in a single pour, and placement of concrete cannot be interrupted.

4.10.4 Construction Staging / Access

Access to the Project site and construction staging areas will be as provided in the CMP approved by BTD.

Although specific construction and staging details have not been finalized, the Proponent and its construction manager will work to ensure that staging areas will be located to minimize impacts to pedestrian and vehicular flow in the area. Secure fencing and barricades will be used as appropriate, to isolate construction areas from pedestrian traffic adjacent to the Project site. Construction procedures will be designed to meet all Occupational Safety and Health Administration (OSHA) safety standards for specific site construction activities.

4.10.5 Construction Mitigation

The Proponent will follow City of Boson and MassDEP guidelines which will direct the evaluation and mitigation of construction impacts.

A CMP will be submitted to BTD for review and approval prior to issuance of a Building Permit. The CMP will include detailed information on specific construction mitigation measures and construction methodologies to minimize impacts to abutters and the local community. The CMP will also define truck routes which will help in minimizing the impact of trucks on City and neighborhood streets.

"Don't Dump - Drains to Charles River" plaques will be installed at storm drains that are replaced or installed as part of the Project.

4.10.6 Construction Employment and Worker Transportation

The number of workers required during the construction period will vary. It is anticipated that approximately 400 construction jobs will be created over the length of the construction period. The Proponent will make reasonable good-faith efforts to have at least 51 percent of the total employee work hours be for Boston residents, at least 40 percent of total employee work hours be for minorities and at least 12 percent of the total employee work hours be for women. The Proponent will enter into a Boston Residents Construction Employment Plan with the BPDA with respect to the Project.

To reduce vehicle trips to and from the Project site, minimal construction worker parking will be available on-site and all workers will be strongly encouraged to use public transportation and ridesharing options. The construction manager will work aggressively to ensure that construction workers are well informed of the public transportation options serving the area. Space on-site will be made available for workers' supplies and tools so they do not have to be brought to the Project site each day.

4.10.7 Construction Truck Routes and Deliveries

Truck traffic will vary throughout the construction period, depending on the activity. The construction team will manage deliveries to the Project site during morning and afternoon peak hours in a manner that minimizes disruption to traffic flow on adjacent streets, particularly Herald Street. Construction truck routes to and from the Project site for contractor personnel, supplies, materials, and removal of excavations required for the development will be coordinated with BTD, and traffic logistics and routing will be planned to minimize community impacts. Truck access during construction will be determined by the BTD as part of the CMP. These routes will be mandated as a part of all subcontractors' contracts for the Project. The construction team will provide subcontractors and vendors with Construction Vehicle & Delivery Truck Route Brochures in advance of construction activity.

"No Idling" signs will be included at the loading, delivery, pick-up and drop-off areas.

4.10.8 Construction Air Quality

Short-term air quality impacts from fugitive dust may be expected during demolition, excavation and the early phases of construction. Plans for controlling fugitive dust during demolition, excavation and construction include mechanical street sweeping, wetting portions of the site during periods of high wind, and careful removal of debris by covered trucks. The construction contract will provide for a number of strictly enforced measures to be used by contractors to reduce potential emissions and minimize impacts. These measures are expected to include:

- Using wetting agents on areas of exposed soil on a scheduled basis;
- Using covered trucks;
- Minimizing spoils on the construction site;
- Monitoring of actual construction practices to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized;
- Minimizing storage of debris on site; and
- Periodic street and sidewalk cleaning with water to minimize dust accumulations.

4.10.9 Construction Noise

The Proponent is committed to mitigating noise impacts from the construction of the Project, as there is a nearby major residential development. Increased community sound levels, however, are an inherent consequence of construction activities. Construction work at the Project will comply with the requirements of the City of Boston Noise Ordinance, and reasonable efforts will be made to minimize the noise impact of all construction activities.

Mitigation measures are expected to include:

- Instituting a proactive program to ensure compliance with the City of Boston Noise Ordinance;
- Using appropriate mufflers on all equipment and ongoing maintenance of intake and exhaust mufflers;
- Muffling enclosures on continuously running equipment, such as air compressors and welding generators;

- Replacing specific construction operations and techniques by less noisy ones where feasible;
- Selecting the quietest of alternative items of equipment where feasible;
- Scheduling equipment operations to keep average noise levels low, to synchronize the noisiest operations with times of highest ambient levels in the area, and to maintain relatively uniform noise levels;
- Turning off idling equipment; and
- Locating noisy equipment at locations that protect sensitive locations by shielding or distance.

4.10.10 Construction Waste

The Proponent will take an active role with regard to the reprocessing and recycling of waste products generated by the construction of the Project. The disposal contract will include specific requirements that will ensure that construction procedures allow for the necessary segregation, reprocessing, reuse and recycling of materials when possible. For those materials that cannot be recycled, solid waste will be transported in covered trucks to an approved solid waste facility, per MassDEP Regulations for Solid Waste Facilities, 310 CMR 16.00. This requirement will be specified in the disposal contract. Construction will be conducted so that materials that may be recycled are segregated from those materials not recyclable to enable disposal at an approved solid waste facility.

4.10.11 Protection of Utilities

Existing public and private infrastructure located within nearby public rights-of-way will be protected during construction of the Project. The installation of proposed utilities within the public way will be in accordance with all MWRA, BWSC, Boston Public Works, Dig Safe, and applicable utility company requirements. All necessary permits will be obtained before the commencement of specific utility installations. Specific methods for constructing proposed utilities where they are near to, or connect with, existing water, sewer and drain facilities will be reviewed by the BWSC as part of its Site Plan Review process.

4.11 Rodent Control

A rodent extermination certificate will be filed with the building permit application for the Project. Rodent inspection monitoring and treatment will be carried out before, during, and at the completion of all construction work for the Project, in compliance with the City's requirements.

4.12 Wildlife Habitat

The Project site is in an established urban neighborhood. There are no wildlife habitats in or adjacent to the Project site.

Chapter 5

Urban Design

5.0 URBAN DESIGN

5.1 Urban Context

The long history of BIDMC is currently encoded in the differing architectural character of its East and West Campuses. The East Campus (originally Beth Israel Hospital) is characterized by the consistent presence of buff-colored materials that provide a degree of uniformity and connection between the various buildings on the East Campus. While the Shapiro Clinical Center deviates from this palette, it does so in specific response to the historic shell from which it rises. By contrast, the West Campus (originally New England Deaconess Hospital) is characterized by a pervasive palette of red brick with limestone accents. With its active composition of bright red brick, pre-cast concrete and expressive mullion and glass patterns, the Rosenberg Building belongs to neither the subdued buff colored buildings of the East Campus, nor the relatively more stately and restrained architecture on the remainder of the West Campus.

Situated between the East and West Campuses along Brookline Avenue are a collection of buildings which tend towards a neutral palette of pre-cast concrete, white metal panels, and glass (Longwood Center, Longwood Galleria, Joslin Diabetes Center and the Dana-Farber Marcotte Center). Standing apart from this milieu is the Dana-Farber Cancer Institute's Yawkey Center which combines glass and reddish terra-cotta panels in a way that deftly creates a clear sense of identity, while fitting seamlessly into the neighborhood. Other neighboring buildings include the somewhat more utilitarian Lowry Garage at 110 Francis Street, the Medical Area Total Energy Plant (MATEP) building and the Servicenter Garage.

5.2 Design and Materials

As the first new building to be built since the merger of Beth Israel Hospital and New England Deaconess Hospital 22 years ago, the Project will transform the intersection of Francis Street and Brookline Avenue while creating a new architecturally distinguished building at the gateway from the south to the BIDMC campuses and to the LMA generally. The Project is designed to visually unite the East and West Campuses through the strategic deployment of different materials on the different components of the building. The pedestrian experience around the Project site will be unified with the rest of the West Campus through the integration of landscape with the architecture and the careful use of materials. The use of buff colored materials on the higher patient floors (Levels 4 and up) leverages the longer views that are available from elevated positions in neighboring buildings by creating a visual link between the Project and the similarly colored buildings on the East Campus. A rendering of the design is presented in Figures 5-1 and 5-2 at the end of this chapter.

In addition to the harmonious palette of materials proposed for the Project, its physical characteristics are also in keeping with the surrounding neighborhoods. At ten stories tall and approximately 178 feet, the building is comparable in height to several nearby

buildings, including the Brigham and Women's Hospital Shapiro Cardiovascular Center (169 feet) and Building for Transformative Medicine (215 feet), Dana-Farber Cancer Institute's Marcotte Center (174 feet) and Yawkey Center (186 feet) and the Longwood Center (195 feet). The proposed design will slightly widen the existing sidewalk along Brookline Avenue and significantly widen the sidewalk along Francis Street.

Existing and proposed photographs from a variety of viewpoints is presented in Figures 5-3 through 5-12 and the end of this chapter.

5.3 Brookline Avenue Improvements

The Project team has developed options to improve the Brookline Avenue sidewalk between Francis Street and Deaconess Road. This includes the introduction of a mid-block garden at the interface of the Project and the Rosenberg Building, as well as the extension of the new landscape design proposed along the Brookline Avenue sidewalk to the corner of Deaconess Road. Additionally, consideration has been given to how the existing storefront windows of the Rosenberg Building might be transformed by the inclusion of terrariums, greenwalls, other plantings, or art installations which will feature an artful combination of rich materials, textures and plantings which will provide a year-round enhancement to the public realm and create a sense of surprise and delight for pedestrians. See Figures 5-13 and 5-14 at the end of this chapter.

5.4 Evolution of Design

The primary concerns addressed in the planning of the Project include the creation of clearly organized clinical environments that allow BIDMC to provide the highest possible quality of care in an efficient manner, the connection of the Project into the network of existing buildings on the West Campus, and the enhancement of the public realm and improvement of the pedestrian experience through the introduction of expanded landscape areas and careful attention to the scale and detailing of the streetwall created by the lowest levels of the building. The three components of the building massing in the proposed design derive directly from these goals. In considering the possibility of a more unified architectural approach, the Project team first evaluated whether the building base and tower could be combined into a singular volume and determined that they cannot without fundamentally compromising one or more of the Project's objectives. The clinical upper floors of the building cannot be made skinnier to match the geometry of the building base, nor can that mass be extruded down to the ground plane without eliminating the proposed enhancements to sidewalk widths and landscape zones that comprise the current design (and in the case of Brookline Avenue, the tower above cannot be brought to the ground under any circumstance given that it cantilevers over the sidewalk). Given the inability to unify the massing, studies were prepared that bring the same material palette proposed for the upper floors to the building base, but were found to be less compelling as a design.



Beth Israel Deaconess Medical Center

PAYETTE

Figure 5-1

Rendering – Brookline Avenue and Francis Street



Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Figure 5-2

Rendering - Riverway

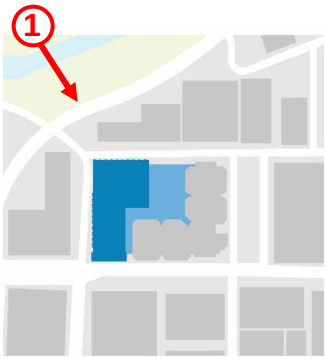
1. VIEW TOWARDS BIDMC



EXISTING



PROPOSED



Beth Israel Deaconess Medical Center

PAYETTE

Figure 5-3
View from Emerald Necklace

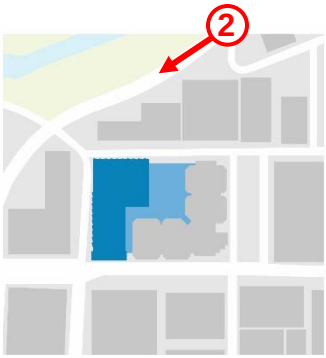
2. VIEW DOWN RIVERWAY TOWARDS PILGRIM ROAD



EXISTING



PROPOSED



Beth Israel Deaconess Medical Center

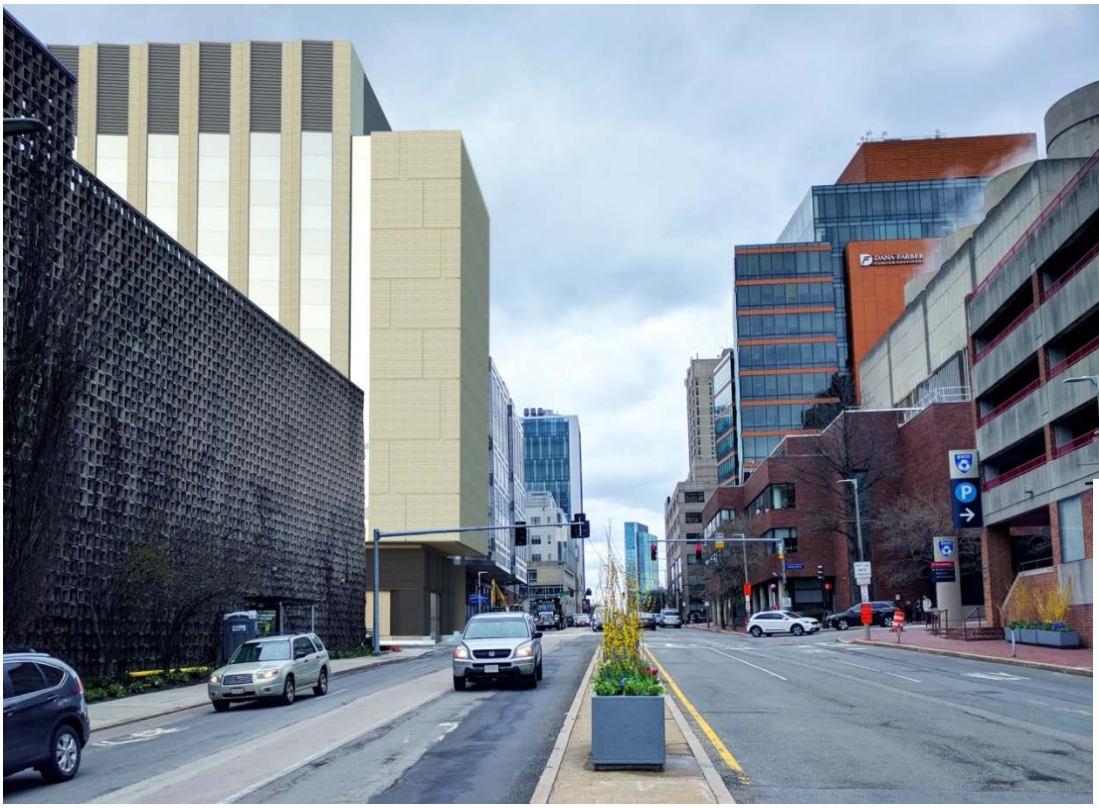
PAYETTE

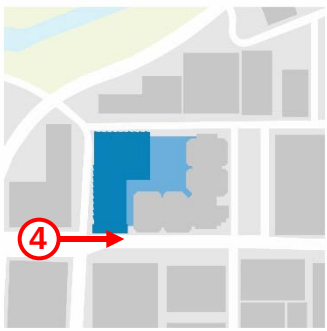
Figure 5-4
View from Autumn Street

3. VIEW DOWN BROOKLINE AVENUE TOWARDS FRANCIS STREET



EXISTING





PROPOSED

Beth Israel Deaconess Medical Center

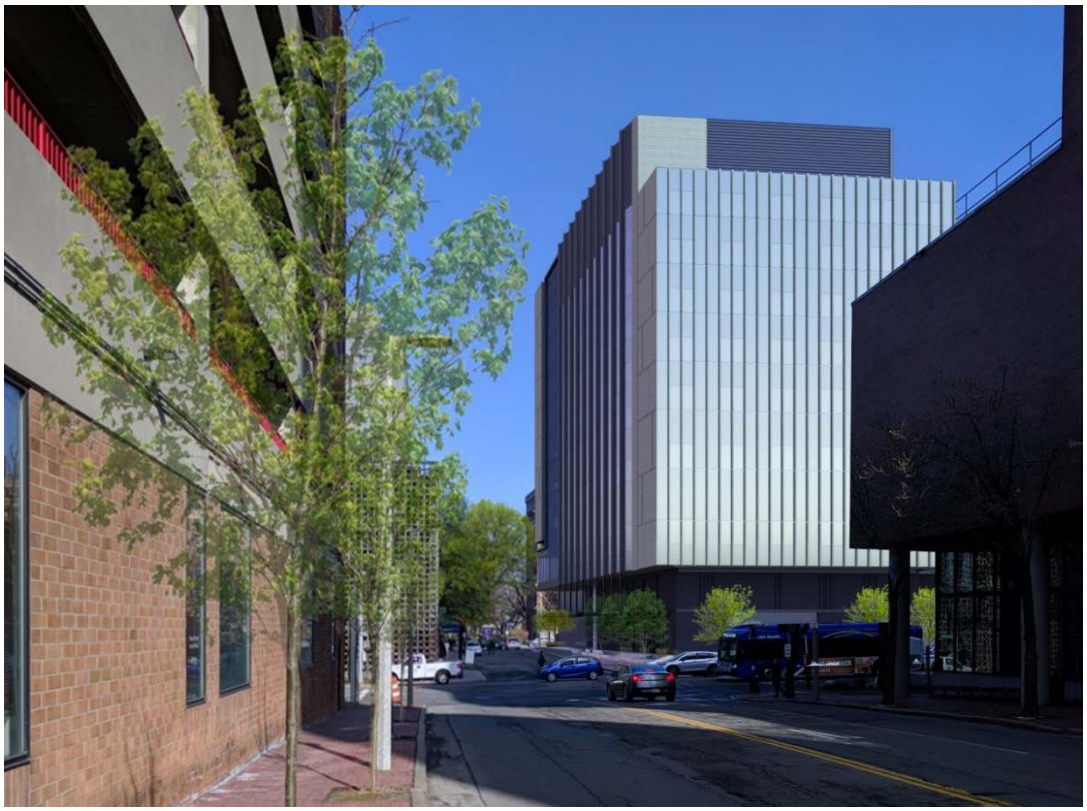
PAYETTE

Figure 5-5
View from Brookline Avenue

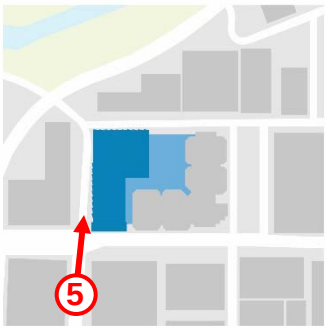
4. VIEW DOWN FRANCIS STREET TOWARDS PILGRIM ROAD



EXISTING



PROPOSED



Beth Israel Deaconess Medical Center

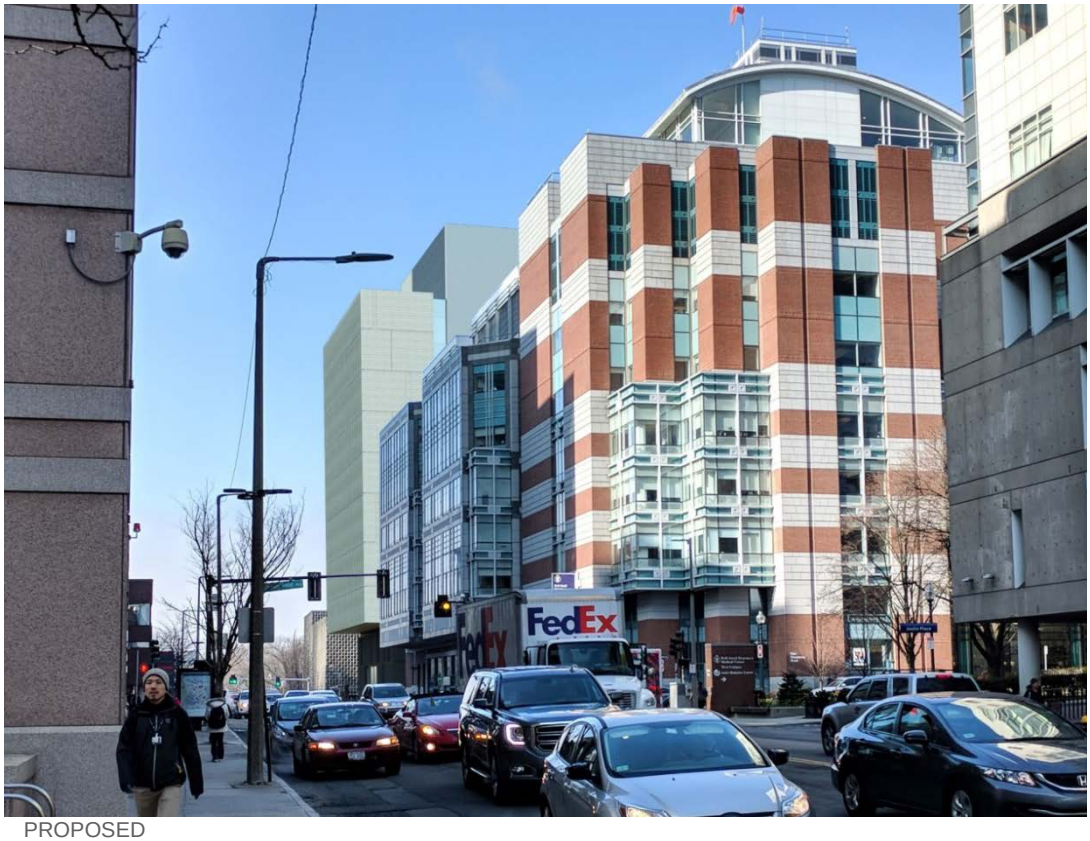
PAYETTE

Figure 5-6
View from Francis Street

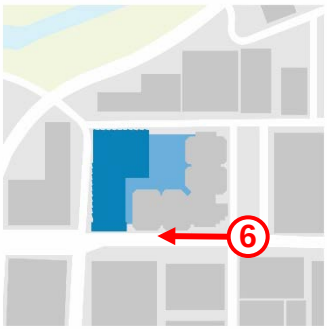
5. VIEW DOWN BROOKLINE AVENUE TOWARDS FRANCIS STREET



EXISTING



PROPOSED



Beth Israel Deaconess Medical Center

PAYETTE

Figure 5-7
View from Brookline Avenue

6. VIEW TOWARDS BIDMC FROM BROOKLINE AVENUE



EXISTING



PROPOSED



Beth Israel Deaconess Medical Center

PAYETTE

Figure 5-8
View from Brookline Avenue

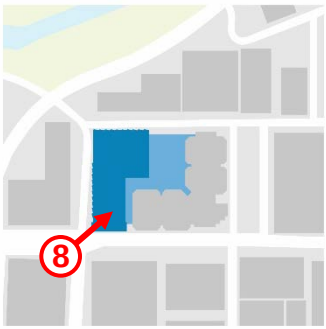
7. VIEW OF BIDMC FROM CORNER OF BROOKLINE AVENUE AND FRANCIS STREET



EXISTING



PROPOSED



Beth Israel Deaconess Medical Center

PAYETTE

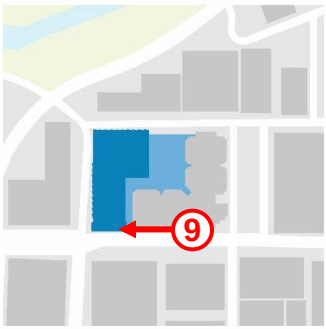
Figure 5-9
View from Brookline Avenue and Francis Street

8. VIEW DOWN BROOKLINE AVENUE SIDEWALK TOWARDS FRANCIS STREET



EXISTING





PROPOSED

Beth Israel Deaconess Medical Center

PAYETTE

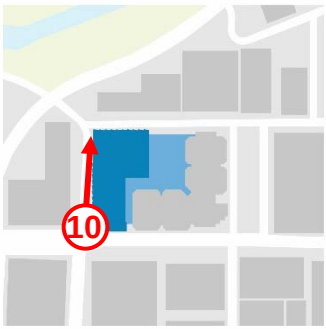
Figure 5-10
View from Brookline Avenue Sidewalk

9. VIEW DOWN FRANCIS STREET SIDEWALK TOWARDS PILGRIM ROAD



EXISTING





PROPOSED

Beth Israel Deaconess Medical Center

PAYETTE

Figure 5-11
View from Francis Street Drop-off

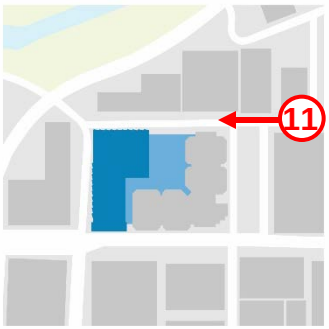
10. VIEW DOWN PILGRIM ROAD FROM LONGWOOD AVENUE



EXISTING



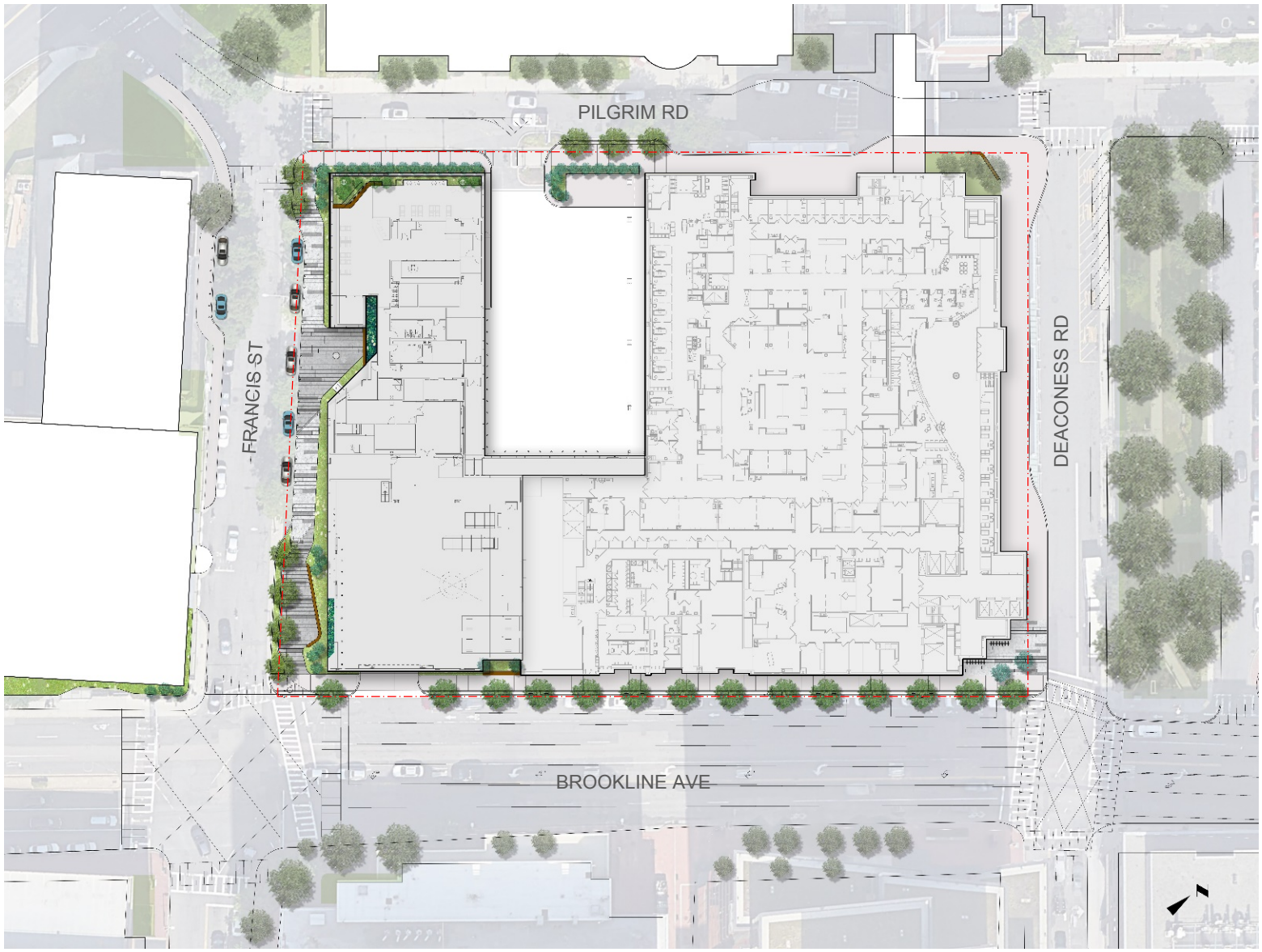
PROPOSED



Beth Israel Deaconess Medical Center

PAYETTE

Figure 5-12
View from Longwood Avenue



Beth Israel Deaconess Medical Center

PAYETTE

Figure 5-13

Landscape Plan



Beth Israel Deaconess Medical Center

PAYETTE

Figure 5-14

Landscape at the Corner of Brookline Avenue and Francis Street

Chapter 6

Sustainability

6.0 SUSTAINABILITY

6.1 Sustainable Design

Sustainability is considered in every design decision. Enduring and efficient buildings conserve embodied energy and preserve natural resources. As required under Article 37 of the Boston Zoning Code, projects that are subject to Article 80B, Large Project Review, shall be U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) certifiable. The Project will demonstrate compliance with Article 37 using the LEED for New Construction version 4 for Healthcare Facilities rating system. The LEED rating system tracks the sustainable features of the Project by achieving points in the following categories: Integrative Process; Location and Transportation; Sustainable Sites; Water Efficiency; Energy and Atmosphere; Materials and Resources; Indoor Environmental Quality; Innovation; and Regional Priority Credits.

The Project is currently targeting 53 credits. Below is a summary of each LEED category; a preliminary LEED checklist is included at the end of this section. The checklist will be updated regularly as the design develops and engineering assumptions are substantiated.

Integrative Process

An integrative design process supports the development of high-performance, and cost-effective project outcomes. The Project will achieve one credit by utilizing an integrative process throughout the various design phases. Preliminary design charrettes have already taken place with the engineering team. Preliminary "shoe box" energy models are currently being implemented to provide recommendations for energy reduction strategies as the design progresses. Water reduction calculations will be performed early in the design process to help the design team make informed decisions to meet the Project's sustainability goals.

Location and Transportation

The Project site's urban location dictates many of the credits that are achievable. The Project takes advantage of Boston's existing infrastructure and density. One credit will be achieved for Sensitive Land Protection for being located on a previously developed site. Another credit will be achieved for Surrounding Density and Diverse Uses due to the numerous businesses and services located within a half-mile walking distance from the main entrance. Multiple bus lines and stops are located within a 1/4-mile walking distance, and the Project will achieve two credits for Access to Quality Transit. Bicycle storage and showers are being integrated into the design, and a bike lane runs adjacent to the building on Brookline Avenue. An additional credit will be achieved for Reduced Parking Footprint, as no new parking is being installed.

Sustainable Sites

The Project addresses issues related to site ecology in numerous ways. The LEED prerequisite, Construction Activity Pollution Prevention, will be followed to reduce pollution from construction activities. A Phase I Environmental Site Assessment will also be conducted as part of the prerequisite for Environmental Site Assessment. A rainwater management system that includes both green roofs and a 28,000 gallon rainwater harvesting tank is being developed to comply with the requirements for the Rainwater Management credits. The Heat Island Reduction credit will be achieved through the selection of light colored and vegetated roof surfaces. Strategies to reduce light pollution will also be investigated as the development of the site design progresses.

Water Efficiency

Numerous strategies will be investigated for water use reduction at the Project. The development of landscape design options, including the proposed roof garden will explore the specification of planting strategies which do not require extensive irrigation. Captured rainwater will be used to provide make-up water for the cooling tower and to satisfy as much of the irrigation demand as possible. Low flow water fixtures and fittings will be specified where permitted by health and safety regulations to limit use of potable water within the building as much as possible.

Energy and Atmosphere

Numerous strategies are being investigated to address energy use reduction for the Project. A range of energy reduction options are being evaluated for energy saving measures, including: triple glazed windows, heat recovery, Dedicated Outdoor Air System (DOAS), and chilled beams. The percent of energy reduction and number of Optimize Energy Performance credits will be determined based on the chosen energy saving measures. Additionally, the Project specifications will comply with the requirements of the Enhanced Refrigeration Management credit and will include Enhanced Commissioning services to ensure the building systems are actually operating as designed.

Materials and Resources

Materials will be carefully considered for the Project. Dedicated recycling areas will be included in the design to meet the Storage and Collection of Recyclables prerequisite. During construction, a Construction Waste Management plan will be developed and implemented to divert materials away from landfills. Specification of products for the building will consider multiple health, safety and wellness factors, including mercury, lead, cadmium and copper content, material ingredients and the availability of Environmental Product Disclosures.

Indoor Environmental Quality

Given the very nature of the Project and the importance of maintaining appropriate infection control measures, indoor air quality is an intrinsic concern for the Project. The detailed development of the design will explore both engineered solutions (e.g., pressurized entry vestibules) and physical solutions (e.g., low VOC emitting materials) that can help to maintain a healthy indoor environment. Thermal comfort and access to daylight are always important considerations in inpatient facilities, and both will receive considerable attention as the Project team strives to enhance the patient, family, and staff experience in the building. During construction, the contractor will be required to maintain a robust Construction Indoor Air Quality Management Plan.

Innovation

There are numerous LEED Accredited Professionals on the Project team, and an additional credit will be earned for this. Given the early stage of the Project, it is premature to identify specific opportunities to pursue innovation credits. Nevertheless, the team will consistently seek to apply the highest level of thinking and analysis to this Project, and will rigorously explore innovative ideas whenever they appear to be beneficial and appropriate.

Regional Priority

Regional Priority Credits, (RPC) are established LEED credits designated by the USGBC to have priority for a particular area of the country. When a Project team achieves one of the designated RPCs, an additional credit is awarded to the Project. It is anticipated that the Project will achieve two regional priority credits.

6.2 Energy Conservation

6.2.1 Building Orientation and Envelope

The development of the architectural massing and composition has been heavily informed by a thorough analysis of, and response to solar loads. The faceted façade that characterizes the Francis Street and Pilgrim Road elevations was initially developed as a response to the challenging solar exposures associated with this site. Specifically, the geometry of those facades reflects an effort to reduce solar loads by effectively turning the glazing towards a more optimal orientation. Along Brookline Avenue, where a flat façade is preferable for a variety of reasons, vertical fins have been added to help shade the glass from the early morning sun. The Project team has advanced the design of these facades concurrently with the development of a "shoe box" energy model of a typical patient room. This model facilitates the evaluation of different design options in the context of their energy implications, and the analysis has included rigorous evaluations of thermal bridging effects through potential breaches in building insulation, as well as detailed consideration of the effect of different glass specifications and window framing systems (including mullion

spacing). Through this process, the combination of window size, orientation and extent of exterior shading has been refined to keep peak solar loads below the available capacity of the chilled beams proposed for the typical inpatient rooms. By decoupling the need for ventilation air from the need for space cooling, chilled beams are substantially more energy efficient than typical variable air volume (VAV) systems and allow for a significant reduction in primary air handling unit size.

6.2.2 Energy Conservation Measures

Similar to the integration of massing development, patient room design and HVAC system sizing and selection for the patient rooms, other components of the building have been considered holistically and optimized to improve the energy performance of the Project. An important example of this is the physical location and zoning of air handlers based on program type instead of program location, thereby maximizing the opportunity for heat recovery from spaces which permit that technology. Resiliency in the face of catastrophic events has also been a primary concern in the development of the Project, with all major building systems located on elevated floors to minimize the risk of system loss due to flooding or other weather events.

As the design progresses through the Design Development, items such as daylight autonomy in the patient rooms will be carefully analyzed to ensure that opportunities to improve reliance on natural daylight are integrated into the Project.

6.2.3 Rainwater Capture

The Project expects to use captured rainwater, cooling coil condensate and run-off reject water as make-up water for the roof-top cooling towers and potentially for irrigation. It is expected that in most cases the demand for cooling tower make-up water will be sufficient to utilize all available graywater.

- The building rainwater will be collected to a dedicated 28,000 gallon interior stormwater detention tank and will be filtered and pumped to a 10,000 gallon graywater day tank.

- The building run-off reject wastewater and filtered backwash will be collected in a separate clear water tank and then pumped to the graywater day tank.

- The building air conditioning condensate will be collected via a dedicated clear water waste piping system to the graywater day tank.

- The collected graywater within the day tank will be recirculated through a ultraviolet filtration treatment system, and then pumped as a secondary make-up feed to the building cooling towers and as a primary irrigation feed for ground level landscape and green roofs.

LEED v4 for BD+C: Healthcare

Project Checklist

Project Name: BIDMC New Inpatient Building
Date:

Y	HM	N			
1			Credit	Integrative Process	1

6	0	3	**Location and Transportation**		9
			Credit	LEED for Neighborhood Development Location	9
1			Credit	Sensitive Land Protection	1
		2	Credit	High Priority Site	2
1			Credit	Surrounding Density and Diverse Uses	1
2			Credit	Access to Quality Transit	2
1			Credit	Bicycle Facilities	1
1			Credit	Reduced Parking Footprint	1
		1	Credit	Green Vehicles	1

3	1	5	**Sustainable Sites**		9
Y			Prereq	Construction Activity Pollution Prevention	Required
Y			Prereq	Environmental Site Assessment	Required
		1	Credit	Site Assessment	1
		1	Credit	Site Development - Protect or Restore Habitat	1
		1	Credit	Open Space	1
2			Credit	Rainwater Management	2
1			Credit	Heat Island Reduction	1
	1		Credit	Light Pollution Reduction	1
		1	Credit	Place of Respite	1
		1	Credit	Direct Exterior Acess	1

6	0	5	**Water Efficiency**		11
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
1			Credit	Outdoor Water Use Reduction	1
3		4	Credit	Indoor Water Use Reduction	7
2			Credit	Cooling Tower Water Use	2
		1	Credit	Water Metering	1

16	0	19	**Energy and Atmosphere**		35
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
5		1	Credit	Enhanced Commissioning	6
10		10	Credit	Optimize Energy Performance	20
		1	Credit	Advanced Energy Metering	1
		2	Credit	Demand Response	2
		3	Credit	Renewable Energy Production	3
1			Credit	Enhanced Refrigerant Management	1
		2	Credit	Green Power and Carbon Offsets	2

7	0	12	**Materials and Resources**		19
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
Y			Prereq	PBT Source Reduction - Mercury	Required
		5	Credit	Building Life-Cycle Impact Reduction	5
1		1	Credit	Building Product Disclosure and Optimization - EPDs	2
		2	Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1		1	Credit	Building Product Disclosure and Optimization - Material Ingredients	2
1			Credit	PBT Source Reduction - Mercury	1
2			Credit	PBT Source Reduction - Lead, Cadmium & Copper	2
1		1	Credit	Furniture and Medical Furnishings	2
		1	Credit	Design for Flexibility	1
1		1	Credit	Construction and Demolition Waste Management	2

11	0	5	**Indoor Environmental Quality**		16
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
2			Credit	Enhanced Indoor Air Quality Strategies	2
3			Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
1		1	Credit	Indoor Air Quality Assessment	2
1			Credit	Thermal Comfort	1
		1	Credit	Interior Lighting	1
1		1	Credit	Daylight	2
2			Credit	Quality Views	2
		2	Credit	Acoustic Performance	2

1	0	5	**Innovation**		6
		1	Credit	Innovation - TBD	1
		1	Credit	Innovation - TBD	1
		1	Credit	Innovation - TBD	1
		1	Credit	Innovation - TBD	1
		1	Credit	Innovation - TBD	1
1			Credit	LEED Accredited Professional	1

2	0	2	**Regional Priority**		4
		0	Credit	LTc2 - High Priority Site, 2 pt threshold	1
1			Credit	SSc4 - Rainwater Management	1
		1	Credit	WEc1 - Indoor Water Use Reduction, 4 pt threshold	1
1			Credit	EAc2 - Optimized Energy Performance, 10 pt threshold	1
		0	Credit	EAc5 - Renewable Energy Production, 2 pt threshold	0
		1	Credit	MRc1 - Building Life Cycle Impact Reduction, 2 pt threshold	0

53	1	56	**TOTALS**	Possible Points:	110

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

Chapter 7

Historic Resources

7.0 HISTORIC RESOURCES

The Historic and Archeological Resources section describes the historic and archaeological resources within and in the vicinity of the Project site and assesses potential Project-related impacts to the resources.

7.1 Historic Resources within the Project Site

The Project site includes surface parking, the Emergency Department patient drop-off, ambulance entrance, main West Campus loading facility (Main Loading Facility) and West Campus oxygen tanks. A review of files at the Massachusetts Historical Commission indicates that the site does not include any properties listed in the *Inventory of Historic and Archaeological Assets of the Commonwealth* (Inventory) or listed in the National or State Registers of Historic Places.

No historic resources listed in the State and National Registers of Historic Places or included in the Inventory of Historic and Archaeological Assets of the Commonwealth are within the Project site.

7.2 Historic Resources in the Vicinity of the Project Site

The Project site is located in the vicinity of several historic resources listed in the State and National Registers of Historic Places or included in the Inventory of Historic and Archaeological Assets of the Commonwealth. Historic resources in the vicinity of the Project site include portions of the Emerald Necklace Parks/Olmsted Park System to the west, and the Massachusetts Mental Health Center and the Francis Street-Fenwood Road Historic District to the south, which are all listed on the State and National Registers of Historic Places.

Table 7-1 identifies these historic resources within one-quarter mile of the Project site and corresponds to resources depicted in Figure 7-1.

Table 7-1 Historic Resources in the Vicinity of the Project Site

No.	Historic Resource	Address	Designation*
	Longwood Historic District	Roughly bound by St. Mary's Street, Beacon Street, Kent Street, and Chapel Street	NRDIS
	Emerald Necklace Parks Olmsted Park System	Along Muddy River following Parkway Road and Riverway	NRDIS, LL
	Francis Street – Fenwood Road Historic District	Roughly bounded Huntington Ave, Francis, Vining, and Fenwood Streets and St. Albans Road.	NRDIS

Table 7-1 Historic Resources in the Vicinity of the Project Site (Continued)

No.	Historic Resource	Address	Designation*
	Massachusetts Mental Health Center	74 Fenwood Road	NRDIS, NRMPS
	Lawrence Local Historic District	Roughly bounded by Longwood Avenue to the north and Kent Square to the south; along Kent Street and Newell Road	LHD
1	Massachusetts School of Art	364 Brookline Avenue	NRIND
2	Longwood Avenue Bridge	Longwood Avenue	NRDIS, LL
3	Netherlands Road Bridge	Netherlands Road	NRDIS, LL
4	Riverway – Brookline Avenue Bridge	Brookline Avenue	NRDIS, LL, PR
5	Riverway Pathway	Park Drive	NRDIS, LL, PR
6	The Dutch House	20 Netherlands Street	NRIND, NRMRA

*Designation Legend

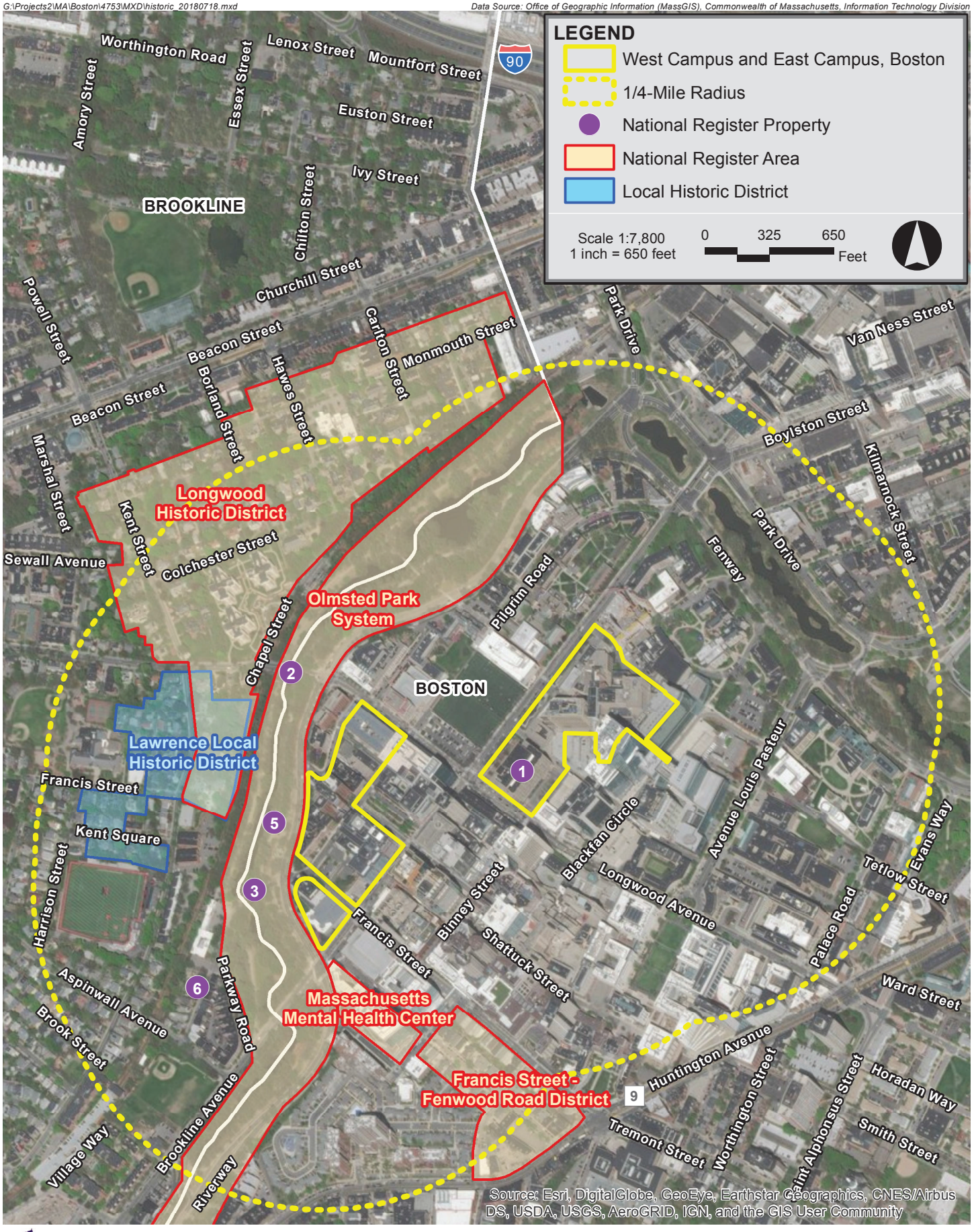
NRIND	Individually listed on the National Register of Historic Places
NRDIS	National Register of Historic Places Historic District
NRMPS	National Register Multiple Property Submission
NRMRA	National Register Multiple Resource Area
PR	Preservation Restriction
LHD	Local Historic District
LL	Local Landmark

7.3 Archaeological Resources on the Project Site

A review of Massachusetts Historical Commission's online archaeological base maps was conducted on February 9, 2018. There are no known recorded archaeological sites located on the Project site or within the immediate vicinity. Previous ground disturbance activities associated with the construction of the existing driveways, walkways, parking areas and other site improvements have likely impacted the potential for the site to yield significant archaeological resources.

7.4 Potential Impacts to Historic Resources

The proposed Project will have no direct impacts to historic resources. Indirect impacts to historic resources, including shadow impacts, were considered. Urban design and potential shadow and wind impacts are discussed in detail in Sections 5.0, 4.2, and 4.1, respectively. The Urban Design section also provides a description of the materials and characteristics of the proposed building. Project impacts specific to historic resources are summarized below.



Beth Israel Deaconess Medical Center

Epsilon Associates Inc.

BIDMC DPIR

Figure 7-1
Historic Resources

7.4.1 Urban Design

The Project includes the construction of a 10-story inpatient clinical building on the West Campus. The Project will transform the intersection of Francis Street and Brookline Avenue while creating a new architecturally distinguished building at the gateway from the south to the BIDMC campus and to the LMA generally. It is designed to visually unite the East and West Campuses through the strategic deployment of different materials on the different components of the building. The pedestrian experience of the Project will be unified with the rest of the West Campus through the integration of landscape with the architecture and via the scale and texture afforded by the careful use of materials in the base of the building. The use of buff colored materials on the patient levels (Levels 4 and up) leverages the longer views that are available from elevated positions in neighboring buildings by creating a visual link between the Project and the similarly colored buildings on the East Campus.

The primary urban design challenge for the West Campus involves developing an appropriate transition from the urban grid on the Brookline Avenue side of the campus to the linear sweep of open space formed by the Emerald Necklace / Riverway on the other side of the campus. An important characteristic of the West Campus is the sense of 'place' that is created by the clear distinction between the heavily trafficked roads that mark its edge and the more pedestrian friendly campus interior. This sense of place is reinforced by the location of the primary building entrances for each of BIDMC's buildings within this pedestrian realm.

At ten stories tall, the building is comparable in height to several nearby buildings, including the Brigham and Women's Hospital Shapiro Cardiovascular Center (169 feet) and Building for Transformative Medicine (215 feet), Dana Farber Cancer Institute's Marcotte Center (174 feet) and Yawkey Center (186 feet) and the Longwood Center (195 feet).

7.4.2 Shadow Impacts

A shadow impact analysis was conducted to investigate shadow impacts from the Project during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the vernal equinox (March 21), summer solstice (June 21), autumnal equinox (September 21), and winter solstice (December 21), and at 6:00 p.m. during the summer solstice and autumnal equinox. The shadow analysis presents the existing shadow and new shadow that would be created by the proposed Project, illustrating the incremental impact of the Project. Shadow impacts to historic resources will be mitigated by the presence of other multistory buildings already casting shadows in the area. As illustrated in the shadow study diagrams (Figures 4.2-1 to 4.2-14), during isolated time periods the Project will cast minimal net new shadow on areas within the Olmsted Park System along a portion of Riverway.

New shadow on historic resources is limited to new shadow at 9:00 a.m. on March 21, 9:00 a.m. on June 21, 9:00 a.m. on September 21, and 9:00 a.m. on December 21. However, new shadow will be minimized by the existing shadow cast from other multi-

story buildings in the area. The Olmsted Park System will only have a moving narrow band of new shadow cast upon it and only at an isolated time. Net new shadow created by the Project will have no significant impacts on historic resources.

7.5 Status of Project Review with Historical Agencies

7.5.1 Boston Landmarks Commission Article 80 Review

This DPIR continues the BLC's review of the Project under the City's Article 80 Review process. Direct and indirect impacts to historic resources including visual, wind, and shadow are addressed herein.

7.5.2 Massachusetts Historical Commission State Register Review

The MHC has review authority over projects requiring state funding, licensing, permitting, and/or approvals that may have direct or indirect impacts to properties listed in the State Register of Historic Places (M.G.L. Chapter 9, Sections 26-27C, as amended by Chapter 254 of the Acts of 1988). The State Register Review process was initiated through the filing of an ENF in February 2018.

The MHC received a copy of the ENF and subsequently did not provide any comments on the document. The MEPA certificate, issued on July 22, 2011, found that no further MEPA review is required and that the Project may proceed to state permitting. This concludes the MHC's review of the Project under the State Register Review process.

Chapter 8

Infrastructure

8.0 INFRASTRUCTURE

8.1 Introduction

This section describes the existing infrastructure systems used by BIDMC at its East and West Campuses, as well as future demands and proposed system modifications over the next five years. The infrastructure systems addressed include: sanitary sewer, water supply, stormwater drainage, electrical service, chilled water, natural gas, steam, and telecommunications. Future demands are based on the proposed Project.

8.2 Sanitary Sewer

8.2.1 Existing System Conditions

The Boston Water and Sewer Commission (BWSC) owns and maintains the sewer lines in the public ways that service the East and West Campuses. Existing sewer lines within the campuses are owned and maintained by BIDMC.

Sanitary sewer systems in the nearby public streets and campus service roads are separate from stormwater collection systems. Within the campuses, sanitary sewage flows by gravity through the collection system. Separation of sanitary and stormwater flows both maintains the hydraulic capacity of sanitary sewers during intense rainfall periods, and reduces the amount of clean water conveyed through the sewer system and treated at the Deer Island Treatment Plant.

The East Campus is serviced by existing BWSC sanitary sewers in Brookline Avenue (15-inch), Longwood Avenue (12-inch and 15-inch), and Blackfan Street (39-inch by 41-inch). Wastewater flows to the Charles River Valley sewer, then to the Ward Street Headworks. Sewage then flows, via the Boston Main Drain, to the Columbus Park Headworks and finally to the Massachusetts Water Resources Authority (MWRA) Deer Island Wastewater Treatment Plant for treatment and disposal.

The West Campus is serviced by BWSC sanitary sewers located in Brookline Avenue (15-inch), Deaconess Road (15-inch), Pilgrim Road (12-inch), Autumn Street (8-inch and 12-inch), the Riverway (12-inch), and Francis Street (20-inch by 24-inch). Wastewater from the West Campus generally flows in a westerly direction, where it is collected in Francis Street. From Francis Street, wastewater is discharged to the Brookline collector sewer, and ultimately discharges to the Deer Island Wastewater Treatment Plant for treatment and disposal.

8.2.2 Future Wastewater Generation & System Modifications

The proposed Project will contain up to 158 single-bedded inpatient rooms[1]. Based on wastewater generation rates established by the Massachusetts Department of Environmental Protection (310 CMR 15.203) of 200 gallons per day (gpd) per bed, the Project is expected to generate approximately 31,600 gpd of sewage. The Project is expected to discharge to adjacent sanitary sewers in Francis Street, Brookline Avenue and/or Pilgrim Road. All proposed connections will be submitted to BWSC for review and approval.

The sanitary sewer in Francis Street has a flowing full capacity of approximately 9,500,000 gpd and the sanitary sewer in Brookline Avenue has a flowing full capacity of approximately 4,700,000 gpd. Both sewers have capacities well in excess of the Project's generation of approximately 31,600 gpd.

8.3 Water Supply

8.3.1 Existing System Conditions

Existing water service for domestic use and fire protection is supplied from water systems owned and operated by the BWSC. BIDMC owns and maintains water mains within its properties. Water is delivered to the LMA through an interconnected network of water distribution systems, designated by BWSC as the Southern Low Service (SLS) Systems and Southern High Service (SHS) Systems.

SLS systems are generally used to meet domestic water needs and street hydrant demand. SHS systems are generally used as the main supply to the low-pressure service system and supplies water for building fire protection systems.

The SLS and SHS systems are integrally connected to form loops that allow major water demands to be fed from more than one direction. Looping allows each distribution system to function at optimum efficiency, and provides a measure of safety and redundancy in the event of a water main break.

The East Campus is serviced by existing BWSC water mains in Brookline Avenue (12-inch SLS, 48-inch SLS), Binney Street (8-inch SLS), Longwood Avenue (12-inch SLS, 48-inch SLS), and Blackfan Street (12-inch SLS).

The West Campus is serviced by existing BWSC water mains in Brookline Avenue (12-inch SLS, 48-inch SLS), Francis Street (12-inch SLS), Deaconess Road (8-inch SLS), Pilgrim Road

[1] The Project will result in 89 net new beds. However, to account for the additional hospital uses that will be part of the Project, the wastewater generation calculation uses 158 beds, the number to be constructed in the Project.

(8-inch SLS, 8-inch Fire Protection), Longwood Avenue (12-inch SLS, 48-inch SLS), Autumn Street (8-inch, 10-inch SLS), and the Riverway (12-inch SLS).

8.3.2 Future Water Demand & System Modifications

Water demand is based upon an expected sewage generation rate of 31,600 gpd plus an additional 10 percent for consumption, system losses and other usage. The Project's estimated water demand is 34,760 gpd. The Project will connect to adjacent water mains in Francis Street, Brookline Avenue and/or Pilgrim Road. All proposed connections will be submitted to BWSC for review and approval.

The BWSC water system in this area is reinforced with supply from the 48-inch main in Brookline Avenue. This system has capacity to meet the relatively small demand from the Project.

8.4 Stormwater Drainage

8.4.1 Existing System Conditions

BWSC owns and maintains the majority of the stormwater drainage systems servicing both the East and West campuses. The system servicing the East Campus consists of a 15-inch to 42-inch storm drain in Brookline Avenue, and a 42-inch by 42-inch storm drain in Blackfan Street. Additionally, BIDMC owns and maintains a stormwater drainage system in its properties (discharging to Blackfan Street). The stormwater drainage system servicing the East Campus ultimately discharges into the Charles River Basin via the Muddy River Diversion Conduit.

The West Campus is serviced by 10-inch to 36-inch storm drain pipes located in the streets adjacent to the West Campus. The storm drainage system servicing the West Campus discharges in two directions. A portion of the system ultimately discharges into the Charles River Basin via the Muddy River Diversion Conduit. The remainder of the BWSC system servicing the West Campus discharges to the Muddy River near the intersection of Brookline Avenue and the Riverway.

8.4.2 Future Stormwater Flows

The Project is seeking to reduce flows discharging from the building site in accordance with BWSC requirements. Currently, the Project is proposing a combination of stormwater harvesting, re-use, and groundwater re-charge in a manner to reduce stormwater runoff and improve runoff water quality as required by BWSC. The system will remove nutrients such as phosphorus via both stormwater harvesting, which takes stormwater then re-uses it then discharges to sanitary sewers, and groundwater recharge.

Under current plans, roof drainage will be directed to an approximately 28,000-gallon rainwater harvesting tank. This tank volume is approximately equivalent to a one-inch

precipitation event. The primary use of the harvested water will be mechanical uses. In the event the tank is full and/or the runoff volume exceeds one inch, the system will have a bypass to recharge wells located outside the building footprint. The system will be designed to empty the tank over a 72 hour period.

These two systems, both independently and combined, are expected to remove well over 65 percent of phosphorus from the building roof areas.

In addition to the building-focused system, the Project is expecting to provide landscaping and curb-side infiltration systems in accordance with Boston Complete Streets Guidelines.

8.4.3 Consistency with Massachusetts Stormwater Management Standards

Standard #1: No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

Compliance: No discharges are directly to wetlands or waters of the Commonwealth. No untreated stormwater discharges are currently expected.

Standard #2: Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.

Compliance: The existing discharge rate will decrease as a result of the improvements associated with the Project. As discussed in Section 8.4.2, the Project currently includes multiple stormwater management strategies that are expected to reduce discharge rates.

Since the existing system adjacent to the Project site does not appear to have capacity issues and the Project is expecting to reduce flows, there should be a benefit to adjacent drain capacities.

Standard #3: Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to the maximum extent practicable. The annual recharge from the post development project site should approximate the annual recharge from the pre-development or existing project site conditions, based on soil types.

Compliance: This Project is a redevelopment and is expected to comply to the extent practicable. The Project currently includes a groundwater recharge system that would introduce excess stormwater flows (those exceeding the harvesting tank volume) back to the groundwater table.

Standard #4: For new development, stormwater management systems must be designed to remove 80 percent of the average annual load (post-development conditions) of TSS. It is presumed that this standard is met when: Suitable nonstructural practices for source control and pollution prevention are implemented; Stormwater BMPs are sized to capture the prescribed runoff volume; and Stormwater management BMPs are maintained as designed.

Compliance: The Project will remove a substantial amount of the annual load of TSS by the implementation of BMPs including rainwater harvesting (which includes primary sediment removal), green roofs and groundwater recharge.

Standard #5: For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If, through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated there under at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

Compliance: The greater part of the Project site will be occupied by building area that will cover a former surface parking lot and loading dock area. As such, stormwater quality is expected to improve as any incidental water collected from the covered areas will be treated through an oil and gas separator and directed to the sanitary sewer system. The areas not covered by the building will be primarily sidewalk and streetscape areas.

Standard #6: Stormwater discharge to critical areas must utilize certain stormwater management BMPs approved for critical areas. Critical areas are Outstanding Resource Waters, shellfish beds, swimming beaches, cold-water fisheries and recharge areas for public water supplies.

Compliance: The Project site does not discharge within the Zone II or Interim Wellhead Protection Area of a public water supply or near any other critical area.

Standard #7: A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

Compliance: The Project is considered a redevelopment project. The Project will comply with Stormwater Management Standards 1 through 6 to the maximum extent practicable and all other requirements of the Stormwater Management Standards, and will thereby improve upon existing conditions.

Standard #8: Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.

Compliance: Sedimentation and erosion controls will be employed to prevent construction or land disturbance impacts to groundwater. Erosion and sediment control plans will be submitted to BWSC and the contractor will be required to implement the measures as part of the BWSC general services application process.

Standard #9: A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

Compliance: An O&M Plan will be developed and implemented. The O&M Plan will be reviewed by the BWSC.

Standard #10: All illicit discharges to the stormwater management system are prohibited.

Compliance: There are no currently known illicit discharges. All proposed discharges will be reviewed by the BWSC to ensure consistency with this standard.

8.5 Electrical Service

8.5.1 Existing System Conditions

Two companies, Eversource and the Medical Area Total Energy Plant (MATEP) provide existing electrical service in the LMA. MATEP currently services many of the non-profit institutions located in the LMA. Currently, both the East and West Campuses are serviced by both providers.

8.5.2 Future Electrical Requirements

It is anticipated that the Project will be obtaining power from either MATEP or Eversource. The Project is expected to require 4.5 megawatts of power.

8.6 Chilled Water

8.6.1 Existing System Conditions

MATEP currently provides chilled water to the LMA through an underground distribution network. Both BIDMC campuses use chilled water to provide environmental cooling to campus buildings, and have MATEP chilled water mains within their boundaries.

8.6.2 Future Chilled Water Requirements

The Project is expected to produce chilled water at the Project site.

8.7 Natural Gas

8.7.1 Existing System Conditions

National Grid has a network of low and intermediate pressure natural gas mains servicing the East and West campuses. The East Campus is serviced via natural gas mains in Longwood Avenue (8-inch), Brookline Avenue (12-inch Low Pressure, 16-inch Intermediate Pressure), and Blackfan Street (6-inch). The West Campus is serviced via natural gas mains in Brookline Avenue (4-inch, 16-inch, 8-inch), Francis Street (6-inch), Longwood Avenue (8-inch) and Pilgrim Road (6-inch). Natural gas is used by BIDMC for limited lab burner use as well as kitchen uses.

8.7.2 Future Natural Gas Requirements

The Project may potentially require a small amount of natural gas for support kitchens. If required, service will likely be obtained from Brookline Avenue.

8.8 Steam

8.8.1 Existing System Conditions

MATEP supplies steam to both the East and West campuses through an underground distribution network. Steam is the primary source of heat for both campuses.

8.8.2 Future Steam Requirements

The Project is expected to require 15,000 lbs/hr. Service may be obtained from MATEP steam infrastructure or self-generated. Steam will be provided to the Project by MATEP via two existing high pressure steam lines (A and B for redundancy) located in the Rosenberg Building basement. The high pressure steam is distributed to a two-stage pressure reducing station; the medium pressure steam leg supports CPD process equipment and kitchen equipment and the low pressure steam feed supports the main air handling units' snow melt, steam preheat coils and humidification, hot water heating via shell and tube heat exchangers, and domestic hot water heating. All equipment supporting building heating and process steam is on optional stand-by power.

8.9 Telecommunications

8.9.1 Existing Systems

Verizon, Comcast, MCI/Worldcom and the LMA network telecommunication infrastructure provide service to both East and West Campuses. Information regarding these systems is generally subject to non-disclosure agreements. The East Campus is serviced from telecommunication lines in Longwood Avenue, Binney Street, Brookline Avenue, and Blackfan Street. Lines in Longwood Avenue, Brookline Avenue, Francis Street, Deaconess Road, Joslin Place, Pilgrim Road and Autumn Street service the West Campus.

8.9.2 Future System Connections

Depending on Project demands, the Project will either connect to internal telecommunications infrastructure or obtain service in adjacent streets from one or more of the providers listed above.

8.10 Emergency Systems

A nurse call system will be provided that meets the requirements of the Department of Public Health and BIDMC.

8.11 Fiber Optics

Fiber Optics will be used to connect the existing Rosenberg building IT network to the Project. Fiber will run between the two main distribution frame rooms.

Chapter 9

Response to Comments

9.0 RESPONSE TO COMMENTS

This section responds to comment letters from government agencies and private organizations received on the IMPNF/PNF submitted on January 11, 2018. Each letter has been assigned an abbreviation. The comment letters are reprinted in this section, and specific comments within each letter are noted in the margin with an abbreviation and a sequential numbering. Following the letter is a listing of the comments accompanied by a response to each. Table 9-1 provides the list of comment letters and the abbreviation assigned to each.

Table 9-1 List of Comment Letters

Commenter	Abbreviation
BPDA Urban Design	UD
Article 37 Interagency Green Building Committee	IGBC
Boston Transportation Department	BTD
Katie Pedersen, BPDA	ENV
Boston Parks and Recreation Department	BPRD
Boston Water and Sewer Commission	BWSC
Medical Academic and Scientific Community Organization, Inc.	MASCO

boston planning &
development agency

MEMORANDUM

TO: Katelyn Sullivan
FROM: Urban Design Staff
DATE: February 12, 2018
SUBJECT: Beth Israel Deaconess Medical Center
New Inpatient Building
Institutional Master Plan Notification Form for Amendment
Project Notification Form

BACKGROUND

As Beth Israel Deaconess Medical Center (BIDMC) has maximized the use of its existing buildings a New Inpatient Building is proposed on the site of a surface parking lot at the corner of Brookline Avenue and Francis Street and adjacent/connected to the Rosenberg clinical center. This building will allow BIDMC to provide the now standard-of-care single bed rooms as well as additional surgery and clinical support space

The project requires an amendment to the Beth Israel Deaconess Medical Center (BIDMC) 2004 Institutional Master Plan (IMP) by adding a new 345,000 GSF building instead of the previously contemplated West Clinic Center Addition.

In response to these comments, a draft project impact report (DPIR) should be submitted in order to provide information to evaluate the project as proposed. Details of submission requirements are outlined in this memorandum. Note also that the project has not yet appeared before the Boston Civic Design Commission. That commission will have comments about the project that will need to be addressed in either the DPIR or meetings or commission review.

URBAN DESIGN COMPONENT

The proposed location, a corner surface parking lot, is highly visible at the southern entrance to the expanse of Brookline Avenue that serves the Longwood Medical Area (LMA). It is one of the more compromised blocks on this main strip of the LMA, with an unrelieved sidewalk overhung by the Rosenberg building. The proposed project offers the possibility of improving this condition and of bringing at least part of this sidewalk into a more pedestrian friendly design.

Functionally on the BIDMC campus, Brookline Avenue is the back of the Rosenberg building and of the New Inpatient Building. This creates a significant design challenge of making the public face of the building approachable while the functional entrance is located on another side of

the building. The decision to move the entrance from Pilgrim Road to Francis Street has improved the relationship of the building to the main public way, making it more possible to understand where the entrance is when passing by. But the condition on Brookline Avenue remains the major challenge of the continuing development of the building.

This is further complicated by the current loading dock location, with access off of Brookline Avenue. This adds to the potentially dangerous and bicycle/pedestrian unfriendly nature of this section of Brookline Avenue.

Additional alternative studies should be submitted with the DPIR:

- An option for relocating the loading dock off of Brookline Avenue. This should be a priority for the design as it will make the single largest impact on how that section of Brookline Avenue can be improved. UD.1
- Analysis of the context buildings, beginning with Brookline Avenue and the Riverway, and how the proposed building adds and relates to the context. UD.2
- A graphic analysis of Brookline Avenue to help understand how the proposed project will fit into the existing urban boulevard context. UD.3
    - How wide are the sidewalks along the street?
    - Are the buildings set back from the sidewalks? If so, by how much and what is the condition of the setback?
    - Are there building overhangs over the sidewalks? If so, by how much and at what height.
    - Where are building entrances located?
    - Are there retail or other public functions along Brookline Avenue?
- An analysis showing how the overhang proposed on Brookline Avenue could be shifted to Pilgrim Road. UD.4
- An analysis showing how the Brookline Avenue sidewalk between Francis Street and Deaconess Road could be improved by the current project should be submitted. This could include increasing width at the new construction portion, adding active program, or other urbanistic elements. Look to the Complete Streets guidelines for minimum requirements in this area. This should relate to the analysis requested in the first bullet point. UD.5
- An analysis consider the role of the Francis/Brookline intersection as a four-cornered intersection and a potential urban space in its own right. UD.6

The intention of asking for this analysis is to help the building develop in a way that has more positive urban benefits in a dense, hard part of the city. Specific shadow and wind investigations will be requested a separate category in this scoping to determine what the impacts are regarding Brookline Avenue and the Riverway. We will expect that the Proposed Project as represented in the Draft Project Impact Report (DPIR) will have taken into account any necessary mitigating factors discovered as a result of environmental and other studies by

the Proponent. Wind mitigation in particular should be considered as part of the building design, not as additive elements.

ARCHITECTURE

Much of the meetings that the BPDA design review staff have held with BIDMC have revolved around the urban issues that the proposal creates. Understanding that the architecture is fairly early on, some additional clarification would be useful.

Currently the design has three major elements: the tower, the connection to the existing buildings, and the ground level. While expressing these elements may be the best approach to the design, it would be useful to see an approach that looks at a more unified approach to the whole building. That might also help with the relationship of the ground floor architecture to the urban realm. UD.7

Representing the complexity of the Rosenberg building in rendering is also going to be important to understanding the proposed architecture. Photo montage may be more useful as a design tool to capture that combination of glass and brick detailing. UD.8

Views that should be included in the DPIR include: UD.9

- A series of views from the Riverway, showing the visibility of the building from the position of a driver.
- Views from street level on Brookline Avenue on the East and West sides of the street. Views should be from a few blocks away and from the Rosenberg Building and Francis Street Garage.
- Views from street level on Francis Street from the intersection with Pilgrim Road and from the intersection with Binney Street.
- Locate any distance views, for example is the building visible from Brigham Circle.

SIGNAGE AND WAYFINDING

Signage and wayfinding will be addressed during design review of the project. This should focus on the relationship of the New Inpatient Building to other buildings in the BIDMC complex and to the public realm. As noted elsewhere in the scoping, a signage master plan for the campus will help clarify the signage needed and expedite review. UD.10

UD.1 Loading Dock studies.

The Project team has carefully studied two scenarios in addition to the proposed location and configuration of the loading dock. Study A considered the possibility of moving the loading dock to the corner of the building at the intersection of Francis Street and Pilgrim Road. Study B considered the possibility of maintaining the loading dock in its proposed location, but reorienting the entry so that access would be from Francis Street instead of Brookline Avenue.

Study A

Study A investigated the possibility of relocating the main building entrance to the corner of Brookline Avenue and Francis Street, and shifting the loading dock to the corner of Francis Street and Pilgrim Road. In this arrangement, access to/from the dock would have to occur on Francis Street due to the steep grade on Pilgrim Road at this location. This configuration was considered in reference to the critical program objectives of the Project (expansion of bed capacity, efficient expansion of radiological and surgical service platforms, leveraging of existing operational and support resources, and interconnection with the rest of the West Campus inpatient facilities), planning and urban design considerations, and dock access and performance. Against all of these criteria, Study A was determined to be unacceptable due to the following primary constraints and shortcomings:

- The relocation of the new lobby to the corner of Brookline Avenue would make it very difficult to interconnect this public entry to the network of patient/visitor access corridors that serve the West Campus, including the Rosenberg Building entry, access across the pedestrian bridge that connects to the Farr Building, and important patient/visitor vertical transportation cores. These connections would have to be made by introducing corridors that would have a significant negative impact on the layout and functionality of the operating and procedure rooms and radiology facilities in the Project.

- Due to internal planning requirements, the reorganization of vertical service cores (stairs, elevators, shafts, etc.) in response to the site organization proposed with Study A would result in the loss of 50 percent of the patient rooms (79 total), and irreconcilably compromises the relationship between the existing radiological and surgical platforms in the Rosenberg Building and the expansion area available in the Project.

- The new dock would be separated from the current materials management space in the Rosenberg Building, which is to be maintained in connection with the Project. Off-loaded materials would need to be ferried down

additional corridors and also moved vertically due to the elevation differences of the site between Brookline Avenue and Francis Street.

- Trucks would generate negative impacts to patients, pedestrians and cyclists on Francis Street and Pilgrim Road because of the narrowness of these streets and the inability of trucks to efficiently maneuver into the dock from them.

- A dock at this location would create a significant overlap of service traffic with arriving ambulances, presenting a potentially grave risk to patients requiring immediate medical attention.

- This location would require truck use of the Riverway, which is not currently permitted.

For these reasons, Study A was determined to be unacceptable.

Study B

Study B investigated the possibility of maintaining the loading dock in its existing/proposed location, but relocating the entrance from Brookline Avenue to Francis Street. This configuration was considered in reference to the critical program objectives of the Project (expansion of bed capacity, efficient expansion of surgical/procedural and radiological service platforms, leveraging of existing operational and support resources, and interconnection with the rest of the West Campus inpatient facilities), planning and urban design considerations, and dock access and performance.

Study B was determined to be unacceptable due to the following primary constraints and shortcomings:

- The throat of Francis Street where it meets Brookline Avenue would need to be widened significantly to allow for trucks to make the right-turn. Similarly, the entrance to the dock would also need to be very wide. The resulting condition would be an environment where pedestrian crossings are long and sidewalks are narrow. The urban design landscaped realm that is desired would be eliminated.

- Further, this resulting condition, while suitable to support access by smaller trucks and vans, would not be suitable for right-turn access by larger trucks (WB-40 and larger) from Brookline Avenue, creating potential for unnecessary traffic congestion outcomes on both this primary access corridor as well as on Francis Street.

- Due to the organization of the loading docks, materials management space and service elevators (all of which are in Rosenberg and are to be maintained), it would be necessary for all trucks accessing the dock to pull past the entrance and back in. This would create an inefficient and unsafe condition for all vehicles behind those trucks, which would be "trapped" behind the truck trying to back in. This condition would create back-ups that would quickly impact the Brookline Avenue/Francis Street intersection, resulting in unwanted localized and area traffic outcomes.

- This condition would have very negative consequences to BIDMC patients travelling to the West Campus, and in particular, those arriving via ambulance in emergency situations.

- Trucks exiting the dock would also create unnecessary negative traffic conditions in the area because of the proximity of the dock to the intersection and the nearly constant queue of automobiles on the Francis Street eastbound approach to Brookline Avenue. Trucks turning out of the dock would need to merge into this queue and would block entering/westbound Francis Street traffic.

- Larger trucks that turn into this queue, but happen to not get through the intersection (after the traffic signal turns red), would be forced in an awkward waiting position where their trailer completely blocks the westbound travel lane. This condition would remain until the next green phase in the signal cycle (up to a two minute wait). Similar to other conditions described above, this condition would create back-ups that would quickly impact the Brookline Avenue/Francis Street intersection, resulting in unwanted localized and area traffic outcomes.

Proposed Project Loading Dock Configuration

The preferred configuration to support loading and service activities for the Project and the West Campus includes the construction of an improved facility in the existing location that maintains access off Brookline Avenue. The dock's maneuvering area will be increased to provide larger trucks with the ability to drive head-in into the facility without needing to back in from Brookline Avenue (which is not accommodated today under current conditions). After careful study of multiple alternatives, this loading dock location and configuration was determined to be preferred for the following key reasons:

- Leverages existing West Campus service infrastructure that will not need to be duplicated in the Project (back of house area, service corridors, elevators cores, etc.);

- Fosters the most efficient surgical/procedural and radiological services solution and maximizes implementation of needed new patient beds;
- Provides the most desirable patient experience within the Project and achieves the necessary internal pedestrian connectivity to the rest of the West Campus inpatient facilities; and
- Minimizes potential for adverse area wide traffic impacts.

BIDMC will continue to work with the BTD and the BPDA to further refine the design and supporting operational parameters to support safe and efficient access and limit unwanted impacts to area wide traffic, pedestrians or bicyclists.

UD.2 Context analysis.

Analysis of the Project context is included in Chapter 5.

UD.3 Graphic analysis of Brookline Avenue.

A graphic analysis of Brookline Avenue is included in Appendix G.

UD.4 Overhang analysis.

Shifting the cantilever from the Brookline Avenue side of the building to the Pilgrim Road side was analyzed, but determined to be infeasible. The current design allows approximately 45 feet of clear dimension between the Project and the existing Palmer Building on the opposite side of Pilgrim Road. In addition, the proposed design limits any cantilevers on the Pilgrim Road side of the Project to the width of the sidewalk on the south side of Pilgrim Road. A simple shift of the entire building mass to the north (in order to eliminate the cantilever over Brookline Avenue) would result in the building cantilevering over the actual roadway on Pilgrim Road and would reduce the clear dimension between the Project and the Palmer Building to a maximum of 33 feet. While it is theoretically possible to reorganize the program on the inpatient floors to eliminate the cantilever over the Brookline Avenue sidewalk (though doing so would create significant challenges with respect to the relationship of patient rooms to caregiver support space and would compromise efficient patient care operations), it is not possible to do so on the radiology or surgery floors. Given that those floors fill the entire site, eliminating the cantilever over the Brookline Avenue sidewalk would translate directly to a loss of at least 1,000 sf of program area which would severely compromise the function of those floors.

UD.5 Brookline Avenue sidewalk.

A discussion of the Brookline Avenue sidewalk is included in Section 5.3.

UD.6 **Francis Street/Brookline Avenue intersection as a potential urban space in its own right.**

The Francis Street / Brookline Avenue intersection includes characteristics that set it up as a gateway into the LMA from the south. In its current condition, on the eastern side of Brookline Avenue, a line of street trees (some more mature than others) begins at the Yawkey Center and continues across the face of the MATEP building, terminating with a landscaped space with mature trees situated in planting beds at the northeastern corner of the intersection. In addition, a continuous ribbon of brick pavers on the east side of Brookline Avenue from Fenwood Road to Jimmy Fund Way serves to create a visual and tactile linkage along this stretch of road, further enhancing the sense of place. South of Francis Street, the corner includes a large brick plaza with an entrance to the Servicenter Garage, with planters located along a portion of Brookline Avenue and a landscaped space on Francis Street.

On the western side of Brookline Avenue, trees and landscaping buffer the Francis Garage from the sidewalk from the Riverway, half way up the block where a bus shelter is located. Behind the bus shelter, a greenwall on the parking garage stretches to the Brookline Avenue/Francis Street intersection, mimicking the more mature landscaping diagonally across the intersection.

With the introduction of the proposed Project into this setting, the landscape zone at the northwest corner of the intersection will echo the placemaking gesture in front of the MATEP building, while the extension of new landscaping north along Brookline Avenue to the intersection with Deaconess Road will connect visually and experientially to the same stretch of sidewalk on the opposite side of the street. Together, these characteristics will combine to provide a green entrance to the LMA when approaching from the south, to the plaza-like spaces at the northeast and northwest corners of the intersection. See Figure 9-1.

UD.7 **Unified approach to the whole building.**

Section 5.4 and Figures 5-1 and 5-2 provide a discussion of an approach that unifies the building elements.

UD.8 **Photo montage.**

Section 5.2 includes existing and proposed photographs of the Project site.

UD.9 **Existing and proposed views.**

Section 5.2 includes existing and proposed photographs of the Project site.

UD.10 Signage.

BIDMC recognizes the need to update signage, especially on the West Campus, and will be developing a signage master plan as the design progresses.



Beth Israel Deaconess Medical Center

PAYETTE

Figure 9-1

Brookline Avenue and Francis Street Intersection Landscaping

Martin J. Walsh
Mayor

Article 37 Interagency Green Building Committee

January 31, 2018

Epsilon Associates, Inc
3 Mill & Main Place, Suite 250
Maynard MA 01754

Re: Beth Israel Deaconess Medical Center Institutional Master Plan Notification Form PNF

Good day,

The Boston Interagency Green Building Committee (IGBC) has reviewed the Project Notification Form (PNF) submitted in conjunction with this project for compliance with Boston Zoning Article 37 Green Buildings.

The PNF indicates that the project will use the LEED v4 New Construction rating system. Additionally, the project team has committed to:

- Achieving a minimum green building outcome of LEED Silver, with 54 points.

The IGBC accepts the rating system selection and green building commitments. We further encourage you to pursue LEED Gold.

The IGBC recommends that you engage with local and state-funded energy efficiency and clean/renewable energy programs early in the project.

In support of Boston's Carbon Neutral 2050 GHG goal, please include the following strategies for reducing GHG emissions:

- Prioritize passive strategies such as improved building envelope performance by increasing building envelope air tightness and insulation. IGBC.1
- Ensure active building systems are appropriately sized for improved passive performance and cost savings are fully captured. IGBC.2
- Include solar PV and provide system(s) location, size, and output information along with any related analysis. IGBC.3

Please check the Article 37 Green Building and Climate Resiliency Guidelines page for updated information. Projects must demonstrate compliance with Zoning Article 37 prior to obtaining building permits. The following documents must be submitted to your BPDA Project Manager and the IGBC for review and approval:

- Design / Building Permit Green Building Report, including an update LEED Checklist, final building energy model, and supporting information as need to demonstrate how each prerequisite and credit will be achieved.
- An Excel (.xls) version of the updated LEED Checklist.
- Updated Climate Change Checklist (please note that new Climate Change Checklist was approved in October 2017 and should be used for your next filing).
- Signed Design Affidavit.

Please let me know if you have any questions or if I can be of any assistance.

Sincerely,
Benjamin Silverman, LEED Green Associate
On behalf of the Interagency Green Building Committee

Cc: Katelyn Sullivan, BPDA Senior Project Manager
IGBC

IGBC.1 Improve building envelope.

The overall approach to the design as it relates to building performance begins from the premise that reducing the loads that must be met is a critical first step. As an example of this thinking, the development of the architectural massing and composition has been heavily informed by a thorough analysis of, and response to solar loads. The faceted façade that characterizes the Francis Street and Pilgrim Road elevations was initially developed as a response to the challenging solar exposures associated with the site. Specifically, the geometry of those facades reflects an effort to reduce solar loads by effectively turning the glazing towards a more optimum orientation. Along Brookline Avenue where a flat façade is preferable for a variety of reasons, vertical fins have been added to help shade the glass from the early morning sun. The Project team has advanced the design of these facades concurrently with the development of a 'shoe box' energy model of a typical patient room. This model facilitates the evaluation of different design options in the context of their energy implications, and the analysis has included rigorous evaluations of thermal bridging effects through potential breaches in building insulation as well as detailed consideration of the effect of different glass specifications and window framing systems (including mullion spacing). Through this process, the combination of window size, orientation and extent of exterior shading has been refined to keep peak solar loads below the available capacity of the chilled beams proposed for the typical inpatient rooms.

IGBC.2 Sizing of building systems.

The design team has worked closely together to ensure that active systems are properly sized relative to anticipated loads, and that equipment selections and configurations are made to optimize operating efficiency. System selections also take into consideration the most efficient means of dealing with different loads. As an example, the use of chilled beams decouples ventilation requirements from cooling requirements, and in doing so allows each load to be met in the most efficient manner possible. Enthalpy wheels are proposed to capture waste heat from exhaust air streams, and re-use that energy to pre-heat incoming fresh air.

IGBC.3 Solar PV.

This Project is not a candidate for a roof-mounted PV array due to the amount of roof area covered by mechanical equipment and the need to provide a medical transport helipad.

BOSTON
TRANSPORTATION
DEPARTMENT

ONE CITY HALL SQUARE • ROOM 721
BOSTON, MASSACHUSETTS 02201
617-635-4680 • FAX 617-635-4295

February 22, 2018

Katelyn Sullivan
Senior Project Manager
Boston
One City Hall Square, 9th Floor
Boston, MA 02201

RE: Beth Israel Deaconess Medical Center New Inpatient Building – Institutional Master Plan Amendment/Project Notification Form (IMP/PNF)

Dear Ms. Sullivan,

Thank you for the opportunity to comment on the IMP/PNF for Beth Israel Deaconess's New Inpatient Building. The project includes a 345,000 sf new inpatient building with up to 158 inpatient beds, but closing of other beds in the West Campus resulting in 89 net new inpatient beds. 26 surface lot spaces will be displaced by the building.

There is no new parking proposed as part of this project. Parking needs will be accommodated by the existing parking supply within the BIDMC Campus, primarily at the nearby Pilgrim Road and Lowry Garages.

Information in future submittals and analysis provided by the proponent will lead to a Transportation Access Plan Agreement (TAPA), which will codify the projects' transportation-related elements, including mitigation items. To further the discussion that will lead to the TAPA, the following comments identify issues needing clarification, additional submissions, and proposed mitigation items.

Loading

Loading for the existing Rosenberg Building is accessed from a curb cut on Brookline Avenue near Francis Street. The IMP/PNF proposes to use the same location and curb cut for loading in the new building.

Brookline Avenue is a critical arterial roadway in the Longwood Medical Area with heavy bicycle, pedestrian, and vehicle traffic that experiences peak hour congestion as well as illegal standing and loading in the bike lanes. We would prefer to see the driveway to the loading area moved off of Brookline Avenue to improve safety for vulnerable users and to improve traffic congestion. BTD.1

Pilgrim Road

As noted in the IMP/PNF, the project is adjacent to a discontinued portion of Pilgrim Road currently owned by BIDMC. Pilgrim Road is currently one-way southbound from Longwood Avenue to Francis Street.

As part of this project, BIDMC has stated that they would like to make Pilgrim Road two-way. This would improve motor vehicle and cyclist circulation and benefit overall mobility in the Longwood Area.

We would like to see more information presented about the extent of this change, and how this new circulation pattern would affect access to and from the Riverway. BTD.2

Note that the Town of Brookline studied an option for Netherlands Road that would create a multiuse path connection from the Emerald Necklace to the intersection of Riverway and Francis Street/Pilgrim Road. An improved crossing for cyclists and pedestrians at this intersection could create a high quality "Green Link" in the greenway network, allowing hospital staff to commute by bicycle along an off-road path from Brookline, Boston and beyond.

We request that BIDMC reach out to DCR and the Town of Brookline to explore the possibility of a half or full signalized crossing at the Pilgrim Road/Francis Street/Riverway intersection. BTD.3

Pedestrian Access

Given the high percentage of people who walk in the Fenway and LMA or combine transit with walking as part of their commute, providing safe and comfortable pedestrian access to the new facilities is critical.

Future submittals should include a site plan showing pedestrian access routes to these buildings on the streets and through the camps, and improvements to the public realm. Proposed sidewalk improvements should be consistent with the City's Complete Streets Guidelines, including goals for tree cover and sustainable stormwater management. BTD.4 BTD.5

Bicycle Access and Parking

With expanded bicycle facilities throughout the City and the success of Hubway bike share, bicycle ridership in Boston has been increasing, and this trend is expected to continue.

In the next submittal, please provide a campus-wide bike parking and access plan, including a description of how the new building will meet the current City of Boston Bike Parking Guidelines. The plans must include on-site, secure covered bike parking spaces for employees, and covered or open outdoor bike parking spaces for patrons and visitors. BTD.6

The bike parking and access plans should also include existing and proposed Hubway stations. BIDMC will be expected to sponsor a new Hubway Station. BTD.7 BTD.8

PRINTED ON RECYCLED PAPER

Transportation Demand Management

The IMPNF/PNF outlines many of the measures BIDMC currently employs to minimize traffic and encourage employees to shift from single occupancy driving to other modes. BTD looks forward to reviewing more details of the program and any methods proposed to measure and improve its effectiveness. Using the existing program as a foundation, BTD will work with BIDMC to determine the specifics to be codified in the TAPA.

Site Plan

The proponent needs to submit an engineered site plan within the context of the surrounding roadways at 1:20 scale depicting: BTD.9

- Vehicular Access and Circulation
- Parking Layout and Circulation
- Pedestrian Access and Circulation
- Bicycle Access and Circulation
- Shuttle/Van Pool Pickup and Drop-off
- Parking Spaces for Car Sharing services
- Service and Loading*
- Roadways and Sidewalks
- Building Layout
- Bicycle Parking Locations and Types (covered, indoor, bike share, etc)
- Transit Stops and Connections
- Electric Vehicle Charging Stations

** Trash compactors/dumpsters need to be depicted as well.*

Construction Management Plan

As the project advances, the proponent will be required to develop and submit a detailed Construction Management Plan (CMP) to BTD for review and approval. The CMP will address TDM measures for construction workers, proposed street occupancies, equipment stating, sidewalk relocations and hours of construction work. BTD will work with the proponent to execute the CMP.

We look forward to working cooperatively with BIDMC, the neighborhood, and the LMA community to reach an agreement on the plans and mitigation measures to be codified in the TAPA.

Sincerely,

Charlotte Fleetwood
Transportation Planner

Cc: Vineet Gupta, Director of Policy and Planning
John DeBenedictis, Director of Engineering

PRINTED ON RECYCLED PAPER

BOSTON TRANSPORTATION DEPARTMENT

BTD.1 Loading dock entrance.

BIDMC operates the existing Rosenberg Building Main Loading Facility with access from Brookline Avenue. The Rosenberg Building Main Loading Facility includes 4 service bays (3 loading and 1 dumpster). After careful study of multiple alternative dock locations, BIDMC believes that maintaining the Main Loading Facility in its current location is the most safe and efficient place for supporting traffic flow, pedestrians and cyclists. See response to comment UD.1.

BTD.2 Two-way Pilgrim Road.

The primary intentions of modifying Pilgrim Road to two-way travel are to allow for the most efficient means for ambulances to access the new ambulance bay area to be located off of Pilgrim Road from multiple directions. This improvement will also allow for the Project's patient valet operation to function without having vehicles travel unnecessarily along Brookline Avenue when being returned to the Project curbside area from the Pilgrim Garage. For those patients choosing to valet park, valet return will be accommodated on Francis Street across the street from the Project.

BTD.3 Signalized crossing at the Pilgrim Road/Francis Street/Riverway intersection.

BIDMC, in connection with MASCO and other LMA institutions, is currently assessing the potential to introduce traffic-signal control at the intersection of the Riverway and Francis Street.

BTD.4 Site plan showing pedestrian access routes and improvements to the public realm.

A plan showing primary pedestrian access routes to the building and through the campus, as well as a site plan showing improvements to the public realm is included as Figure 3-11 and Figure 5-13.

BTD.5 Proposed sidewalk improvements should be consistent with the City's Complete Streets Guidelines.

Proposed sidewalk improvements will be consistent with the City's Complete Streets Guidelines to the extent feasible.

BTD.6 Campus-wide bike parking and access plan.

BIDMC encourages employees to bicycle to work. Currently, BIDMC owns and leases approximately 256 bicycle spaces on its East and West Campuses or nearby in the LMA, and 24 at its Research North building in the Fenway, dedicated for use

by its employees. BIDMC also maintains 147 bicycle parking spaces for public use on its East and West Campuses. Additional bicycle parking will be put in place with the opening of the Project. Bike parking to be added in connection with the Project will comply with the City of Boston Bicycle Parking Guidelines. The location and layout of bike parking to be put in place in connection with the Project is still under study. The final layout will be shared with the BPDA and the BTD and codified as part of the review and approval of the TAPA.

BIDMC also participates in Wellcoin, which provides rewards to employees who bicycle or walk to work, based on the miles they log. BIDMC provides sheltered bike racks on both campuses, and employee lockers and showers are available on-site. BIDMC subsidizes employee memberships to Blue Bikes Bikeshare, and is a corporate sponsor for three stations on campus or near hospital facilities. Approximately 100 employees participate in the Blue Bikes program using the service to commute to and from BIDMC. In addition, 111 employees participated in the 2016 Bike Week Commuter Challenge.

Bike routes in the area are included in Figure 9-2.

BTD.7 Existing and proposed Hubway stations.

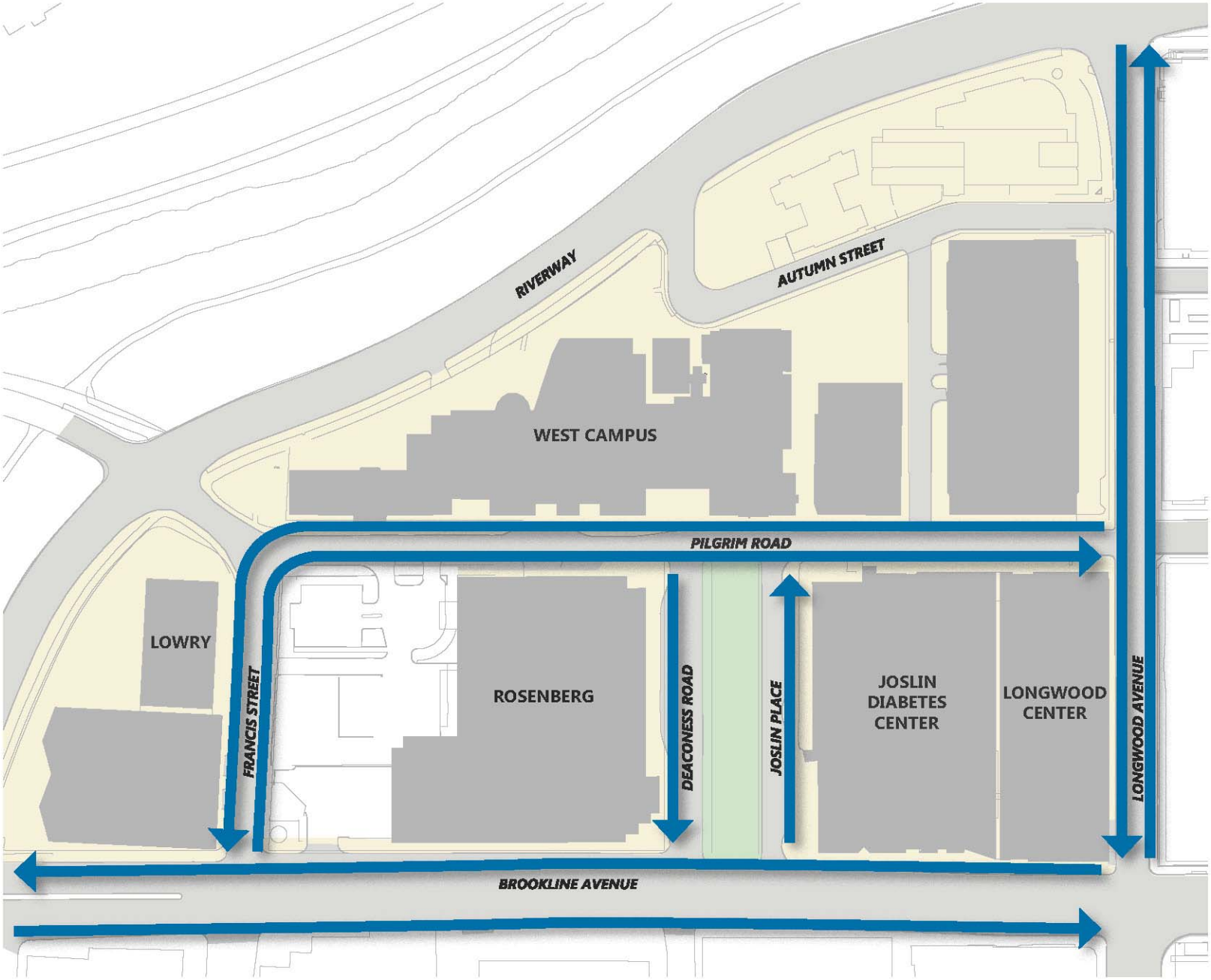
See Response to BTD.6 and Figure 3-6.

BTD.8 Sponsor a new Hubway Station.

Comment noted. As noted, BIDMC subsidizes employee memberships to Blue Bikes Bikeshare, and is a corporate sponsor for three stations on or next to the campus.

BTD.9 Site plan.

Comment noted. Figure 3-2 of the provides the Project site plan, which shows, the proposed drop-off/pick-up area on Francis Street, surrounding roadways and sidewalks, and building layout. Figure 3-11 shows primary pedestrian routes. The Project does not include new parking. Service and loading will remain in the current location. Public transportation information is shown on Figure 3-16. See response to BTD.6 for information about bicycle facilities.



Beth Israel Deaconess Medical Center

vhb

Figure 9-2

Primary Bicycle Routes

BPDA MEMORANDUM

TO: Katelyn Sullivan

FROM: Katie Pedersen

DATE: February 12, 2018

RE: Beth Israel Deaconess Medical Center
New Patient Building
Institutional Master Plan Notification Form
For Amendment/Project Notification Form
Boston, Massachusetts

I have reviewed the Institutional Master Plan Amendment/Project Notification Form (the "IMP/PNF") dated January 11, 2018 and submit the following comments for the Environmental Protection component. The Beth Israel Deaconess Medical Center (the "Proponent") is proposing the construction of a 10 story inpatient clinical building on BIDMC's West Campus that will include up to 345,000 sf of gross floor area and be 200 feet in height (the "Proposed Project").

Wind

The Proposed Project is designed to be 200 feet in height and thus the Proponent shall be required to conduct a quantitative (the "wind tunnel") analysis of pedestrian level winds for existing (no-build) and build conditions. The analysis shall determine potential pedestrian level winds adjacent to and in the vicinity of the Proposed Project site and shall identify areas where wind velocities are expected to exceed acceptable levels, including the Boston Planning and Development Agency's guideline of an effective wind gust velocity of 31 mph not to be exceeded more than 1% of the time. The analysis shall determine the suitability of particular locations for various activities (eg. walking, sitting, eating, etc.) as appropriate. Particular attention shall be given to public and other areas of pedestrian use, including but not limited to, The Riverway, Parsons Field, the Brookline Avenue Playground as well as entrances to buildings and parks, plazas and other open spaces and pedestrian areas near the Proposed Project. For areas where wind speeds are projected to be dangerous or to exceed acceptable levels, measures to reduce wind speeds and to mitigate potential adverse impacts shall be identified and included in the Proposed Project design. ENV.1

Shadow

The Proponent shall be required to conduct and submit a shadow analysis for existing (no-build) and build conditions for the hours of 9:00 a.m., 12:00 noon, 3:00 p.m. for the vernal equinox (March 21), summer solstice (June 21), autumnal equinox (September 21), and winter solstice (December 21) and 6:00 p.m. in the summer and the fall. ENV.2

The shadow impact analysis must include net shadow as well as existing shadow and must clearly show the anticipated incremental impact of the Proposed Project building. For purposes of clarity, new shadow should be shown in a dark, contrasting tone discernable from existing shadow. The shadow impact study area shall include, at a minimum, the entire area to be encompassed by the maximum shadow expected to be produced by the Proposed Project. The build condition(s) shall include all buildings under construction and any proposed buildings expected to be completed prior to the completion of the Proposed Project. Shadow from all existing buildings within the shadow impact study area shall be shown as well.

Daylight

(Please refer to Urban Design's comments)

Solar Glare

The Proposed Project design does not appear to include reflective glass or other reflective materials and thus the Proponent shall not be required to conduct a solar glare analysis. However, should the Proposed Project design change and incorporate substantial glass-facades (reflective glass), a solar glare analysis shall be required. The analysis shall measure potential reflective glare from the buildings onto potentially affected streets and public open spaces and sidewalk areas in order to determine the likelihood of visual impairment or discomfort due to reflective spot glare. Mitigation measures to eliminate any adverse reflective glare shall be identified. ENV.3

Air Quality

The Proponent shall be required to conduct an analysis to evaluate the existing air quality in the Proposed Project area with the intent to predict the worst-case air quality impacts from the Proposed Project's heating and mechanical equipment and to evaluate the potential impacts of Proposed Project-generated traffic on the air quality at the most congested local intersections. The Proponent shall be required to demonstrate compliance with the Massachusetts and National Ambient Air Quality Standards (NAAQS) for all of the criteria air pollutants. A microscale air quality analysis shall not be required, as the Proposed Project trip generation is projected to have a minimal impact on the studied intersections. Therefore, the motor vehicle traffic generated by the Proposed Project is not anticipated to have a significant impact on air quality at any intersection in the Proposed Project area and thus a microscale air quality analysis shall not be required. ENV.4

Noise

The Proponent shall be required to conduct a noise analysis of the existing noise levels at the Proposed Project site as well as future noise levels, after the Proposed Project is completed. A description of the Proposed Project's mechanical system(s) and their location(s) shall also be included. ENV.5

The Proponent shall be required to demonstrate compliance with the most stringent sound level limits set by the Massachusetts DEP Noise Policy, City of Boston Noise Regulations, and HUD's Residential Site Acceptability Standards and if deemed necessary includes measures designed to minimize and eliminate adverse noise impacts on nearby sensitive receptors.

Sustainable Design/Green Buildings

(Please see the Interagency Green Building Committee (IGBC) Article 37 Comment Letter)

KATIE PEDERSEN, BPDA

ENV.1 Wind study.

A wind study is included in Section 4.1.

ENV.2 Shadow study.

A shadow study is included in Section 4.2.

ENV.3 Solar glare.

Comment noted.

ENV.4 Air quality analysis.

An air quality analysis is included in Section 4.4.

ENV.5 Noise analysis.

A noise analysis is included in Section 4.6.

Re: BPRD Comments on the BIDMC New Inpatient Building

1 message

Carrie Marsh <carrie.marsh@boston.gov> Thu, Feb 8, 2018 at 1:03 PM
To: Katelyn Sullivan <katelyn.sullivan@boston.gov>
Cc: Teresa Polhemus <teresa.polhemus@boston.gov>, Jonathan Greeley <jonathan.greeley@boston.gov>, David Carlson <david.carlson@boston.gov>, Christopher Cook <christopher.cook@boston.gov>, "Liza Meyer, ASLA" <liza.meyer@boston.gov>

Thank you. BPRD is still analyzing the distance of this building from the Riverway, reviewing information that the applicant provided today, compared to BPRD's records. This determination could have an impact on the height and setback requirements, as well as the Parks Commission's jurisdiction under Municipal Code Section 7-4. We will provide comments by the deadline on February 12. Thank you.

On Thu, Feb 8, 2018 at 12:54 PM, Katelyn Sullivan <katelyn.sullivan@boston.gov> wrote:
Hi Carrie-

The shadow studies for the new BIDMC project will be included in the Draft Project Impact Report which should be filed in the next couple of months. Mitigation for shadow impacts has not yet been identified but will be part of the conversation as the review process goes on. If you want to discuss further please feel free to give me a call.

Thank you,
Katelyn

On Thu, Feb 8, 2018 at 11:47 AM, Carrie Marsh <carrie.marsh@boston.gov> wrote:
Hi Katelyn - has the proponent provided further information about the shadow impacts on the Riverway, and has BPDA reached a mitigation for such impacts? BPRD.1

CARRIE MARSH
Executive Secretary
Boston Parks and Recreation Commission
1010 Massachusetts Avenue, 3rd floor
Boston, Massachusetts 02118
617-961-3074 (direct) 617-635-4505 (main)

On Tue, Jan 23, 2018 at 6:00 PM, Carrie Marsh <carrie.marsh@boston.gov> wrote:
Hello Katelyn -

BPRD has reviewed the submittal for the BID Inpatient Building at Brookline and Francis Streets. It is not clear from the tools we have at hand, if the project is within 100' of the Riverway, which would make it subject to review

of the Parks Commission under Municipal Code Section 7-4.11. I would appreciate if the proponent could provide information towards that determination.

Also, BPRD is concerned about the potential impact of shadows on the Riverway from the 200' tall building. Mitigation of shadow impacts may be appropriate once that information is available.

Thank you.

CARRIE MARSH
Executive Secretary
Boston Parks and Recreation Commission
1010 Massachusetts Avenue, 3rd floor
Boston, Massachusetts 02118
617-961-3074 (direct) 617-635-4505 (main)

On Tue, Jan 23, 2018 at 9:39 AM, Katelyn Sullivan <katelyn.sullivan@boston.gov> wrote:

You or a representative from your agency are invited to a Scoping Session to be held on January 23, 2018 at 1pm in Room 937a on the 9th Floor of City Hall.

The Boston Planning & Development Agency ("BPDA"), hereby gives notice pursuant to Article 80, Section 80A-2 of the Boston Zoning Code ("Code"), that on January 11, 2018 an Institutional Master Plan Notification Form ("IMPNF"), filed pursuant to Section 80D-5 of the Code, has been received from Beth Israel Deaconess Medical Center ("BIDMC" or the "Proponent") for purposes of amending and extending for five years the BIDMC Institutional Master Plan ("BIDMC IMP"). Additionally, a Project Notification Form ("PNF") was filed pursuant to Section 80B-5 of the Code by BIDMC on the same date for the proposed institutional project, known as the New Inpatient Building, as described below ("Proposed Project").

The IMPNF initiates a process for the revision of the BIDMC IMP by amendment to allow BIDMC to build the Proposed Project. Both the IMPNF and PNF describe the construction of the New Inpatient Building on BIDMC's West Campus in the Longwood Medical and Academic Area on a site bounded by Brookline Avenue, Francis Street, a discontinued portion of Pilgrim Road owned by BIDMC, and the Rosenberg Building. The site currently includes the Emergency Department patient drop-off, ambulance entrance, main West Campus loading facility (Main Loading Facility) and West Campus oxygen tanks. The Proposed Project will include approximately 345,000 square feet of hospital uses, including 158 inpatient beds (up to 128 medical/surgical and 30 intensive/critical care beds) within the proposed new building, and a rooftop helipad (which will be relocated from an immediately adjacent building). BIDMC anticipates closing some existing West Campus beds at the opening of the New Inpatient Building, resulting in 69 net new beds added to BIDMC's West Campus bed count. BIDMC also anticipates reopening 20 additional West Campus beds about 24 months after the Proposed Project opens, for a total of 89 net new beds to be added to BIDMC's West Campus in connection with the Proposed Project during the term of the amended BIDMC IMP. The Proposed Project will be approximately 200 feet tall and will not include new parking. The Main Loading Facility will operate at the same location it currently does following completion of the Proposed Project.

The BPDA solicits comments from public agencies and the public. Written comments on the IMPNF/PNF (see below link to project page) must be received by the BPDA no later than **Monday, February 12, 2018.** Please use the contact information below for comments or clarification. If you would like a hard copy of the IMPNF/PNF, please let me know.

BOSTON PARKS AND RECREATION DEPARTMENT

BPRD.1 Shadow study.

A shadow study is included in Section 4.2.

Boston Water and Sewer Commission

980 Harrison Avenue
Boston, MA 02119-2540
617-989-7000

March 27, 2018

Ms. Katelyn Sullivan
Senior Project Manager
Boston Planning and Development Agency
One City Hall Square
Boston, MA 02210

Re: Beth Israel Deaconess Medical Center Inpatient Building, Longwood Medical Area Institutional Master Plan Notification Form/Project Notification Form

Dear Ms. Sullivan:

The Boston Water and Sewer Commission (Commission) has reviewed the Institutional Master Plan Notification Form/Project Notification Form (IMPNF/PNF) for the proposed Beth Israel Deaconess Medical Center (BIDMC) Inpatient Building redevelopment project located on BIDMC's West Campus in the Fenway/Kenmore neighborhood of Boston. This letter provides the Commission's comments on the IMPNF/PNF.

The proposed project is located on BIDMC's West Campus in the Longwood Medical and Academic Area. The site currently contains the Emergency Department patient drop-off, ambulance entrance, main West Campus loading facility and West Campus oxygen tanks. The proponent, BIDMC, proposes to construct a 10 story inpatient building containing approximately 345,000 square feet of hospital uses, including 158 inpatient beds and a rooftop helipad. No onsite parking is proposed. The site is bounded to the north by a discontinued portion of by Pilgrim Road owned by BIDMC, to the south by Brookline Avenue, to the west by Francis Street and to the east by the BIDMC's Rosenberg Building.

According to the IMPNF/PNF, the proposed water demand is approximately 34,760 gallons per day (gpd). The Commission owns and maintains a 12-inch Southern Low pit cast iron water main installed in 1872 and a 48-inch Southern Low steel water main installed in 1935 and cement lined in 1995 along Brookline Avenue, a 12-inch Southern Low cast iron water main installed in 1925 and rehabilitated in 2007 along Francis Street, and an 8-inch Southern Low cast iron cement lined water main installed in 1950 along Pilgrim Road. The Commission is currently replacing the 12-inch water main along Brookline Avenue and designing a new 12-inch water main along Francis Street. The proponent will not be permitted to connect to the 48-inch main.

According to the IMPNF/PNF, the proposed sewage generation is 31,600 gpd. For sewage and storm drain service, the site is served by a 20-inch by 24-inch sanitary sewer and a 12-inch

storm drain in Francis Street, a 15-inch sanitary sewer and a 12-inch storm drain in Brookline Avenue, and a 12-inch sanitary sewer and a 12-inch storm drain in Pilgrim Road.

The Commission has the following comments regarding the IMPNF/PNF:

General

1. Prior to the initial phase of the site plan development, BIDMC should meet with the Commission's Design and Engineering Customer Services to review water main, sewer and storm drainage system availability and potential upgrades that could impact the development. BWSC.1

2. All new or relocated water mains, sewers and storm drains must be designed and constructed at BIDMC's, expense. They must be designed and constructed in conformance with the Commission's design standards, Water Distribution System and Sewer Use regulations, and Requirements for Site Plans. The site plan should include the locations of new, relocated and existing water mains, sewers and drains which serve the site, proposed service connections, water meter locations, as well as back flow prevention devices in the facilities that will require inspection. A General Service Application must also be submitted to the Commission with the site plan. BWSC.2

3. The Department of Environmental Protection (DEP), in cooperation with the Massachusetts Water Resources Authority and its member communities, is implementing a coordinated approach to flow control in the MWRA regional wastewater system, particularly the removal of extraneous clean water (e.g., infiltration/inflow (I/I)) in the system. In April of 2014, the Massachusetts DEP promulgated new regulations regarding wastewater. The Commission has a National Pollutant Discharge Elimination System (NPDES) Permit for its combined sewer overflows and is subject to these new regulations [314 CMR 12.00, section 12.04(2)(d)]. This section requires all new sewer connections with design flows exceeding 15,000 gpd to mitigate the impacts of the development by removing four gallons of infiltration and inflow (I/I) for each new gallon of wastewater flow. In this regard, any new connection or expansion of an existing connection that exceeds 15,000 gallons per day of wastewater shall assist in the I/I reduction effort to ensure that the additional wastewater flows are offset by the removal of I/I. Currently, a minimum ratio of 4:1 for I/I removal to new wastewater flow added is used. The Commission supports the policy and will require proponent to develop a consistent inflow reduction plan. The 4:1 requirement should be addressed at least 90 days prior to activation of water service and will be based on the estimated sewage generation provided on the project site plan. BWSC.3

4. The design of the project should comply with the City of Boston's Complete Streets Initiative, which requires incorporation of "green infrastructure" into street designs. Green infrastructure includes greenscape, such as trees, shrubs, grasses and other BWSC.4

landscape plantings, as well as rain gardens and vegetative swales, infiltration basins, and paving materials and permeable surfaces. The proponent must develop a maintenance plan for the proposed green infrastructure. For more information on the Complete Streets Initiative see the City's website at http://bostoncompletestreets.org/

5. It is BIDMC's responsibility to evaluate the capacity of the water, sewer and storm drain systems serving the project site to determine if the systems are adequate to meet future project demands. With the site plan, BIDMC must include a detailed capacity analysis for the water, sewer and storm drain systems serving the project site, as well as an analysis of the impacts the proposed project will have on the Commission's water, sewer and storm drainage systems. BWSC.5

Water

1. BIDMC must provide separate estimates of peak and continuous maximum water demand for residential, commercial, industrial, irrigation of landscaped areas, and air-conditioning make-up water for the project with the site plan. Estimates should be based on full-site build-out of the proposed project. BIDMC should also provide the methodology used to estimate water demand for the proposed project. BWSC.6

2. The Commission supports BIDMC's commitment to implementing water conservation measures in addition to those required by the State Plumbing Code. In addition, BIDMC should consider outdoor landscaping which requires minimal use of water to maintain. If BIDMC plans to install in-ground sprinkler systems, the Commission recommends that timers, soil moisture indicators and rainfall sensors be installed. The use of sensor-operated faucets and toilets in common areas of buildings should be considered. BWSC.7

3. BIDMC is required to obtain a Hydrant Permit for use of any hydrant during the construction phase of this project. The water used from the hydrant must be metered. BIDMC should contact the Commission's Meter Department for information on and to obtain a Hydrant Permit. BWSC.8

4. The Commission is utilizing a Fixed Radio Meter Reading System to obtain water meter readings. For new water meters, the Commission will provide a Meter Transmitter Unit (MTU) and connect the device to the meter. For information regarding the installation of MTUs, BIDMC should contact the Commission's Meter Department. BWSC.9

Sewage / Drainage

1. A Total Maximum Daily Load (TMDL) for Nutrients has been established for the Lower Charles River Watershed by the Massachusetts Department of Environmental Protection (MassDEP). To achieve the reductions in phosphorus loading required by the TMDL, phosphorus concentrations in the lower Charles River from Boston must be reduced by 64%. To accomplish the necessary reductions in phosphorus, the Commission is

requiring developers in the lower Charles River watershed to infiltrate stormwater discharging from impervious areas in compliance with MassDEP. BIDMC will be required to submit with the site plan a phosphorus reduction plan for the proposed development. BIDMC must fully investigate methods for retaining stormwater on-site before the Commission will consider a request to discharge stormwater to the Commission's system. The site plan should indicate how storm drainage from roof drains will be handled and the feasibility of retaining their stormwater discharge on-site. Under no circumstances will stormwater be allowed to discharge to a sanitary sewer. BWSC.10

In conjunction with the Site Plan and the General Service Application BIDMC will be required to submit a Stormwater Pollution Prevention Plan. The plan must:

- Identify best management practices for controlling erosion and for preventing the discharge of sediment and contaminated groundwater or stormwater runoff to the Commission's drainage system when the construction is underway.

- Include a site map which shows, at a minimum, existing drainage patterns and areas used for storage or treatment of contaminated soils, groundwater or stormwater, and the location of major control or treatment structures to be utilized during construction.

- Provide a stormwater management plan in compliance with the DEP standards mentioned above. The plan should include a description of the measures to control pollutants after construction is completed.

2. The Commission encourages BIDMC to explore additional opportunities for protecting stormwater quality on site by minimizing sanding and the use of deicing chemicals, pesticides, and fertilizers. BWSC.11

3. The discharge of dewatering drainage to a sanitary sewer is prohibited by the Commission. BIDMC is advised that the discharge of any dewatering drainage to the storm drainage system requires a Drainage Discharge Permit from the Commission. If the dewatering drainage is contaminated with petroleum products, BIDMC will be required to obtain a Remediation General Permit from the Environmental Protection Agency (EPA) for the discharge. BWSC.12

4. The Massachusetts Department of Environmental Protection (MassDEP) established Stormwater Management Standards. The standards address water quality, water quantity and recharge. In addition to Commission standards, BIDMC will be required to meet MassDEP Stormwater Management Standards. BWSC.13

5. Sanitary sewage must be kept separate from stormwater and separate sanitary sewer and storm drain service connections must be provided. The Commission requires that BWSC.14

existing stormwater and sanitary sewer service connections, which are to be re-used by the proposed project, be dye tested to confirm they are connected to the appropriate system.

6. The Commission requests that BIDMC install a permanent casting stating "Don't Dump: Drains to Charles River" next to any catch basin created or modified as part of this project. BIDMC should contact the Commission's Operations Division for information regarding the purchase of the castings. BWSC.15

7. If a cafeteria or food service facility is built as part of this project, grease traps will be required in accordance with the Commission's Sewer Use Regulations. BIDMC is advised to consult with the Commission's Operations Department with regards to grease traps. BWSC.16

Thank you for the opportunity to comment on this project.

Yours truly,

John P. Sullivan, P.E.
Chief Engineer

JPS/afh

cc: Walter Armstrong, BIDMC
M. Zlody, BED by e-mail
P. Larocque, BWSC by e-mail
K. Ronan, MWRA by e-mail

BOSTON WATER AND SEWER COMMISSION

BWSC.1 Meet with the Commission's Design and Engineering Customer.

BIDMC has met with Design and Engineering Customer Services staff to review the conceptual plans for the Project. At that meeting, no system deficiencies were identified by BWSC staff.

BWSC.2 New or relocated water mains, sewers and storm drains and General Service Application.

BIDMC will be preparing a comprehensive Site Plan Approval package for BWSC review and approval addressing compliance with BWSC standards. Should BIDMC need to provide new or relocated BWSC infrastructure, BIDMC will work with BWSC to ensure the applicable standards are met.

BIDMC's site contractor will be obtaining the necessary General Services Applications.

BWSC.3 Infiltration/Inflow (I/I).

As part of the BWSC Site Plan Approval package, BIDMC will be presenting a proposal for compliance with the BWSC 4:1 I/I Removal requirements.

BWSC.4 Comply with the City of Boston's Complete Streets Initiative.

The Project team is looking to enhance the streetscape and incorporate relevant green infrastructure, such as an infiltration strip, into the Project's design.

BWSC.5 Capacity of the water, sewer and storm drain systems.

The Proponent is currently unaware of any BWSC system deficiencies, and believes the BWSC infrastructure surrounding the Project site is capable of meeting Project demands. BIDMC will continue to work with BWSC to affirm capacity as the Project moves through the BWSC Site Plan Approval process.

BWSC.6 Estimates of peak and continuous maximum water demand.

BIDMC will provide detailed estimates of water demand for the Project with the Site Plan Approval package. Based on the current building program, the daily average water demand is expected to be approximately 31,600 gallons per day.

BWSC.7 Water conservation.

BIDMC is currently considering the use of harvested rainwater for outdoor irrigation which would reduce domestic water consumption. As the design evolves, BIDMC will further explore means to conserve domestic water.

BWSC.8 Hydrant Permit.

BIDMC's contractors will be expected to obtain the necessary BWSC permits for temporary hydrant use.

BWSC.9 Meter Transmitter Unit.

As is typical with many Boston campus settings, BIDMC will be working closely with the BWSC's Meter Department and Engineering Services Department for collaboration on meter placement and configurations.

BWSC.10 Phosphorus reduction and stormwater.

As part of the Site Plan Approval package, BIDMC will be providing details on how the Project will be reducing phosphorus from stormwater discharges. As described in Chapter 8, the Project currently includes stormwater harvesting, re-use and recharge.

BWSC.11 Stormwater quality.

As part of the Site Plan Approval package, BIDMC will be providing details on how the Project will be reducing phosphorus from stormwater discharges. As described in Chapter 8, the Project currently includes stormwater harvesting, re-use and recharge.

BWSC.12 Dewatering drainage.

Comment noted. BIDMC acknowledges both permit requirements.

BWSC.13 Stormwater Management Standards.

Section 8.4.3 includes information about the Project's consistency with the MassDEP Stormwater Management Standards.

BWSC.14 Separation of sanitary sewage and stormwater.

Comment noted. BIDMC will dye test any connections that are intended to be re-used.

BWSC.15 "Don't Dump: Drains to Charles River" castings.

BIDMC will include the required plaques adjacent to catch basins adjacent to the new building.

BWSC.16 Grease traps.

The current plans provide for a grease trap. Details and sizing will be provided to BWSC as part of the Site Plan Approval process.

MASCO

MEDICAL ACADEMIC AND SCIENTIFIC COMMUNITY ORGANIZATION, INC.

Member Institutions

Beth Israel Deaconess Medical Center

Boston Children's Hospital

Brigham and Women's Hospital

Dana-Farber Cancer Institute

Emmanuel College

Harvard University
- Harvard Medical School
- Harvard School of Dental Medicine
- Harvard T.H. Chan School of Public Health

Isabella Stewart Gardner Museum

Joslin Diabetes Center

Judge Baker Children's Center

Massachusetts College of Art and Design

Massachusetts College of Pharmacy and Health Sciences University

Massachusetts Department of Mental Health

Simmons College

Temple Israel

Wentworth Institute of Technology

Wheelock College

The Winsor School

Associate Members

Massachusetts Eye and Ear Infirmary

Merck Research Laboratories

February 12, 2018

Katelyn Sullivan
Project Manager
Boston Planning and Development Agency
Boston City Hall
Boston, MA 02201

RE: BIDMC IMPNF/PNF

Dear Katelyn,

We are pleased to comment on the BIDMC Project Notification Form to amend and extend their Institutional Master Plan and to allow for Large Project Review of a proposed New Inpatient Building Project. This is an exciting moment for the medical center as plans its first new facility in two decades – one that will modernize and upgrade not only their patient care facilities by replacing double beds with singles and expanding ICU beds; but will also transform patient and family healing through accommodation of the best team-based care, technology, and environmentally sustainable features including a rooftop healing garden.

As BIDMC moves into the next phase of the permitting process including preparation of the IMP Amendment and the Draft Project Impact Report we offer the following comments:

- BIDMC has been a good citizen by funding the last reconstruction, landscaping and lighting of Joslin Park, a public park, and by funding the maintenance of that park for over two decades. In addition there are a number of very pleasant small landscaped areas around the West Campus, particularly along Pilgrim Rd., which help to soften the built environment. We hope that BIDMC will be able to continue its level of stewardship of Joslin Park and will integrate public facing spaces like these into their overall campus plan.

MASCO.1

375 Longwood Avenue | Boston, MA 02215-4328 Tel: 617.632.2310 Fax: 617.632.2759

- The design of the new building, at prominent gateways to the LMA, will be particularly important as it faces both the Riverway and Brookline Ave. at Francis Street. Exciting new sustainability features and architectural elements are being planned as well as an efficient new loading dock planned in its current location. We commend BIDMC for committing the resources for an appropriately sized loading facility to support its West Campus functions. Because of its prominent location along Brookline Ave. we hope that the architectural design of the façade can be well integrated into that of the Rosenberg Building, provide some human scale and interest, and ensure that the Brookline Ave. sidewalk crossing the dock has appropriate pedestrian warnings and sidewalk elements that are pedestrian focused. MASCO.2

- MASCO maintains the LMA area-wide vehicular and pedestrian signage systems. As building plans progress and new signage needs are identified, we are prepared to work with the hospital on upgrades to our system to match their needs.

- As circulation and traffic patterns in the area between Brookline Ave., Longwood Ave. and the Riverway are evaluated in relation to net new patient, visitor, employee and other trips, the location of new building entries and patient/visitor and ambulance pick-up and drop-off areas, and new deliveries, we will look forward to seeing the evaluation and impacts, if any, related to: MASCO.3
    - General changes in vehicular, MBTA and shuttle bus, pedestrian and bicycle access
    - Loading and delivery operations including new large vehicle movements

- It would be helpful to understand the early assumptions regarding construction staging, truck routing and construction phasing. MASCO.4

Thank you for the opportunity to comment.

Sincerely,

Sarah J. Hamilton

Sarah J. Hamilton
VP, Area Planning and Development

MEDICAL ACADEMIC AND SCIENTIFIC COMMUNITY ORGANIZATION, INC.

MASCO.1 Joslin Park.

BIDMC's long-standing stewardship of Joslin Park will be unaffected by the development of the Project. Consistent with the dedication to enhancing the public realm that is reflected in that sort of commitment, the Project includes improvements to the sidewalks on all sides of the site and amenities such as street trees and benches where appropriate. The Pilgrim Road sidewalk in particular will be designed to effectively expand the 'green corridor' that currently exists to the west of the Project site along Pilgrim Road, creating a strong visual and experiential link between the Project and the rest of the West Campus.

The Project also includes enhancements to the pedestrian experience along Brookline Avenue and Francis Street through the incorporation of street trees, landscape buffer zones at the base of the building and the introduction of a linear garden at the intersection of these two streets. Additional enhancements may include seasonal outdoor seating adjacent to the proposed linear garden, as well as bench seating incorporated into the base of the building. The base of the building will be designed to provide a rich visual experience for pedestrians, and in addition to the use of materials that are dark in color to provide a sharp contrast to the landscape elements, terrariums, greenwalls, other plantings, or art installations will deliver a unique, beautiful and vibrant landscape experience throughout the year.

MASCO.2 Architectural design and pedestrian experience.

The Project team is carefully investigating design options which provide for a significant enhancement of the pedestrian experience along Brookline Avenue and introduce visual interest through the materiality and detailing at the base of the Project, as well as the introduction of unexpected moments of surprise along the streetwall through the provision of small garden spaces. In addition, the possibility of providng terrariums, greenwalls, other plantings, or art installations in place of the existing storefront glazing of the Rosenberg Building is being considered. With respect to the loading dock entrance, required and appropriate warning devices and materials will be provided to alert pedestrians and cyclists to loading dock related activities.

MASCO.3 Circulation, access and loading/delivery operations.

The transportation study conducted in support of the DPIR indicates the additional traffic generated by the Project will create minimal incremental impact to the surrounding transportation infrastructure. See Chapter 3 for the Transportation study.

MASCO.4 Construction staging, truck routing and construction phasing.

The early assumptions related to construction of the Project include the following:

- Maintain patient / pedestrian access to the individual buildings on the West Campus.
- Sufficient Fire Department and ambulance access to be maintained at all times.
- Route truck deliveries to minimize any potential disruption to vehicular traffic.
- It is currently expected that trucks will be arriving from Brookline Avenue in both directions. Exiting vehicles will likely need to use a portion of the Riverway to egress the site. Proposed truck routes will be reviewed by the Boston Transportation Department and the Department of Conservation and Recreation. Specific truck routing maps to be included with the Construction Management Plan for approval by Boston Transportation Department.
- All materials to be staged within the temporary construction fencing / work zone. It is anticipated that, due to the tightness of the site, off-site staging may be required for large deliveries and concrete pours. Off-site staging locations have not yet been determined.

Appendix A

BPDA Scoping Determination

BOSTON REDEVELOPMENT AUTHORITY
D/B/A BOSTON PLANNING & DEVELOPMENT AGENCY

SCOPING DETERMINATION

FOR

BETH ISRAEL DEACONESS MEDICAL CENTER
INSTITUTIONAL MASTER PLAN AMENDMENT/ DRAFT PROJECT IMPACT REPORT
NEW INPATIENT BUILDING PROJECT

PREAMBLE

On January 11, 2018, Beth Israel Deaconess Medical Center ("BIDMC") submitted to the Boston Planning & Development Agency ("BPDA") an Institutional Master Plan Notification Form/ Project Notification Form ("IMPNF/PNF") seeking an amendment to the BIDMC Institutional Master Plan ("IMP Amendment") and detailing the New Inpatient Building Project totaling approximately 345,000 square feet to be on a site bounded by Brookline Avenue, Francis Street, Pilgrim Road and the BIDMC Rosenberg Building ("Proposed Project").

The BPDA will review the proposed IMP Amendment and Draft Project Impact Report ("DPIR") pursuant to Sections 80D and 80B of the Boston Zoning Code ("Code"). As part of the BPDA's Article 80 review, BIDMC is required to prepare and submit to the BPDA a proposed IMP Amendment pursuant to Section 80D and a proposed Draft Project Impact Report pursuant to Section 80B. The document/s must set forth in sufficient detail the planning framework of the institution and the cumulative impacts of the Proposed Project included in the IMP Amendment to allow the BPDA to make a determination about the merits of the proposed IMP Amendment and Proposed Project. **The proposed IMP Amendment and Draft Project Impact Report shall contain the information necessary to meet the specifications of Article 80 as well as any additional information requested below.**

Copies of the IMPNF/PNF were made available to the public in both electric and hard copy format. A scoping session was held on January 23, 2018 with public agencies and a Task Force/Public meeting was held on January 22, 2018 at the Longwood Medical Area Forum at which the Proposed Project was presented. The comment deadline for the IMPNF/PNF was February 12, 2018.

Based on review of the IMPNF/PNF, related comments, as well as a scoping session and public meeting, the BPDA hereby issues its written Scoping Determination ("Scope") pursuant to Section 80D and Section 80B the Code. BIDMC is requested to respond to the specific elements outlined in this Scope. Written comments constitute an integral part of the Scoping Determination and should be responded to in the IMP Amendment, Draft Project Impact Report or in another appropriate manner over the course of the review process. At other points during the public

review of the IMP Amendment and Draft Project Impact Report, the BPDA and other City agencies may require additional information to assist in the review of the Proposed IMP Amendment and Draft Project Impact Report.

To facilitate the preparation and review of the two documents referenced above, the Scope contains two discrete sections, one setting forth the submission requirements for the IMP Amendment, and another setting forth the submission requirements for the DPIR. When appropriate, information requested in one section may be provided in the submission that responds to the other section.

In addition to the specific submission requirements outlined in the sections below, the following general issues should be noted:

- All development projects have construction impacts. As with any urban development there needs to be a balance of constructions related inconveniences with the daily activities that will continue to occur adjacent to the project site. A detailed approach to the construction management must be included in the DPIR.

- Throughout this initial phase of review, the Proponent has taken steps to meet with local residents, elected officials, abutters, and City and State agencies. These conversations must continue, ensuring that what is presented in the DPIR is beneficial to the adjacent neighborhoods and the City of Boston as a whole.

- The BPDA encourages the Proponent to continue to work closely with City agencies including the Boston Transportation Department ("BTD") and the Parks and Recreation Department.

SUBMISSION REQUIREMENTS

FOR

BETH ISRAEL DEACONESS MEDICAL CENTER

NEW INPATIENT BUILDING PROJECT
DRAFT PROJECT IMPACT REPORT

The Scope requests information required by the BPDA for its review of the Proposed Project in connection with the following:

1. Certification of Compliance and approval of the Proposed Project pursuant to Article 80, Section 80B of the Code.

2. Certification of Consistency with the BIDMC Institutional Master Plan pursuant to Article 80, Section 80D-10 of the Code.

The requirements below apply to the Draft Project Impact Reports (DPIRs) for the Proposed Project.

Subsequent to the end of the forty-five (45) day public comment period on the DPIR, the BPDA will issue a Preliminary Adequacy Determination ("PAD") that indicates the additional steps necessary for BIDMC to satisfy the requirements of the Scoping Determination and all applicable sections of Article 80 of the Code. If the BPDA finds that the DPIR adequately describes the Proposed Projects' impacts and, if appropriate, propose satisfactory measures to mitigate, limit or minimize such impacts, the PAD will announce such a determination and that the requirements for the filing and review of a Final Project Impact Report ("FPIR") are waived pursuant to Section 80B-5.4(c)(iv) of the Code. Before reaching said findings, the BPDA shall hold a public hearing pursuant to Article 80 of the Code. Sections 80B-6 and 80D-10 require the Director of the BPDA to issue a Certification of Compliance and a Certification of Consistency, respectively, before the Commissioner of Inspectional Services can issue any building permit for the Proposed Project.

The DPIR may be consolidated with the IMP Amendment. In addition to full-size scale drawings, ten (10) hard copies of the full bound report should be submitted to the BPDA, in addition to an electronic version in .pdf format. Hard copies of the document should be available for distribution to the BIDMC Task Force, community groups, and other interested parties in support of the public review process. The report should contain all submission materials reduced to size 8-1/2"x11", except where otherwise specified, and should be printed on both sides of the page. A copy of this Scoping Determination must be included in the report submitted for review.

The DPIR should include the following elements.

1. GENERAL INFORMATION

- **Applicant/Proponent Information.** Pursuant to Article 80B, the DPIR should provide the following information:

  - Development Team — Sec. 1.2

    - Names of developer(s), including description of development entity(ies), attorney, project consultants and architects.
    - Business address, telephone number, fax number and e-mail, where available, for each.
    - Designated contact for each.

  - Legal Information — Sec. 1.3

    - Legal judgments or actions pending concerning the Proposed Project
    - History of tax arrears on property owned in Boston by Applicant.
    - Evidence of site control over project area, including current ownership and purchase options of all parcels in the Proposed Project, all restrictive covenants and contractual restrictions affecting the Proponent's right or ability to accomplish the Proposed Project, and the nature of the agreements for securing parcels not owned by the Applicant.
    - Nature and extent of any and all public easements into, through, or surrounding the site.

- **Disclosure of Beneficial Interests.** Disclosure of Beneficial Interests in the Proposed Project must be provided pursuant to Section 80B-8 of the Boston Zoning Code. — Sent under separate cover
- **Regulatory Controls and Permits.** The DPIR shall include an up-to-date listing of all anticipated permits or approvals required from other municipal, state or federal agencies, including a proposed application schedule. A statement on the applicability of the Massachusetts Environmental Policy Act ("MEPA") should be provided. If the Proposed Project is subject to MEPA, all required documentation should be provided to the BPDA, including but not limited to, copies of the Environmental Notification Form, decisions of the Secretary of Environmental Affairs, and the proposed schedule for coordination with BPDA procedure. — Sec. 1.4

2. PROJECT DESCRIPTION

- **Project Site.** The DPIR shall include a complete description of the Project Site including, at minimum, square footage of the site, a map indicating the boundaries, a legal description including metes and bounds, existing site conditions, and the surrounding development context, i.e. a description of the surrounding environment including the height, other dimensions, use, and other relevant characteristics of existing nearby buildings, as well as an inventory of surrounding proposed projects. Only projects that have completed or are currently undergoing Article 80 review should be included and should be included as proposed in their filings at the Boston Planning & Development Agency. The Project Site, as defined in the DPIR, must be utilized for each Project Description and for any calculations or comparisons. — Secs. 2.1 and 2.2
- **Project Description.** The DPIR shall contain a full description of the Proposed Project and any alternative(s) and their elements, including size, physical characteristics, FAR (utilizing — Sec. 2.3

the definition for calculation as provided for in the Boston Zoning Code), and proposed uses, including any uses planned or considered for all elements of the project during the summer months.

3. PROJECT ALTERNATIVES

The analyses as provided for in the Transportation Component, Environmental Protection Component, and Urban Design Component sections of this Scoping Determination, as well as any additional analysis specified by the BPDA, shall be required for the following alternatives: Sec. 2.4

- **Alternative 1.** No build as a means of measuring the baseline.
- **Alternative 2.** The Proposed Project as set forth in PNF or as modified via formal notification to the BPDA in advance of submission of the DPIR.
- **Alternative 3.** See Urban Design comments for alternates.

4. TRANSPORTATION COMPONENT

The DPIR shall include a detailed traffic and transportation analysis that examines the Proposed Project's impact on the transportation network and proposes measures intended to mitigate, limit, or minimize any adverse impact reasonably attributable to the Proposed Project. The scope of the analysis must utilize as its framework the Transportation Access Plan guidelines to be further defined in consultation with the Boston Transportation Department ("BTD"). Pursuant to Section 80B-3.1 of the Boston Zoning Code, this section of the DPIR should contain, at a minimum, the following elements. Additional questions and required submissions have been added to the baseline requirements of Article 80 based on concerns specific to the project and on comment letters. Not all items will apply to the Proposed Project. Please reach out to the Boston Transportation Department to discuss attached comment letter. Ch. 3

- **Traffic Management Element.** BIDMC shall work with BTD to identify applicable items of study:
  - Identify the Proposed Project's impact on the transportation network from expected travel volumes, vehicle trip generation, and directional distribution; the location of loading and unloading activities, including service and delivery; the Proposed Project's impact on the vehicular and circulation systems within the impact area, including the number and type of vehicles, pedestrians, and bicyclists, vehicle occupancy rates (VOR), and the Proposed Project's impact on road corridors and intersection capacities, including Levels of Service and intersection delays from 6:00 a.m. to 8:00 p.m. and for any other times of day that significant activity is anticipated in the Proposed Project. Sec. 3.1.2
  - Inventory, map, and discuss on- and off-street loading, provide estimates of the level of loading and delivery activity, and describe in detail any special loading policies and procedures to be implemented. Sec. 3.2.1.3 and 3.3.3.11
  - Identify mitigation procedures that are intended to mitigate, limit, or minimize the number of vehicle trips generated by the development, and the Proposed Project's interference with the safe and orderly operation of the transportation network; such measures may include an on-site traffic circulation plan, flexible employee work hours, dissemination of transit information, changes in traffic patterns, and full or partial subsidies for public mass transit. Sec. 3.1.2.7

- The DPIR shall describe Transportation Demand Management ("TDM") measures that are being considered for the Proposed Project. Sec. 3.3.3.8
- Review provisions for service and emergency vehicle access to the proposed dormitory building.

- **Parking Management Element.** BIDMC shall work with BTD to:

  - Identify the location of proposed drop-off/pick-up, short-term parking, loading, and queuing for both autos and trucks. If no queuing area is available for trucks, identify steps to be taken to avoid negative impacts, referencing the projected frequency of delivery activity and any operational procedures to ensure that deliveries are adequately timed and spaced out. Sec. 3.1.2
  - Identify the demand created by the Proposed Project for tenant, commuter, and short- and long-term visitor parking; nontenant and other parking needs within the Impact Area; and evening and weekend parking needs Sec. 3.1.2.2 and 3.3.3.10
  - Include operational policies and strategies for the Proposed Project that address the location, cost, and number of public, private, high-occupancy vehicle, and special-needs parking demand; short-term and long-term space availability; pricing structure of parking rates; location and type of off-site parking; and methods of transporting people to the site from off-site parking; Sec. 3.2.1.1
  - Document parking impacts of the Proposed Project. Describe alternative off-street parking locations for displaced parkers as necessary. Sec. 3.3.3.10

- **Article 80 Construction Management Element.** The Construction Management Element shall, at a minimum:

  - Identify the impact from the timing and routes of truck movement and construction deliveries for the Proposed Project; proposed street closings; and the need for employee parking. Sec. 3.5
  - Identify, and provide a plan for implementing, mitigation measures that are intended to mitigate, limit, or minimize, to the extent economically feasible, the construction impact of the Proposed Project by limiting the number of construction vehicle trips generated by the Proposed Project, the demand for construction-related parking (both on-site and off-site), and the interference of building construction with the safe and orderly operation of the Transportation Network, such measures to include the use of alternative modes of transport for employees and materials to and from the site; appropriate construction equipment, including use of a climbing crane; staggered hours for vehicular movement; traffic controllers to facilitate equipment and trucks entering and exiting the site; covered pedestrian walkways; alternative construction networks and construction planning; and restrictions of vehicular movement Sec. 3.5
  - Designate a liaison between the Proposed Project, public agencies, and the surrounding residential and business communities. Sec. 4.10

- **Pedestrian Analysis.** Address the adequacy of sidewalks and other pedestrian infrastructure in the area of the Proposed Projects and potential safety issues at pedestrian crossings. Propose improvements to facilitate pedestrian circulation to and around the Proposed Project and ways that development can improve the overall pedestrian circulation system of the campus. Sec. 3.3.3.9

- **Mitigation.** Identify measures to mitigate any transportation impacts identified in the preceding sections. Secs. 3.3.3.9 and 3.2.1.2

5. ENVIRONMENTAL PROTECTION COMPONENT

The DPIR shall contain an Environmental Protection Component as outlined below. Opportunities for sustainable design, as well as other issues, are described in the written comments from public agencies. These comments are included in Appendix 1 and are incorporated herein by reference and made a part hereof. The analyses as provided for in the Environmental Protection Component section of this Scoping Determination shall be required for each of the alternatives.

- **Wind.** A quantitative wind tunnel analysis of the potential pedestrian level wind impacts shall be required for the DPIR. Wind sensor locations need to be approved by BPDA Environmental review and BPDA Urban Design before the test is done This analysis shall determine potential pedestrian level winds adjacent to and in the vicinity of the project site and shall identify the projected annual wind speeds for each season at each location. Expected wind levels should be reported using the amended Melbourne scale. The DPIR shall identify any areas where wind velocities are expected to exceed acceptable levels, including the BRA's guideline of an effective gust velocity of 31 mph not to be exceeded more than 1% of the time. Sec. 4.1

  Particular attention shall be given to areas of pedestrian use, including, but not limited to, the entrances to the proposed buildings and existing buildings in the vicinity of the Proposed Project, the sidewalks and walkways within and adjacent to the Proposed Project development and in the vicinity of the proposed development. Specific locations to be evaluated shall be determined in consultation with the BRA and the City of Boston Environment Department.

  For areas where wind speeds are projected to exceed acceptable levels, measures to reduce wind speeds and to mitigate potential adverse impact shall be identified and tested in the wind tunnel to quantify the expected benefit. Should the qualitative analysis indicate the possibility of excessive or unacceptable pedestrian level wind speeds, additional study may be required.

  The wind tunnel testing shall be conducted in accordance with the following guidelines and criteria:

  - Data shall be presented for both the existing (no-build) and for the future build scenario(s) (see above).
  - The analysis shall include the mean velocity exceeded 1% of the time and the effective gust velocity exceeded 1% of the time. The effective gust velocity shall be computed as the hourly average velocity plus 1.5 x root mean square variation about the average. An alternative velocity analysis (e.g., equivalent average) may be presented with the approval of the Authority.
  - Wind direction shall include the sixteen compass points. Data shall include the percent or probability of occurrence from each direction on seasonal and annual bases.
  - Results of the wind tunnel testing shall be presented in miles per hour (mph).
  - Velocities shall be measured at a scale equivalent to an average height of 4.5-5 feet.
  - The model scale shall be such that it matches the simulated earth's boundary and shall include all buildings within at least 1,600 feet of the project site. All buildings taller than

25 stories and within 2,400 feet of the project site should be placed at the appropriate location upstream of the project site during the test. The model shall include all buildings recently completed, under construction, and planned within 1,500-2,000 feet of the project site. Prior to testing, the model shall be reviewed by the Authority. Photographs of the area model shall be included in the written report.

- The written report shall include an analysis which compares mean and effective gust velocities on annual and seasonal bases, for no-build and build conditions, and shall provide a descriptive analysis of the wind environment and impacts for each sensor point, including such items as the source of the winds, direction, seasonal variations, etc., as applicable. The report shall also include an analysis of the suitability of the locations for various activities (e.g., walking, sitting, standing, driving etc.) as appropriate, in accordance with Melbourne comfort categories.
- The report also shall include a description of the testing methodology and the model, and a description of the procedure used to calculate the wind velocities (including data reduction and wind climate data). Detailed technical information and data may be included in a technical appendix but should be summarized in the main report.
- The pedestrian level wind impact analysis report shall include, at a minimum, the following maps and tables:

    - Maps indicating the location of the wind impact sensors, for the existing (no-build) condition and future build scenario(s).
    - Maps indicating mean and effective gust wind speeds at each sensor location, for the existing (no-build) condition and each future build scenario, on an annual basis and seasonally. Dangerous and unacceptable locations shall be highlighted.
    - Maps indicating the suitability of each sensor location for various pedestrian-related activities (comfort categories), for the existing (no-build) condition and each future build scenario, on an annual basis and seasonally. To facilitate comparison, comfort categories may be distinguished through color coding or other appropriate means. In any case, dangerous and unacceptable conditions shall be highlighted.
    - Tables indicating mean and effective gust wind speeds and the comfort category at each sensor location, for the existing (no build) condition and for each future build scenario, on an annual basis and seasonally.
    - Tables indicating the percentage of wind from each of the sixteen compass points at each sensor location, for the existing (no-build) condition and for each future build scenario, on an annual basis and seasonally.
    - All maps should include a north arrow and be oriented and of the same scale as shadow diagrams.

- **Shadow.** A shadow analysis shall be required for existing and build conditions for the hours 9:00 a.m., 12:00 noon, and 3:00 p.m. for the vernal equinox, summer solstice, autumnal equinox, and winter solstice and for 6:00 p.m. during the summer and autumn. This analysis should use the same metrics as applied by Mass. DEP for Chapter 91 shadow analyses and include documentation of net new shadows lasting more than one hour. It should be noted that due to time differences (daylight savings vs. standard), the autumnal equinox shadows would not be the same as the vernal equinox shadows and therefore separate shadow studies are required for the vernal and autumnal equinoxes. Shadows shall be determined using the Boston Altitude and Azimuth data (Sun Altitude/Azimuth Table, Boston, Massachusetts). Sec. 4.2

The shadow impact analysis must include net new shadow as well as existing shadow. Diagrams must clearly show the incremental impact of the proposed new buildings. For purposes of clarity, new shadow should be shown in a dark, contrasting tone distinguishable from existing shadow. The shadow impact study area shall include, at a minimum, the entire area to be encompassed by the maximum shadow expected to be produced by the Proposed Project (i.e., at the winter solstice). The build condition shall include all buildings under construction and any proposed buildings anticipated to be completed prior to completion of the Proposed Project. Shadow from all existing buildings within the shadow impact study area shall be shown. A North arrow shall be provided on all figures and street names, doorways, bus stops, open space and areas where pedestrians are likely to congregate (in front of historic resources or other tourist destinations, for example) should be identified.

Particular attention shall be given to areas of pedestrian use, including, but not limited to, the entrances to the project buildings and existing buildings in the vicinity of the Proposed Project, the sidewalks and walkways within and adjacent to the Proposed Project development. Analysis needs to include the impacts on the Riverway and the consistency with the shadow restrictions within the LMA Guidelines. IMPA Sec. 3.5.1.1

The DPIR should propose mitigation measures to minimize or avoid any adverse shadow impact.

- **Combined Wind and Shadow Impacts.** Figures depicting no-build and build wind monitoring locations should be of an orientation and scale consistent with that used for shadow diagrams so that the cumulative effect of wind and shadow can be determined. Secs. 4.1 and 4.2
- **Daylight.** A daylight analysis for both build and no-build conditions shall be conducted by measuring the percentage of skydome that is obstructed by the Proposed Project and evaluating the net change in obstruction. The study should treat two elements as controls for data comparisons: existing conditions and context examples. Daylight analyses should be taken for each major building facade fronting these essentially public ways or open spaces. The midpoint of each public accessway or roadway should be taken as the study point. The BRADA program must be used for this analysis. Sec. 4.3
- **Solar Glare.** Please refer to the BRA's Environmental Review comment letter.
- **Air Quality.** Please refer to the BRA's Environmental Review Comment letter. Sec. 4.4

- **Solid and Hazardous Wastes.** The presence of any contaminated soil or groundwater and any underground storage tanks at the project site shall be evaluated and remediation measures to ensure their safe removal and disposal shall be described. Any assessment of site conditions pursuant to the requirements of M.G.L. Chapter 21E that has been or will be prepared for the site shall be included in the DPIR (reports may be included in an appendix but shall be summarized in detail, with appropriate tables and figures, within the main text). Materials in the building to be demolished should be characterized and measures to mitigate impacts during demolition should be identified. Sec. 4.5

The DPIR shall quantify and describe the generation, storage, and disposal of all solid wastes from the construction and operation of the Proposed Project. The DPIR shall identify the specific nature of any hazardous wastes that may be generated and their quantities and shall describe the management and disposal of these wastes. In addition, measures to promote

the reduction of waste generation and recycling, particularly for paper, glass, plastics, metals, and other recyclable products, and compliance with the City's recycling program, shall be described in the DPIR.

- **Noise.** The DPIR shall establish the existing noise levels at the project site and vicinity based upon a noise-monitoring program and shall calculate future noise levels after project completion based on appropriate modeling and shall demonstrate compliance with the Design Noise Levels established by the U.S. Department of Housing and Urban Development for residential and other sensitive receptors and with all other applicable Federal, State, and City of Boston noise criteria and regulations. Any required mitigation measures to minimize adverse noise impacts shall be described. Sec. 4.6

  An analysis of the potential noise impacts from the project's mechanical and exhaust systems, including emergency generators, and compliance with applicable regulations of the City of Boston shall be required. A description of the project's mechanical and exhaust systems and their location shall be included. Measures to minimize and eliminate adverse noise impacts on nearby sensitive receptors, including the project itself, from mechanical systems and traffic shall be described.

- **Nighttime Lighting.** The DPIR should explain, in text or graphics as appropriate: Sec. 4.7
  - The type of exterior lighting to be used on each façade or other portion of the building and the elements of the design that mitigate nighttime lighting impacts of the building on surrounding areas.
  - The DPIR should specify the type of interior lighting (i.e. fluorescent vs. incandescent, recessed or not) to be used in each portion of the building and, in the case of the common areas and non-residential portions of the program, the hours that the lighting will be on. The DPIR should also discuss the measures being taken to minimize the impact of interior lighting on the surrounding areas.

- **Stormwater Management/Water Quality.** Stormwater management requirements and suggestions are included in the section on environmental sustainability below.
- **Flood Hazards/Wetlands.** Describe any affected flood hazard zones or wetlands and proposed actions. Sec. 4.8
- **Tidelands/Chapter 91.** The project site does not include tidelands, and Chapter 91 does not apply to the Proposed Project.
- **Geotechnical Impact/Groundwater.** A description and evaluation analysis of existing sub-soil conditions at the project site, groundwater levels, potential for ground movement and settlement during excavation and foundation construction, and potential impact on adjacent buildings, utility lines, and the roadways shall be required. This analysis shall also include a description of the foundation construction methodology, the amount and method of excavation, and measures to prevent any adverse effects on adjacent buildings, utility lines, and roadways. Measures to ensure that groundwater levels will be maintained and will not be lowered during or after construction also shall be described. In addition, the geotechnical analysis shall evaluate the earthquake potential in the project area and shall describe measures to be implemented to mitigate any adverse impacts from an earthquake event. Sec. 4.9
- **Construction Impacts.** A construction impact analysis shall include a description and evaluation of the following: Sec. 4.10

- Measures to protect the public safety.
- Potential dust and pollutant emissions and mitigation measures to control these emissions.
- Potential noise generation and mitigation measures to minimize increase in noise levels.
- Location of construction staging areas and construction worker parking; measures to encourage carpooling and/or public transportation use by construction workers.
- Construction schedule, including hours of construction activity.
- Access routes for construction trucks and anticipated volume of construction truck traffic.
- Construction methodology (including foundation construction), amount and method of excavation required, disposal of the excavate, description of foundation support, maintenance of groundwater levels, and measures to prevent any adverse effects or damage to adjacent structures and infrastructure.
- Method of demolition of the existing building on the project site and disposal of the demolition debris.
- Potential for the recycling of construction and demolition debris, including asphalt from the existing parking lots.
- Measures to make construction fencing as attractive as possible to ensure the visual character of the streetscape.
- Identification of best management practices to control erosion and to prevent the discharge of sediments and contaminated groundwater or stormwater runoff into the City's drainage system during the construction period.
- Impact of project construction on rodent populations and description of the proposed rodent control program, including frequency of application and compliance with applicable City and State regulatory requirements.

6. URBAN DESIGN COMPONENT

BIDMC will be expected to undertake design review on the Proposed Project in accordance with standard BPDA procedure. In addition to the BPDA's Urban Design Department, the Boston Civic Design Commission (BCDC) will review the Proposed Project. The DPIR should also respond to the following elements. Ch. 5

- **Signage and Lighting.** BIDMC will be required to perform design review with the BPDA Urban Design Department on any current and future plans for signage and lighting.
- **Views.** The DPIR shall present views of the Proposed Project from locations to be determined through consultation with the BRA's Urban Design Department.
- **Relationship to Surrounding Context.** The DPIR should describe the design of the Proposed Project in relationship to the surrounding urban context, including adjacent buildings, streets, and plazas.
- **Design Submission Requirements.** The following urban design materials for the Proposed Project's schematic design must be submitted for the DPIR. Materials must be at the required scale and in a printed form that is reproducible, as well as in electronic file form:

    - A written description of program elements and space allocation for each element.
    - Black and white 8"x10" photographs of the site and neighborhood.
    - Plans and sections for the area surrounding the project at an appropriate scale (1"=100' or larger) showing relationships of the Proposed Project to the surrounding area and

district regarding massing, building height, open space, major topographic features, pedestrian and vehicular circulation, and land use.

- Sketches and diagrams of alternative proposals to clarify design issues and massing options.
- Eye-level perspectives showing the proposal in the context of the surrounding area; views should display a particular emphasis, on important viewing areas such as key intersections, accessways, or public parks/attractions. Long-ranged (distanced) views of the Proposed Project must also be studied to assess the impact on the skyline or other view lines. At least one bird's-eye perspective should also be included. All perspectives should show (in separate comparative sketches) both the build and no-build conditions. The BRA must approve the view locations before analysis is begun. View studies should be cognizant of light and shadow, massing and bulk.
- Aerial views of the project in perspective or isometric form.
- A site plan at 1 "= 16' or larger showing:

    - Relationships of proposed and existing adjacent buildings and open spaces.
    - Open spaces defined by buildings on adjacent parcels and across streets.
    - Location of pedestrian ways, driveways, parking, service areas, streets, and major landscape features.
    - Accessible pedestrian, vehicular, and service access and flow through the parcel and to adjacent areas.
    - Phasing possibilities clearly indicating the scheme for completing the improvements.
    - Construction limits.

- Site sections at 1"=16' or larger showing relationships to adjacent buildings and spaces.
- A massing model at 1"=40' showing all buildings in the area and a study model at 1"=16' showing facade design.
- Drawings at an appropriate scale (e.g., 1"=8') describing architectural massing, facade design, and proposed materials including:

    - Site plans before and after construction.
    - Elevations in the context of the surrounding area.
    - Sections showing organization of functions and spaces.
    - Building plans showing ground floor and typical upper floor.

- A site survey at 1"=40' showing nearby structures, utilities and bench marks.
- A written and/or graphic description of the building materials and its texture, color, and general fenestration patterns is required for the proposed development.
- Electronic files describing the site and Proposed Project at Representation Levels one and two ("Streetscape" and "Massing") as described in the document Boston "Smart Model": CAD & 3D Model Standard Guidelines.
- The schedule for submittal of Design Development materials.

7. ENVIRONMENTAL SUSTAINABILITY

In addition to the overall campus-wide approach to sustainability discussion in the IMP Amendment, new development of the size and complexity of the Proposed Project presents opportunities for sustainable design and construction to prevent damage to the environment, consistent with the goals of Executive Order 385 and recent initiatives of the Mayor and the BPDA. Opportunities for sustainable design are described below and are incorporated herein by reference and made a part hereof. Not all the topics below need be addressed in the DPIR; rather, some of them constitute suggestions that can be discussed through the design process in conjunction with the BPDA and the Environment Department.

- **Building Orientation, Envelope, and Façade Design.** Reduce thermal loads entering the building as much as possible. Consider the building orientation, envelope, and design carefully, including glazing selection, window and door shading, wall construction, roof color, and building shape. Make use of thermal mass to absorb heat and shift peak heating to off-peak hours. Building massing and façade treatment should respond to microclimate conditions and enhance appropriate solar control. The DPIR should describe any simulation designed to quantify the effects of these design choices. Sec. 6.2.1
- **Energy.** Energy conservation strategies should be explored at an early stage in the design and should include such approaches as taking advantage of natural day lighting, passive solar gain, passive cooling and ventilation which tie into HVAC systems, use of alternative energy strategies (including making the building design adaptable for the future inclusion of innovative energy and environmental technologies as they develop over time), in addition to properly sized efficient heating and ventilating systems, with heat recovery and other conservation strategies. Siting, orientation and massing of building should optimize passive strategies for light and energy management and design for natural and displacement ventilation. Building design should specify energy efficient HVAC and lighting systems, appliances, and other equipment, and solar preheating of makeup air. Early quantification and cost-benefit analysis through iterative energy simulation is helpful and would provide feedback on size of systems and envelope design early enough to impact those decisions. Sec. 6.2.2
- **Water Management.** Sustainable water management practices should be considered early in the site and building design process, and the process should explore integrated approaches to stormwater retention, treatment, and reuse, building and landscape water needs, and groundwater recharge. To the extent possible, the systems put in place should strive to work with the natural hydrology of the area, and the building should incorporate additional opportunities to conserve water beyond water-saving technologies required by law. Secs. 6.2.3 and 8.4.2

  Possibilities for using graywater for functions that are conventionally served by potable water should be explored. Stormwater captured from impervious areas or from roofs and hardscapes can be used for non-potable water uses.

  The DPIR shall contain an evaluation of the project site's existing and future stormwater drainage and stormwater management practices. The DPIR shall illustrate existing and future drainage patterns from the project site and shall describe and quantify existing and future stormwater runoff from the site and the Proposed Project's impacts on site drainage. The Proposed Project's stormwater management system, including best management practices to be implemented, measures proposed to control and treat stormwater runoff and to maximize on-site retention of stormwater, measures to prevent groundwater contamination, and Sec 8.4

compliance with the Commonwealth's Stormwater Management Policies, also shall be described. The DPIR shall describe the project area's stormwater drainage system to which the project will connect, including the location of stormwater drainage facilities and ultimate points of discharge.

8. HISTORIC RESOURCES COMPONENT

The DPIR should summarize any historic resources that will be affected by the Proposed Project, the position of public agencies on those resources (including any necessary regulatory process), and present a plan to minimize the adverse impact of the Proposed Project. Ch. 7

9. INFRASTRUCTURE SYSTEMS COMPONENT

The DPIR must include an infrastructure impact analysis. Ch. 8

The discussion of Proposed Project impacts on infrastructure systems should be organized system-by-system as suggested below. The DPIR must include an evaluation of the Proposed Project's impact on the capacity and adequacy of existing water, sewerage, energy (including gas and steam), and electrical communications (including telephone, fire alarm, computer, cable, etc.) utility systems, and the need reasonably attributable to the Proposed Project for additional systems or facilities. Thorough consultation with the planners and engineers of the utilities will be required, and should be referenced in the Infrastructure Component section.

Any system upgrading or connection requiring a significant public or utility investment, creating a significant disruption in vehicular or pedestrian circulation, or affecting any public or neighborhood park or streetscape improvements, constitutes an impact which must be mitigated.

- **Water and Sewer.** Provide the following information on the Proposed Project's impact on water and sewer infrastructure and on water quality. As appropriate, this information can be integrated with the sustainability sections of the IMP Amendment and the DPIR. Ch. 8

  - Estimated water consumption and sewage generation from the Proposed Project and the basis for each estimate. Include separate calculations for air conditioning system make-up water.
  - Description of the capacity and adequacy of water, sewer, and storm drain systems and an evaluation of the impacts of the Proposed Project on those systems.
  - Description of the Proposed Project's impacts on the water quality of Boston Harbor or other water bodies that could be affected by the project, if applicable.
  - Description of mitigation measures to reduce or eliminate impacts on water quality.
  - Description of impact of on-site storm drainage on water quality; if this is described more fully in another section, reference that analysis here.
  - Detail methods of protection proposed for infrastructure conduits and other artifacts, including BSWC sewer lines and water mains, during construction.
  - Detail the energy source of the interior space heating; how obtained, and, if applicable, plans for reuse of condensate.

- Identification of measures to conserve resources, including any provisions for water recycling.

- **Energy Systems.** The DPIR should discuss the Proposed Project's approach to energy systems and conservation. As appropriate, this information can be integrated with the sustainability sections of the IMP Amendment and the DPIR. The discussion should include at a minimum the following: Secs. 8.5 to 8.7

  - Description of all energy (heat, electrical, cooling, etc.) requirements of the project and evaluation of the Proposed Project's impacts on resources and supply.
  - Description of measures to conserve energy usage. and consideration of the feasibility of including solar energy provisions or other on-site energy provisions.

- **Other Systems.** The DPIR should also discuss emergency systems, gas, steam, optic fiber, cable, and any other systems impacted by the Proposed Project. The location of transformer and other vaults required for electrical distribution or ventilation must be chosen to minimize disruption to pedestrian paths and public improvements both when operating normally and when being serviced, and must be described. Secs. 8.8 to 8.11

10. OTHER

- **Public Notice.** BIDMC will be responsible for preparing and publishing in one or more newspapers of general circulation in the city of Boston a Public Notice of the submission of the DPIR to the BPDA as required by Section 80A-2. This Notice shall be published within five (5) days after the receipt of the DPIR by the BPDA. In accordance with Article 80, public comments on the DPIR shall be transmitted to the BPDA within forty-five (45) days of the publication of this notice. A sample form of the Public Notice is attached as Appendix 3. Following publication of the Public Notice, BIDMC shall submit to the BPDA a copy of the published Notice together with the date of publication.

Appendix B

Transportation

Beth Israel Deaconess Medical Center – New Inpatient Building

Boston, Massachusetts

Technical Appendix

PREPARED FOR

Beth Israel Deaconess Medical Center
330 Brookline Avenue
Boston, MA 02215

PREPARED BY

99 High Street
Boston, MA 02110
617.728.7777

July 19, 2018

BIDMC – New Inpatient Building

Transportation Access Plan

Technical Appendix

Traffic Counts
Crash Data
Synchro Results:
- 2018 Existing Conditions
- 2023 No Build Conditions
- 2023 Build Conditions

BIDMC – New Inpatient Building

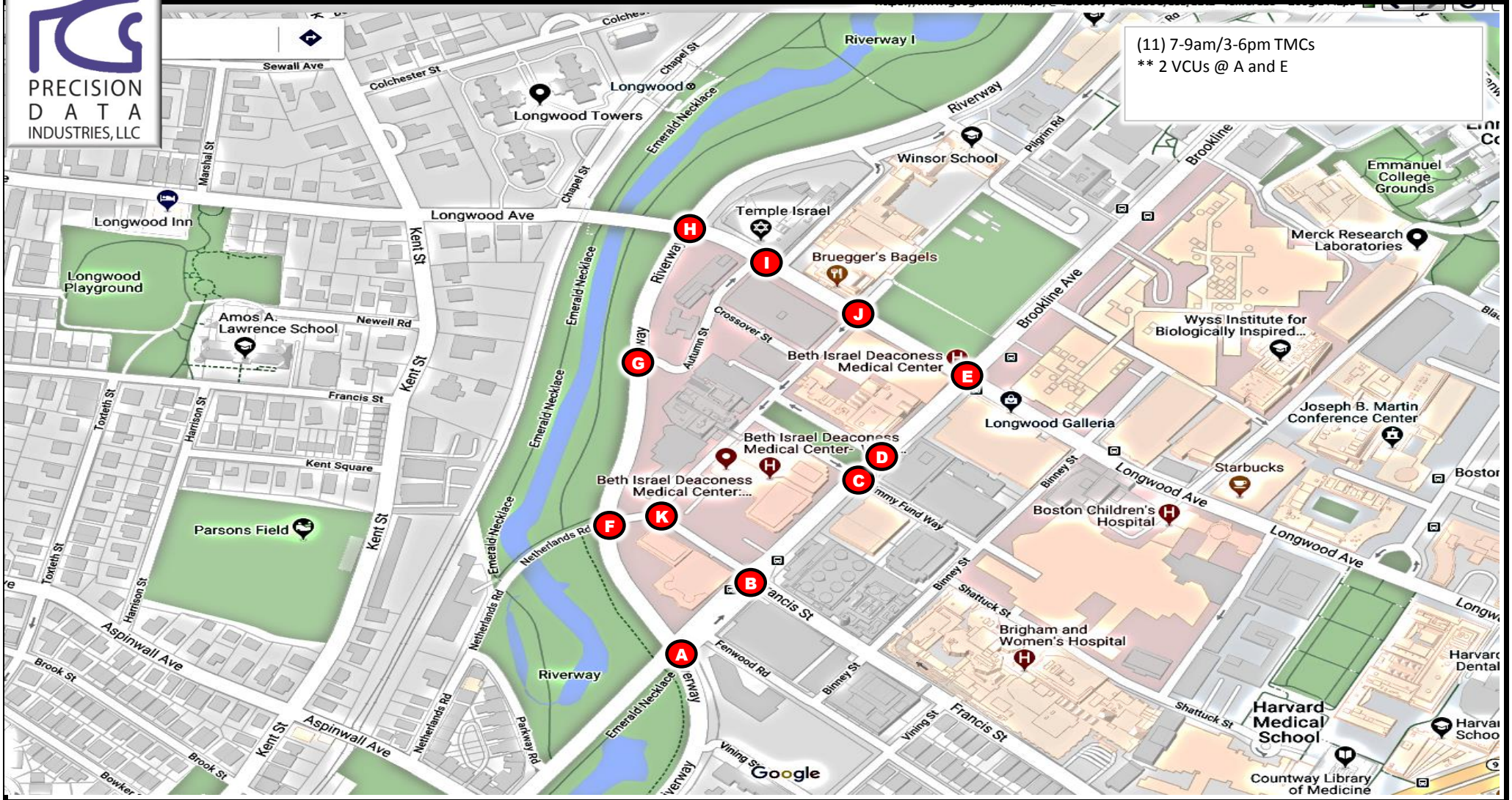
Transportation Access Plan

Technical Appendix

Traffic Counts

Location Map: 186102 Boston, MA

Precision Data Industries, LLC 46 Morton Street, Framingham, MA 01702 ph: 508-875-0100 email: datarequests@pdillc.com



Client:	Engineer:	Site Code:	Date:	PDI Job #	City, State:
VHB	R. White	13853.00	Tuesday 2/13/2018	186102	Boston, MA

PDI File #: **186102 A**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	5	71	60	0	136	105	209	0	0	314	1	132	78	0	211	14	106	0	0	120	781
7:15 AM	6	87	57	0	150	113	218	0	0	331	0	109	65	0	174	16	154	0	0	170	825
7:30 AM	5	84	85	0	174	90	206	0	0	296	2	119	64	0	185	28	145	0	0	173	828
7:45 AM	1	84	66	0	151	93	229	0	0	322	1	115	67	0	183	12	193	0	0	205	861
Total	17	326	268	0	611	401	862	0	0	1263	4	475	274	0	753	70	598	0	0	668	3295
8:00 AM	6	98	64	0	168	85	198	0	0	283	1	128	72	0	201	21	138	0	0	159	811
8:15 AM	6	72	57	0	135	95	220	0	0	315	0	129	61	0	190	25	157	1	0	183	823
8:30 AM	6	83	53	0	142	99	177	0	0	276	0	148	80	0	228	17	111	0	0	128	774
8:45 AM	5	57	53	0	115	114	197	2	0	313	1	110	56	0	167	28	114	0	0	142	737
Total	23	310	227	0	560	393	792	2	0	1187	2	515	269	0	786	91	520	1	0	612	3145
Grand Total	40	636	495	0	1171	794	1654	2	0	2450	6	990	543	0	1539	161	1118	1	0	1280	6440
Approach %	3.4	54.3	42.3	0.0		32.4	67.5	0.1	0.0		0.4	64.3	35.3	0.0		12.6	87.3	0.1	0.0		
Total %	0.6	9.9	7.7	0.0	18.2	12.3	25.7	0.0	0.0	38.0	0.1	15.4	8.4	0.0	23.9	2.5	17.4	0.0	0.0	19.9	
Exiting Leg Total					1785					1619					799					2237	6440
Cars	39	570	489	0	1098	787	1643	2	0	2432	6	941	539	0	1486	160	1106	1	0	1267	6283
% Cars	97.5	89.6	98.8	0.0	93.8	99.1	99.3	100.0	0.0	99.3	100.0	95.1	99.3	0.0	96.6	99.4	98.9	100.0	0.0	99.0	97.6
Exiting Leg Total					1729					1601					732					2221	6283
Heavy Vehicles	1	66	6	0	73	7	11	0	0	18	0	49	4	0	53	1	12	0	0	13	157
% Heavy Vehicles	2.5	10.4	1.2	0.0	6.2	0.9	0.7	0.0	0.0	0.7	0.0	4.9	0.7	0.0	3.4	0.6	1.1	0.0	0.0	1.0	2.4
Exiting Leg Total					56					18					67					16	157

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	6	87	57	0	150	113	218	0	0	331	0	109	65	0	174	16	154	0	0	170	825
7:30 AM	5	84	85	0	174	90	206	0	0	296	2	119	64	0	185	28	145	0	0	173	828
7:45 AM	1	84	66	0	151	93	229	0	0	322	1	115	67	0	183	12	193	0	0	205	861
8:00 AM	6	98	64	0	168	85	198	0	0	283	1	128	72	0	201	21	138	0	0	159	811
Total Volume	18	353	272	0	643	381	851	0	0	1232	4	471	268	0	743	77	630	0	0	707	3325
% Approach Total	2.8	54.9	42.3	0.0		30.9	69.1	0.0	0.0		0.5	63.4	36.1	0.0		10.9	89.1	0.0	0.0		
PHF	0.750	0.901	0.800	0.000	0.924	0.843	0.929	0.000	0.000	0.931	0.500	0.920	0.931	0.000	0.924	0.688	0.816	0.000	0.000	0.862	0.965
Cars	18	315	268	0	601	378	847	0	0	1225	4	447	266	0	717	77	619	0	0	696	3239
Cars %	100.0	89.2	98.5	0.0	93.5	99.2	99.5	0.0	0.0	99.4	100.0	94.9	99.3	0.0	96.5	100.0	98.3	0.0	0.0	98.4	97.4
Heavy Vehicles	0	38	4	0	42	3	4	0	0	7	0	24	2	0	26	0	11	0	0	11	86
Heavy Vehicles %	0.0	10.8	1.5	0.0	6.5	0.8	0.5	0.0	0.0	0.6	0.0	5.1	0.7	0.0	3.5	0.0	1.7	0.0	0.0	1.6	2.6
Cars Enter Leg	18	315	268	0	601	378	847	0	0	1225	4	447	266	0	717	77	619	0	0	696	3239
Heavy Enter Leg	0	38	4	0	42	3	4	0	0	7	0	24	2	0	26	0	11	0	0	11	86
Total Entering Leg	18	353	272	0	643	381	851	0	0	1232	4	471	268	0	743	77	630	0	0	707	3325
Cars Exiting Leg					825					891					392					1131	3239
Heavy Exiting Leg					27					15					38					6	86
Total Exiting Leg					852					906					430					1137	3325

PDI File #: **186102 A**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars-Combined (Motorcycles, Cars, Light Goods)

	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	5	64	60	0	129	104	207	0	0	311	1	127	77	0	205	14	106	0	0	120	765
7:15 AM	6	77	57	0	140	112	217	0	0	329	0	106	65	0	171	16	153	0	0	169	809
7:30 AM	5	76	84	0	165	90	206	0	0	296	2	112	62	0	176	28	142	0	0	170	807
7:45 AM	1	76	64	0	141	93	226	0	0	319	1	111	67	0	179	12	189	0	0	201	840
Total	17	293	265	0	575	399	856	0	0	1255	4	456	271	0	731	70	590	0	0	660	3221
8:00 AM	6	86	63	0	155	83	198	0	0	281	1	118	72	0	191	21	135	0	0	156	783
8:15 AM	6	65	57	0	128	95	218	0	0	313	0	124	61	0	185	25	156	1	0	182	808
8:30 AM	5	74	51	0	130	98	174	0	0	272	0	140	79	0	219	16	111	0	0	127	748
8:45 AM	5	52	53	0	110	112	197	2	0	311	1	103	56	0	160	28	114	0	0	142	723
Total	22	277	224	0	523	388	787	2	0	1177	2	485	268	0	755	90	516	1	0	607	3062
Grand Total	39	570	489	0	1098	787	1643	2	0	2432	6	941	539	0	1486	160	1106	1	0	1267	6283
Approach %	3.6	51.9	44.5	0.0		32.4	67.6	0.1	0.0		0.4	63.3	36.3	0.0		12.6	87.3	0.1	0.0		
Total %	0.6	9.1	7.8	0.0	17.5	12.5	26.1	0.0	0.0	38.7	0.1	15.0	8.6	0.0	23.7	2.5	17.6	0.0	0.0	20.2	
Exiting Leg Total					1729					1601					732					2221	6283

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	6	77	57	0	140	112	217	0	0	329	0	106	65	0	171	16	153	0	0	169	809
7:30 AM	5	76	84	0	165	90	206	0	0	296	2	112	62	0	176	28	142	0	0	170	807
7:45 AM	1	76	64	0	141	93	226	0	0	319	1	111	67	0	179	12	189	0	0	201	840
8:00 AM	6	86	63	0	155	83	198	0	0	281	1	118	72	0	191	21	135	0	0	156	783
Total Volume	18	315	268	0	601	378	847	0	0	1225	4	447	266	0	717	77	619	0	0	696	3239
% Approach Total	3.0	52.4	44.6	0.0		30.9	69.1	0.0	0.0		0.6	62.3	37.1	0.0		11.1	88.9	0.0	0.0		
PHF	0.750	0.916	0.798	0.000	0.911	0.844	0.937	0.000	0.000	0.931	0.500	0.947	0.924	0.000	0.938	0.688	0.819	0.000	0.000	0.866	0.964
Entering Leg	18	315	268	0	601	378	847	0	0	1225	4	447	266	0	717	77	619	0	0	696	3239
Exiting Leg					825					891					392					1131	3239
Total					1426					2116					1109					1827	6478

PDI File #: **186102 A**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	7	0	0	7	1	2	0	0	3	0	5	1	0	6	0	0	0	0	0	16
7:15 AM	0	10	0	0	10	1	1	0	0	2	0	3	0	0	3	0	1	0	0	1	16
7:30 AM	0	8	1	0	9	0	0	0	0	0	0	7	2	0	9	0	3	0	0	3	21
7:45 AM	0	8	2	0	10	0	3	0	0	3	0	4	0	0	4	0	4	0	0	4	21
Total	0	33	3	0	36	2	6	0	0	8	0	19	3	0	22	0	8	0	0	8	74
8:00 AM	0	12	1	0	13	2	0	0	0	2	0	10	0	0	10	0	3	0	0	3	28
8:15 AM	0	7	0	0	7	0	2	0	0	2	0	5	0	0	5	0	1	0	0	1	15
8:30 AM	1	9	2	0	12	1	3	0	0	4	0	8	1	0	9	1	0	0	0	1	26
8:45 AM	0	5	0	0	5	2	0	0	0	2	0	7	0	0	7	0	0	0	0	0	14
Total	1	33	3	0	37	5	5	0	0	10	0	30	1	0	31	1	4	0	0	5	83
Grand Total	1	66	6	0	73	7	11	0	0	18	0	49	4	0	53	1	12	0	0	13	157
Approach %	1.4	90.4	8.2	0.0		38.9	61.1	0.0	0.0		0.0	92.5	7.5	0.0		7.7	92.3	0.0	0.0		
Total %	0.6	42.0	3.8	0.0	46.5	4.5	7.0	0.0	0.0	11.5	0.0	31.2	2.5	0.0	33.8	0.6	7.6	0.0	0.0	8.3	
Exiting Leg Total					56					18					67					16	157
Buses	1	47	3	0	51	3	5	0	0	8	0	30	3	0	33	0	9	0	0	9	101
% Buses	100.0	71.2	50.0	0.0	69.9	42.9	45.5	0.0	0.0	44.4	0.0	61.2	75.0	0.0	62.3	0.0	75.0	0.0	0.0	69.2	64.3
Exiting Leg Total					33					12					47					9	101
Single-Unit Trucks	0	18	3	0	21	4	6	0	0	10	0	14	1	0	15	1	3	0	0	4	50
% Single-Unit	0.0	27.3	50.0	0.0	28.8	57.1	54.5	0.0	0.0	55.6	0.0	28.6	25.0	0.0	28.3	100.0	25.0	0.0	0.0	30.8	31.8
Exiting Leg Total					18					6					19					7	50
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	6
% Articulated	0.0	1.5	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.0	0.0	9.4	0.0	0.0	0.0	0.0	0.0	3.8
Exiting Leg Total					5					0					1					0	6

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	8	2	0	10	0	3	0	0	3	0	4	0	0	4	0	4	0	0	4	21
8:00 AM	0	12	1	0	13	2	0	0	0	2	0	10	0	0	10	0	3	0	0	3	28
8:15 AM	0	7	0	0	7	0	2	0	0	2	0	5	0	0	5	0	1	0	0	1	15
8:30 AM	1	9	2	0	12	1	3	0	0	4	0	8	1	0	9	1	0	0	0	1	26
Total Volume	1	36	5	0	42	3	8	0	0	11	0	27	1	0	28	1	8	0	0	9	90
% Approach Total	2.4	85.7	11.9	0.0		27.3	72.7	0.0	0.0		0.0	96.4	3.6	0.0		11.1	88.9	0.0	0.0		
PHF	0.250	0.750	0.625	0.000	0.808	0.375	0.667	0.000	0.000	0.688	0.000	0.675	0.250	0.000	0.700	0.250	0.500	0.000	0.000	0.563	0.804
Buses	1	25	2	0	28	1	3	0	0	4	0	17	1	0	18	0	7	0	0	7	57
Buses %	100.0	69.4	40.0	0.0	66.7	33.3	37.5	0.0	0.0	36.4	0.0	63.0	100.0	0.0	64.3	0.0	87.5	0.0	0.0	77.8	63.3
Single-Unit Trucks	0	11	3	0	14	2	5	0	0	7	0	7	0	0	7	1	1	0	0	2	30
Single-Unit %	0.0	30.6	60.0	0.0	33.3	66.7	62.5	0.0	0.0	63.6	0.0	25.9	0.0	0.0	25.0	100.0	12.5	0.0	0.0	22.2	33.3
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	0.0	10.7	0.0	0.0	0.0	0.0	0.0	3.3
Buses	1	25	2	0	28	1	3	0	0	4	0	17	1	0	18	0	7	0	0	7	57
Single-Unit Trucks	0	11	3	0	14	2	5	0	0	7	0	7	0	0	7	1	1	0	0	2	30
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
Total Entering Leg	1	36	5	0	42	3	8	0	0	11	0	27	1	0	28	1	8	0	0	9	90
Buses					18					9					25					5	57
Single-Unit Trucks					9					4					12					5	30
Articulated Trucks					3					0					0					0	3
Total Exiting Leg					30					13					37					10	90

PDI File #: **186102 A**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars

	Brookline Avenue					Jamaica Way					Brookline Avenue					Riverway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	5	60	56	0	121	99	193	0	0	292	1	126	75	0	202	12	103	0	0	115	730
7:15 AM	6	74	51	0	131	110	206	0	0	316	0	103	61	0	164	14	142	0	0	156	767
7:30 AM	3	74	82	0	159	84	200	0	0	284	2	105	61	0	168	26	135	0	0	161	772
7:45 AM	1	67	63	0	131	89	217	0	0	306	1	107	63	0	171	12	187	0	0	199	807
Total	15	275	252	0	542	382	816	0	0	1198	4	441	260	0	705	64	567	0	0	631	3076
8:00 AM	6	79	63	0	148	80	186	0	0	266	1	113	70	0	184	19	122	0	0	141	739
8:15 AM	5	62	54	0	121	93	213	0	0	306	0	114	59	0	173	21	147	1	0	169	769
8:30 AM	5	69	47	0	121	96	165	0	0	261	0	136	76	0	212	14	103	0	0	117	711
8:45 AM	4	49	49	0	102	111	191	2	0	304	1	99	53	0	153	26	111	0	0	137	696
Total	20	259	213	0	492	380	755	2	0	1137	2	462	258	0	722	80	483	1	0	564	2915
Grand Total	35	534	465	0	1034	762	1571	2	0	2335	6	903	518	0	1427	144	1050	1	0	1195	5991
Approach %	3.4	51.6	45.0	0.0		32.6	67.3	0.1	0.0		0.4	63.3	36.3	0.0		12.1	87.9	0.1	0.0		
Total %	0.6	8.9	7.8	0.0	17.3	12.7	26.2	0.0	0.0	39.0	0.1	15.1	8.6	0.0	23.8	2.4	17.5	0.0	0.0	19.9	
Exiting Leg Total					1666					1521					680					2124	5991

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Brookline Avenue					Jamaica Way					Brookline Avenue					Riverway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	3	74	82	0	159	84	200	0	0	284	2	105	61	0	168	26	135	0	0	161	772
7:45 AM	1	67	63	0	131	89	217	0	0	306	1	107	63	0	171	12	187	0	0	199	807
8:00 AM	6	79	63	0	148	80	186	0	0	266	1	113	70	0	184	19	122	0	0	141	739
8:15 AM	5	62	54	0	121	93	213	0	0	306	0	114	59	0	173	21	147	1	0	169	769
Total Volume	15	282	262	0	559	346	816	0	0	1162	4	439	253	0	696	78	591	1	0	670	3087
% Approach Total	2.7	50.4	46.9	0.0		29.8	70.2	0.0	0.0		0.6	63.1	36.4	0.0		11.6	88.2	0.1	0.0		
PHF	0.625	0.892	0.799	0.000	0.879	0.930	0.940	0.000	0.000	0.949	0.500	0.963	0.904	0.000	0.946	0.750	0.790	0.250	0.000	0.842	0.956
Entering Leg	15	282	262	0	559	346	816	0	0	1162	4	439	253	0	696	78	591	1	0	670	3087
Exiting Leg					786					857					360					1084	3087
Total					1345					2019					1056					1754	6174

PDI File #: **186102 A**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Light Goods Vehicle

	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	4	4	0	8	5	14	0	0	19	0	1	2	0	3	2	3	0	0	5	35
7:15 AM	0	3	6	0	9	2	11	0	0	13	0	3	4	0	7	2	11	0	0	13	42
7:30 AM	2	2	2	0	6	6	6	0	0	12	0	7	1	0	8	2	7	0	0	9	35
7:45 AM	0	9	1	0	10	4	9	0	0	13	0	4	4	0	8	0	2	0	0	2	33
Total	2	18	13	0	33	17	40	0	0	57	0	15	11	0	26	6	23	0	0	29	145
8:00 AM	0	7	0	0	7	3	12	0	0	15	0	5	2	0	7	2	12	0	0	14	43
8:15 AM	1	3	2	0	6	2	5	0	0	7	0	10	2	0	12	4	9	0	0	13	38
8:30 AM	0	5	4	0	9	2	9	0	0	11	0	4	3	0	7	2	8	0	0	10	37
8:45 AM	1	3	4	0	8	1	5	0	0	6	0	4	3	0	7	2	3	0	0	5	26
Total	2	18	10	0	30	8	31	0	0	39	0	23	10	0	33	10	32	0	0	42	144
Grand Total	4	36	23	0	63	25	71	0	0	96	0	38	21	0	59	16	55	0	0	71	289
Approach %	6.3	57.1	36.5	0.0		26.0	74.0	0.0	0.0		0.0	64.4	35.6	0.0		22.5	77.5	0.0	0.0		
Total %	1.4	12.5	8.0	0.0	21.8	8.7	24.6	0.0	0.0	33.2	0.0	13.1	7.3	0.0	20.4	5.5	19.0	0.0	0.0	24.6	
Exiting Leg Total					63					78					52					96	289

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	0	3	6	0	9	2	11	0	0	13	0	3	4	0	7	2	11	0	0	13	42
7:30 AM	2	2	2	0	6	6	6	0	0	12	0	7	1	0	8	2	7	0	0	9	35
7:45 AM	0	9	1	0	10	4	9	0	0	13	0	4	4	0	8	0	2	0	0	2	33
8:00 AM	0	7	0	0	7	3	12	0	0	15	0	5	2	0	7	2	12	0	0	14	43
Total Volume	2	21	9	0	32	15	38	0	0	53	0	19	11	0	30	6	32	0	0	38	153
% Approach Total	6.3	65.6	28.1	0.0		28.3	71.7	0.0	0.0		0.0	63.3	36.7	0.0		15.8	84.2	0.0	0.0		
PHF	0.250	0.583	0.375	0.000	0.800	0.625	0.792	0.000	0.000	0.883	0.000	0.679	0.688	0.000	0.938	0.750	0.667	0.000	0.000	0.679	0.890
Entering Leg	2	21	9	0	32	15	38	0	0	53	0	19	11	0	30	6	32	0	0	38	153
Exiting Leg					34					41					27					51	153
Total					66					94					57					89	306

PDI File #: **186102 A**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Buses

	Brookline Avenue					Jamaica Way					Brookline Avenue					Riverway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	6	0	0	6	1	1	0	0	2	0	2	0	0	2	0	0	0	0	0	10
7:15 AM	0	7	0	0	7	0	1	0	0	1	0	3	0	0	3	0	1	0	0	1	12
7:30 AM	0	7	1	0	8	0	0	0	0	0	0	6	2	0	8	0	1	0	0	1	17
7:45 AM	0	6	0	0	6	0	1	0	0	1	0	2	0	0	2	0	3	0	0	3	12
Total	0	26	1	0	27	1	3	0	0	4	0	13	2	0	15	0	5	0	0	5	51
8:00 AM	0	7	1	0	8	1	0	0	0	1	0	7	0	0	7	0	3	0	0	3	19
8:15 AM	0	5	0	0	5	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	8
8:30 AM	1	7	1	0	9	0	1	0	0	1	0	7	1	0	8	0	0	0	0	0	18
8:45 AM	0	2	0	0	2	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	5
Total	1	21	2	0	24	2	2	0	0	4	0	17	1	0	18	0	4	0	0	4	50
Grand Total	1	47	3	0	51	3	5	0	0	8	0	30	3	0	33	0	9	0	0	9	101
Approach %	2.0	92.2	5.9	0.0		37.5	62.5	0.0	0.0		0.0	90.9	9.1	0.0		0.0	100.0	0.0	0.0		
Total %	1.0	46.5	3.0	0.0	50.5	3.0	5.0	0.0	0.0	7.9	0.0	29.7	3.0	0.0	32.7	0.0	8.9	0.0	0.0	8.9	
Exiting Leg Total					33					12					47					9	101

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue					Jamaica Way					Brookline Avenue					Riverway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	0	7	0	0	7	0	1	0	0	1	0	3	0	0	3	0	1	0	0	1	12
7:30 AM	0	7	1	0	8	0	0	0	0	0	0	6	2	0	8	0	1	0	0	1	17
7:45 AM	0	6	0	0	6	0	1	0	0	1	0	2	0	0	2	0	3	0	0	3	12
8:00 AM	0	7	1	0	8	1	0	0	0	1	0	7	0	0	7	0	3	0	0	3	19
Total Volume	0	27	2	0	29	1	2	0	0	3	0	18	2	0	20	0	8	0	0	8	60
% Approach Total	0.0	93.1	6.9	0.0		33.3	66.7	0.0	0.0		0.0	90.0	10.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.964	0.500	0.000	0.906	0.250	0.500	0.000	0.000	0.750	0.000	0.643	0.250	0.000	0.625	0.000	0.667	0.000	0.000	0.667	0.789
Entering Leg	0	27	2	0	29	1	2	0	0	3	0	18	2	0	20	0	8	0	0	8	60
Exiting Leg					19					10					27					4	60
Total					48					13					47					12	120

PDI File #: **186102 A**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Single-Unit Trucks

	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	1	0	0	1	0	1	0	0	1	0	2	1	0	3	0	0	0	0	0	5
7:15 AM	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	4
7:45 AM	0	2	2	0	4	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1	8
Total	0	6	2	0	8	1	3	0	0	4	0	4	1	0	5	0	3	0	0	3	20
8:00 AM	0	5	0	0	5	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	8
8:15 AM	0	2	0	0	2	0	1	0	0	1	0	4	0	0	4	0	0	0	0	0	7
8:30 AM	0	2	1	0	3	1	2	0	0	3	0	0	0	0	0	1	0	0	0	1	7
8:45 AM	0	3	0	0	3	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	8
Total	0	12	1	0	13	3	3	0	0	6	0	10	0	0	10	1	0	0	0	1	30
Grand Total	0	18	3	0	21	4	6	0	0	10	0	14	1	0	15	1	3	0	0	4	50
Approach %	0.0	85.7	14.3	0.0		40.0	60.0	0.0	0.0		0.0	93.3	6.7	0.0		25.0	75.0	0.0	0.0		
Total %	0.0	36.0	6.0	0.0	42.0	8.0	12.0	0.0	0.0	20.0	0.0	28.0	2.0	0.0	30.0	2.0	6.0	0.0	0.0	8.0	
Exiting Leg Total					18					6					19					7	50

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	2	2	0	4	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1	8
8:00 AM	0	5	0	0	5	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	8
8:15 AM	0	2	0	0	2	0	1	0	0	1	0	4	0	0	4	0	0	0	0	0	7
8:30 AM	0	2	1	0	3	1	2	0	0	3	0	0	0	0	0	1	0	0	0	1	7
Total Volume	0	11	3	0	14	2	5	0	0	7	0	7	0	0	7	1	1	0	0	2	30
% Approach Total	0.0	78.6	21.4	0.0		28.6	71.4	0.0	0.0		0.0	100.0	0.0	0.0		50.0	50.0	0.0	0.0		
PHF	0.000	0.550	0.375	0.000	0.700	0.500	0.625	0.000	0.000	0.583	0.000	0.438	0.000	0.000	0.438	0.250	0.250	0.000	0.000	0.500	0.938
Entering Leg	0	11	3	0	14	2	5	0	0	7	0	7	0	0	7	1	1	0	0	2	30
Exiting Leg					9					4					12					5	30
Total					23					11					19					7	60

PDI File #: **186102 A**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Articulated Trucks

	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
7:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
Grand Total	0	1	0	0	1	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	6
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	16.7	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	83.3	0.0	0.0	83.3	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					5					0					1					0	6

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
7:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total Volume	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.750
Entering Leg	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
Exiting Leg					2					0					1					0	3
Total					3					0					3					0	6

PDI File #: **186102 A**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Brookline Avenue from North							Jamaica Way from East							Brookline Avenue from South							Riverway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	1	1	2	0	0	0	0	0	1	1	0	1	0	0	0	0	1	0	0	0	0	1	0	1	5
7:30 AM	0	0	0	0	0	1	1	0	0	0	0	0	4	4	0	2	0	0	0	1	3	0	0	0	0	0	0	0	8
7:45 AM	0	1	0	0	1	0	2	0	0	0	0	0	5	5	0	3	0	0	0	0	3	0	0	0	0	0	0	0	10
Total	0	1	0	0	2	2	5	0	0	0	0	0	11	11	0	7	0	0	0	1	8	0	0	0	0	1	0	1	25
8:00 AM	0	1	0	0	1	1	3	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	1	0	1	8
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	1	0	5	0	0	0	0	0	0	0	5
8:30 AM	0	2	0	0	0	0	2	0	0	0	0	0	5	5	0	1	0	0	2	1	4	0	0	0	0	1	0	1	12
8:45 AM	0	0	0	0	1	1	2	0	0	0	0	0	4	4	0	8	0	0	0	0	8	0	0	0	0	0	0	0	14
Total	0	3	0	0	2	2	7	0	0	0	0	0	9	9	0	17	0	0	3	1	21	0	0	0	0	2	0	2	39
Grand Total	0	4	0	0	4	4	12	0	0	0	0	0	20	20	0	24	0	0	3	2	29	0	0	0	0	3	0	3	64
Approach %	0.0	33.3	0.0	0.0	33.3	33.3		0.0	0.0	0.0	0.0	0.0	100.0		0.0	82.8	0.0	0.0	10.3	6.9		0.0	0.0	0.0	0.0	100.0	0.0		
Total %	0.0	6.3	0.0	0.0	6.3	6.3	18.8	0.0	0.0	0.0	0.0	0.0	31.3	31.3	0.0	37.5	0.0	0.0	4.7	3.1	45.3	0.0	0.0	0.0	0.0	4.7	0.0	4.7	
Exiting Leg Total							32							20							9							3	64

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Brookline Avenue from North							Jamaica Way from East							Brookline Avenue from South							Riverway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	1	0	0	1	1	3	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	1	0	1	8
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	1	0	5	0	0	0	0	0	0	0	5
8:30 AM	0	2	0	0	0	0	2	0	0	0	0	0	5	5	0	1	0	0	2	1	4	0	0	0	0	1	0	1	12
8:45 AM	0	0	0	0	1	1	2	0	0	0	0	0	4	4	0	8	0	0	0	0	8	0	0	0	0	0	0	0	14
Total Volume	0	3	0	0	2	2	7	0	0	0	0	0	9	9	0	17	0	0	3	1	21	0	0	0	0	2	0	2	39
% Approach Total	0.0	42.9	0.0	0.0	28.6	28.6		0.0	0.0	0.0	0.0	0.0	100.0		0.0	81.0	0.0	0.0	14.3	4.8		0.0	0.0	0.0	0.0	100.0	0.0		
PHF	0.000	0.375	0.000	0.000	0.500	0.500	0.583	0.000	0.000	0.000	0.000	0.000	0.450	0.450	0.000	0.531	0.000	0.000	0.375	0.250	0.656	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.696
Entering Leg	0	3	0	0	2	2	7	0	0	0	0	0	9	9	0	17	0	0	3	1	21	0	0	0	0	2	0	2	39
Exiting Leg							21							9							7							2	39
Total							28							18							28							4	78

PDI File #: **186102 A**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Pedestrians

	Brookline Avenue from North							Jamaica Way from East							Brookline Avenue from South							Riverway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	1	2	3	0	0	0	0	1	32	33	0	0	0	0	0	0	0	0	0	0	0	8	3	11	47
7:15 AM	0	0	0	0	7	3	10	0	0	0	0	3	42	45	0	0	0	0	0	3	3	0	0	0	0	11	2	13	71
7:30 AM	0	0	0	0	0	4	4	0	0	0	0	3	34	37	0	0	0	0	1	0	1	0	0	0	0	13	2	15	57
7:45 AM	0	0	0	0	4	5	9	0	0	0	0	3	37	40	0	0	0	0	0	1	1	0	0	0	0	16	2	18	68
Total	0	0	0	0	12	14	26	0	0	0	0	10	145	155	0	0	0	0	1	4	5	0	0	0	0	48	9	57	243
8:00 AM	0	0	0	0	3	1	4	0	0	0	0	2	69	71	0	0	0	0	0	2	2	0	0	0	0	20	0	20	97
8:15 AM	0	0	0	0	4	3	7	0	0	0	0	4	67	71	0	0	0	0	0	0	0	0	0	0	0	15	3	18	96
8:30 AM	0	0	0	0	4	2	6	0	0	0	0	5	62	67	0	0	0	0	0	2	2	0	0	0	0	13	0	13	88
8:45 AM	0	0	0	0	7	2	9	0	0	0	0	1	76	77	0	0	0	0	1	0	1	0	0	0	0	11	1	12	99
Total	0	0	0	0	18	8	26	0	0	0	0	12	274	286	0	0	0	0	1	4	5	0	0	0	0	59	4	63	380
Grand Total	0	0	0	0	30	22	52	0	0	0	0	22	419	441	0	0	0	0	2	8	10	0	0	0	0	107	13	120	623
Approach %	0	0	0	0	57.7	42.3		0	0	0	0	4.99	95		0	0	0	0	20	80		0	0	0	0	89.2	10.8		
Total %	0	0	0	0	4.82	3.53	8.35	0	0	0	0	3.53	67.3	70.8	0	0	0	0	0.32	1.28	1.61	0	0	0	0	17.2	2.09	19.3	
Exiting Leg Total							52							441							10							120	623

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Brookline Avenue from North							Jamaica Way from East							Brookline Avenue from South							Riverway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	0	3	1	4	0	0	0	0	2	69	71	0	0	0	0	0	2	2	0	0	0	0	20	0	20	97
8:15 AM	0	0	0	0	4	3	7	0	0	0	0	4	67	71	0	0	0	0	0	0	0	0	0	0	0	15	3	18	96
8:30 AM	0	0	0	0	4	2	6	0	0	0	0	5	62	67	0	0	0	0	0	2	2	0	0	0	0	13	0	13	88
8:45 AM	0	0	0	0	7	2	9	0	0	0	0	1	76	77	0	0	0	0	1	0	1	0	0	0	0	11	1	12	99
Total Volume	0	0	0	0	18	8	26	0	0	0	0	12	274	286	0	0	0	0	1	4	5	0	0	0	0	59	4	63	380
% Approach Total	0.0	0.0	0.0	0.0	69.2	30.8		0.0	0.0	0.0	0.0	4.2	95.8		0.0	0.0	0.0	0.0	20.0	80.0		0.0	0.0	0.0	0.0	93.7	6.3		
PHF	0.000	0.000	0.000	0.000	0.643	0.667	0.722	0.000	0.000	0.000	0.000	0.600	0.901	0.929	0.000	0.000	0.000	0.000	0.250	0.500	0.625	0.000	0.000	0.000	0.000	0.738	0.333	0.788	0.960
Entering Leg	0	0	0	0	18	8	26	0	0	0	0	12	274	286	0	0	0	0	1	4	5	0	0	0	0	59	4	63	380
Exiting Leg							26							286							5							63	380
Total							52							572							10							126	760

PDI File #: **186102 AA**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	5	94	116	0	215	66	172	0	0	238	0	55	31	0	86	18	247	1	0	266	805
3:15 PM	7	96	120	0	223	68	155	0	0	223	2	62	23	0	87	19	274	0	0	293	826
3:30 PM	3	132	123	0	258	54	157	0	0	211	0	70	37	0	107	14	239	0	0	253	829
3:45 PM	4	124	109	0	237	65	204	0	0	269	3	56	32	0	91	13	294	0	0	307	904
Total	19	446	468	0	933	253	688	0	0	941	5	243	123	0	371	64	1054	1	0	1119	3364
4:00 PM	9	153	107	0	269	49	159	1	0	209	2	54	28	0	84	13	246	0	0	259	821
4:15 PM	2	131	120	0	253	61	175	1	0	237	1	52	18	0	71	17	286	0	0	303	864
4:30 PM	6	153	143	0	302	41	165	1	0	207	2	53	25	0	80	13	265	0	0	278	867
4:45 PM	4	140	146	0	290	57	167	0	0	224	2	49	27	0	78	11	234	0	0	245	837
Total	21	577	516	0	1114	208	666	3	0	877	7	208	98	0	313	54	1031	0	0	1085	3389
5:00 PM	4	152	167	0	323	57	146	0	0	203	2	51	28	0	81	10	202	0	0	212	819
5:15 PM	4	172	144	0	320	46	179	0	0	225	2	58	23	0	83	15	257	0	0	272	900
5:30 PM	5	164	177	0	346	44	123	0	0	167	3	36	21	0	60	11	235	0	0	246	819
5:45 PM	3	139	136	0	278	45	173	0	0	218	2	62	24	0	88	10	188	0	0	198	782
Total	16	627	624	0	1267	192	621	0	0	813	9	207	96	0	312	46	882	0	0	928	3320
Grand Total	56	1650	1608	0	3314	653	1975	3	0	2631	21	658	317	0	996	164	2967	1	0	3132	10073
Approach %	1.7	49.8	48.5	0.0		24.8	75.1	0.1	0.0		2.1	66.1	31.8	0.0		5.2	94.7	0.0	0.0		
Total %	0.6	16.4	16.0	0.0	32.9	6.5	19.6	0.0	0.0	26.1	0.2	6.5	3.1	0.0	9.9	1.6	29.5	0.0	0.0	31.1	
Exiting Leg Total					1312					4596					1817					2348	10073
Cars	56	1562	1594	0	3212	642	1962	3	0	2607	20	590	315	0	925	163	2953	1	0	3117	9861
% Cars	100.0	94.7	99.1	0.0	96.9	98.3	99.3	100.0	0.0	99.1	95.2	89.7	99.4	0.0	92.9	99.4	99.5	100.0	0.0	99.5	97.9
Exiting Leg Total					1233					4567					1728					2333	9861
Heavy Vehicles	0	88	14	0	102	11	13	0	0	24	1	68	2	0	71	1	14	0	0	15	212
% Heavy Vehicles	0.0	5.3	0.9	0.0	3.1	1.7	0.7	0.0	0.0	0.9	4.8	10.3	0.6	0.0	7.1	0.6	0.5	0.0	0.0	0.5	2.1
Exiting Leg Total					79					29					89					15	212

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:45 PM	4	124	109	0	237	65	204	0	0	269	3	56	32	0	91	13	294	0	0	307	904
4:00 PM	9	153	107	0	269	49	159	1	0	209	2	54	28	0	84	13	246	0	0	259	821
4:15 PM	2	131	120	0	253	61	175	1	0	237	1	52	18	0	71	17	286	0	0	303	864
4:30 PM	6	153	143	0	302	41	165	1	0	207	2	53	25	0	80	13	265	0	0	278	867
Total Volume	21	561	479	0	1061	216	703	3	0	922	8	215	103	0	326	56	1091	0	0	1147	3456
% Approach Total	2.0	52.9	45.1	0.0		23.4	76.2	0.3	0.0		2.5	66.0	31.6	0.0		4.9	95.1	0.0	0.0		
PHF	0.583	0.917	0.837	0.000	0.878	0.831	0.862	0.750	0.000	0.857	0.667	0.960	0.805	0.000	0.896	0.824	0.928	0.000	0.000	0.934	0.956
Cars	21	530	475	0	1026	210	702	3	0	915	7	190	102	0	299	55	1087	0	0	1142	3382
Cars %	100.0	94.5	99.2	0.0	96.7	97.2	99.9	100.0	0.0	99.2	87.5	88.4	99.0	0.0	91.7	98.2	99.6	0.0	0.0	99.6	97.9
Heavy Vehicles	0	31	4	0	35	6	1	0	0	7	1	25	1	0	27	1	4	0	0	5	74
Heavy Vehicles %	0.0	5.5	0.8	0.0	3.3	2.8	0.1	0.0	0.0	0.8	12.5	11.6	1.0	0.0	8.3	1.8	0.4	0.0	0.0	0.4	2.1
Cars Enter Leg	21	530	475	0	1026	210	702	3	0	915	7	190	102	0	299	55	1087	0	0	1142	3382
Heavy Enter Leg	0	31	4	0	35	6	1	0	0	7	1	25	1	0	27	1	4	0	0	5	74
Total Entering Leg	21	561	479	0	1061	216	703	3	0	922	8	215	103	0	326	56	1091	0	0	1147	3456
Cars Exiting Leg					400					1569					588					825	3382
Heavy Exiting Leg					31					9					32					2	74
Total Exiting Leg					431					1578					620					827	3456

PDI File #: **186102 AA**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars-Combined (Motorcycles, Cars, Light Goods)

	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	5	88	113	0	206	65	167	0	0	232	0	50	31	0	81	18	244	1	0	263	782
3:15 PM	7	88	119	0	214	68	154	0	0	222	2	56	23	0	81	19	272	0	0	291	808
3:30 PM	3	124	122	0	249	54	154	0	0	208	0	67	36	0	103	14	238	0	0	252	812
3:45 PM	4	119	109	0	232	61	204	0	0	265	3	50	31	0	84	12	292	0	0	304	885
Total	19	419	463	0	901	248	679	0	0	927	5	223	121	0	349	63	1046	1	0	1110	3287
4:00 PM	9	141	107	0	257	49	158	1	0	208	2	48	28	0	78	13	245	0	0	258	801
4:15 PM	2	124	117	0	243	61	175	1	0	237	0	44	18	0	62	17	286	0	0	303	845
4:30 PM	6	146	142	0	294	39	165	1	0	205	2	48	25	0	75	13	264	0	0	277	851
4:45 PM	4	134	143	0	281	57	167	0	0	224	2	42	27	0	71	11	234	0	0	245	821
Total	21	545	509	0	1075	206	665	3	0	874	6	182	98	0	286	54	1029	0	0	1083	3318
5:00 PM	4	144	167	0	315	54	145	0	0	199	2	45	28	0	75	10	201	0	0	211	800
5:15 PM	4	163	143	0	310	45	177	0	0	222	2	53	23	0	78	15	255	0	0	270	880
5:30 PM	5	158	176	0	339	44	123	0	0	167	3	32	21	0	56	11	234	0	0	245	807
5:45 PM	3	133	136	0	272	45	173	0	0	218	2	55	24	0	81	10	188	0	0	198	769
Total	16	598	622	0	1236	188	618	0	0	806	9	185	96	0	290	46	878	0	0	924	3256
Grand Total	56	1562	1594	0	3212	642	1962	3	0	2607	20	590	315	0	925	163	2953	1	0	3117	9861
Approach %	1.7	48.6	49.6	0.0		24.6	75.3	0.1	0.0		2.2	63.8	34.1	0.0		5.2	94.7	0.0	0.0		
Total %	0.6	15.8	16.2	0.0	32.6	6.5	19.9	0.0	0.0	26.4	0.2	6.0	3.2	0.0	9.4	1.7	29.9	0.0	0.0	31.6	
Exiting Leg Total					1233					4567					1728					2333	9861

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:45 PM	4	119	109	0	232	61	204	0	0	265	3	50	31	0	84	12	292	0	0	304	885
4:00 PM	9	141	107	0	257	49	158	1	0	208	2	48	28	0	78	13	245	0	0	258	801
4:15 PM	2	124	117	0	243	61	175	1	0	237	0	44	18	0	62	17	286	0	0	303	845
4:30 PM	6	146	142	0	294	39	165	1	0	205	2	48	25	0	75	13	264	0	0	277	851
Total Volume	21	530	475	0	1026	210	702	3	0	915	7	190	102	0	299	55	1087	0	0	1142	3382
% Approach Total	2.0	51.7	46.3	0.0		23.0	76.7	0.3	0.0		2.3	63.5	34.1	0.0		4.8	95.2	0.0	0.0		
PHF	0.583	0.908	0.836	0.000	0.872	0.861	0.860	0.750	0.000	0.863	0.583	0.950	0.823	0.000	0.890	0.809	0.931	0.000	0.000	0.939	0.955
Entering Leg	21	530	475	0	1026	210	702	3	0	915	7	190	102	0	299	55	1087	0	0	1142	3382
Exiting Leg					400					1569					588					825	3382
Total					1426					2484					887					1967	6764

PDI File #: **186102 AA**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	6	3	0	9	1	5	0	0	6	0	5	0	0	5	0	3	0	0	3	23
3:15 PM	0	8	1	0	9	0	1	0	0	1	0	6	0	0	6	0	2	0	0	2	18
3:30 PM	0	8	1	0	9	0	3	0	0	3	0	3	1	0	4	0	1	0	0	1	17
3:45 PM	0	5	0	0	5	4	0	0	0	4	0	6	1	0	7	1	2	0	0	3	19
Total	0	27	5	0	32	5	9	0	0	14	0	20	2	0	22	1	8	0	0	9	77
4:00 PM	0	12	0	0	12	0	1	0	0	1	0	6	0	0	6	0	1	0	0	1	20
4:15 PM	0	7	3	0	10	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	19
4:30 PM	0	7	1	0	8	2	0	0	0	2	0	5	0	0	5	0	1	0	0	1	16
4:45 PM	0	6	3	0	9	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	16
Total	0	32	7	0	39	2	1	0	0	3	1	26	0	0	27	0	2	0	0	2	71
5:00 PM	0	8	0	0	8	3	1	0	0	4	0	6	0	0	6	0	1	0	0	1	19
5:15 PM	0	9	1	0	10	1	2	0	0	3	0	5	0	0	5	0	2	0	0	2	20
5:30 PM	0	6	1	0	7	0	0	0	0	0	0	4	0	0	4	0	1	0	0	1	12
5:45 PM	0	6	0	0	6	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	13
Total	0	29	2	0	31	4	3	0	0	7	0	22	0	0	22	0	4	0	0	4	64
Grand Total	0	88	14	0	102	11	13	0	0	24	1	68	2	0	71	1	14	0	0	15	212
Approach %	0.0	86.3	13.7	0.0		45.8	54.2	0.0	0.0		1.4	95.8	2.8	0.0		6.7	93.3	0.0	0.0		
Total %	0.0	41.5	6.6	0.0	48.1	5.2	6.1	0.0	0.0	11.3	0.5	32.1	0.9	0.0	33.5	0.5	6.6	0.0	0.0	7.1	
Exiting Leg Total					79					29					89					15	212
Buses	0	72	7	0	79	6	7	0	0	13	0	60	0	0	60	1	10	0	0	11	163
% Buses	0.0	81.8	50.0	0.0	77.5	54.5	53.8	0.0	0.0	54.2	0.0	88.2	0.0	0.0	84.5	100.0	71.4	0.0	0.0	73.3	76.9
Exiting Leg Total					66					17					73					7	163
Single-Unit Trucks	0	13	7	0	20	5	6	0	0	11	1	6	2	0	9	0	4	0	0	4	44
% Single-Unit	0.0	14.8	50.0	0.0	19.6	45.5	46.2	0.0	0.0	45.8	100.0	8.8	100.0	0.0	12.7	0.0	28.6	0.0	0.0	26.7	20.8
Exiting Leg Total					11					12					13					8	44
Articulated Trucks	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	5
% Articulated	0.0	3.4	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	2.4
Exiting Leg Total					2					0					3					0	5

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	6	3	0	9	1	5	0	0	6	0	5	0	0	5	0	3	0	0	3	23
3:15 PM	0	8	1	0	9	0	1	0	0	1	0	6	0	0	6	0	2	0	0	2	18
3:30 PM	0	8	1	0	9	0	3	0	0	3	0	3	1	0	4	0	1	0	0	1	17
3:45 PM	0	5	0	0	5	4	0	0	0	4	0	6	1	0	7	1	2	0	0	3	19
Total Volume	0	27	5	0	32	5	9	0	0	14	0	20	2	0	22	1	8	0	0	9	77
% Approach Total	0.0	84.4	15.6	0.0		35.7	64.3	0.0	0.0		0.0	90.9	9.1	0.0		11.1	88.9	0.0	0.0		
PHF	0.000	0.844	0.417	0.000	0.889	0.313	0.450	0.000	0.000	0.583	0.000	0.833	0.500	0.000	0.786	0.250	0.667	0.000	0.000	0.750	0.837
Buses	0	24	0	0	24	3	4	0	0	7	0	18	0	0	18	1	5	0	0	6	55
Buses %	0.0	88.9	0.0	0.0	75.0	60.0	44.4	0.0	0.0	50.0	0.0	90.0	0.0	0.0	81.8	100.0	62.5	0.0	0.0	66.7	71.4
Single-Unit Trucks	0	2	5	0	7	2	5	0	0	7	0	2	2	0	4	0	3	0	0	3	21
Single-Unit %	0.0	7.4	100.0	0.0	21.9	40.0	55.6	0.0	0.0	50.0	0.0	10.0	100.0	0.0	18.2	0.0	37.5	0.0	0.0	33.3	27.3
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Articulated %	0.0	3.7	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3
Buses	0	24	0	0	24	3	4	0	0	7	0	18	0	0	18	1	5	0	0	6	55
Single-Unit Trucks	0	2	5	0	7	2	5	0	0	7	0	2	2	0	4	0	3	0	0	3	21
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Entering Leg	0	27	5	0	32	5	9	0	0	14	0	20	2	0	22	1	8	0	0	9	77
Buses					21					5					25					4	55
Single-Unit Trucks					4					8					2					7	21
Articulated Trucks					0					0					1					0	1
Total Exiting Leg					25					13					28					11	77

PDI File #: **186102 AA**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars

	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	4	81	105	0	190	62	160	0	0	222	0	48	28	0	76	18	220	0	0	238	726
3:15 PM	5	84	113	0	202	62	148	0	0	210	2	53	19	0	74	19	250	0	0	269	755
3:30 PM	3	118	115	0	236	54	147	0	0	201	0	65	33	0	98	14	226	0	0	240	775
3:45 PM	4	113	108	0	225	54	200	0	0	254	3	49	28	0	80	12	275	0	0	287	846
Total	16	396	441	0	853	232	655	0	0	887	5	215	108	0	328	63	971	0	0	1034	3102
4:00 PM	9	139	103	0	251	46	143	1	0	190	2	46	26	0	74	11	233	0	0	244	759
4:15 PM	2	117	112	0	231	58	167	1	0	226	0	43	17	0	60	15	273	0	0	288	805
4:30 PM	6	144	133	0	283	39	158	1	0	198	2	43	23	0	68	13	250	0	0	263	812
4:45 PM	4	129	135	0	268	52	158	0	0	210	2	40	26	0	68	11	229	0	0	240	786
Total	21	529	483	0	1033	195	626	3	0	824	6	172	92	0	270	50	985	0	0	1035	3162
5:00 PM	3	139	163	0	305	51	138	0	0	189	2	43	27	0	72	10	193	0	0	203	769
5:15 PM	4	158	139	0	301	41	169	0	0	210	2	49	21	0	72	15	246	0	0	261	844
5:30 PM	5	158	175	0	338	43	122	0	0	165	3	31	21	0	55	11	227	0	0	238	796
5:45 PM	3	133	135	0	271	45	169	0	0	214	2	53	24	0	79	10	182	0	0	192	756
Total	15	588	612	0	1215	180	598	0	0	778	9	176	93	0	278	46	848	0	0	894	3165
Grand Total	52	1513	1536	0	3101	607	1879	3	0	2489	20	563	293	0	876	159	2804	0	0	2963	9429
Approach %	1.7	48.8	49.5	0.0		24.4	75.5	0.1	0.0		2.3	64.3	33.4	0.0		5.4	94.6	0.0	0.0		
Total %	0.6	16.0	16.3	0.0	32.9	6.4	19.9	0.0	0.0	26.4	0.2	6.0	3.1	0.0	9.3	1.7	29.7	0.0	0.0	31.4	
Exiting Leg Total					1170					4360					1675					2224	9429

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:45 PM	4	113	108	0	225	54	200	0	0	254	3	49	28	0	80	12	275	0	0	287	846
4:00 PM	9	139	103	0	251	46	143	1	0	190	2	46	26	0	74	11	233	0	0	244	759
4:15 PM	2	117	112	0	231	58	167	1	0	226	0	43	17	0	60	15	273	0	0	288	805
4:30 PM	6	144	133	0	283	39	158	1	0	198	2	43	23	0	68	13	250	0	0	263	812
Total Volume	21	513	456	0	990	197	668	3	0	868	7	181	94	0	282	51	1031	0	0	1082	3222
% Approach Total	2.1	51.8	46.1	0.0		22.7	77.0	0.3	0.0		2.5	64.2	33.3	0.0		4.7	95.3	0.0	0.0		
PHF	0.583	0.891	0.857	0.000	0.875	0.849	0.835	0.750	0.000	0.854	0.583	0.923	0.839	0.000	0.881	0.850	0.937	0.000	0.000	0.939	0.952
Entering Leg	21	513	456	0	990	197	668	3	0	868	7	181	94	0	282	51	1031	0	0	1082	3222
Exiting Leg					378					1494					567					783	3222
Total					1368					2362					849					1865	6444

PDI File #: **186102 AA**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Light Goods Vehicle

	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	1	7	8	0	16	3	7	0	0	10	0	2	3	0	5	0	24	1	0	25	56
3:15 PM	2	4	6	0	12	6	6	0	0	12	0	3	4	0	7	0	21	0	0	21	52
3:30 PM	0	6	7	0	13	0	7	0	0	7	0	2	3	0	5	0	12	0	0	12	37
3:45 PM	0	6	1	0	7	7	4	0	0	11	0	1	3	0	4	0	17	0	0	17	39
Total	3	23	22	0	48	16	24	0	0	40	0	8	13	0	21	0	74	1	0	75	184
4:00 PM	0	2	4	0	6	3	15	0	0	18	0	2	2	0	4	2	12	0	0	14	42
4:15 PM	0	7	5	0	12	3	8	0	0	11	0	1	1	0	2	2	13	0	0	15	40
4:30 PM	0	2	9	0	11	0	7	0	0	7	0	5	2	0	7	0	14	0	0	14	39
4:45 PM	0	5	8	0	13	5	9	0	0	14	0	2	1	0	3	0	5	0	0	5	35
Total	0	16	26	0	42	11	39	0	0	50	0	10	6	0	16	4	44	0	0	48	156
5:00 PM	1	3	4	0	8	3	7	0	0	10	0	2	1	0	3	0	8	0	0	8	29
5:15 PM	0	5	4	0	9	4	8	0	0	12	0	4	2	0	6	0	9	0	0	9	36
5:30 PM	0	0	1	0	1	1	1	0	0	2	0	1	0	0	1	0	7	0	0	7	11
5:45 PM	0	0	1	0	1	0	4	0	0	4	0	2	0	0	2	0	6	0	0	6	13
Total	1	8	10	0	19	8	20	0	0	28	0	9	3	0	12	0	30	0	0	30	89
Grand Total	4	47	58	0	109	35	83	0	0	118	0	27	22	0	49	4	148	1	0	153	429
Approach %	3.7	43.1	53.2	0.0		29.7	70.3	0.0	0.0		0.0	55.1	44.9	0.0		2.6	96.7	0.7	0.0		
Total %	0.9	11.0	13.5	0.0	25.4	8.2	19.3	0.0	0.0	27.5	0.0	6.3	5.1	0.0	11.4	0.9	34.5	0.2	0.0	35.7	
Exiting Leg Total					63					206					51					109	429

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	1	7	8	0	16	3	7	0	0	10	0	2	3	0	5	0	24	1	0	25	56
3:15 PM	2	4	6	0	12	6	6	0	0	12	0	3	4	0	7	0	21	0	0	21	52
3:30 PM	0	6	7	0	13	0	7	0	0	7	0	2	3	0	5	0	12	0	0	12	37
3:45 PM	0	6	1	0	7	7	4	0	0	11	0	1	3	0	4	0	17	0	0	17	39
Total Volume	3	23	22	0	48	16	24	0	0	40	0	8	13	0	21	0	74	1	0	75	184
% Approach Total	6.3	47.9	45.8	0.0		40.0	60.0	0.0	0.0		0.0	38.1	61.9	0.0		0.0	98.7	1.3	0.0		
PHF	0.375	0.821	0.688	0.000	0.750	0.571	0.857	0.000	0.000	0.833	0.000	0.667	0.813	0.000	0.750	0.000	0.771	0.250	0.000	0.750	0.821
Entering Leg	3	23	22	0	48	16	24	0	0	40	0	8	13	0	21	0	74	1	0	75	184
Exiting Leg					25					96					23					40	184
Total					73					136					44					115	368

PDI File #: **186102 AA**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Buses

	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	6	0	0	6	1	3	0	0	4	0	5	0	0	5	0	2	0	0	2	17
3:15 PM	0	6	0	0	6	0	1	0	0	1	0	4	0	0	4	0	1	0	0	1	12
3:30 PM	0	7	0	0	7	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	11
3:45 PM	0	5	0	0	5	2	0	0	0	2	0	6	0	0	6	1	1	0	0	2	15
Total	0	24	0	0	24	3	4	0	0	7	0	18	0	0	18	1	5	0	0	6	55
4:00 PM	0	8	0	0	8	0	1	0	0	1	0	6	0	0	6	0	1	0	0	1	16
4:15 PM	0	6	3	0	9	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	15
4:30 PM	0	7	1	0	8	2	0	0	0	2	0	5	0	0	5	0	0	0	0	0	15
4:45 PM	0	5	3	0	8	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	13
Total	0	26	7	0	33	2	1	0	0	3	0	22	0	0	22	0	1	0	0	1	59
5:00 PM	0	6	0	0	6	1	1	0	0	2	0	6	0	0	6	0	1	0	0	1	15
5:15 PM	0	7	0	0	7	0	1	0	0	1	0	5	0	0	5	0	2	0	0	2	15
5:30 PM	0	5	0	0	5	0	0	0	0	0	0	4	0	0	4	0	1	0	0	1	10
5:45 PM	0	4	0	0	4	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	9
Total	0	22	0	0	22	1	2	0	0	3	0	20	0	0	20	0	4	0	0	4	49
Grand Total	0	72	7	0	79	6	7	0	0	13	0	60	0	0	60	1	10	0	0	11	163
Approach %	0.0	91.1	8.9	0.0		46.2	53.8	0.0	0.0		0.0	100.0	0.0	0.0		9.1	90.9	0.0	0.0		
Total %	0.0	44.2	4.3	0.0	48.5	3.7	4.3	0.0	0.0	8.0	0.0	36.8	0.0	0.0	36.8	0.6	6.1	0.0	0.0	6.7	
Exiting Leg Total					66					17					73					7	163

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:45 PM	0	5	0	0	5	2	0	0	0	2	0	6	0	0	6	1	1	0	0	2	15
4:00 PM	0	8	0	0	8	0	1	0	0	1	0	6	0	0	6	0	1	0	0	1	16
4:15 PM	0	6	3	0	9	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	15
4:30 PM	0	7	1	0	8	2	0	0	0	2	0	5	0	0	5	0	0	0	0	0	15
Total Volume	0	26	4	0	30	4	1	0	0	5	0	23	0	0	23	1	2	0	0	3	61
% Approach Total	0.0	86.7	13.3	0.0		80.0	20.0	0.0	0.0		0.0	100.0	0.0	0.0		33.3	66.7	0.0	0.0		
PHF	0.000	0.813	0.333	0.000	0.833	0.500	0.250	0.000	0.000	0.625	0.000	0.958	0.000	0.000	0.958	0.250	0.500	0.000	0.000	0.375	0.953
Entering Leg	0	26	4	0	30	4	1	0	0	5	0	23	0	0	23	1	2	0	0	3	61
Exiting Leg					27					6					27					1	61
Total					57					11					50					4	122

PDI File #: **186102 AA**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Single-Unit Trucks

	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	3	0	3	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	6
3:15 PM	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	5
3:30 PM	0	1	1	0	2	0	3	0	0	3	0	0	1	0	1	0	0	0	0	0	6
3:45 PM	0	0	0	0	0	2	0	0	0	2	0	0	1	0	1	0	1	0	0	1	4
Total	0	2	5	0	7	2	5	0	0	7	0	2	2	0	4	0	3	0	0	3	21
4:00 PM	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Total	0	5	0	0	5	0	0	0	0	0	1	3	0	0	4	0	1	0	0	1	10
5:00 PM	0	2	0	0	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
5:15 PM	0	2	1	0	3	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	5
5:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Total	0	6	2	0	8	3	1	0	0	4	0	1	0	0	1	0	0	0	0	0	13
Grand Total	0	13	7	0	20	5	6	0	0	11	1	6	2	0	9	0	4	0	0	4	44
Approach %	0.0	65.0	35.0	0.0		45.5	54.5	0.0	0.0		11.1	66.7	22.2	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	29.5	15.9	0.0	45.5	11.4	13.6	0.0	0.0	25.0	2.3	13.6	4.5	0.0	20.5	0.0	9.1	0.0	0.0	9.1	
Exiting Leg Total					11					12					13					8	44

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	3	0	3	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	6
3:15 PM	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	5
3:30 PM	0	1	1	0	2	0	3	0	0	3	0	0	1	0	1	0	0	0	0	0	6
3:45 PM	0	0	0	0	0	2	0	0	0	2	0	0	1	0	1	0	1	0	0	1	4
Total Volume	0	2	5	0	7	2	5	0	0	7	0	2	2	0	4	0	3	0	0	3	21
% Approach Total	0.0	28.6	71.4	0.0		28.6	71.4	0.0	0.0		0.0	50.0	50.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.500	0.417	0.000	0.583	0.250	0.417	0.000	0.000	0.583	0.000	0.250	0.500	0.000	0.500	0.000	0.750	0.000	0.000	0.750	0.875
Entering Leg	0	2	5	0	7	2	5	0	0	7	0	2	2	0	4	0	3	0	0	3	21
Exiting Leg					4					8					2					7	21
Total					11					15					6					10	42

PDI File #: **186102 AA**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Articulated Trucks

	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Grand Total	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	5
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	60.0	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					2					0					3					0	5

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North					Jamaica Way from East					Brookline Avenue from South					Riverway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Exiting Leg					0					0					1					0	1
Total					1					0					1					0	2

PDI File #: **186102 AA**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Brookline Avenue from North							Jamaica Way from East							Brookline Avenue from South							Riverway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:15 PM	0	1	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3:30 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	2	5
Total	0	3	0	0	0	1	4	0	0	0	0	2	0	2	0	0	0	0	1	0	1	0	0	0	0	1	1	2	9
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1
4:15 PM	0	1	0	0	0	1	2	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4:30 PM	0	2	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	5
4:45 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
Total	0	4	0	0	0	2	6	0	0	1	0	1	0	2	0	1	0	0	0	0	1	0	0	0	0	0	3	3	12
5:00 PM	0	4	0	0	0	1	5	0	0	0	0	5	1	6	0	1	0	0	0	0	1	0	0	0	0	0	1	1	13
5:15 PM	0	2	1	0	0	2	5	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	8
5:30 PM	0	4	0	0	0	1	5	0	0	0	0	2	0	2	0	0	0	0	0	2	2	0	0	0	0	1	1	2	11
5:45 PM	0	1	0	0	1	2	4	0	0	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Total	0	11	1	0	1	6	19	0	0	0	0	15	1	16	0	1	0	0	0	2	3	0	0	0	0	1	3	4	42
Grand Total	0	18	1	0	1	9	29	0	0	1	0	18	1	20	0	2	0	0	1	2	5	0	0	0	0	2	7	9	63
Approach %	0.0	62.1	3.4	0.0	3.4	31.0		0.0	0.0	5.0	0.0	90.0	5.0		0.0	40.0	0.0	0.0	20.0	40.0		0.0	0.0	0.0	0.0	22.2	77.8		
Total %	0.0	28.6	1.6	0.0	1.6	14.3	46.0	0.0	0.0	1.6	0.0	28.6	1.6	31.7	0.0	3.2	0.0	0.0	1.6	3.2	7.9	0.0	0.0	0.0	0.0	3.2	11.1	14.3	
Exiting Leg Total							12							20							22							9	63

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

5:00 PM	Brookline Avenue from North							Jamaica Way from East							Brookline Avenue from South							Riverway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	4	0	0	0	1	5	0	0	0	0	5	1	6	0	1	0	0	0	0	1	0	0	0	0	0	1	1	13
5:15 PM	0	2	1	0	0	2	5	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	8
5:30 PM	0	4	0	0	0	1	5	0	0	0	0	2	0	2	0	0	0	0	0	2	2	0	0	0	0	1	1	2	11
5:45 PM	0	1	0	0	1	2	4	0	0	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Total Volume	0	11	1	0	1	6	19	0	0	0	0	15	1	16	0	1	0	0	0	2	3	0	0	0	0	1	3	4	42
% Approach Total	0.0	57.9	5.3	0.0	5.3	31.6		0.0	0.0	0.0	0.0	93.8	6.3		0.0	33.3	0.0	0.0	0.0	66.7		0.0	0.0	0.0	0.0	25.0	75.0		
PHF	0.000	0.688	0.250	0.000	0.250	0.750	0.950	0.000	0.000	0.000	0.000	0.625	0.250	0.667	0.000	0.250	0.000	0.000	0.000	0.250	0.375	0.000	0.000	0.000	0.000	0.250	0.750	0.500	0.808
Entering Leg	0	11	1	0	1	6	19	0	0	0	0	15	1	16	0	1	0	0	0	2	3	0	0	0	0	1	3	4	42
Exiting Leg							8							17							13							4	42
Total							27							33							16							8	84

PDI File #: **186102 AA**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jamaica Way W: Riverway**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Pedestrians

	Brookline Avenue from North							Jamaica Way from East							Brookline Avenue from South							Riverway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	2	1	3	0	0	0	0	5	5	10	0	0	0	0	2	1	3	0	0	0	0	2	1	3	19
3:15 PM	0	0	0	0	0	1	1	0	0	0	0	4	2	6	0	0	0	0	0	0	0	0	0	0	0	0	11	11	18
3:30 PM	0	0	0	0	1	5	6	0	0	0	0	4	7	11	0	0	0	0	3	0	3	0	0	0	0	4	12	16	36
3:45 PM	0	0	0	0	2	0	2	0	0	0	0	10	2	12	0	0	0	0	0	1	1	0	0	0	0	1	3	4	19
Total	0	0	0	0	5	7	12	0	0	0	0	23	16	39	0	0	0	0	5	2	7	0	0	0	0	7	27	34	92
4:00 PM	0	0	0	0	0	3	3	0	0	0	0	12	4	16	0	0	0	0	1	0	1	0	0	0	0	2	8	10	30
4:15 PM	0	0	0	0	1	3	4	0	0	0	0	12	2	14	0	0	0	0	1	0	1	0	0	0	0	5	15	20	39
4:30 PM	0	0	0	0	3	4	7	0	0	0	0	24	1	25	0	0	0	0	4	0	4	0	0	0	0	4	15	19	55
4:45 PM	0	0	0	0	2	5	7	0	0	0	0	21	4	25	0	0	0	0	0	1	1	0	0	0	0	0	15	15	48
Total	0	0	0	0	6	15	21	0	0	0	0	69	11	80	0	0	0	0	6	1	7	0	0	0	0	11	53	64	172
5:00 PM	0	0	0	0	7	5	12	0	0	0	0	14	2	16	0	0	0	0	2	0	2	0	0	0	0	7	25	32	62
5:15 PM	0	0	0	0	3	3	6	0	0	0	0	14	3	17	0	0	0	0	1	0	1	0	0	0	0	4	27	31	55
5:30 PM	0	0	0	0	6	3	9	0	0	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	2	23	25	39
5:45 PM	0	0	0	0	2	3	5	0	0	0	0	16	1	17	0	0	0	0	2	0	2	0	0	0	0	2	20	22	46
Total	0	0	0	0	18	14	32	0	0	0	0	49	6	55	0	0	0	0	5	0	5	0	0	0	0	15	95	110	202
Grand Total	0	0	0	0	29	36	65	0	0	0	0	141	33	174	0	0	0	0	16	3	19	0	0	0	0	33	175	208	466
Approach %	0	0	0	0	44.6	55.4		0	0	0	0	81	19		0	0	0	0	84.2	15.8		0	0	0	0	15.9	84.1		
Total %	0	0	0	0	6.22	7.73	13.9	0	0	0	0	30.3	7.08	37.3	0	0	0	0	3.43	0.64	4.08	0	0	0	0	7.08	37.6	44.6	
Exiting Leg Total							65							174							19							208	466

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:30 PM	Brookline Avenue from North							Jamaica Way from East							Brookline Avenue from South							Riverway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:30 PM	0	0	0	0	3	4	7	0	0	0	0	24	1	25	0	0	0	0	4	0	4	0	0	0	0	4	15	19	55
4:45 PM	0	0	0	0	2	5	7	0	0	0	0	21	4	25	0	0	0	0	0	1	1	0	0	0	0	0	15	15	48
5:00 PM	0	0	0	0	7	5	12	0	0	0	0	14	2	16	0	0	0	0	2	0	2	0	0	0	0	7	25	32	62
5:15 PM	0	0	0	0	3	3	6	0	0	0	0	14	3	17	0	0	0	0	1	0	1	0	0	0	0	4	27	31	55
Total Volume	0	0	0	0	15	17	32	0	0	0	0	73	10	83	0	0	0	0	7	1	8	0	0	0	0	15	82	97	220
% Approach Total	0.0	0.0	0.0	0.0	46.9	53.1		0.0	0.0	0.0	0.0	88.0	12.0		0.0	0.0	0.0	0.0	87.5	12.5		0.0	0.0	0.0	0.0	15.5	84.5		
PHF	0.000	0.000	0.000	0.000	0.536	0.850	0.667	0.000	0.000	0.000	0.000	0.760	0.625	0.830	0.000	0.000	0.000	0.000	0.438	0.250	0.500	0.000	0.000	0.000	0.000	0.536	0.759	0.758	0.887
Entering Leg	0	0	0	0	15	17	32	0	0	0	0	73	10	83	0	0	0	0	7	1	8	0	0	0	0	15	82	97	220
Exiting Leg							32							83							8							97	220
Total							64							166							16							194	440

PDI File #: **186102 B**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	5	92	51	0	148	25	18	36	0	79	26	206	6	0	238	4	31	3	0	38	503
7:15 AM	1	104	45	0	150	34	14	36	0	84	26	181	10	1	218	13	28	10	0	51	503
7:30 AM	7	121	47	0	175	25	20	39	0	84	32	190	17	1	240	13	23	6	0	42	541
7:45 AM	3	117	50	0	170	28	19	36	0	83	19	171	12	0	202	8	35	5	0	48	503
Total	16	434	193	0	643	112	71	147	0	330	103	748	45	2	898	38	117	24	0	179	2050
8:00 AM	10	112	64	0	186	28	23	39	0	90	34	173	17	1	225	11	28	7	0	46	547
8:15 AM	8	90	50	0	148	31	20	34	0	85	37	168	11	0	216	7	25	6	0	38	487
8:30 AM	6	91	43	0	140	25	12	35	0	72	43	195	14	0	252	9	28	5	0	42	506
8:45 AM	8	77	54	0	139	27	9	38	0	74	30	161	12	0	203	6	37	10	0	53	469
Total	32	370	211	0	613	111	64	146	0	321	144	697	54	1	896	33	118	28	0	179	2009
Grand Total	48	804	404	0	1256	223	135	293	0	651	247	1445	99	3	1794	71	235	52	0	358	4059
Approach %	3.8	64.0	32.2	0.0		34.3	20.7	45.0	0.0		13.8	80.5	5.5	0.2		19.8	65.6	14.5	0.0		
Total %	1.2	19.8	10.0	0.0	30.9	5.5	3.3	7.2	0.0	16.0	6.1	35.6	2.4	0.1	44.2	1.7	5.8	1.3	0.0	8.8	
Exiting Leg Total					1720					886					1171					282	4059
Cars	48	752	346	0	1146	191	132	275	0	598	230	1404	97	3	1734	69	228	42	0	339	3817
% Cars	100.0	93.5	85.6	0.0	91.2	85.7	97.8	93.9	0.0	91.9	93.1	97.2	98.0	100.0	96.7	97.2	97.0	80.8	0.0	94.7	94.0
Exiting Leg Total					1637					804					1099					277	3817
Heavy Vehicles	0	52	58	0	110	32	3	18	0	53	17	41	2	0	60	2	7	10	0	19	242
% Heavy Vehicles	0.0	6.5	14.4	0.0	8.8	14.3	2.2	6.1	0.0	8.1	6.9	2.8	2.0	0.0	3.3	2.8	3.0	19.2	0.0	5.3	6.0
Exiting Leg Total					83					82					72					5	242

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	1	104	45	0	150	34	14	36	0	84	26	181	10	1	218	13	28	10	0	51	503
7:30 AM	7	121	47	0	175	25	20	39	0	84	32	190	17	1	240	13	23	6	0	42	541
7:45 AM	3	117	50	0	170	28	19	36	0	83	19	171	12	0	202	8	35	5	0	48	503
8:00 AM	10	112	64	0	186	28	23	39	0	90	34	173	17	1	225	11	28	7	0	46	547
Total Volume	21	454	206	0	681	115	76	150	0	341	111	715	56	3	885	45	114	28	0	187	2094
% Approach Total	3.1	66.7	30.2	0.0		33.7	22.3	44.0	0.0		12.5	80.8	6.3	0.3		24.1	61.0	15.0	0.0		
PHF	0.525	0.938	0.805	0.000	0.915	0.846	0.826	0.962	0.000	0.947	0.816	0.941	0.824	0.750	0.922	0.865	0.814	0.700	0.000	0.917	0.957
Cars	21	422	178	0	621	101	75	141	0	317	102	697	55	3	857	45	110	25	0	180	1975
Cars %	100.0	93.0	86.4	0.0	91.2	87.8	98.7	94.0	0.0	93.0	91.9	97.5	98.2	100.0	96.8	100.0	96.5	89.3	0.0	96.3	94.3
Heavy Vehicles	0	32	28	0	60	14	1	9	0	24	9	18	1	0	28	0	4	3	0	7	119
Heavy Vehicles %	0.0	7.0	13.6	0.0	8.8	12.2	1.3	6.0	0.0	7.0	8.1	2.5	1.8	0.0	3.2	0.0	3.5	10.7	0.0	3.7	5.7
Cars Enter Leg	21	422	178	0	621	101	75	141	0	317	102	697	55	3	857	45	110	25	0	180	1975
Heavy Enter Leg	0	32	28	0	60	14	1	9	0	24	9	18	1	0	28	0	4	3	0	7	119
Total Entering Leg	21	454	206	0	681	115	76	150	0	341	111	715	56	3	885	45	114	28	0	187	2094
Cars Exiting Leg					823					390					611					151	1975
Heavy Exiting Leg					35					41					41					2	119
Total Exiting Leg					858					431					652					153	2094

PDI File #: **186102 B**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars-Combined (Motorcycles, Cars, Light Goods)

	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	5	87	43	0	135	21	18	34	0	73	25	201	6	0	232	4	30	1	0	35	475
7:15 AM	1	97	40	0	138	30	14	34	0	78	24	178	10	1	213	13	27	8	0	48	477
7:30 AM	7	114	38	0	159	21	20	37	0	78	30	186	16	1	233	13	21	6	0	40	510
7:45 AM	3	109	44	0	156	24	19	34	0	77	19	168	12	0	199	8	34	4	0	46	478
Total	16	407	165	0	588	96	71	139	0	306	98	733	44	2	877	38	112	19	0	169	1940
8:00 AM	10	102	56	0	168	26	22	36	0	84	29	165	17	1	212	11	28	7	0	46	510
8:15 AM	8	85	42	0	135	26	18	33	0	77	37	164	10	0	211	7	24	5	0	36	459
8:30 AM	6	83	36	0	125	21	12	31	0	64	39	190	14	0	243	8	28	3	0	39	471
8:45 AM	8	75	47	0	130	22	9	36	0	67	27	152	12	0	191	5	36	8	0	49	437
Total	32	345	181	0	558	95	61	136	0	292	132	671	53	1	857	31	116	23	0	170	1877
Grand Total	48	752	346	0	1146	191	132	275	0	598	230	1404	97	3	1734	69	228	42	0	339	3817
Approach %	4.2	65.6	30.2	0.0		31.9	22.1	46.0	0.0		13.3	81.0	5.6	0.2		20.4	67.3	12.4	0.0		
Total %	1.3	19.7	9.1	0.0	30.0	5.0	3.5	7.2	0.0	15.7	6.0	36.8	2.5	0.1	45.4	1.8	6.0	1.1	0.0	8.9	
Exiting Leg Total					1637					804					1099					277	3817

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	1	97	40	0	138	30	14	34	0	78	24	178	10	1	213	13	27	8	0	48	477
7:30 AM	7	114	38	0	159	21	20	37	0	78	30	186	16	1	233	13	21	6	0	40	510
7:45 AM	3	109	44	0	156	24	19	34	0	77	19	168	12	0	199	8	34	4	0	46	478
8:00 AM	10	102	56	0	168	26	22	36	0	84	29	165	17	1	212	11	28	7	0	46	510
Total Volume	21	422	178	0	621	101	75	141	0	317	102	697	55	3	857	45	110	25	0	180	1975
% Approach Total	3.4	68.0	28.7	0.0		31.9	23.7	44.5	0.0		11.9	81.3	6.4	0.4		25.0	61.1	13.9	0.0		
PHF	0.525	0.925	0.795	0.000	0.924	0.842	0.852	0.953	0.000	0.943	0.850	0.937	0.809	0.750	0.920	0.865	0.809	0.781	0.000	0.938	0.968
Entering Leg	21	422	178	0	621	101	75	141	0	317	102	697	55	3	857	45	110	25	0	180	1975
Exiting Leg					823					390					611					151	1975
Total					1444					707					1468					331	3950

PDI File #: **186102 B**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	5	8	0	13	4	0	2	0	6	1	5	0	0	6	0	1	2	0	3	28
7:15 AM	0	7	5	0	12	4	0	2	0	6	2	3	0	0	5	0	1	2	0	3	26
7:30 AM	0	7	9	0	16	4	0	2	0	6	2	4	1	0	7	0	2	0	0	2	31
7:45 AM	0	8	6	0	14	4	0	2	0	6	0	3	0	0	3	0	1	1	0	2	25
Total	0	27	28	0	55	16	0	8	0	24	5	15	1	0	21	0	5	5	0	10	110
8:00 AM	0	10	8	0	18	2	1	3	0	6	5	8	0	0	13	0	0	0	0	0	37
8:15 AM	0	5	8	0	13	5	2	1	0	8	0	4	1	0	5	0	1	1	0	2	28
8:30 AM	0	8	7	0	15	4	0	4	0	8	4	5	0	0	9	1	0	2	0	3	35
8:45 AM	0	2	7	0	9	5	0	2	0	7	3	9	0	0	12	1	1	2	0	4	32
Total	0	25	30	0	55	16	3	10	0	29	12	26	1	0	39	2	2	5	0	9	132
Grand Total	0	52	58	0	110	32	3	18	0	53	17	41	2	0	60	2	7	10	0	19	242
Approach %	0.0	47.3	52.7	0.0		60.4	5.7	34.0	0.0		28.3	68.3	3.3	0.0		10.5	36.8	52.6	0.0		
Total %	0.0	21.5	24.0	0.0	45.5	13.2	1.2	7.4	0.0	21.9	7.0	16.9	0.8	0.0	24.8	0.8	2.9	4.1	0.0	7.9	
Exiting Leg Total					83					82					72					5	242
Buses	0	32	52	0	84	26	2	12	0	40	14	22	0	0	36	1	6	9	0	16	176
% Buses	0.0	61.5	89.7	0.0	76.4	81.3	66.7	66.7	0.0	75.5	82.4	53.7	0.0	0.0	60.0	50.0	85.7	90.0	0.0	84.2	72.7
Exiting Leg Total					57					72					45					2	176
Single-Unit Trucks	0	19	6	0	25	6	1	5	0	12	2	17	2	0	21	1	1	1	0	3	61
% Single-Unit	0.0	36.5	10.3	0.0	22.7	18.8	33.3	27.8	0.0	22.6	11.8	41.5	100.0	0.0	35.0	50.0	14.3	10.0	0.0	15.8	25.2
Exiting Leg Total					24					9					25					3	61
Articulated Trucks	0	1	0	0	1	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	5
% Articulated	0.0	1.9	0.0	0.0	0.9	0.0	0.0	5.6	0.0	1.9	5.9	4.9	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	2.1
Exiting Leg Total					2					1					2					0	5

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	10	8	0	18	2	1	3	0	6	5	8	0	0	13	0	0	0	0	0	37
8:15 AM	0	5	8	0	13	5	2	1	0	8	0	4	1	0	5	0	1	1	0	2	28
8:30 AM	0	8	7	0	15	4	0	4	0	8	4	5	0	0	9	1	0	2	0	3	35
8:45 AM	0	2	7	0	9	5	0	2	0	7	3	9	0	0	12	1	1	2	0	4	32
Total Volume	0	25	30	0	55	16	3	10	0	29	12	26	1	0	39	2	2	5	0	9	132
% Approach Total	0.0	45.5	54.5	0.0		55.2	10.3	34.5	0.0		30.8	66.7	2.6	0.0		22.2	22.2	55.6	0.0		
PHF	0.000	0.625	0.938	0.000	0.764	0.800	0.375	0.625	0.000	0.906	0.600	0.722	0.250	0.000	0.750	0.500	0.500	0.625	0.000	0.563	0.892
Buses	0	15	27	0	42	13	2	7	0	22	10	13	0	0	23	1	2	5	0	8	95
Buses %	0.0	60.0	90.0	0.0	76.4	81.3	66.7	70.0	0.0	75.9	83.3	50.0	0.0	0.0	59.0	50.0	100.0	100.0	0.0	88.9	72.0
Single-Unit Trucks	0	10	3	0	13	3	1	3	0	7	1	12	1	0	14	1	0	0	0	1	35
Single-Unit %	0.0	40.0	10.0	0.0	23.6	18.8	33.3	30.0	0.0	24.1	8.3	46.2	100.0	0.0	35.9	50.0	0.0	0.0	0.0	11.1	26.5
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	3.8	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0	1.5
Buses	0	15	27	0	42	13	2	7	0	22	10	13	0	0	23	1	2	5	0	8	95
Single-Unit Trucks	0	10	3	0	13	3	1	3	0	7	1	12	1	0	14	1	0	0	0	1	35
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
Total Entering Leg	0	25	30	0	55	16	3	10	0	29	12	26	1	0	39	2	2	5	0	9	132
Buses					31					39					23					2	95
Single-Unit Trucks					15					4					14					2	35
Articulated Trucks					1					1					0					0	2
Total Exiting Leg					47					44					37					4	132

PDI File #: **186102 B**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars

	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	5	82	43	0	130	20	18	31	0	69	23	194	6	0	223	4	30	1	0	35	457
7:15 AM	0	92	40	0	132	29	14	34	0	77	22	173	9	1	205	13	27	7	0	47	461
7:30 AM	6	109	33	0	148	20	20	37	0	77	27	172	16	1	216	13	21	6	0	40	481
7:45 AM	3	100	42	0	145	19	17	34	0	70	18	162	12	0	192	7	34	3	0	44	451
Total	14	383	158	0	555	88	69	136	0	293	90	701	43	2	836	37	112	17	0	166	1850
8:00 AM	10	97	56	0	163	26	22	36	0	84	27	157	14	1	199	10	28	7	0	45	491
8:15 AM	7	80	42	0	129	24	18	30	0	72	36	153	9	0	198	6	23	5	0	34	433
8:30 AM	5	77	35	0	117	20	12	31	0	63	38	184	13	0	235	8	28	3	0	39	454
8:45 AM	8	70	46	0	124	18	8	34	0	60	26	144	12	0	182	5	36	8	0	49	415
Total	30	324	179	0	533	88	60	131	0	279	127	638	48	1	814	29	115	23	0	167	1793
Grand Total	44	707	337	0	1088	176	129	267	0	572	217	1339	91	3	1650	66	227	40	0	333	3643
Approach %	4.0	65.0	31.0	0.0		30.8	22.6	46.7	0.0		13.2	81.2	5.5	0.2		19.8	68.2	12.0	0.0		
Total %	1.2	19.4	9.3	0.0	29.9	4.8	3.5	7.3	0.0	15.7	6.0	36.8	2.5	0.1	45.3	1.8	6.2	1.1	0.0	9.1	
Exiting Leg Total					1555					781					1043					264	3643

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	0	92	40	0	132	29	14	34	0	77	22	173	9	1	205	13	27	7	0	47	461
7:30 AM	6	109	33	0	148	20	20	37	0	77	27	172	16	1	216	13	21	6	0	40	481
7:45 AM	3	100	42	0	145	19	17	34	0	70	18	162	12	0	192	7	34	3	0	44	451
8:00 AM	10	97	56	0	163	26	22	36	0	84	27	157	14	1	199	10	28	7	0	45	491
Total Volume	19	398	171	0	588	94	73	141	0	308	94	664	51	3	812	43	110	23	0	176	1884
% Approach Total	3.2	67.7	29.1	0.0		30.5	23.7	45.8	0.0		11.6	81.8	6.3	0.4		24.4	62.5	13.1	0.0		
PHF	0.475	0.913	0.763	0.000	0.902	0.810	0.830	0.953	0.000	0.917	0.870	0.960	0.797	0.750	0.940	0.827	0.809	0.821	0.000	0.936	0.959
Entering Leg	19	398	171	0	588	94	73	141	0	308	94	664	51	3	812	43	110	23	0	176	1884
Exiting Leg					781					375					585					143	1884
Total					1369					683					1397					319	3768

PDI File #: **186102 B**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Light Goods Vehicle

	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	5	0	0	5	1	0	3	0	4	2	7	0	0	9	0	0	0	0	0	18
7:15 AM	1	5	0	0	6	1	0	0	0	1	2	5	1	0	8	0	0	1	0	1	16
7:30 AM	1	5	4	0	10	1	0	0	0	1	3	14	0	0	17	0	0	0	0	0	28
7:45 AM	0	9	2	0	11	5	2	0	0	7	1	6	0	0	7	1	0	1	0	2	27
Total	2	24	6	0	32	8	2	3	0	13	8	32	1	0	41	1	0	2	0	3	89
8:00 AM	0	5	0	0	5	0	0	0	0	0	2	8	3	0	13	1	0	0	0	1	19
8:15 AM	1	5	0	0	6	2	0	2	0	4	1	11	1	0	13	1	1	0	0	2	25
8:30 AM	1	6	1	0	8	1	0	0	0	1	1	6	1	0	8	0	0	0	0	0	17
8:45 AM	0	5	1	0	6	4	1	2	0	7	1	8	0	0	9	0	0	0	0	0	22
Total	2	21	2	0	25	7	1	4	0	12	5	33	5	0	43	2	1	0	0	3	83
Grand Total	4	45	8	0	57	15	3	7	0	25	13	65	6	0	84	3	1	2	0	6	172
Approach %	7.0	78.9	14.0	0.0		60.0	12.0	28.0	0.0		15.5	77.4	7.1	0.0		50.0	16.7	33.3	0.0		
Total %	2.3	26.2	4.7	0.0	33.1	8.7	1.7	4.1	0.0	14.5	7.6	37.8	3.5	0.0	48.8	1.7	0.6	1.2	0.0	3.5	
Exiting Leg Total					82					22					55					13	172

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	1	5	4	0	10	1	0	0	0	1	3	14	0	0	17	0	0	0	0	0	28
7:45 AM	0	9	2	0	11	5	2	0	0	7	1	6	0	0	7	1	0	1	0	2	27
8:00 AM	0	5	0	0	5	0	0	0	0	0	2	8	3	0	13	1	0	0	0	1	19
8:15 AM	1	5	0	0	6	2	0	2	0	4	1	11	1	0	13	1	1	0	0	2	25
Total Volume	2	24	6	0	32	8	2	2	0	12	7	39	4	0	50	3	1	1	0	5	99
% Approach Total	6.3	75.0	18.8	0.0		66.7	16.7	16.7	0.0		14.0	78.0	8.0	0.0		60.0	20.0	20.0	0.0		
PHF	0.500	0.667	0.375	0.000	0.727	0.400	0.250	0.250	0.000	0.429	0.583	0.696	0.333	0.000	0.735	0.750	0.250	0.250	0.000	0.625	0.884
Entering Leg	2	24	6	0	32	8	2	2	0	12	7	39	4	0	50	3	1	1	0	5	99
Exiting Leg					48					14					29					8	99
Total					80					26					79					13	198

PDI File #: **186102 B**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Buses

	Brookline Avenue					Francis Street					Brookline Avenue					Francis Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	3	7	0	10	4	0	2	0	6	1	2	0	0	3	0	1	1	0	2	21
7:15 AM	0	3	5	0	8	3	0	1	0	4	1	3	0	0	4	0	1	2	0	3	19
7:30 AM	0	6	7	0	13	3	0	1	0	4	2	3	0	0	5	0	1	0	0	1	23
7:45 AM	0	5	6	0	11	3	0	1	0	4	0	1	0	0	1	0	1	1	0	2	18
Total	0	17	25	0	42	13	0	5	0	18	4	9	0	0	13	0	4	4	0	8	81
8:00 AM	0	5	7	0	12	2	1	3	0	6	5	5	0	0	10	0	0	0	0	0	28
8:15 AM	0	3	8	0	11	4	1	1	0	6	0	1	0	0	1	0	1	1	0	2	20
8:30 AM	0	6	6	0	12	4	0	2	0	6	3	3	0	0	6	1	0	2	0	3	27
8:45 AM	0	1	6	0	7	3	0	1	0	4	2	4	0	0	6	0	1	2	0	3	20
Total	0	15	27	0	42	13	2	7	0	22	10	13	0	0	23	1	2	5	0	8	95
Grand Total	0	32	52	0	84	26	2	12	0	40	14	22	0	0	36	1	6	9	0	16	176
Approach %	0.0	38.1	61.9	0.0		65.0	5.0	30.0	0.0		38.9	61.1	0.0	0.0		6.3	37.5	56.3	0.0		
Total %	0.0	18.2	29.5	0.0	47.7	14.8	1.1	6.8	0.0	22.7	8.0	12.5	0.0	0.0	20.5	0.6	3.4	5.1	0.0	9.1	
Exiting Leg Total					57					72					45					2	176

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Brookline Avenue					Francis Street					Brookline Avenue					Francis Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	5	7	0	12	2	1	3	0	6	5	5	0	0	10	0	0	0	0	0	28
8:15 AM	0	3	8	0	11	4	1	1	0	6	0	1	0	0	1	0	1	1	0	2	20
8:30 AM	0	6	6	0	12	4	0	2	0	6	3	3	0	0	6	1	0	2	0	3	27
8:45 AM	0	1	6	0	7	3	0	1	0	4	2	4	0	0	6	0	1	2	0	3	20
Total Volume	0	15	27	0	42	13	2	7	0	22	10	13	0	0	23	1	2	5	0	8	95
% Approach Total	0.0	35.7	64.3	0.0		59.1	9.1	31.8	0.0		43.5	56.5	0.0	0.0		12.5	25.0	62.5	0.0		
PHF	0.000	0.625	0.844	0.000	0.875	0.813	0.500	0.583	0.000	0.917	0.500	0.650	0.000	0.000	0.575	0.250	0.500	0.625	0.000	0.667	0.848
Entering Leg	0	15	27	0	42	13	2	7	0	22	10	13	0	0	23	1	2	5	0	8	95
Exiting Leg					31					39					23					2	95
Total					73					61					46					10	190

PDI File #: **186102 B**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Single-Unit Trucks**

	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	2	1	0	3	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	7
7:15 AM	0	3	0	0	3	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	5
7:30 AM	0	1	2	0	3	1	0	1	0	2	0	1	1	0	2	0	1	0	0	1	8
7:45 AM	0	3	0	0	3	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	6
Total	0	9	3	0	12	3	0	2	0	5	1	5	1	0	7	0	1	1	0	2	26
8:00 AM	0	5	1	0	6	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	8
8:15 AM	0	2	0	0	2	1	1	0	0	2	0	3	1	0	4	0	0	0	0	0	8
8:30 AM	0	2	1	0	3	0	0	2	0	2	1	2	0	0	3	0	0	0	0	0	8
8:45 AM	0	1	1	0	2	2	0	1	0	3	0	5	0	0	5	1	0	0	0	1	11
Total	0	10	3	0	13	3	1	3	0	7	1	12	1	0	14	1	0	0	0	1	35
Grand Total	0	19	6	0	25	6	1	5	0	12	2	17	2	0	21	1	1	1	0	3	61
Approach %	0.0	76.0	24.0	0.0		50.0	8.3	41.7	0.0		9.5	81.0	9.5	0.0		33.3	33.3	33.3	0.0		
Total %	0.0	31.1	9.8	0.0	41.0	9.8	1.6	8.2	0.0	19.7	3.3	27.9	3.3	0.0	34.4	1.6	1.6	1.6	0.0	4.9	
Exiting Leg Total					24					9					25					3	61

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	5	1	0	6	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	8
8:15 AM	0	2	0	0	2	1	1	0	0	2	0	3	1	0	4	0	0	0	0	0	8
8:30 AM	0	2	1	0	3	0	0	2	0	2	1	2	0	0	3	0	0	0	0	0	8
8:45 AM	0	1	1	0	2	2	0	1	0	3	0	5	0	0	5	1	0	0	0	1	11
Total Volume	0	10	3	0	13	3	1	3	0	7	1	12	1	0	14	1	0	0	0	1	35
% Approach Total	0.0	76.9	23.1	0.0		42.9	14.3	42.9	0.0		7.1	85.7	7.1	0.0		100.0	0.0	0.0	0.0		
PHF	0.000	0.500	0.750	0.000	0.542	0.375	0.250	0.375	0.000	0.583	0.250	0.600	0.250	0.000	0.700	0.250	0.000	0.000	0.000	0.250	0.795
Entering Leg	0	10	3	0	13	3	1	3	0	7	1	12	1	0	14	1	0	0	0	1	35
Exiting Leg					15					4					14					2	35
Total					28					11					28					3	70

PDI File #: **186102 B**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Articulated Trucks

	Brookline Avenue					Francis Street					Brookline Avenue					Francis Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
Grand Total	0	1	0	0	1	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	5
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		33.3	66.7	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	20.0	20.0	40.0	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					2					1					2					0	5

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue					Francis Street					Brookline Avenue					Francis Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total Volume	0	1	0	0	1	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	4
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.250	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	1	0	0	1	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	4
Exiting Leg					2					0					2					0	4
Total					3					1					4					0	8

PDI File #: **186102 B**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Brookline Avenue from North							Francis Street from East							Brookline Avenue from South							Francis Street from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	2	0	0	0	0	2	5
7:15 AM	1	0	1	0	0	0	2	0	0	0	0	0	0	0	1	2	0	0	0	0	3	0	4	0	0	0	0	4	9
7:30 AM	0	1	1	0	0	0	2	0	0	0	0	0	0	0	1	4	0	0	0	0	5	0	1	0	0	0	0	1	8
7:45 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2	5	2	0	0	0	9	0	2	0	0	0	1	3	13
Total	1	2	3	0	0	0	6	0	0	0	0	0	0	0	4	13	2	0	0	0	19	0	9	0	0	0	1	10	35
8:00 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	5	2	0	0	0	0	7	0	1	0	0	0	0	1	9
8:15 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	4	5	0	0	0	0	9	0	2	0	0	0	0	2	12
8:30 AM	0	3	0	0	0	0	3	0	0	0	0	0	0	0	2	9	0	0	0	0	11	1	1	0	0	1	0	3	17
8:45 AM	1	0	0	0	0	0	1	0	1	0	0	0	0	1	4	6	0	0	0	0	10	0	0	0	0	0	0	0	12
Total	1	4	1	0	0	0	6	0	1	0	0	0	0	1	15	22	0	0	0	0	37	1	4	0	0	1	0	6	50
Grand Total	2	6	4	0	0	0	12	0	1	0	0	0	0	1	19	35	2	0	0	0	56	1	13	0	0	1	1	16	85
Approach %	16.7	50.0	33.3	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		33.9	62.5	3.6	0.0	0.0	0.0		6.3	81.3	0.0	0.0	6.3	6.3		
Total %	2.4	7.1	4.7	0.0	0.0	0.0	14.1	0.0	1.2	0.0	0.0	0.0	0.0	1.2	22.4	41.2	2.4	0.0	0.0	0.0	65.9	1.2	15.3	0.0	0.0	1.2	1.2	18.8	
Exiting Leg Total							35							36							7							7	85

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Brookline Avenue from North							Francis Street from East							Brookline Avenue from South							Francis Street from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:45 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2	5	2	0	0	0	9	0	2	0	0	0	1	3	13
8:00 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	5	2	0	0	0	0	7	0	1	0	0	0	0	1	9
8:15 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	4	5	0	0	0	0	9	0	2	0	0	0	0	2	12
8:30 AM	0	3	0	0	0	0	3	0	0	0	0	0	0	0	2	9	0	0	0	0	11	1	1	0	0	1	0	3	17
Total Volume	0	5	1	0	0	0	6	0	0	0	0	0	0	0	13	21	2	0	0	0	36	1	6	0	0	1	1	9	51
% Approach Total	0.0	83.3	16.7	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		36.1	58.3	5.6	0.0	0.0	0.0		11.1	66.7	0.0	0.0	11.1	11.1		
PHF	0.000	0.417	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.650	0.583	0.250	0.000	0.000	0.000	0.818	0.250	0.750	0.000	0.000	0.250	0.250	0.750	0.750
Entering Leg	0	5	1	0	0	0	6	0	0	0	0	0	0	0	13	21	2	0	0	0	36	1	6	0	0	1	1	9	51
Exiting Leg							21							20							6							4	51
Total							27							20							42							13	102

PDI File #: **186102 B**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Pedestrians

	Brookline Avenue							Francis Street							Brookline Avenue							Francis Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	5	14	19	0	0	0	0	2	11	13	0	0	0	0	4	1	5	0	0	0	0	8	4	12	49
7:15 AM	0	0	0	0	4	8	12	0	0	0	0	5	13	18	0	0	0	0	1	3	4	0	0	0	0	11	4	15	49
7:30 AM	0	0	0	0	4	13	17	0	0	0	0	3	12	15	0	0	0	0	6	8	14	0	0	0	0	13	1	14	60
7:45 AM	0	0	0	0	8	9	17	0	0	0	0	1	16	17	0	0	0	0	6	4	10	0	0	0	0	15	5	20	64
Total	0	0	0	0	21	44	65	0	0	0	0	11	52	63	0	0	0	0	17	16	33	0	0	0	0	47	14	61	222
8:00 AM	0	0	0	0	7	10	17	0	0	0	0	7	25	32	0	0	0	0	9	0	9	0	0	0	0	22	7	29	87
8:15 AM	0	0	0	0	10	7	17	0	0	0	0	3	36	39	0	0	0	0	5	6	11	0	0	0	0	18	4	22	89
8:30 AM	0	0	0	0	8	15	23	0	0	0	0	6	30	36	0	0	0	0	5	3	8	0	0	0	0	20	7	27	94
8:45 AM	0	0	0	0	10	8	18	0	0	0	0	7	37	44	0	0	0	0	6	8	14	0	0	0	0	13	9	22	98
Total	0	0	0	0	35	40	75	0	0	0	0	23	128	151	0	0	0	0	25	17	42	0	0	0	0	73	27	100	368
Grand Total	0	0	0	0	56	84	140	0	0	0	0	34	180	214	0	0	0	0	42	33	75	0	0	0	0	120	41	161	590
Approach %	0	0	0	0	40	60		0	0	0	0	15.9	84.1		0	0	0	0	56	44		0	0	0	0	74.5	25.5		
Total %	0	0	0	0	9.49	14.2	23.7	0	0	0	0	5.76	30.5	36.3	0	0	0	0	7.12	5.59	12.7	0	0	0	0	20.3	6.95	27.3	
Exiting Leg Total							140							214							75							161	590

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Brookline Avenue							Francis Street							Brookline Avenue							Francis Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	0	7	10	17	0	0	0	0	7	25	32	0	0	0	0	9	0	9	0	0	0	0	22	7	29	87
8:15 AM	0	0	0	0	10	7	17	0	0	0	0	3	36	39	0	0	0	0	5	6	11	0	0	0	0	18	4	22	89
8:30 AM	0	0	0	0	8	15	23	0	0	0	0	6	30	36	0	0	0	0	5	3	8	0	0	0	0	20	7	27	94
8:45 AM	0	0	0	0	10	8	18	0	0	0	0	7	37	44	0	0	0	0	6	8	14	0	0	0	0	13	9	22	98
Total Volume	0	0	0	0	35	40	75	0	0	0	0	23	128	151	0	0	0	0	25	17	42	0	0	0	0	73	27	100	368
% Approach Total	0.0	0.0	0.0	0.0	46.7	53.3		0.0	0.0	0.0	0.0	15.2	84.8		0.0	0.0	0.0	0.0	59.5	40.5		0.0	0.0	0.0	0.0	73.0	27.0		
PHF	0.000	0.000	0.000	0.000	0.875	0.667	0.815	0.000	0.000	0.000	0.000	0.821	0.865	0.858	0.000	0.000	0.000	0.000	0.694	0.531	0.750	0.000	0.000	0.000	0.000	0.830	0.750	0.862	0.939
Entering Leg	0	0	0	0	35	40	75	0	0	0	0	23	128	151	0	0	0	0	25	17	42	0	0	0	0	73	27	100	368
Exiting Leg							75							151							42							100	368
Total							150							302							84							200	736

PDI File #: **186102 BB**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	8	157	50	0	215	20	16	43	0	79	23	102	11	0	136	18	15	14	0	47	477
3:15 PM	7	171	32	0	210	22	16	34	0	72	23	92	17	1	133	18	15	6	0	39	454
3:30 PM	13	209	41	0	263	16	12	40	0	68	14	117	15	2	148	10	18	8	0	36	515
3:45 PM	5	168	36	0	209	32	18	52	0	102	19	104	16	0	139	10	20	17	0	47	497
Total	33	705	159	0	897	90	62	169	0	321	79	415	59	3	556	56	68	45	0	169	1943
4:00 PM	7	185	28	0	220	26	16	57	0	99	29	95	9	0	133	16	18	10	0	44	496
4:15 PM	7	212	34	0	253	27	11	37	0	75	17	91	11	0	119	21	10	2	0	33	480
4:30 PM	4	225	31	0	260	23	19	30	0	72	19	85	20	0	124	23	8	9	0	40	496
4:45 PM	6	229	29	0	264	25	20	50	0	95	11	89	9	0	109	20	12	7	0	39	507
Total	24	851	122	0	997	101	66	174	0	341	76	360	49	0	485	80	48	28	0	156	1979
5:00 PM	4	263	35	0	302	21	18	37	0	76	24	102	13	1	140	22	6	9	0	37	555
5:15 PM	1	252	20	0	273	25	18	57	0	100	16	85	12	0	113	13	9	7	0	29	515
5:30 PM	4	264	35	0	303	16	23	51	0	90	8	98	8	2	116	22	7	6	0	35	544
5:45 PM	7	227	32	0	266	11	15	36	0	62	15	99	7	4	125	18	5	11	0	34	487
Total	16	1006	122	0	1144	73	74	181	0	328	63	384	40	7	494	75	27	33	0	135	2101
Grand Total	73	2562	403	0	3038	264	202	524	0	990	218	1159	148	10	1535	211	143	106	0	460	6023
Approach %	2.4	84.3	13.3	0.0		26.7	20.4	52.9	0.0		14.2	75.5	9.6	0.7		45.9	31.1	23.0	0.0		
Total %	1.2	42.5	6.7	0.0	50.4	4.4	3.4	8.7	0.0	16.4	3.6	19.2	2.5	0.2	25.5	3.5	2.4	1.8	0.0	7.6	
Exiting Leg Total					1529					764					3307					423	6023
Cars	70	2495	341	0	2906	261	198	501	0	960	188	1111	144	10	1453	205	139	97	0	441	5760
% Cars	95.9	97.4	84.6	0.0	95.7	98.9	98.0	95.6	0.0	97.0	86.2	95.9	97.3	100.0	94.7	97.2	97.2	91.5	0.0	95.9	95.6
Exiting Leg Total					1469					668					3211					412	5760
Heavy Vehicles	3	67	62	0	132	3	4	23	0	30	30	48	4	0	82	6	4	9	0	19	263
% Heavy Vehicles	4.1	2.6	15.4	0.0	4.3	1.1	2.0	4.4	0.0	3.0	13.8	4.1	2.7	0.0	5.3	2.8	2.8	8.5	0.0	4.1	4.4
Exiting Leg Total					60					96					96					11	263

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:45 PM	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	6	229	29	0	264	25	20	50	0	95	11	89	9	0	109	20	12	7	0	39	507
5:00 PM	4	263	35	0	302	21	18	37	0	76	24	102	13	1	140	22	6	9	0	37	555
5:15 PM	1	252	20	0	273	25	18	57	0	100	16	85	12	0	113	13	9	7	0	29	515
5:30 PM	4	264	35	0	303	16	23	51	0	90	8	98	8	2	116	22	7	6	0	35	544
Total Volume	15	1008	119	0	1142	87	79	195	0	361	59	374	42	3	478	77	34	29	0	140	2121
% Approach Total	1.3	88.3	10.4	0.0		24.1	21.9	54.0	0.0		12.3	78.2	8.8	0.6		55.0	24.3	20.7	0.0		
PHF	0.625	0.955	0.850	0.000	0.942	0.870	0.859	0.855	0.000	0.903	0.615	0.917	0.808	0.375	0.854	0.875	0.708	0.806	0.000	0.897	0.955
Cars	14	986	99	0	1099	85	76	186	0	347	48	356	42	3	449	76	33	26	0	135	2030
Cars %	93.3	97.8	83.2	0.0	96.2	97.7	96.2	95.4	0.0	96.1	81.4	95.2	100.0	100.0	93.9	98.7	97.1	89.7	0.0	96.4	95.7
Heavy Vehicles	1	22	20	0	43	2	3	9	0	14	11	18	0	0	29	1	1	3	0	5	91
Heavy Vehicles %	6.7	2.2	16.8	0.0	3.8	2.3	3.8	4.6	0.0	3.9	18.6	4.8	0.0	0.0	6.1	1.3	2.9	10.3	0.0	3.6	4.3
Cars Enter Leg	14	986	99	0	1099	85	76	186	0	347	48	356	42	3	449	76	33	26	0	135	2030
Heavy Enter Leg	1	22	20	0	43	2	3	9	0	14	11	18	0	0	29	1	1	3	0	5	91
Total Entering Leg	15	1008	119	0	1142	87	79	195	0	361	59	374	42	3	478	77	34	29	0	140	2121
Cars Exiting Leg					467					180					1251					132	2030
Heavy Exiting Leg					23					32					32					4	91
Total Exiting Leg					490					212					1283					136	2121

PDI File #: **186102 BB**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars-Combined (Motorcycles, Cars, Light Goods)

	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	8	153	45	0	206	20	16	40	0	76	22	98	11	0	131	18	13	12	0	43	456
3:15 PM	6	164	28	0	198	22	16	33	0	71	21	89	17	1	128	17	15	5	0	37	434
3:30 PM	12	202	36	0	250	16	12	38	0	66	13	116	15	2	146	10	18	8	0	36	498
3:45 PM	5	163	30	0	198	32	17	51	0	100	13	98	16	0	127	10	19	16	0	45	470
Total	31	682	139	0	852	90	61	162	0	313	69	401	59	3	532	55	65	41	0	161	1858
4:00 PM	7	178	23	0	208	26	16	54	0	96	26	91	9	0	126	15	18	8	0	41	471
4:15 PM	7	205	28	0	240	27	11	34	0	72	15	85	10	0	110	20	10	2	0	32	454
4:30 PM	4	221	25	0	250	22	19	30	0	71	18	82	18	0	118	22	8	9	0	39	478
4:45 PM	6	224	24	0	254	25	20	49	0	94	7	86	9	0	102	19	12	7	0	38	488
Total	24	828	100	0	952	100	66	167	0	333	66	344	46	0	456	76	48	26	0	150	1891
5:00 PM	4	258	29	0	291	20	17	34	0	71	20	96	13	1	130	22	6	7	0	35	527
5:15 PM	0	246	15	0	261	24	16	53	0	93	14	82	12	0	108	13	9	7	0	29	491
5:30 PM	4	258	31	0	293	16	23	50	0	89	7	92	8	2	109	22	6	5	0	33	524
5:45 PM	7	223	27	0	257	11	15	35	0	61	12	96	6	4	118	17	5	11	0	33	469
Total	15	985	102	0	1102	71	71	172	0	314	53	366	39	7	465	74	26	30	0	130	2011
Grand Total	70	2495	341	0	2906	261	198	501	0	960	188	1111	144	10	1453	205	139	97	0	441	5760
Approach %	2.4	85.9	11.7	0.0		27.2	20.6	52.2	0.0		12.9	76.5	9.9	0.7		46.5	31.5	22.0	0.0		
Total %	1.2	43.3	5.9	0.0	50.5	4.5	3.4	8.7	0.0	16.7	3.3	19.3	2.5	0.2	25.2	3.6	2.4	1.7	0.0	7.7	
Exiting Leg Total					1469					668					3211					412	5760

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:45 PM	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	6	224	24	0	254	25	20	49	0	94	7	86	9	0	102	19	12	7	0	38	488
5:00 PM	4	258	29	0	291	20	17	34	0	71	20	96	13	1	130	22	6	7	0	35	527
5:15 PM	0	246	15	0	261	24	16	53	0	93	14	82	12	0	108	13	9	7	0	29	491
5:30 PM	4	258	31	0	293	16	23	50	0	89	7	92	8	2	109	22	6	5	0	33	524
Total Volume	14	986	99	0	1099	85	76	186	0	347	48	356	42	3	449	76	33	26	0	135	2030
% Approach Total	1.3	89.7	9.0	0.0		24.5	21.9	53.6	0.0		10.7	79.3	9.4	0.7		56.3	24.4	19.3	0.0		
PHF	0.583	0.955	0.798	0.000	0.938	0.850	0.826	0.877	0.000	0.923	0.600	0.927	0.808	0.375	0.863	0.864	0.688	0.929	0.000	0.888	0.963
Entering Leg	14	986	99	0	1099	85	76	186	0	347	48	356	42	3	449	76	33	26	0	135	2030
Exiting Leg					467					180					1251					132	2030
Total					1566					527					1700					267	4060

PDI File #: **186102 BB**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	4	5	0	9	0	0	3	0	3	1	4	0	0	5	0	2	2	0	4	21
3:15 PM	1	7	4	0	12	0	0	1	0	1	2	3	0	0	5	1	0	1	0	2	20
3:30 PM	1	7	5	0	13	0	0	2	0	2	1	1	0	0	2	0	0	0	0	0	17
3:45 PM	0	5	6	0	11	0	1	1	0	2	6	6	0	0	12	0	1	1	0	2	27
Total	2	23	20	0	45	0	1	7	0	8	10	14	0	0	24	1	3	4	0	8	85
4:00 PM	0	7	5	0	12	0	0	3	0	3	3	4	0	0	7	1	0	2	0	3	25
4:15 PM	0	7	6	0	13	0	0	3	0	3	2	6	1	0	9	1	0	0	0	1	26
4:30 PM	0	4	6	0	10	1	0	0	0	1	1	3	2	0	6	1	0	0	0	1	18
4:45 PM	0	5	5	0	10	0	0	1	0	1	4	3	0	0	7	1	0	0	0	1	19
Total	0	23	22	0	45	1	0	7	0	8	10	16	3	0	29	4	0	2	0	6	88
5:00 PM	0	5	6	0	11	1	1	3	0	5	4	6	0	0	10	0	0	2	0	2	28
5:15 PM	1	6	5	0	12	1	2	4	0	7	2	3	0	0	5	0	0	0	0	0	24
5:30 PM	0	6	4	0	10	0	0	1	0	1	1	6	0	0	7	0	1	1	0	2	20
5:45 PM	0	4	5	0	9	0	0	1	0	1	3	3	1	0	7	1	0	0	0	1	18
Total	1	21	20	0	42	2	3	9	0	14	10	18	1	0	29	1	1	3	0	5	90
Grand Total	3	67	62	0	132	3	4	23	0	30	30	48	4	0	82	6	4	9	0	19	263
Approach %	2.3	50.8	47.0	0.0		10.0	13.3	76.7	0.0		36.6	58.5	4.9	0.0		31.6	21.1	47.4	0.0		
Total %	1.1	25.5	23.6	0.0	50.2	1.1	1.5	8.7	0.0	11.4	11.4	18.3	1.5	0.0	31.2	2.3	1.5	3.4	0.0	7.2	
Exiting Leg Total					60					96					96					11	263
Buses	1	54	60	0	115	2	0	17	0	19	27	36	2	0	65	3	2	3	0	8	207
% Buses	33.3	80.6	96.8	0.0	87.1	66.7	0.0	73.9	0.0	63.3	90.0	75.0	50.0	0.0	79.3	50.0	50.0	33.3	0.0	42.1	78.7
Exiting Leg Total					41					89					74					3	207
Single-Unit Trucks	2	10	2	0	14	1	4	5	0	10	2	11	2	0	15	3	2	6	0	11	50
% Single-Unit	66.7	14.9	3.2	0.0	10.6	33.3	100.0	21.7	0.0	33.3	6.7	22.9	50.0	0.0	18.3	50.0	50.0	66.7	0.0	57.9	19.0
Exiting Leg Total					18					6					18					8	50
Articulated Trucks	0	3	0	0	3	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	6
% Articulated	0.0	4.5	0.0	0.0	2.3	0.0	0.0	4.3	0.0	3.3	3.3	2.1	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	2.3
Exiting Leg Total					1					1					4					0	6

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:45 PM	0	5	6	0	11	0	1	1	0	2	6	6	0	0	12	0	1	1	0	2	27
4:00 PM	0	7	5	0	12	0	0	3	0	3	3	4	0	0	7	1	0	2	0	3	25
4:15 PM	0	7	6	0	13	0	0	3	0	3	2	6	1	0	9	1	0	0	0	1	26
4:30 PM	0	4	6	0	10	1	0	0	0	1	1	3	2	0	6	1	0	0	0	1	18
Total Volume	0	23	23	0	46	1	1	7	0	9	12	19	3	0	34	3	1	3	0	7	96
% Approach Total	0.0	50.0	50.0	0.0		11.1	11.1	77.8	0.0		35.3	55.9	8.8	0.0		42.9	14.3	42.9	0.0		
PHF	0.000	0.821	0.958	0.000	0.885	0.250	0.250	0.583	0.000	0.750	0.500	0.792	0.375	0.000	0.708	0.750	0.250	0.375	0.000	0.583	0.889
Buses	0	20	22	0	42	1	0	6	0	7	11	15	2	0	28	2	1	1	0	4	81
Buses %	0.0	87.0	95.7	0.0	91.3	100.0	0.0	85.7	0.0	77.8	91.7	78.9	66.7	0.0	82.4	66.7	100.0	33.3	0.0	57.1	84.4
Single-Unit Trucks	0	3	1	0	4	0	1	0	0	1	1	4	1	0	6	1	0	2	0	3	14
Single-Unit %	0.0	13.0	4.3	0.0	8.7	0.0	100.0	0.0	0.0	11.1	8.3	21.1	33.3	0.0	17.6	33.3	0.0	66.7	0.0	42.9	14.6
Articulated Trucks	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Buses	0	20	22	0	42	1	0	6	0	7	11	15	2	0	28	2	1	1	0	4	81
Single-Unit Trucks	0	3	1	0	4	0	1	0	0	1	1	4	1	0	6	1	0	2	0	3	14
Articulated Trucks	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Entering Leg	0	23	23	0	46	1	1	7	0	9	12	19	3	0	34	3	1	3	0	7	96
Buses					17					34					28					2	81
Single-Unit Trucks					6					2					4					2	14
Articulated Trucks					0					0					1					0	1
Total Exiting Leg					23					36					33					4	96

PDI File #: **186102 BB**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars

	Brookline Avenue					Francis Street					Brookline Avenue					Francis Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	8	141	42	0	191	18	15	36	0	69	21	92	11	0	124	17	13	11	0	41	425
3:15 PM	6	147	27	0	180	21	15	31	0	67	18	78	15	1	112	16	14	4	0	34	393
3:30 PM	12	187	35	0	234	12	12	34	0	58	12	113	14	2	141	9	18	8	0	35	468
3:45 PM	5	156	27	0	188	31	17	50	0	98	11	89	16	0	116	9	19	16	0	44	446
Total	31	631	131	0	793	82	59	151	0	292	62	372	56	3	493	51	64	39	0	154	1732
4:00 PM	7	175	21	0	203	26	16	53	0	95	25	87	9	0	121	15	18	8	0	41	460
4:15 PM	6	196	28	0	230	25	11	31	0	67	15	81	9	0	105	20	10	2	0	32	434
4:30 PM	4	212	25	0	241	21	18	28	0	67	18	75	17	0	110	22	7	9	0	38	456
4:45 PM	5	215	24	0	244	24	17	44	0	85	5	79	9	0	93	16	10	6	0	32	454
Total	22	798	98	0	918	96	62	156	0	314	63	322	44	0	429	73	45	25	0	143	1804
5:00 PM	4	249	27	0	280	20	17	32	0	69	20	89	13	1	123	22	5	7	0	34	506
5:15 PM	0	237	15	0	252	21	15	50	0	86	13	74	11	0	98	13	9	7	0	29	465
5:30 PM	3	256	27	0	286	14	23	47	0	84	7	88	7	2	104	22	6	4	0	32	506
5:45 PM	7	220	26	0	253	11	14	33	0	58	12	88	6	4	110	17	5	10	0	32	453
Total	14	962	95	0	1071	66	69	162	0	297	52	339	37	7	435	74	25	28	0	127	1930
Grand Total	67	2391	324	0	2782	244	190	469	0	903	177	1033	137	10	1357	198	134	92	0	424	5466
Approach %	2.4	85.9	11.6	0.0		27.0	21.0	51.9	0.0		13.0	76.1	10.1	0.7		46.7	31.6	21.7	0.0		
Total %	1.2	43.7	5.9	0.0	50.9	4.5	3.5	8.6	0.0	16.5	3.2	18.9	2.5	0.2	24.8	3.6	2.5	1.7	0.0	7.8	
Exiting Leg Total					1369					635					3068					394	5466

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:45 PM	Brookline Avenue					Francis Street					Brookline Avenue					Francis Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	5	215	24	0	244	24	17	44	0	85	5	79	9	0	93	16	10	6	0	32	454
5:00 PM	4	249	27	0	280	20	17	32	0	69	20	89	13	1	123	22	5	7	0	34	506
5:15 PM	0	237	15	0	252	21	15	50	0	86	13	74	11	0	98	13	9	7	0	29	465
5:30 PM	3	256	27	0	286	14	23	47	0	84	7	88	7	2	104	22	6	4	0	32	506
Total Volume	12	957	93	0	1062	79	72	173	0	324	45	330	40	3	418	73	30	24	0	127	1931
% Approach Total	1.1	90.1	8.8	0.0		24.4	22.2	53.4	0.0		10.8	78.9	9.6	0.7		57.5	23.6	18.9	0.0		
PHF	0.600	0.935	0.861	0.000	0.928	0.823	0.783	0.865	0.000	0.942	0.563	0.927	0.769	0.375	0.850	0.830	0.750	0.857	0.000	0.934	0.954
Entering Leg	12	957	93	0	1062	79	72	173	0	324	45	330	40	3	418	73	30	24	0	127	1931
Exiting Leg					433					168					1206					124	1931
Total					1495					492					1624					251	3862

PDI File #: **186102 BB**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Light Goods Vehicle

	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	12	3	0	15	2	1	4	0	7	1	6	0	0	7	1	0	1	0	2	31
3:15 PM	0	17	1	0	18	1	1	2	0	4	3	11	2	0	16	1	1	1	0	3	41
3:30 PM	0	15	1	0	16	4	0	4	0	8	1	3	1	0	5	1	0	0	0	1	30
3:45 PM	0	7	3	0	10	1	0	1	0	2	2	9	0	0	11	1	0	0	0	1	24
Total	0	51	8	0	59	8	2	11	0	21	7	29	3	0	39	4	1	2	0	7	126
4:00 PM	0	3	2	0	5	0	0	1	0	1	1	4	0	0	5	0	0	0	0	0	11
4:15 PM	1	9	0	0	10	2	0	3	0	5	0	4	1	0	5	0	0	0	0	0	20
4:30 PM	0	9	0	0	9	1	1	2	0	4	0	7	1	0	8	0	1	0	0	1	22
4:45 PM	1	9	0	0	10	1	3	5	0	9	2	7	0	0	9	3	2	1	0	6	34
Total	2	30	2	0	34	4	4	11	0	19	3	22	2	0	27	3	3	1	0	7	87
5:00 PM	0	9	2	0	11	0	0	1	0	1	0	7	0	0	7	0	1	0	0	1	20
5:15 PM	0	8	0	0	8	3	1	3	0	7	1	8	1	0	10	0	0	0	0	0	25
5:30 PM	1	2	4	0	7	2	0	3	0	5	0	4	1	0	5	0	0	1	0	1	18
5:45 PM	0	3	1	0	4	0	1	2	0	3	0	7	0	0	7	0	0	1	0	1	15
Total	1	22	7	0	30	5	2	9	0	16	1	26	2	0	29	0	1	2	0	3	78
Grand Total	3	103	17	0	123	17	8	31	0	56	11	77	7	0	95	7	5	5	0	17	291
Approach %	2.4	83.7	13.8	0.0		30.4	14.3	55.4	0.0		11.6	81.1	7.4	0.0		41.2	29.4	29.4	0.0		
Total %	1.0	35.4	5.8	0.0	42.3	5.8	2.7	10.7	0.0	19.2	3.8	26.5	2.4	0.0	32.6	2.4	1.7	1.7	0.0	5.8	
Exiting Leg Total					99					33					141					18	291

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	12	3	0	15	2	1	4	0	7	1	6	0	0	7	1	0	1	0	2	31
3:15 PM	0	17	1	0	18	1	1	2	0	4	3	11	2	0	16	1	1	1	0	3	41
3:30 PM	0	15	1	0	16	4	0	4	0	8	1	3	1	0	5	1	0	0	0	1	30
3:45 PM	0	7	3	0	10	1	0	1	0	2	2	9	0	0	11	1	0	0	0	1	24
Total Volume	0	51	8	0	59	8	2	11	0	21	7	29	3	0	39	4	1	2	0	7	126
% Approach Total	0.0	86.4	13.6	0.0		38.1	9.5	52.4	0.0		17.9	74.4	7.7	0.0		57.1	14.3	28.6	0.0		
PHF	0.000	0.750	0.667	0.000	0.819	0.500	0.500	0.688	0.000	0.656	0.583	0.659	0.375	0.000	0.609	1.000	0.250	0.500	0.000	0.583	0.768
Entering Leg	0	51	8	0	59	8	2	11	0	21	7	29	3	0	39	4	1	2	0	7	126
Exiting Leg					39					16					66					5	126
Total					98					37					105					12	252

PDI File #: **186102 BB**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Buses

	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	3	5	0	8	0	0	2	0	2	1	3	0	0	4	0	1	1	0	2	16
3:15 PM	1	5	4	0	10	0	0	1	0	1	1	2	0	0	3	0	0	1	0	1	15
3:30 PM	0	6	5	0	11	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	14
3:45 PM	0	5	6	0	11	0	0	1	0	1	5	6	0	0	11	0	1	1	0	2	25
Total	1	19	20	0	40	0	0	5	0	5	8	12	0	0	20	0	2	3	0	5	70
4:00 PM	0	4	5	0	9	0	0	3	0	3	3	3	0	0	6	0	0	0	0	0	18
4:15 PM	0	7	5	0	12	0	0	2	0	2	2	4	0	0	6	1	0	0	0	1	21
4:30 PM	0	4	6	0	10	1	0	0	0	1	1	2	2	0	5	1	0	0	0	1	17
4:45 PM	0	4	4	0	8	0	0	1	0	1	3	2	0	0	5	1	0	0	0	1	15
Total	0	19	20	0	39	1	0	6	0	7	9	11	2	0	22	3	0	0	0	3	71
5:00 PM	0	4	6	0	10	1	0	2	0	3	4	4	0	0	8	0	0	0	0	0	21
5:15 PM	0	5	5	0	10	0	0	2	0	2	2	3	0	0	5	0	0	0	0	0	17
5:30 PM	0	4	4	0	8	0	0	1	0	1	1	4	0	0	5	0	0	0	0	0	14
5:45 PM	0	3	5	0	8	0	0	1	0	1	3	2	0	0	5	0	0	0	0	0	14
Total	0	16	20	0	36	1	0	6	0	7	10	13	0	0	23	0	0	0	0	0	66
Grand Total	1	54	60	0	115	2	0	17	0	19	27	36	2	0	65	3	2	3	0	8	207
Approach %	0.9	47.0	52.2	0.0		10.5	0.0	89.5	0.0		41.5	55.4	3.1	0.0		37.5	25.0	37.5	0.0		
Total %	0.5	26.1	29.0	0.0	55.6	1.0	0.0	8.2	0.0	9.2	13.0	17.4	1.0	0.0	31.4	1.4	1.0	1.4	0.0	3.9	
Exiting Leg Total					41					89					74					3	207

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	3	5	0	8	0	0	2	0	2	1	3	0	0	4	0	1	1	0	2	16
3:15 PM	1	5	4	0	10	0	0	1	0	1	1	2	0	0	3	0	0	1	0	1	15
3:30 PM	0	6	5	0	11	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	14
3:45 PM	0	5	6	0	11	0	0	1	0	1	5	6	0	0	11	0	1	1	0	2	25
Total Volume	1	19	20	0	40	0	0	5	0	5	8	12	0	0	20	0	2	3	0	5	70
% Approach Total	2.5	47.5	50.0	0.0		0.0	0.0	100.0	0.0		40.0	60.0	0.0	0.0		0.0	40.0	60.0	0.0		
PHF	0.250	0.792	0.833	0.000	0.909	0.000	0.000	0.625	0.000	0.625	0.400	0.500	0.000	0.000	0.455	0.000	0.500	0.750	0.000	0.625	0.700
Entering Leg	1	19	20	0	40	0	0	5	0	5	8	12	0	0	20	0	2	3	0	5	70
Exiting Leg					15					30					24					1	70
Total					55					35					44					6	140

PDI File #: **186102 BB**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Single-Unit Trucks

	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	0	1	1	0	2	5
3:15 PM	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	1	0	0	0	1	4
3:30 PM	1	1	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3
3:45 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
Total	1	3	0	0	4	0	1	2	0	3	2	2	0	0	4	1	1	1	0	3	14
4:00 PM	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	1	0	2	0	3	7
4:15 PM	0	0	1	0	1	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	4
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
4:45 PM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Total	0	3	2	0	5	0	0	0	0	0	0	5	1	0	6	1	0	2	0	3	14
5:00 PM	0	1	0	0	1	0	1	1	0	2	0	2	0	0	2	0	0	2	0	2	7
5:15 PM	1	1	0	0	2	1	2	2	0	5	0	0	0	0	0	0	0	0	0	0	7
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	1	1	0	2	5
5:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	3
Total	1	4	0	0	5	1	3	3	0	7	0	4	1	0	5	1	1	3	0	5	22
Grand Total	2	10	2	0	14	1	4	5	0	10	2	11	2	0	15	3	2	6	0	11	50
Approach %	14.3	71.4	14.3	0.0		10.0	40.0	50.0	0.0		13.3	73.3	13.3	0.0		27.3	18.2	54.5	0.0		
Total %	4.0	20.0	4.0	0.0	28.0	2.0	8.0	10.0	0.0	20.0	4.0	22.0	4.0	0.0	30.0	6.0	4.0	12.0	0.0	22.0	
Exiting Leg Total					18					6					18					8	50

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

5:00 PM	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	0	1	0	0	1	0	1	1	0	2	0	2	0	0	2	0	0	2	0	2	7
5:15 PM	1	1	0	0	2	1	2	2	0	5	0	0	0	0	0	0	0	0	0	0	7
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	1	1	0	2	5
5:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	3
Total Volume	1	4	0	0	5	1	3	3	0	7	0	4	1	0	5	1	1	3	0	5	22
% Approach Total	20.0	80.0	0.0	0.0		14.3	42.9	42.9	0.0		0.0	80.0	20.0	0.0		20.0	20.0	60.0	0.0		
PHF	0.250	1.000	0.000	0.000	0.625	0.250	0.375	0.375	0.000	0.350	0.000	0.500	0.250	0.000	0.625	0.250	0.250	0.375	0.000	0.625	0.786
Entering Leg	1	4	0	0	5	1	3	3	0	7	0	4	1	0	5	1	1	3	0	5	22
Exiting Leg					8					1					8					5	22
Total					13					8					13					10	44

PDI File #: **186102 BB**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Articulated Trucks

	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
Total	0	1	0	0	1	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Grand Total	0	3	0	0	3	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	6
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		50.0	50.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	50.0	0.0	0.0	50.0	0.0	0.0	16.7	0.0	16.7	16.7	16.7	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					1					1					4					0	6

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North					Francis Street from East					Brookline Avenue from South					Francis Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Exiting Leg					0					0					1					0	1
Total					1					0					1					0	2

PDI File #: **186102 BB**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Brookline Avenue from North							Francis Street from East							Brookline Avenue from South							Francis Street from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	1	2	0	0	0	0	3	0	0	0	0	0	0	0	0	1	1	0	0	0	2	5
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
3:45 PM	0	1	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	3
Total	0	1	0	0	0	0	1	1	2	1	0	0	0	4	0	0	0	0	0	0	0	0	3	1	0	0	0	4	9
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
4:30 PM	0	4	1	0	0	0	5	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
4:45 PM	1	2	1	0	0	0	4	2	4	0	0	0	0	6	0	0	0	0	0	0	0	0	0	1	0	0	0	1	11
Total	1	6	2	0	0	0	9	2	7	0	0	0	0	9	0	2	0	0	0	0	2	0	0	1	0	0	0	1	21
5:00 PM	0	4	0	0	1	0	5	0	2	0	0	0	0	2	0	2	0	0	0	0	2	0	0	0	0	0	0	0	9
5:15 PM	0	1	1	0	0	0	2	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:30 PM	0	3	1	0	0	0	4	0	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
5:45 PM	0	1	0	0	0	0	1	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Total	0	9	2	0	1	0	12	0	11	1	0	0	0	12	0	2	0	0	0	0	2	0	0	0	0	0	0	0	26
Grand Total	1	16	4	0	1	0	22	3	20	2	0	0	0	25	0	4	0	0	0	0	4	0	3	2	0	0	0	5	56
Approach %	4.5	72.7	18.2	0.0	4.5	0.0		12.0	80.0	8.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		0.0	60.0	40.0	0.0	0.0	0.0		
Total %	1.8	28.6	7.1	0.0	1.8	0.0	39.3	5.4	35.7	3.6	0.0	0.0	0.0	44.6	0.0	7.1	0.0	0.0	0.0	0.0	7.1	0.0	5.4	3.6	0.0	0.0	0.0	8.9	
Exiting Leg Total							10							7							18							21	56

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:45 PM	Brookline Avenue from North							Francis Street from East							Brookline Avenue from South							Francis Street from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:45 PM	1	2	1	0	0	0	4	2	4	0	0	0	0	6	0	0	0	0	0	0	0	0	0	1	0	0	0	1	11
5:00 PM	0	4	0	0	1	0	5	0	2	0	0	0	0	2	0	2	0	0	0	0	2	0	0	0	0	0	0	0	9
5:15 PM	0	1	1	0	0	0	2	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:30 PM	0	3	1	0	0	0	4	0	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Total Volume	1	10	3	0	1	0	15	2	11	1	0	0	0	14	0	2	0	0	0	0	2	0	0	1	0	0	0	1	32
% Approach Total	6.7	66.7	20.0	0.0	6.7	0.0		14.3	78.6	7.1	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0	0.0		
PHF	0.250	0.625	0.750	0.000	0.250	0.000	0.750	0.250	0.688	0.250	0.000	0.000	0.000	0.583	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.727
Entering Leg	1	10	3	0	1	0	15	2	11	1	0	0	0	14	0	2	0	0	0	0	2	0	0	1	0	0	0	1	32
Exiting Leg							6							3							11							12	32
Total							21							17							13							13	64

PDI File #: **186102 BB**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Francis Street W: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Pedestrians

	Brookline Avenue from North							Francis Street from East							Brookline Avenue from South							Francis Street from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	6	11	17	0	0	0	0	5	6	11	0	0	0	0	3	4	7	0	0	0	0	6	5	11	46
3:15 PM	0	0	0	0	10	2	12	0	0	0	0	7	4	11	0	0	0	0	3	5	8	0	0	0	0	3	9	12	43
3:30 PM	0	0	0	0	12	9	21	0	0	0	0	8	3	11	0	0	0	0	7	4	11	0	0	0	0	3	9	12	55
3:45 PM	0	0	0	0	9	10	19	0	0	0	0	2	1	3	0	0	0	0	7	6	13	0	0	0	0	1	10	11	46
Total	0	0	0	0	37	32	69	0	0	0	0	22	14	36	0	0	0	0	20	19	39	0	0	0	0	13	33	46	190
4:00 PM	0	0	0	0	6	7	13	0	0	0	0	5	5	10	0	0	0	0	5	1	6	0	0	0	0	2	11	13	42
4:15 PM	0	0	0	0	2	2	4	0	0	0	0	9	3	12	0	0	0	0	9	9	18	0	0	0	0	8	11	19	53
4:30 PM	0	0	0	0	6	14	20	0	0	0	0	8	2	10	0	0	0	0	4	6	10	0	0	0	0	7	16	23	63
4:45 PM	0	0	0	0	6	12	18	0	0	0	0	11	7	18	0	0	0	0	8	11	19	0	0	0	0	2	18	20	75
Total	0	0	0	0	20	35	55	0	0	0	0	33	17	50	0	0	0	0	26	27	53	0	0	0	0	19	56	75	233
5:00 PM	0	0	0	0	6	7	13	0	0	0	0	15	9	24	0	0	0	0	13	7	20	0	0	0	0	9	37	46	103
5:15 PM	0	0	0	0	6	10	16	0	0	0	0	22	4	26	0	0	0	0	2	7	9	0	0	0	0	7	26	33	84
5:30 PM	0	0	0	0	2	9	11	0	0	0	0	10	1	11	0	0	0	0	8	2	10	0	0	0	0	8	28	36	68
5:45 PM	0	0	0	0	3	14	17	0	0	0	0	8	1	9	0	0	0	0	5	2	7	0	0	0	0	6	17	23	56
Total	0	0	0	0	17	40	57	0	0	0	0	55	15	70	0	0	0	0	28	18	46	0	0	0	0	30	108	138	311
Grand Total	0	0	0	0	74	107	181	0	0	0	0	110	46	156	0	0	0	0	74	64	138	0	0	0	0	62	197	259	734
Approach %	0	0	0	0	40.9	59.1		0	0	0	0	70.5	29.5		0	0	0	0	53.6	46.4		0	0	0	0	23.9	76.1		
Total %	0	0	0	0	10.1	14.6	24.7	0	0	0	0	15	6.27	21.3	0	0	0	0	10.1	8.72	18.8	0	0	0	0	8.45	26.8	35.3	
Exiting Leg Total							181							156							138							259	734

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:45 PM	Brookline Avenue from North							Francis Street from East							Brookline Avenue from South							Francis Street from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:45 PM	0	0	0	0	6	12	18	0	0	0	0	11	7	18	0	0	0	0	8	11	19	0	0	0	0	2	18	20	75
5:00 PM	0	0	0	0	6	7	13	0	0	0	0	15	9	24	0	0	0	0	13	7	20	0	0	0	0	9	37	46	103
5:15 PM	0	0	0	0	6	10	16	0	0	0	0	22	4	26	0	0	0	0	2	7	9	0	0	0	0	7	26	33	84
5:30 PM	0	0	0	0	2	9	11	0	0	0	0	10	1	11	0	0	0	0	8	2	10	0	0	0	0	8	28	36	68
Total Volume	0	0	0	0	20	38	58	0	0	0	0	58	21	79	0	0	0	0	31	27	58	0	0	0	0	26	109	135	330
% Approach Total	0.0	0.0	0.0	0.0	34.5	65.5		0.0	0.0	0.0	0.0	73.4	26.6		0.0	0.0	0.0	0.0	53.4	46.6		0.0	0.0	0.0	0.0	19.3	80.7		
PHF	0.000	0.000	0.000	0.000	0.833	0.792	0.806	0.000	0.000	0.000	0.000	0.659	0.583	0.760	0.000	0.000	0.000	0.000	0.596	0.614	0.725	0.000	0.000	0.000	0.000	0.722	0.736	0.734	0.801
Entering Leg	0	0	0	0	20	38	58	0	0	0	0	58	21	79	0	0	0	0	31	27	58	0	0	0	0	26	109	135	330
Exiting Leg							58							79							58							135	330
Total							116							158							116							270	660

PDI File #: **186102 C**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	101	19	0	120	28	0	20	0	48	33	205	0	0	238	19	0	10	0	29	435
7:15 AM	0	109	21	0	130	19	0	21	0	40	11	208	0	0	219	32	1	14	0	47	436
7:30 AM	0	116	28	0	144	18	0	33	0	51	19	204	0	0	223	25	5	15	0	45	463
7:45 AM	0	137	20	0	157	25	0	26	0	51	22	183	0	0	205	17	2	20	0	39	452
Total	0	463	88	0	551	90	0	100	0	190	85	800	0	0	885	93	8	59	0	160	1786
8:00 AM	0	145	16	0	161	25	0	16	0	41	20	184	0	0	204	13	5	7	0	25	431
8:15 AM	0	117	26	0	143	28	0	23	0	51	20	165	0	0	185	10	8	9	0	27	406
8:30 AM	0	116	28	0	144	21	0	23	0	44	30	209	0	0	239	4	7	8	0	19	446
8:45 AM	0	103	39	0	142	33	0	18	0	51	22	173	0	0	195	8	11	5	0	24	412
Total	0	481	109	0	590	107	0	80	0	187	92	731	0	0	823	35	31	29	0	95	1695
Grand Total	0	944	197	0	1141	197	0	180	0	377	177	1531	0	0	1708	128	39	88	0	255	3481
Approach %	0.0	82.7	17.3	0.0		52.3	0.0	47.7	0.0		10.4	89.6	0.0	0.0		50.2	15.3	34.5	0.0		
Total %	0.0	27.1	5.7	0.0	32.8	5.7	0.0	5.2	0.0	10.8	5.1	44.0	0.0	0.0	49.1	3.7	1.1	2.5	0.0	7.3	
Exiting Leg Total					1816					413					1252					0	3481
Cars	0	859	193	0	1052	149	0	162	0	311	176	1447	0	0	1623	119	28	78	0	225	3211
% Cars	0.0	91.0	98.0	0.0	92.2	75.6	0.0	90.0	0.0	82.5	99.4	94.5	0.0	0.0	95.0	93.0	71.8	88.6	0.0	88.2	92.2
Exiting Leg Total					1674					397					1140					0	3211
Heavy Vehicles	0	85	4	0	89	48	0	18	0	66	1	84	0	0	85	9	11	10	0	30	270
% Heavy Vehicles	0.0	9.0	2.0	0.0	7.8	24.4	0.0	10.0	0.0	17.5	0.6	5.5	0.0	0.0	5.0	7.0	28.2	11.4	0.0	11.8	7.8
Exiting Leg Total					142					16					112					0	270

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	101	19	0	120	28	0	20	0	48	33	205	0	0	238	19	0	10	0	29	435
7:15 AM	0	109	21	0	130	19	0	21	0	40	11	208	0	0	219	32	1	14	0	47	436
7:30 AM	0	116	28	0	144	18	0	33	0	51	19	204	0	0	223	25	5	15	0	45	463
7:45 AM	0	137	20	0	157	25	0	26	0	51	22	183	0	0	205	17	2	20	0	39	452
Total Volume	0	463	88	0	551	90	0	100	0	190	85	800	0	0	885	93	8	59	0	160	1786
% Approach Total	0.0	84.0	16.0	0.0		47.4	0.0	52.6	0.0		9.6	90.4	0.0	0.0		58.1	5.0	36.9	0.0		
PHF	0.000	0.845	0.786	0.000	0.877	0.804	0.000	0.758	0.000	0.931	0.644	0.962	0.000	0.000	0.930	0.727	0.400	0.738	0.000	0.851	0.964
Cars	0	419	86	0	505	65	0	90	0	155	84	762	0	0	846	88	6	54	0	148	1654
Cars %	0.0	90.5	97.7	0.0	91.7	72.2	0.0	90.0	0.0	81.6	98.8	95.3	0.0	0.0	95.6	94.6	75.0	91.5	0.0	92.5	92.6
Heavy Vehicles	0	44	2	0	46	25	0	10	0	35	1	38	0	0	39	5	2	5	0	12	132
Heavy Vehicles %	0.0	9.5	2.3	0.0	8.3	27.8	0.0	10.0	0.0	18.4	1.2	4.8	0.0	0.0	4.4	5.4	25.0	8.5	0.0	7.5	7.4
Cars Enter Leg	0	419	86	0	505	65	0	90	0	155	84	762	0	0	846	88	6	54	0	148	1654
Heavy Enter Leg	0	44	2	0	46	25	0	10	0	35	1	38	0	0	39	5	2	5	0	12	132
Total Entering Leg	0	463	88	0	551	90	0	100	0	190	85	800	0	0	885	93	8	59	0	160	1786
Cars Exiting Leg					881					176					597					0	1654
Heavy Exiting Leg					68					5					59					0	132
Total Exiting Leg					949					181					656					0	1786

PDI File #: **186102 C**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars-Combined (Motorcycles, Cars, Light Goods)

	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	92	19	0	111	22	0	17	0	39	33	193	0	0	226	18	0	10	0	28	404
7:15 AM	0	98	21	0	119	14	0	20	0	34	11	202	0	0	213	32	1	13	0	46	412
7:30 AM	0	105	27	0	132	10	0	30	0	40	18	194	0	0	212	22	4	12	0	38	422
7:45 AM	0	124	19	0	143	19	0	23	0	42	22	173	0	0	195	16	1	19	0	36	416
Total	0	419	86	0	505	65	0	90	0	155	84	762	0	0	846	88	6	54	0	148	1654
8:00 AM	0	133	15	0	148	20	0	14	0	34	20	176	0	0	196	12	3	6	0	21	399
8:15 AM	0	105	25	0	130	23	0	20	0	43	20	155	0	0	175	9	7	7	0	23	371
8:30 AM	0	105	28	0	133	16	0	21	0	37	30	197	0	0	227	4	5	7	0	16	413
8:45 AM	0	97	39	0	136	25	0	17	0	42	22	157	0	0	179	6	7	4	0	17	374
Total	0	440	107	0	547	84	0	72	0	156	92	685	0	0	777	31	22	24	0	77	1557
Grand Total	0	859	193	0	1052	149	0	162	0	311	176	1447	0	0	1623	119	28	78	0	225	3211
Approach %	0.0	81.7	18.3	0.0		47.9	0.0	52.1	0.0		10.8	89.2	0.0	0.0		52.9	12.4	34.7	0.0		
Total %	0.0	26.8	6.0	0.0	32.8	4.6	0.0	5.0	0.0	9.7	5.5	45.1	0.0	0.0	50.5	3.7	0.9	2.4	0.0	7.0	
Exiting Leg Total					1674					397					1140					0	3211

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	92	19	0	111	22	0	17	0	39	33	193	0	0	226	18	0	10	0	28	404
7:15 AM	0	98	21	0	119	14	0	20	0	34	11	202	0	0	213	32	1	13	0	46	412
7:30 AM	0	105	27	0	132	10	0	30	0	40	18	194	0	0	212	22	4	12	0	38	422
7:45 AM	0	124	19	0	143	19	0	23	0	42	22	173	0	0	195	16	1	19	0	36	416
Total Volume	0	419	86	0	505	65	0	90	0	155	84	762	0	0	846	88	6	54	0	148	1654
% Approach Total	0.0	83.0	17.0	0.0		41.9	0.0	58.1	0.0		9.9	90.1	0.0	0.0		59.5	4.1	36.5	0.0		
PHF	0.000	0.845	0.796	0.000	0.883	0.739	0.000	0.750	0.000	0.923	0.636	0.943	0.000	0.000	0.936	0.688	0.375	0.711	0.000	0.804	0.980
Entering Leg	0	419	86	0	505	65	0	90	0	155	84	762	0	0	846	88	6	54	0	148	1654
Exiting Leg					881					176					597					0	1654
Total					1386					331					1443					148	3308

PDI File #: **186102 C**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	9	0	0	9	6	0	3	0	9	0	12	0	0	12	1	0	0	0	1	31
7:15 AM	0	11	0	0	11	5	0	1	0	6	0	6	0	0	6	0	0	1	0	1	24
7:30 AM	0	11	1	0	12	8	0	3	0	11	1	10	0	0	11	3	1	3	0	7	41
7:45 AM	0	13	1	0	14	6	0	3	0	9	0	10	0	0	10	1	1	1	0	3	36
Total	0	44	2	0	46	25	0	10	0	35	1	38	0	0	39	5	2	5	0	12	132
8:00 AM	0	12	1	0	13	5	0	2	0	7	0	8	0	0	8	1	2	1	0	4	32
8:15 AM	0	12	1	0	13	5	0	3	0	8	0	10	0	0	10	1	1	2	0	4	35
8:30 AM	0	11	0	0	11	5	0	2	0	7	0	12	0	0	12	0	2	1	0	3	33
8:45 AM	0	6	0	0	6	8	0	1	0	9	0	16	0	0	16	2	4	1	0	7	38
Total	0	41	2	0	43	23	0	8	0	31	0	46	0	0	46	4	9	5	0	18	138
Grand Total	0	85	4	0	89	48	0	18	0	66	1	84	0	0	85	9	11	10	0	30	270
Approach %	0.0	95.5	4.5	0.0		72.7	0.0	27.3	0.0		1.2	98.8	0.0	0.0		30.0	36.7	33.3	0.0		
Total %	0.0	31.5	1.5	0.0	33.0	17.8	0.0	6.7	0.0	24.4	0.4	31.1	0.0	0.0	31.5	3.3	4.1	3.7	0.0	11.1	
Exiting Leg Total					142					16					112					0	270
Buses	0	62	2	0	64	46	0	15	0	61	0	58	0	0	58	6	9	9	0	24	207
% Buses	0.0	72.9	50.0	0.0	71.9	95.8	0.0	83.3	0.0	92.4	0.0	69.0	0.0	0.0	68.2	66.7	81.8	90.0	0.0	80.0	76.7
Exiting Leg Total					113					11					83					0	207
Single-Unit Trucks	0	21	2	0	23	2	0	3	0	5	1	25	0	0	26	3	2	1	0	6	60
% Single-Unit	0.0	24.7	50.0	0.0	25.8	4.2	0.0	16.7	0.0	7.6	100.0	29.8	0.0	0.0	30.6	33.3	18.2	10.0	0.0	20.0	22.2
Exiting Leg Total					28					5					27					0	60
Articulated Trucks	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
% Articulated	0.0	2.4	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	1.1
Exiting Leg Total					1					0					2					0	3

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	0	11	1	0	12	8	0	3	0	11	1	10	0	0	11	3	1	3	0	7	41
7:45 AM	0	13	1	0	14	6	0	3	0	9	0	10	0	0	10	1	1	1	0	3	36
8:00 AM	0	12	1	0	13	5	0	2	0	7	0	8	0	0	8	1	2	1	0	4	32
8:15 AM	0	12	1	0	13	5	0	3	0	8	0	10	0	0	10	1	1	2	0	4	35
Total Volume	0	48	4	0	52	24	0	11	0	35	1	38	0	0	39	6	5	7	0	18	144
% Approach Total	0.0	92.3	7.7	0.0		68.6	0.0	31.4	0.0		2.6	97.4	0.0	0.0		33.3	27.8	38.9	0.0		
PHF	0.000	0.923	1.000	0.000	0.929	0.750	0.000	0.917	0.000	0.795	0.250	0.950	0.000	0.000	0.886	0.500	0.625	0.583	0.000	0.643	0.878
Buses	0	37	2	0	39	23	0	8	0	31	0	28	0	0	28	3	5	7	0	15	113
Buses %	0.0	77.1	50.0	0.0	75.0	95.8	0.0	72.7	0.0	88.6	0.0	73.7	0.0	0.0	71.8	50.0	100.0	100.0	0.0	83.3	78.5
Single-Unit Trucks	0	11	2	0	13	1	0	3	0	4	1	9	0	0	10	3	0	0	0	3	30
Single-Unit %	0.0	22.9	50.0	0.0	25.0	4.2	0.0	27.3	0.0	11.4	100.0	23.7	0.0	0.0	25.6	50.0	0.0	0.0	0.0	16.7	20.8
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.7
Buses	0	37	2	0	39	23	0	8	0	31	0	28	0	0	28	3	5	7	0	15	113
Single-Unit Trucks	0	11	2	0	13	1	0	3	0	4	1	9	0	0	10	3	0	0	0	3	30
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total Entering Leg	0	48	4	0	52	24	0	11	0	35	1	38	0	0	39	6	5	7	0	18	144
Buses					58					7					48					0	113
Single-Unit Trucks					10					3					17					0	30
Articulated Trucks					1					0					0					0	1
Total Exiting Leg					69					10					65					0	144

PDI File #: **186102 C**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars

	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	90	19	0	109	21	0	17	0	38	30	189	0	0	219	17	0	10	0	27	393
7:15 AM	0	95	21	0	116	12	0	18	0	30	11	196	0	0	207	29	1	10	0	40	393
7:30 AM	0	98	23	0	121	9	0	29	0	38	18	182	0	0	200	21	4	11	0	36	395
7:45 AM	0	117	18	0	135	19	0	19	0	38	18	166	0	0	184	14	1	17	0	32	389
Total	0	400	81	0	481	61	0	83	0	144	77	733	0	0	810	81	6	48	0	135	1570
8:00 AM	0	126	15	0	141	20	0	14	0	34	20	175	0	0	195	10	3	6	0	19	389
8:15 AM	0	98	23	0	121	22	0	20	0	42	18	146	0	0	164	8	6	7	0	21	348
8:30 AM	0	94	27	0	121	16	0	21	0	37	29	192	0	0	221	4	5	7	0	16	395
8:45 AM	0	93	37	0	130	25	0	16	0	41	22	147	0	0	169	6	7	4	0	17	357
Total	0	411	102	0	513	83	0	71	0	154	89	660	0	0	749	28	21	24	0	73	1489
Grand Total	0	811	183	0	994	144	0	154	0	298	166	1393	0	0	1559	109	27	72	0	208	3059
Approach %	0.0	81.6	18.4	0.0		48.3	0.0	51.7	0.0		10.6	89.4	0.0	0.0		52.4	13.0	34.6	0.0		
Total %	0.0	26.5	6.0	0.0	32.5	4.7	0.0	5.0	0.0	9.7	5.4	45.5	0.0	0.0	51.0	3.6	0.9	2.4	0.0	6.8	
Exiting Leg Total					1609					376					1074					0	3059

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	90	19	0	109	21	0	17	0	38	30	189	0	0	219	17	0	10	0	27	393
7:15 AM	0	95	21	0	116	12	0	18	0	30	11	196	0	0	207	29	1	10	0	40	393
7:30 AM	0	98	23	0	121	9	0	29	0	38	18	182	0	0	200	21	4	11	0	36	395
7:45 AM	0	117	18	0	135	19	0	19	0	38	18	166	0	0	184	14	1	17	0	32	389
Total Volume	0	400	81	0	481	61	0	83	0	144	77	733	0	0	810	81	6	48	0	135	1570
% Approach Total	0.0	83.2	16.8	0.0		42.4	0.0	57.6	0.0		9.5	90.5	0.0	0.0		60.0	4.4	35.6	0.0		
PHF	0.000	0.855	0.880	0.000	0.891	0.726	0.000	0.716	0.000	0.947	0.642	0.935	0.000	0.000	0.925	0.698	0.375	0.706	0.000	0.844	0.994
Entering Leg	0	400	81	0	481	61	0	83	0	144	77	733	0	0	810	81	6	48	0	135	1570
Exiting Leg					842					164					564					0	1570
Total					1323					308					1374					135	3140

PDI File #: **186102 C**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Light Goods Vehicle

	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	2	0	0	2	1	0	0	0	1	3	4	0	0	7	1	0	0	0	1	11
7:15 AM	0	3	0	0	3	2	0	2	0	4	0	6	0	0	6	3	0	3	0	6	19
7:30 AM	0	7	4	0	11	1	0	1	0	2	0	12	0	0	12	1	0	1	0	2	27
7:45 AM	0	7	1	0	8	0	0	4	0	4	4	7	0	0	11	2	0	2	0	4	27
Total	0	19	5	0	24	4	0	7	0	11	7	29	0	0	36	7	0	6	0	13	84
8:00 AM	0	7	0	0	7	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	10
8:15 AM	0	7	2	0	9	1	0	0	0	1	2	9	0	0	11	1	1	0	0	2	23
8:30 AM	0	11	1	0	12	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	18
8:45 AM	0	4	2	0	6	0	0	1	0	1	0	10	0	0	10	0	0	0	0	0	17
Total	0	29	5	0	34	1	0	1	0	2	3	25	0	0	28	3	1	0	0	4	68
Grand Total	0	48	10	0	58	5	0	8	0	13	10	54	0	0	64	10	1	6	0	17	152
Approach %	0.0	82.8	17.2	0.0		38.5	0.0	61.5	0.0		15.6	84.4	0.0	0.0		58.8	5.9	35.3	0.0		
Total %	0.0	31.6	6.6	0.0	38.2	3.3	0.0	5.3	0.0	8.6	6.6	35.5	0.0	0.0	42.1	6.6	0.7	3.9	0.0	11.2	
Exiting Leg Total					65					21					66					0	152

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	0	7	4	0	11	1	0	1	0	2	0	12	0	0	12	1	0	1	0	2	27
7:45 AM	0	7	1	0	8	0	0	4	0	4	4	7	0	0	11	2	0	2	0	4	27
8:00 AM	0	7	0	0	7	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	10
8:15 AM	0	7	2	0	9	1	0	0	0	1	2	9	0	0	11	1	1	0	0	2	23
Total Volume	0	28	7	0	35	2	0	5	0	7	6	29	0	0	35	6	1	3	0	10	87
% Approach Total	0.0	80.0	20.0	0.0		28.6	0.0	71.4	0.0		17.1	82.9	0.0	0.0		60.0	10.0	30.0	0.0		
PHF	0.000	1.000	0.438	0.000	0.795	0.500	0.000	0.313	0.000	0.438	0.375	0.604	0.000	0.000	0.729	0.750	0.250	0.375	0.000	0.625	0.806
Entering Leg	0	28	7	0	35	2	0	5	0	7	6	29	0	0	35	6	1	3	0	10	87
Exiting Leg					34					14					39					0	87
Total					69					21					74					10	174

PDI File #: **186102 C**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Buses

	Brookline Avenue					Jimmy Fund Way					Brookline Avenue					Deaconess Road					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	6	0	0	6	6	0	3	0	9	0	8	0	0	8	1	0	0	0	1	24
7:15 AM	0	7	0	0	7	5	0	1	0	6	0	5	0	0	5	0	0	0	0	0	18
7:30 AM	0	9	1	0	10	7	0	2	0	9	0	8	0	0	8	2	1	3	0	6	33
7:45 AM	0	10	0	0	10	6	0	2	0	8	0	6	0	0	6	0	1	1	0	2	26
Total	0	32	1	0	33	24	0	8	0	32	0	27	0	0	27	3	2	4	0	9	101
8:00 AM	0	10	1	0	11	5	0	2	0	7	0	6	0	0	6	0	2	1	0	3	27
8:15 AM	0	8	0	0	8	5	0	2	0	7	0	8	0	0	8	1	1	2	0	4	27
8:30 AM	0	8	0	0	8	5	0	2	0	7	0	8	0	0	8	0	2	1	0	3	26
8:45 AM	0	4	0	0	4	7	0	1	0	8	0	9	0	0	9	2	2	1	0	5	26
Total	0	30	1	0	31	22	0	7	0	29	0	31	0	0	31	3	7	5	0	15	106
Grand Total	0	62	2	0	64	46	0	15	0	61	0	58	0	0	58	6	9	9	0	24	207
Approach %	0.0	96.9	3.1	0.0		75.4	0.0	24.6	0.0		0.0	100.0	0.0	0.0		25.0	37.5	37.5	0.0		
Total %	0.0	30.0	1.0	0.0	30.9	22.2	0.0	7.2	0.0	29.5	0.0	28.0	0.0	0.0	28.0	2.9	4.3	4.3	0.0	11.6	
Exiting Leg Total					113					11					83					0	207

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Brookline Avenue					Jimmy Fund Way					Brookline Avenue					Deaconess Road					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	0	9	1	0	10	7	0	2	0	9	0	8	0	0	8	2	1	3	0	6	33
7:45 AM	0	10	0	0	10	6	0	2	0	8	0	6	0	0	6	0	1	1	0	2	26
8:00 AM	0	10	1	0	11	5	0	2	0	7	0	6	0	0	6	0	2	1	0	3	27
8:15 AM	0	8	0	0	8	5	0	2	0	7	0	8	0	0	8	1	1	2	0	4	27
Total Volume	0	37	2	0	39	23	0	8	0	31	0	28	0	0	28	3	5	7	0	15	113
% Approach Total	0.0	94.9	5.1	0.0		74.2	0.0	25.8	0.0		0.0	100.0	0.0	0.0		20.0	33.3	46.7	0.0		
PHF	0.000	0.925	0.500	0.000	0.886	0.821	0.000	1.000	0.000	0.861	0.000	0.875	0.000	0.000	0.875	0.375	0.625	0.583	0.000	0.625	0.856
Entering Leg	0	37	2	0	39	23	0	8	0	31	0	28	0	0	28	3	5	7	0	15	113
Exiting Leg					58					7					48					0	113
Total					97					38					76					15	226

PDI File #: **186102 C**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Single-Unit Trucks

	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	7
7:15 AM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	4
7:30 AM	0	2	0	0	2	1	0	1	0	2	1	2	0	0	3	1	0	0	0	1	8
7:45 AM	0	3	1	0	4	0	0	1	0	1	0	3	0	0	3	1	0	0	0	1	9
Total	0	10	1	0	11	1	0	2	0	3	1	10	0	0	11	2	0	1	0	3	28
8:00 AM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	5
8:15 AM	0	4	1	0	5	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	8
8:30 AM	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	7
8:45 AM	0	2	0	0	2	1	0	0	0	1	0	7	0	0	7	0	2	0	0	2	12
Total	0	11	1	0	12	1	0	1	0	2	0	15	0	0	15	1	2	0	0	3	32
Grand Total	0	21	2	0	23	2	0	3	0	5	1	25	0	0	26	3	2	1	0	6	60
Approach %	0.0	91.3	8.7	0.0		40.0	0.0	60.0	0.0		3.8	96.2	0.0	0.0		50.0	33.3	16.7	0.0		
Total %	0.0	35.0	3.3	0.0	38.3	3.3	0.0	5.0	0.0	8.3	1.7	41.7	0.0	0.0	43.3	5.0	3.3	1.7	0.0	10.0	
Exiting Leg Total					28					5					27					0	60

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	5
8:15 AM	0	4	1	0	5	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	8
8:30 AM	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	7
8:45 AM	0	2	0	0	2	1	0	0	0	1	0	7	0	0	7	0	2	0	0	2	12
Total Volume	0	11	1	0	12	1	0	1	0	2	0	15	0	0	15	1	2	0	0	3	32
% Approach Total	0.0	91.7	8.3	0.0		50.0	0.0	50.0	0.0		0.0	100.0	0.0	0.0		33.3	66.7	0.0	0.0		
PHF	0.000	0.688	0.250	0.000	0.600	0.250	0.000	0.250	0.000	0.500	0.000	0.536	0.000	0.000	0.536	0.250	0.250	0.000	0.000	0.375	0.667
Entering Leg	0	11	1	0	12	1	0	1	0	2	0	15	0	0	15	1	2	0	0	3	32
Exiting Leg					16					3					13					0	32
Total					28					5					28					3	64

PDI File #: **186102 C**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Articulated Trucks

	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	66.7	0.0	0.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					1					0					2					0	3

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total Volume	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.375
Entering Leg	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Exiting Leg					1					0					2					0	3
Total					3					0					3					0	6

PDI File #: **186102 C**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Brookline Avenue from North							Jimmy Fund Way from East							Brookline Avenue from South							Deaconess Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	1	1	0	0	1	3	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	4
7:15 AM	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	2	0	0	0	0	2	6
7:30 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	2	0	2	0	0	0	0	2	5
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3	0	1	0	0	0	0	1	4
Total	0	4	1	0	0	1	6	0	0	0	0	0	0	0	2	6	0	0	0	0	8	0	5	0	0	0	0	5	19
8:00 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	1	0	0	0	3	5
8:15 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	1	3
8:30 AM	0	3	0	0	0	0	3	1	0	0	0	0	1	2	0	5	0	0	0	0	5	0	2	0	0	0	0	2	12
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3	0	0	0	0	3	0	4	0	0	0	0	4	8
Total	0	5	0	0	0	0	5	1	0	0	0	0	2	3	0	9	0	0	0	1	10	0	9	1	0	0	0	10	28
Grand Total	0	9	1	0	0	1	11	1	0	0	0	0	2	3	2	15	0	0	0	1	18	0	14	1	0	0	0	15	47
Approach %	0.0	81.8	9.1	0.0	0.0	9.1		33.3	0.0	0.0	0.0	0.0	66.7		11.1	83.3	0.0	0.0	0.0	5.6		0.0	93.3	6.7	0.0	0.0	0.0		
Total %	0.0	19.1	2.1	0.0	0.0	2.1	23.4	2.1	0.0	0.0	0.0	0.0	4.3	6.4	4.3	31.9	0.0	0.0	0.0	2.1	38.3	0.0	29.8	2.1	0.0	0.0	0.0	31.9	
Exiting Leg Total							18							19							10							0	47

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Brookline Avenue from North							Jimmy Fund Way from East							Brookline Avenue from South							Deaconess Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	1	0	0	0	3	5
8:15 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	1	3
8:30 AM	0	3	0	0	0	0	3	1	0	0	0	0	1	2	0	5	0	0	0	0	5	0	2	0	0	0	0	2	12
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3	0	0	0	0	3	0	4	0	0	0	0	4	8
Total Volume	0	5	0	0	0	0	5	1	0	0	0	0	2	3	0	9	0	0	0	1	10	0	9	1	0	0	0	10	28
% Approach Total	0.0	100.0	0.0	0.0	0.0	0.0		33.3	0.0	0.0	0.0	0.0	66.7		0.0	90.0	0.0	0.0	0.0	10.0		0.0	90.0	10.0	0.0	0.0	0.0		
PHF	0.000	0.417	0.000	0.000	0.000	0.000	0.417	0.250	0.000	0.000	0.000	0.000	0.500	0.375	0.000	0.450	0.000	0.000	0.000	0.250	0.500	0.000	0.563	0.250	0.000	0.000	0.000	0.625	0.583
Entering Leg	0	5	0	0	0	0	5	1	0	0	0	0	2	3	0	9	0	0	0	1	10	0	9	1	0	0	0	10	28
Exiting Leg							11							11							6							0	28
Total							16							14							16							10	56

PDI File #: **186102 C**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Pedestrians

	Brookline Avenue from North							Jimmy Fund Way from East							Brookline Avenue from South							Deaconess Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	16	11	27	0	0	0	0	27	9	36	0	0	0	0	7	18	25	0	0	0	0	3	21	24	112
7:15 AM	0	0	0	0	20	9	29	0	0	0	0	18	12	30	0	0	0	0	3	20	23	0	0	0	0	14	30	44	126
7:30 AM	0	0	0	0	15	14	29	0	0	0	0	18	22	40	0	0	0	0	10	8	18	0	0	0	0	12	31	43	130
7:45 AM	0	0	0	0	37	22	59	0	0	0	0	26	23	49	0	0	0	0	7	19	26	0	0	0	0	17	21	38	172
Total	0	0	0	0	88	56	144	0	0	0	0	89	66	155	0	0	0	0	27	65	92	0	0	0	0	46	103	149	540
8:00 AM	0	0	0	0	31	11	42	0	0	0	0	15	5	20	0	0	0	0	6	12	18	0	0	0	0	22	31	53	133
8:15 AM	0	0	0	0	47	16	63	0	0	0	0	16	20	36	0	0	0	0	6	20	26	0	0	0	0	22	31	53	178
8:30 AM	0	0	0	0	24	25	49	0	0	0	0	26	36	62	0	0	0	0	4	9	13	0	0	0	0	18	28	46	170
8:45 AM	0	0	0	0	31	18	49	0	0	0	0	29	36	65	0	0	0	0	6	18	24	0	0	0	0	25	26	51	189
Total	0	0	0	0	133	70	203	0	0	0	0	86	97	183	0	0	0	0	22	59	81	0	0	0	0	87	116	203	670
Grand Total	0	0	0	0	221	126	347	0	0	0	0	175	163	338	0	0	0	0	49	124	173	0	0	0	0	133	219	352	1210
Approach %	0	0	0	0	63.7	36.3		0	0	0	0	51.8	48.2		0	0	0	0	28.3	71.7		0	0	0	0	37.8	62.2		
Total %	0	0	0	0	18.3	10.4	28.7	0	0	0	0	14.5	13.5	27.9	0	0	0	0	4.05	10.2	14.3	0	0	0	0	11	18.1	29.1	
Exiting Leg Total							347							338							173							352	1210

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Brookline Avenue from North							Jimmy Fund Way from East							Brookline Avenue from South							Deaconess Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	0	31	11	42	0	0	0	0	15	5	20	0	0	0	0	6	12	18	0	0	0	0	22	31	53	133
8:15 AM	0	0	0	0	47	16	63	0	0	0	0	16	20	36	0	0	0	0	6	20	26	0	0	0	0	22	31	53	178
8:30 AM	0	0	0	0	24	25	49	0	0	0	0	26	36	62	0	0	0	0	4	9	13	0	0	0	0	18	28	46	170
8:45 AM	0	0	0	0	31	18	49	0	0	0	0	29	36	65	0	0	0	0	6	18	24	0	0	0	0	25	26	51	189
Total Volume	0	0	0	0	133	70	203	0	0	0	0	86	97	183	0	0	0	0	22	59	81	0	0	0	0	87	116	203	670
% Approach Total	0.0	0.0	0.0	0.0	65.5	34.5		0.0	0.0	0.0	0.0	47.0	53.0		0.0	0.0	0.0	0.0	27.2	72.8		0.0	0.0	0.0	0.0	42.9	57.1		
PHF	0.000	0.000	0.000	0.000	0.707	0.700	0.806	0.000	0.000	0.000	0.000	0.741	0.674	0.704	0.000	0.000	0.000	0.000	0.917	0.738	0.779	0.000	0.000	0.000	0.000	0.870	0.935	0.958	0.886
Entering Leg	0	0	0	0	133	70	203	0	0	0	0	86	97	183	0	0	0	0	22	59	81	0	0	0	0	87	116	203	670
Exiting Leg							203							183							81							203	670
Total							406							366							162							406	1340

PDI File #: **186102 CC**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Brookline Avenue					Jimmy Fund Way					Brookline Avenue					Deaconess Road					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	162	12	0	174	30	0	29	0	59	11	111	0	0	122	14	4	11	0	29	384
3:15 PM	0	160	13	0	173	42	0	57	0	99	10	111	0	0	121	12	7	8	0	27	420
3:30 PM	0	173	16	0	189	42	0	43	0	85	11	131	0	0	142	17	3	9	0	29	445
3:45 PM	0	147	12	0	159	39	0	38	0	77	9	136	0	0	145	17	7	13	0	37	418
Total	0	642	53	0	695	153	0	167	0	320	41	489	0	0	530	60	21	41	0	122	1667
4:00 PM	0	143	15	0	158	42	0	45	0	87	18	124	0	0	142	18	9	13	0	40	427
4:15 PM	0	191	10	0	201	52	0	56	0	108	8	117	0	0	125	23	7	11	0	41	475
4:30 PM	0	178	11	0	189	49	0	55	0	104	10	112	0	0	122	28	4	17	0	49	464
4:45 PM	0	187	13	0	200	32	0	50	0	82	8	115	0	0	123	29	5	12	0	46	451
Total	0	699	49	0	748	175	0	206	0	381	44	468	0	0	512	98	25	53	0	176	1817
5:00 PM	0	200	5	0	205	28	0	44	0	72	11	119	0	0	130	38	2	14	0	54	461
5:15 PM	0	184	13	0	197	30	0	54	0	84	6	100	0	0	106	51	2	9	0	62	449
5:30 PM	0	209	4	0	213	28	0	50	0	78	10	120	0	0	130	34	4	11	0	49	470
5:45 PM	0	185	1	0	186	33	0	52	0	85	11	108	0	2	121	28	4	7	0	39	431
Total	0	778	23	0	801	119	0	200	0	319	38	447	0	2	487	151	12	41	0	204	1811
Grand Total	0	2119	125	0	2244	447	0	573	0	1020	123	1404	0	2	1529	309	58	135	0	502	5295
Approach %	0.0	94.4	5.6	0.0		43.8	0.0	56.2	0.0		8.0	91.8	0.0	0.1		61.6	11.6	26.9	0.0		
Total %	0.0	40.0	2.4	0.0	42.4	8.4	0.0	10.8	0.0	19.3	2.3	26.5	0.0	0.0	28.9	5.8	1.1	2.5	0.0	9.5	
Exiting Leg Total					1986					306					3003					0	5295
Cars	0	2039	123	0	2162	386	0	540	0	926	121	1345	0	2	1468	292	48	107	0	447	5003
% Cars	0.0	96.2	98.4	0.0	96.3	86.4	0.0	94.2	0.0	90.8	98.4	95.8	0.0	100.0	96.0	94.5	82.8	79.3	0.0	89.0	94.5
Exiting Leg Total					1838					292					2873					0	5003
Heavy Vehicles	0	80	2	0	82	61	0	33	0	94	2	59	0	0	61	17	10	28	0	55	292
% Heavy Vehicles	0.0	3.8	1.6	0.0	3.7	13.6	0.0	5.8	0.0	9.2	1.6	4.2	0.0	0.0	4.0	5.5	17.2	20.7	0.0	11.0	5.5
Exiting Leg Total					148					14					130					0	292

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:15 PM	Brookline Avenue					Jimmy Fund Way					Brookline Avenue					Deaconess Road					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:15 PM	0	191	10	0	201	52	0	56	0	108	8	117	0	0	125	23	7	11	0	41	475
4:30 PM	0	178	11	0	189	49	0	55	0	104	10	112	0	0	122	28	4	17	0	49	464
4:45 PM	0	187	13	0	200	32	0	50	0	82	8	115	0	0	123	29	5	12	0	46	451
5:00 PM	0	200	5	0	205	28	0	44	0	72	11	119	0	0	130	38	2	14	0	54	461
Total Volume	0	756	39	0	795	161	0	205	0	366	37	463	0	0	500	118	18	54	0	190	1851
% Approach Total	0.0	95.1	4.9	0.0		44.0	0.0	56.0	0.0		7.4	92.6	0.0	0.0		62.1	9.5	28.4	0.0		
PHF	0.000	0.945	0.750	0.000	0.970	0.774	0.000	0.915	0.000	0.847	0.841	0.973	0.000	0.000	0.962	0.776	0.643	0.794	0.000	0.880	0.974
Cars	0	728	39	0	767	141	0	196	0	337	36	442	0	0	478	111	15	42	0	168	1750
Cars %	0.0	96.3	100.0	0.0	96.5	87.6	0.0	95.6	0.0	92.1	97.3	95.5	0.0	0.0	95.6	94.1	83.3	77.8	0.0	88.4	94.5
Heavy Vehicles	0	28	0	0	28	20	0	9	0	29	1	21	0	0	22	7	3	12	0	22	101
Heavy Vehicles %	0.0	3.7	0.0	0.0	3.5	12.4	0.0	4.4	0.0	7.9	2.7	4.5	0.0	0.0	4.4	5.9	16.7	22.2	0.0	11.6	5.5
Cars Enter Leg	0	728	39	0	767	141	0	196	0	337	36	442	0	0	478	111	15	42	0	168	1750
Heavy Enter Leg	0	28	0	0	28	20	0	9	0	29	1	21	0	0	22	7	3	12	0	22	101
Total Entering Leg	0	756	39	0	795	161	0	205	0	366	37	463	0	0	500	118	18	54	0	190	1851
Cars Exiting Leg					625					90					1035					0	1750
Heavy Exiting Leg					53					4					44					0	101
Total Exiting Leg					678					94					1079					0	1851

PDI File #: **186102 CC**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars-Combined (Motorcycles, Cars, Light Goods)

	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	157	12	0	169	24	0	27	0	51	11	105	0	0	116	12	3	9	0	24	360
3:15 PM	0	152	13	0	165	35	0	52	0	87	10	106	0	0	116	11	5	6	0	22	390
3:30 PM	0	164	15	0	179	37	0	41	0	78	11	128	0	0	139	16	3	7	0	26	422
3:45 PM	0	140	12	0	152	33	0	35	0	68	9	130	0	0	139	17	5	11	0	33	392
Total	0	613	52	0	665	129	0	155	0	284	41	469	0	0	510	56	16	33	0	105	1564
4:00 PM	0	137	15	0	152	37	0	41	0	78	17	119	0	0	136	17	9	10	0	36	402
4:15 PM	0	181	10	0	191	48	0	54	0	102	8	110	0	0	118	22	5	8	0	35	446
4:30 PM	0	172	11	0	183	44	0	52	0	96	10	108	0	0	118	25	4	13	0	42	439
4:45 PM	0	182	13	0	195	27	0	48	0	75	8	112	0	0	120	28	4	9	0	41	431
Total	0	672	49	0	721	156	0	195	0	351	43	449	0	0	492	92	22	40	0	154	1718
5:00 PM	0	193	5	0	198	22	0	42	0	64	10	112	0	0	122	36	2	12	0	50	434
5:15 PM	0	177	12	0	189	25	0	51	0	76	6	97	0	0	103	50	1	8	0	59	427
5:30 PM	0	203	4	0	207	26	0	47	0	73	10	113	0	0	123	33	4	8	0	45	448
5:45 PM	0	181	1	0	182	28	0	50	0	78	11	105	0	2	118	25	3	6	0	34	412
Total	0	754	22	0	776	101	0	190	0	291	37	427	0	2	466	144	10	34	0	188	1721
Grand Total	0	2039	123	0	2162	386	0	540	0	926	121	1345	0	2	1468	292	48	107	0	447	5003
Approach %	0.0	94.3	5.7	0.0		41.7	0.0	58.3	0.0		8.2	91.6	0.0	0.1		65.3	10.7	23.9	0.0		
Total %	0.0	40.8	2.5	0.0	43.2	7.7	0.0	10.8	0.0	18.5	2.4	26.9	0.0	0.0	29.3	5.8	1.0	2.1	0.0	8.9	
Exiting Leg Total					1838					292					2873					0	5003

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:15 PM	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:15 PM	0	181	10	0	191	48	0	54	0	102	8	110	0	0	118	22	5	8	0	35	446
4:30 PM	0	172	11	0	183	44	0	52	0	96	10	108	0	0	118	25	4	13	0	42	439
4:45 PM	0	182	13	0	195	27	0	48	0	75	8	112	0	0	120	28	4	9	0	41	431
5:00 PM	0	193	5	0	198	22	0	42	0	64	10	112	0	0	122	36	2	12	0	50	434
Total Volume	0	728	39	0	767	141	0	196	0	337	36	442	0	0	478	111	15	42	0	168	1750
% Approach Total	0.0	94.9	5.1	0.0		41.8	0.0	58.2	0.0		7.5	92.5	0.0	0.0		66.1	8.9	25.0	0.0		
PHF	0.000	0.943	0.750	0.000	0.968	0.734	0.000	0.907	0.000	0.826	0.900	0.987	0.000	0.000	0.980	0.771	0.750	0.808	0.000	0.840	0.981
Entering Leg	0	728	39	0	767	141	0	196	0	337	36	442	0	0	478	111	15	42	0	168	1750
Exiting Leg					625					90					1035					0	1750
Total					1392					427					1513					168	3500

PDI File #: **186102 CC**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	5	0	0	5	6	0	2	0	8	0	6	0	0	6	2	1	2	0	5	24
3:15 PM	0	8	0	0	8	7	0	5	0	12	0	5	0	0	5	1	2	2	0	5	30
3:30 PM	0	9	1	0	10	5	0	2	0	7	0	3	0	0	3	1	0	2	0	3	23
3:45 PM	0	7	0	0	7	6	0	3	0	9	0	6	0	0	6	0	2	2	0	4	26
Total	0	29	1	0	30	24	0	12	0	36	0	20	0	0	20	4	5	8	0	17	103
4:00 PM	0	6	0	0	6	5	0	4	0	9	1	5	0	0	6	1	0	3	0	4	25
4:15 PM	0	10	0	0	10	4	0	2	0	6	0	7	0	0	7	1	2	3	0	6	29
4:30 PM	0	6	0	0	6	5	0	3	0	8	0	4	0	0	4	3	0	4	0	7	25
4:45 PM	0	5	0	0	5	5	0	2	0	7	0	3	0	0	3	1	1	3	0	5	20
Total	0	27	0	0	27	19	0	11	0	30	1	19	0	0	20	6	3	13	0	22	99
5:00 PM	0	7	0	0	7	6	0	2	0	8	1	7	0	0	8	2	0	2	0	4	27
5:15 PM	0	7	1	0	8	5	0	3	0	8	0	3	0	0	3	1	1	1	0	3	22
5:30 PM	0	6	0	0	6	2	0	3	0	5	0	7	0	0	7	1	0	3	0	4	22
5:45 PM	0	4	0	0	4	5	0	2	0	7	0	3	0	0	3	3	1	1	0	5	19
Total	0	24	1	0	25	18	0	10	0	28	1	20	0	0	21	7	2	7	0	16	90
Grand Total	0	80	2	0	82	61	0	33	0	94	2	59	0	0	61	17	10	28	0	55	292
Approach %	0.0	97.6	2.4	0.0		64.9	0.0	35.1	0.0		3.3	96.7	0.0	0.0		30.9	18.2	50.9	0.0		
Total %	0.0	27.4	0.7	0.0	28.1	20.9	0.0	11.3	0.0	32.2	0.7	20.2	0.0	0.0	20.9	5.8	3.4	9.6	0.0	18.8	
Exiting Leg Total					148					14					130					0	292
Buses	0	69	1	0	70	59	0	30	0	89	2	38	0	0	40	17	10	28	0	55	254
% Buses	0.0	86.3	50.0	0.0	85.4	96.7	0.0	90.9	0.0	94.7	100.0	64.4	0.0	0.0	65.6	100.0	100.0	100.0	0.0	100.0	87.0
Exiting Leg Total					125					13					116					0	254
Single-Unit Trucks	0	10	1	0	11	1	0	2	0	3	0	20	0	0	20	0	0	0	0	0	34
% Single-Unit	0.0	12.5	50.0	0.0	13.4	1.6	0.0	6.1	0.0	3.2	0.0	33.9	0.0	0.0	32.8	0.0	0.0	0.0	0.0	0.0	11.6
Exiting Leg Total					21					1					12					0	34
Articulated Trucks	0	1	0	0	1	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	4
% Articulated	0.0	1.3	0.0	0.0	1.2	1.6	0.0	3.0	0.0	2.1	0.0	1.7	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	1.4
Exiting Leg Total					2					0					2					0	4

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:45 PM	0	7	0	0	7	6	0	3	0	9	0	6	0	0	6	0	2	2	0	4	26
4:00 PM	0	6	0	0	6	5	0	4	0	9	1	5	0	0	6	1	0	3	0	4	25
4:15 PM	0	10	0	0	10	4	0	2	0	6	0	7	0	0	7	1	2	3	0	6	29
4:30 PM	0	6	0	0	6	5	0	3	0	8	0	4	0	0	4	3	0	4	0	7	25
Total Volume	0	29	0	0	29	20	0	12	0	32	1	22	0	0	23	5	4	12	0	21	105
% Approach Total	0.0	100.0	0.0	0.0		62.5	0.0	37.5	0.0		4.3	95.7	0.0	0.0		23.8	19.0	57.1	0.0		
PHF	0.000	0.725	0.000	0.000	0.725	0.833	0.000	0.750	0.000	0.889	0.250	0.786	0.000	0.000	0.821	0.417	0.500	0.750	0.000	0.750	0.905
Buses	0	27	0	0	27	20	0	11	0	31	1	15	0	0	16	5	4	12	0	21	95
Buses %	0.0	93.1	0.0	0.0	93.1	100.0	0.0	91.7	0.0	96.9	100.0	68.2	0.0	0.0	69.6	100.0	100.0	100.0	0.0	100.0	90.5
Single-Unit Trucks	0	2	0	0	2	0	0	1	0	1	0	7	0	0	7	0	0	0	0	0	10
Single-Unit %	0.0	6.9	0.0	0.0	6.9	0.0	0.0	8.3	0.0	3.1	0.0	31.8	0.0	0.0	30.4	0.0	0.0	0.0	0.0	0.0	9.5
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	27	0	0	27	20	0	11	0	31	1	15	0	0	16	5	4	12	0	21	95
Single-Unit Trucks	0	2	0	0	2	0	0	1	0	1	0	7	0	0	7	0	0	0	0	0	10
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	29	0	0	29	20	0	12	0	32	1	22	0	0	23	5	4	12	0	21	105
Buses					47					5					43					0	95
Single-Unit Trucks					7					0					3					0	10
Articulated Trucks					0					0					0					0	0
Total Exiting Leg					54					5					46					0	105

PDI File #: **186102 CC**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars

	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	150	11	0	161	23	0	25	0	48	11	97	0	0	108	12	2	9	0	23	340
3:15 PM	0	139	10	0	149	34	0	50	0	84	9	96	0	0	105	10	5	6	0	21	359
3:30 PM	0	157	15	0	172	33	0	38	0	71	9	123	0	0	132	16	3	7	0	26	401
3:45 PM	0	137	12	0	149	32	0	33	0	65	8	123	0	0	131	16	5	11	0	32	377
Total	0	583	48	0	631	122	0	146	0	268	37	439	0	0	476	54	15	33	0	102	1477
4:00 PM	0	132	14	0	146	36	0	41	0	77	17	114	0	0	131	17	8	10	0	35	389
4:15 PM	0	173	10	0	183	47	0	52	0	99	8	106	0	0	114	22	5	8	0	35	431
4:30 PM	0	166	11	0	177	43	0	50	0	93	9	99	0	0	108	25	4	12	0	41	419
4:45 PM	0	174	11	0	185	27	0	47	0	74	8	104	0	0	112	28	4	9	0	41	412
Total	0	645	46	0	691	153	0	190	0	343	42	423	0	0	465	92	21	39	0	152	1651
5:00 PM	0	184	5	0	189	21	0	42	0	63	10	105	0	0	115	35	2	12	0	49	416
5:15 PM	0	174	12	0	186	23	0	49	0	72	6	86	0	0	92	48	1	8	0	57	407
5:30 PM	0	194	4	0	198	26	0	47	0	73	10	106	0	0	116	32	4	7	0	43	430
5:45 PM	0	179	1	0	180	28	0	48	0	76	11	99	0	2	112	25	3	6	0	34	402
Total	0	731	22	0	753	98	0	186	0	284	37	396	0	2	435	140	10	33	0	183	1655
Grand Total	0	1959	116	0	2075	373	0	522	0	895	116	1258	0	2	1376	286	46	105	0	437	4783
Approach %	0.0	94.4	5.6	0.0		41.7	0.0	58.3	0.0		8.4	91.4	0.0	0.1		65.4	10.5	24.0	0.0		
Total %	0.0	41.0	2.4	0.0	43.4	7.8	0.0	10.9	0.0	18.7	2.4	26.3	0.0	0.0	28.8	6.0	1.0	2.2	0.0	9.1	
Exiting Leg Total					1736					278					2769					0	4783

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:15 PM	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:15 PM	0	173	10	0	183	47	0	52	0	99	8	106	0	0	114	22	5	8	0	35	431
4:30 PM	0	166	11	0	177	43	0	50	0	93	9	99	0	0	108	25	4	12	0	41	419
4:45 PM	0	174	11	0	185	27	0	47	0	74	8	104	0	0	112	28	4	9	0	41	412
5:00 PM	0	184	5	0	189	21	0	42	0	63	10	105	0	0	115	35	2	12	0	49	416
Total Volume	0	697	37	0	734	138	0	191	0	329	35	414	0	0	449	110	15	41	0	166	1678
% Approach Total	0.0	95.0	5.0	0.0		41.9	0.0	58.1	0.0		7.8	92.2	0.0	0.0		66.3	9.0	24.7	0.0		
PHF	0.000	0.947	0.841	0.000	0.971	0.734	0.000	0.918	0.000	0.831	0.875	0.976	0.000	0.000	0.976	0.786	0.750	0.854	0.000	0.847	0.973
Entering Leg	0	697	37	0	734	138	0	191	0	329	35	414	0	0	449	110	15	41	0	166	1678
Exiting Leg					593					87					998					0	1678
Total					1327					416					1447					166	3356

PDI File #: **186102 CC**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Light Goods Vehicle

	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	7	1	0	8	1	0	2	0	3	0	8	0	0	8	0	1	0	0	1	20
3:15 PM	0	12	3	0	15	1	0	2	0	3	1	10	0	0	11	1	0	0	0	1	30
3:30 PM	0	7	0	0	7	4	0	3	0	7	2	5	0	0	7	0	0	0	0	0	21
3:45 PM	0	3	0	0	3	1	0	2	0	3	1	7	0	0	8	1	0	0	0	1	15
Total	0	29	4	0	33	7	0	9	0	16	4	30	0	0	34	2	1	0	0	3	86
4:00 PM	0	5	1	0	6	1	0	0	0	1	0	5	0	0	5	0	1	0	0	1	13
4:15 PM	0	8	0	0	8	1	0	2	0	3	0	4	0	0	4	0	0	0	0	0	15
4:30 PM	0	6	0	0	6	1	0	2	0	3	1	9	0	0	10	0	0	1	0	1	20
4:45 PM	0	8	2	0	10	0	0	1	0	1	0	8	0	0	8	0	0	0	0	0	19
Total	0	27	3	0	30	3	0	5	0	8	1	26	0	0	27	0	1	1	0	2	67
5:00 PM	0	9	0	0	9	1	0	0	0	1	0	7	0	0	7	1	0	0	0	1	18
5:15 PM	0	2	0	0	2	2	0	2	0	4	0	11	0	0	11	2	0	0	0	2	19
5:30 PM	0	9	0	0	9	0	0	0	0	0	0	7	0	0	7	1	0	1	0	2	18
5:45 PM	0	2	0	0	2	0	0	2	0	2	0	5	0	0	5	0	0	0	0	0	9
Total	0	22	0	0	22	3	0	4	0	7	0	30	0	0	30	4	0	1	0	5	64
Grand Total	0	78	7	0	85	13	0	18	0	31	5	86	0	0	91	6	2	2	0	10	217
Approach %	0.0	91.8	8.2	0.0		41.9	0.0	58.1	0.0		5.5	94.5	0.0	0.0		60.0	20.0	20.0	0.0		
Total %	0.0	35.9	3.2	0.0	39.2	6.0	0.0	8.3	0.0	14.3	2.3	39.6	0.0	0.0	41.9	2.8	0.9	0.9	0.0	4.6	
Exiting Leg Total					101					14					102					0	217

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	7	1	0	8	1	0	2	0	3	0	8	0	0	8	0	1	0	0	1	20
3:15 PM	0	12	3	0	15	1	0	2	0	3	1	10	0	0	11	1	0	0	0	1	30
3:30 PM	0	7	0	0	7	4	0	3	0	7	2	5	0	0	7	0	0	0	0	0	21
3:45 PM	0	3	0	0	3	1	0	2	0	3	1	7	0	0	8	1	0	0	0	1	15
Total Volume	0	29	4	0	33	7	0	9	0	16	4	30	0	0	34	2	1	0	0	3	86
% Approach Total	0.0	87.9	12.1	0.0		43.8	0.0	56.3	0.0		11.8	88.2	0.0	0.0		66.7	33.3	0.0	0.0		
PHF	0.000	0.604	0.333	0.000	0.550	0.438	0.000	0.750	0.000	0.571	0.500	0.750	0.000	0.000	0.773	0.500	0.250	0.000	0.000	0.750	0.717
Entering Leg	0	29	4	0	33	7	0	9	0	16	4	30	0	0	34	2	1	0	0	3	86
Exiting Leg					37					9					40					0	86
Total					70					25					74					3	172

PDI File #: **186102 CC**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Buses

	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	5	0	0	5	6	0	2	0	8	0	3	0	0	3	2	1	2	0	5	21
3:15 PM	0	7	0	0	7	6	0	4	0	10	0	4	0	0	4	1	2	2	0	5	26
3:30 PM	0	6	0	0	6	5	0	2	0	7	0	2	0	0	2	1	0	2	0	3	18
3:45 PM	0	7	0	0	7	6	0	3	0	9	0	6	0	0	6	0	2	2	0	4	26
Total	0	25	0	0	25	23	0	11	0	34	0	15	0	0	15	4	5	8	0	17	91
4:00 PM	0	5	0	0	5	5	0	3	0	8	1	2	0	0	3	1	0	3	0	4	20
4:15 PM	0	9	0	0	9	4	0	2	0	6	0	4	0	0	4	1	2	3	0	6	25
4:30 PM	0	6	0	0	6	5	0	3	0	8	0	3	0	0	3	3	0	4	0	7	24
4:45 PM	0	4	0	0	4	5	0	2	0	7	0	2	0	0	2	1	1	3	0	5	18
Total	0	24	0	0	24	19	0	10	0	29	1	11	0	0	12	6	3	13	0	22	87
5:00 PM	0	6	0	0	6	6	0	2	0	8	1	4	0	0	5	2	0	2	0	4	23
5:15 PM	0	6	1	0	7	5	0	3	0	8	0	3	0	0	3	1	1	1	0	3	21
5:30 PM	0	5	0	0	5	2	0	2	0	4	0	3	0	0	3	1	0	3	0	4	16
5:45 PM	0	3	0	0	3	4	0	2	0	6	0	2	0	0	2	3	1	1	0	5	16
Total	0	20	1	0	21	17	0	9	0	26	1	12	0	0	13	7	2	7	0	16	76
Grand Total	0	69	1	0	70	59	0	30	0	89	2	38	0	0	40	17	10	28	0	55	254
Approach %	0.0	98.6	1.4	0.0		66.3	0.0	33.7	0.0		5.0	95.0	0.0	0.0		30.9	18.2	50.9	0.0		
Total %	0.0	27.2	0.4	0.0	27.6	23.2	0.0	11.8	0.0	35.0	0.8	15.0	0.0	0.0	15.7	6.7	3.9	11.0	0.0	21.7	
Exiting Leg Total					125					13					116					0	254

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:45 PM	0	7	0	0	7	6	0	3	0	9	0	6	0	0	6	0	2	2	0	4	26
4:00 PM	0	5	0	0	5	5	0	3	0	8	1	2	0	0	3	1	0	3	0	4	20
4:15 PM	0	9	0	0	9	4	0	2	0	6	0	4	0	0	4	1	2	3	0	6	25
4:30 PM	0	6	0	0	6	5	0	3	0	8	0	3	0	0	3	3	0	4	0	7	24
Total Volume	0	27	0	0	27	20	0	11	0	31	1	15	0	0	16	5	4	12	0	21	95
% Approach Total	0.0	100.0	0.0	0.0		64.5	0.0	35.5	0.0		6.3	93.8	0.0	0.0		23.8	19.0	57.1	0.0		
PHF	0.000	0.750	0.000	0.000	0.750	0.833	0.000	0.917	0.000	0.861	0.250	0.625	0.000	0.000	0.667	0.417	0.500	0.750	0.000	0.750	0.913
Entering Leg	0	27	0	0	27	20	0	11	0	31	1	15	0	0	16	5	4	12	0	21	95
Exiting Leg					47					5					43					0	95
Total					74					36					59					21	190

PDI File #: **186102 CC**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Single-Unit Trucks

	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
3:15 PM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2
3:30 PM	0	3	1	0	4	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	5
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	3	1	0	4	0	0	1	0	1	0	5	0	0	5	0	0	0	0	0	10
4:00 PM	0	1	0	0	1	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	5
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Total	0	3	0	0	3	0	0	1	0	1	0	8	0	0	8	0	0	0	0	0	12
5:00 PM	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
5:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	5
5:45 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	4	0	0	4	1	0	0	0	1	0	7	0	0	7	0	0	0	0	0	12
Grand Total	0	10	1	0	11	1	0	2	0	3	0	20	0	0	20	0	0	0	0	0	34
Approach %	0.0	90.9	9.1	0.0		33.3	0.0	66.7	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	29.4	2.9	0.0	32.4	2.9	0.0	5.9	0.0	8.8	0.0	58.8	0.0	0.0	58.8	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					21					1					12					0	34

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:30 PM	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:30 PM	0	3	1	0	4	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	5
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	1	0	0	1	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	5
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
Total Volume	0	5	1	0	6	0	0	1	0	1	0	7	0	0	7	0	0	0	0	0	14
% Approach Total	0.0	83.3	16.7	0.0		0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.417	0.250	0.000	0.375	0.000	0.000	0.250	0.000	0.250	0.000	0.583	0.000	0.000	0.583	0.000	0.000	0.000	0.000	0.000	0.700
Entering Leg	0	5	1	0	6	0	0	1	0	1	0	7	0	0	7	0	0	0	0	0	14
Exiting Leg					7					1					6					0	14
Total					13					2					13					0	28

PDI File #: **186102 CC**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class:

Articulated Trucks

	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2
Grand Total	0	1	0	0	1	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	4
Approach %	0.0	100.0	0.0	0.0		50.0	0.0	50.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	25.0	0.0	0.0	25.0	25.0	0.0	25.0	0.0	50.0	0.0	25.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					2					0					2					0	4

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North					Jimmy Fund Way from East					Brookline Avenue from South					Deaconess Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
% Approach Total	0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Exiting Leg					1					0					1					0	2
Total					2					1					1					0	4

PDI File #: **186102 CC**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Brookline Avenue from North							Jimmy Fund Way from East							Brookline Avenue from South							Deaconess Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	1	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	1	0	0	0	3	4	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
4:15 PM	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	5	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
4:45 PM	0	5	0	0	0	0	5	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	6
Total	0	12	0	0	0	0	12	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	2	0	0	0	2	15
5:00 PM	0	3	0	0	0	2	5	0	0	0	0	0	0	0	0	2	0	0	1	0	3	0	0	0	0	0	0	0	8
5:15 PM	0	3	0	0	0	0	3	2	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:30 PM	0	4	0	0	0	1	5	1	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	1	1	2	9
5:45 PM	0	2	0	0	0	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	4
Total	0	12	0	0	0	3	15	4	1	0	0	0	0	5	0	3	0	0	1	0	4	1	0	0	0	1	1	3	27
Grand Total	0	25	0	0	0	6	31	5	1	0	0	0	0	6	0	4	0	0	1	0	5	1	0	2	0	1	1	5	47
Approach %	0.0	80.6	0.0	0.0	0.0	19.4		83.3	16.7	0.0	0.0	0.0	0.0		0.0	80.0	0.0	0.0	20.0	0.0		20.0	0.0	40.0	0.0	20.0	20.0		
Total %	0.0	53.2	0.0	0.0	0.0	12.8	66.0	10.6	2.1	0.0	0.0	0.0	0.0	12.8	0.0	8.5	0.0	0.0	2.1	0.0	10.6	2.1	0.0	4.3	0.0	2.1	2.1	10.6	
Exiting Leg Total							17							0							27							3	47

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:45 PM	Brookline Avenue from North							Jimmy Fund Way from East							Brookline Avenue from South							Deaconess Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:45 PM	0	5	0	0	0	0	5	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	6
5:00 PM	0	3	0	0	0	2	5	0	0	0	0	0	0	0	0	2	0	0	1	0	3	0	0	0	0	0	0	0	8
5:15 PM	0	3	0	0	0	0	3	2	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:30 PM	0	4	0	0	0	1	5	1	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	1	1	2	9
Total Volume	0	15	0	0	0	3	18	3	1	0	0	0	0	4	0	4	0	0	1	0	5	0	0	0	0	1	1	2	29
% Approach Total	0.0	83.3	0.0	0.0	0.0	16.7		75.0	25.0	0.0	0.0	0.0	0.0		0.0	80.0	0.0	0.0	20.0	0.0		0.0	0.0	0.0	0.0	50.0	50.0		
PHF	0.000	0.750	0.000	0.000	0.000	0.375	0.900	0.375	0.250	0.000	0.000	0.000	0.000	0.333	0.000	0.500	0.000	0.000	0.250	0.000	0.417	0.000	0.000	0.000	0.000	0.250	0.250	0.250	0.806
Entering Leg	0	15	0	0	0	3	18	3	1	0	0	0	0	4	0	4	0	0	1	0	5	0	0	0	0	1	1	2	29
Exiting Leg							10							0							16							3	29
Total							28							4							21							5	58

PDI File #: **186102 CC**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Jimmy Fund Way W: Deaconess Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Pedestrians

	Brookline Avenue from North							Jimmy Fund Way from East							Brookline Avenue from South							Deaconess Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	15	29	44	0	0	0	0	12	18	30	0	0	0	0	20	10	30	0	0	0	0	18	17	35	139
3:15 PM	0	0	0	0	19	31	50	0	0	0	0	12	21	33	0	0	0	0	15	2	17	0	0	0	0	19	20	39	139
3:30 PM	0	0	0	0	26	30	56	0	0	0	0	23	35	58	0	0	0	0	15	4	19	0	0	0	0	7	17	24	157
3:45 PM	0	0	0	0	24	13	37	0	0	0	0	6	16	22	0	0	0	0	10	13	23	0	0	0	0	5	15	20	102
Total	0	0	0	0	84	103	187	0	0	0	0	53	90	143	0	0	0	0	60	29	89	0	0	0	0	49	69	118	537
4:00 PM	0	0	0	0	25	31	56	0	0	0	0	14	24	38	0	0	0	0	9	3	12	0	0	0	0	15	14	29	135
4:15 PM	0	0	0	0	15	33	48	0	0	0	0	12	38	50	0	0	0	0	19	11	30	0	0	0	0	13	22	35	163
4:30 PM	0	0	0	0	14	36	50	0	0	0	0	19	34	53	0	0	0	0	11	10	21	0	0	0	0	19	21	40	164
4:45 PM	0	0	0	0	15	27	42	0	0	0	0	20	28	48	0	0	0	0	9	5	14	0	0	0	0	22	20	42	146
Total	0	0	0	0	69	127	196	0	0	0	0	65	124	189	0	0	0	0	48	29	77	0	0	0	0	69	77	146	608
5:00 PM	0	0	0	0	21	61	82	0	0	0	0	22	37	59	0	0	0	0	9	10	19	0	0	0	0	15	27	42	202
5:15 PM	0	0	0	0	12	36	48	0	0	0	0	27	19	46	0	0	0	0	12	4	16	0	0	0	0	24	38	62	172
5:30 PM	0	0	0	0	8	29	37	0	0	0	0	16	24	40	0	0	0	0	5	5	10	0	0	0	0	19	14	33	120
5:45 PM	0	0	0	0	18	35	53	0	0	0	0	16	16	32	0	0	0	0	6	1	7	0	0	0	0	10	12	22	114
Total	0	0	0	0	59	161	220	0	0	0	0	81	96	177	0	0	0	0	32	20	52	0	0	0	0	68	91	159	608
Grand Total	0	0	0	0	212	391	603	0	0	0	0	199	310	509	0	0	0	0	140	78	218	0	0	0	0	186	237	423	1753
Approach %	0	0	0	0	35.2	64.8		0	0	0	0	39.1	60.9		0	0	0	0	64.2	35.8		0	0	0	0	44	56		
Total %	0	0	0	0	12.1	22.3	34.4	0	0	0	0	11.4	17.7	29	0	0	0	0	7.99	4.45	12.4	0	0	0	0	10.6	13.5	24.1	
Exiting Leg Total							603							509							218							423	1753

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:30 PM	Brookline Avenue from North							Jimmy Fund Way from East							Brookline Avenue from South							Deaconess Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:30 PM	0	0	0	0	14	36	50	0	0	0	0	19	34	53	0	0	0	0	11	10	21	0	0	0	0	19	21	40	164
4:45 PM	0	0	0	0	15	27	42	0	0	0	0	20	28	48	0	0	0	0	9	5	14	0	0	0	0	22	20	42	146
5:00 PM	0	0	0	0	21	61	82	0	0	0	0	22	37	59	0	0	0	0	9	10	19	0	0	0	0	15	27	42	202
5:15 PM	0	0	0	0	12	36	48	0	0	0	0	27	19	46	0	0	0	0	12	4	16	0	0	0	0	24	38	62	172
Total Volume	0	0	0	0	62	160	222	0	0	0	0	88	118	206	0	0	0	0	41	29	70	0	0	0	0	80	106	186	684
% Approach Total	0.0	0.0	0.0	0.0	27.9	72.1		0.0	0.0	0.0	0.0	42.7	57.3		0.0	0.0	0.0	0.0	58.6	41.4		0.0	0.0	0.0	0.0	43.0	57.0		
PHF	0.000	0.000	0.000	0.000	0.738	0.656	0.677	0.000	0.000	0.000	0.000	0.815	0.797	0.873	0.000	0.000	0.000	0.000	0.854	0.725	0.833	0.000	0.000	0.000	0.000	0.833	0.697	0.750	0.847
Entering Leg	0	0	0	0	62	160	222	0	0	0	0	88	118	206	0	0	0	0	41	29	70	0	0	0	0	80	106	186	684
Exiting Leg							222							206							70							186	684
Total							444							412							140							372	1368

PDI File #: **186102 D**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	14	125	0	139	220	23	0	243	0	0	0	0	382
7:15 AM	12	130	0	142	221	21	0	242	0	0	0	0	384
7:30 AM	11	146	0	157	213	22	0	235	0	0	0	0	392
7:45 AM	10	158	0	168	205	24	0	229	0	0	0	0	397
Total	47	559	0	606	859	90	0	949	0	0	0	0	1555
8:00 AM	11	162	0	173	195	25	0	220	0	0	0	0	393
8:15 AM	10	149	1	160	193	20	0	213	0	0	0	0	373
8:30 AM	9	146	0	155	218	24	0	242	0	0	0	0	397
8:45 AM	9	141	0	150	195	19	0	214	0	0	0	0	364
Total	39	598	1	638	801	88	0	889	0	0	0	0	1527
Grand Total	86	1157	1	1244	1660	178	0	1838	0	0	0	0	3082
Approach %	6.9	93.0	0.1		90.3	9.7	0.0		0.0	0.0	0.0		
Total %	2.8	37.5	0.0	40.4	53.9	5.8	0.0	59.6	0.0	0.0	0.0	0.0	
Exiting Leg Total				1661				1157				264	3082
Cars	80	1068	1	1149	1537	160	0	1697	0	0	0	0	2846
% Cars	93.0	92.3	100.0	92.4	92.6	89.9	0.0	92.3	0.0	0.0	0.0	0.0	92.3
Exiting Leg Total				1538				1068				240	2846
Heavy Vehicles	6	89	0	95	123	18	0	141	0	0	0	0	236
% Heavy Vehicles	7.0	7.7	0.0	7.6	7.4	10.1	0.0	7.7	0.0	0.0	0.0	0.0	7.7
Exiting Leg Total				123				89				24	236

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:15 AM	12	130	0	142	221	21	0	242	0	0	0	0	384
7:30 AM	11	146	0	157	213	22	0	235	0	0	0	0	392
7:45 AM	10	158	0	168	205	24	0	229	0	0	0	0	397
8:00 AM	11	162	0	173	195	25	0	220	0	0	0	0	393
Total Volume	44	596	0	640	834	92	0	926	0	0	0	0	1566
% Approach Total	6.9	93.1	0.0		90.1	9.9	0.0		0.0	0.0	0.0		
PHF	0.917	0.920	0.000	0.925	0.943	0.920	0.000	0.957	0.000	0.000	0.000	0.000	0.986
Cars	41	546	0	587	779	83	0	862	0	0	0	0	1449
Cars %	93.2	91.6	0.0	91.7	93.4	90.2	0.0	93.1	0.0	0.0	0.0	0.0	92.5
Heavy Vehicles	3	50	0	53	55	9	0	64	0	0	0	0	117
Heavy Vehicles %	6.8	8.4	0.0	8.3	6.6	9.8	0.0	6.9	0.0	0.0	0.0	0.0	7.5
Cars Enter Leg	41	546	0	587	779	83	0	862	0	0	0	0	1449
Heavy Enter Leg	3	50	0	53	55	9	0	64	0	0	0	0	117
Total Entering Leg	44	596	0	640	834	92	0	926	0	0	0	0	1566
Cars Exiting Leg				779				546				124	1449
Heavy Exiting Leg				55				50				12	117
Total Exiting Leg				834				596				136	1566

PDI File #: **186102 D**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	13	116	0	129	203	22	0	225	0	0	0	0	354
7:15 AM	11	119	0	130	211	20	0	231	0	0	0	0	361
7:30 AM	11	134	0	145	194	19	0	213	0	0	0	0	358
7:45 AM	8	144	0	152	191	22	0	213	0	0	0	0	365
Total	43	513	0	556	799	83	0	882	0	0	0	0	1438
8:00 AM	11	149	0	160	183	22	0	205	0	0	0	0	365
8:15 AM	9	136	1	146	179	18	0	197	0	0	0	0	343
8:30 AM	8	135	0	143	203	20	0	223	0	0	0	0	366
8:45 AM	9	135	0	144	173	17	0	190	0	0	0	0	334
Total	37	555	1	593	738	77	0	815	0	0	0	0	1408
Grand Total	80	1068	1	1149	1537	160	0	1697	0	0	0	0	2846
Approach %	7.0	93.0	0.1		90.6	9.4	0.0		0.0	0.0	0.0		
Total %	2.8	37.5	0.0	40.4	54.0	5.6	0.0	59.6	0.0	0.0	0.0	0.0	
Exiting Leg Total				1538				1068				240	2846

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:15 AM	11	119	0	130	211	20	0	231	0	0	0	0	361
7:30 AM	11	134	0	145	194	19	0	213	0	0	0	0	358
7:45 AM	8	144	0	152	191	22	0	213	0	0	0	0	365
8:00 AM	11	149	0	160	183	22	0	205	0	0	0	0	365
Total Volume	41	546	0	587	779	83	0	862	0	0	0	0	1449
% Approach Total	7.0	93.0	0.0		90.4	9.6	0.0		0.0	0.0	0.0		
PHF	0.932	0.916	0.000	0.917	0.923	0.943	0.000	0.933	0.000	0.000	0.000	0.000	0.992
Entering Leg	41	546	0	587	779	83	0	862	0	0	0	0	1449
Exiting Leg				779				546				124	1449
Total				1366				1408				124	2898

PDI File #: **186102 D**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	1	9	0	10	17	1	0	18	0	0	0	0	28
7:15 AM	1	11	0	12	10	1	0	11	0	0	0	0	23
7:30 AM	0	12	0	12	19	3	0	22	0	0	0	0	34
7:45 AM	2	14	0	16	14	2	0	16	0	0	0	0	32
Total	4	46	0	50	60	7	0	67	0	0	0	0	117
8:00 AM	0	13	0	13	12	3	0	15	0	0	0	0	28
8:15 AM	1	13	0	14	14	2	0	16	0	0	0	0	30
8:30 AM	1	11	0	12	15	4	0	19	0	0	0	0	31
8:45 AM	0	6	0	6	22	2	0	24	0	0	0	0	30
Total	2	43	0	45	63	11	0	74	0	0	0	0	119
Grand Total	6	89	0	95	123	18	0	141	0	0	0	0	236
Approach %	6.3	93.7	0.0		87.2	12.8	0.0		0.0	0.0	0.0		
Total %	2.5	37.7	0.0	40.3	52.1	7.6	0.0	59.7	0.0	0.0	0.0	0.0	
Exiting Leg Total				123				89				24	236
Buses	4	64	0	68	96	18	0	114	0	0	0	0	182
% Buses	66.7	71.9	0.0	71.6	78.0	100.0	0.0	80.9	0.0	0.0	0.0	0.0	77.1
Exiting Leg Total				96				64				22	182
Single-Unit Trucks	2	23	0	25	25	0	0	25	0	0	0	0	50
% Single-Unit	33.3	25.8	0.0	26.3	20.3	0.0	0.0	17.7	0.0	0.0	0.0	0.0	21.2
Exiting Leg Total				25				23				2	50
Articulated Trucks	0	2	0	2	2	0	0	2	0	0	0	0	4
% Articulated	0.0	2.2	0.0	2.1	1.6	0.0	0.0	1.4	0.0	0.0	0.0	0.0	1.7
Exiting Leg Total				2				2				0	4

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:30 AM	0	12	0	12	19	3	0	22	0	0	0	0	34
7:45 AM	2	14	0	16	14	2	0	16	0	0	0	0	32
8:00 AM	0	13	0	13	12	3	0	15	0	0	0	0	28
8:15 AM	1	13	0	14	14	2	0	16	0	0	0	0	30
Total Volume	3	52	0	55	59	10	0	69	0	0	0	0	124
% Approach Total	5.5	94.5	0.0		85.5	14.5	0.0		0.0	0.0	0.0		
PHF	0.375	0.929	0.000	0.859	0.776	0.833	0.000	0.784	0.000	0.000	0.000	0.000	0.912
Buses	1	39	0	40	49	10	0	59	0	0	0	0	99
Buses %	33.3	75.0	0.0	72.7	83.1	100.0	0.0	85.5	0.0	0.0	0.0	0.0	79.8
Single-Unit Trucks	2	13	0	15	8	0	0	8	0	0	0	0	23
Single-Unit %	66.7	25.0	0.0	27.3	13.6	0.0	0.0	11.6	0.0	0.0	0.0	0.0	18.5
Articulated Trucks	0	0	0	0	2	0	0	2	0	0	0	0	2
Articulated %	0.0	0.0	0.0	0.0	3.4	0.0	0.0	2.9	0.0	0.0	0.0	0.0	1.6
Buses	1	39	0	40	49	10	0	59	0	0	0	0	99
Single-Unit Trucks	2	13	0	15	8	0	0	8	0	0	0	0	23
Articulated Trucks	0	0	0	0	2	0	0	2	0	0	0	0	2
Total Entering Leg	3	52	0	55	59	10	0	69	0	0	0	0	124
Buses				49				39				11	99
Single-Unit Trucks				8				13				2	23
Articulated Trucks				2				0				0	2
Total Exiting Leg				59				52				13	124

PDI File #: **186102 D**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class:

Cars

	Brookline Avenue				Brookline Avenue				Joslin Place				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	11	112	0	123	197	22	0	219	0	0	0	0	342
7:15 AM	10	117	0	127	205	16	0	221	0	0	0	0	348
7:30 AM	9	122	0	131	180	18	0	198	0	0	0	0	329
7:45 AM	8	137	0	145	183	18	0	201	0	0	0	0	346
Total	38	488	0	526	765	74	0	839	0	0	0	0	1365
8:00 AM	10	141	0	151	176	22	0	198	0	0	0	0	349
8:15 AM	8	125	1	134	167	17	0	184	0	0	0	0	318
8:30 AM	8	128	0	136	194	20	0	214	0	0	0	0	350
8:45 AM	9	128	0	137	163	15	0	178	0	0	0	0	315
Total	35	522	1	558	700	74	0	774	0	0	0	0	1332
Grand Total	73	1010	1	1084	1465	148	0	1613	0	0	0	0	2697
Approach %	6.7	93.2	0.1		90.8	9.2	0.0		0.0	0.0	0.0		
Total %	2.7	37.4	0.0	40.2	54.3	5.5	0.0	59.8	0.0	0.0	0.0	0.0	
Exiting Leg Total				1466				1010				221	2697

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue				Brookline Avenue				Joslin Place				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:15 AM	10	117	0	127	205	16	0	221	0	0	0	0	348
7:30 AM	9	122	0	131	180	18	0	198	0	0	0	0	329
7:45 AM	8	137	0	145	183	18	0	201	0	0	0	0	346
8:00 AM	10	141	0	151	176	22	0	198	0	0	0	0	349
Total Volume	37	517	0	554	744	74	0	818	0	0	0	0	1372
% Approach Total	6.7	93.3	0.0		91.0	9.0	0.0		0.0	0.0	0.0		
PHF	0.925	0.917	0.000	0.917	0.907	0.841	0.000	0.925	0.000	0.000	0.000	0.000	0.983
Entering Leg	37	517	0	554	744	74	0	818	0	0	0	0	1372
Exiting Leg				744				517				111	1372
Total				1298				1335				111	2744

PDI File #: **186102 D**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Light Goods Vehicle**

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	2	3	0	5	6	0	0	6	0	0	0	0	11
7:15 AM	1	2	0	3	6	4	0	10	0	0	0	0	13
7:30 AM	2	11	0	13	14	1	0	15	0	0	0	0	28
7:45 AM	0	7	0	7	8	4	0	12	0	0	0	0	19
Total	5	23	0	28	34	9	0	43	0	0	0	0	71
8:00 AM	1	8	0	9	7	0	0	7	0	0	0	0	16
8:15 AM	1	11	0	12	12	1	0	13	0	0	0	0	25
8:30 AM	0	7	0	7	8	0	0	8	0	0	0	0	15
8:45 AM	0	7	0	7	10	2	0	12	0	0	0	0	19
Total	2	33	0	35	37	3	0	40	0	0	0	0	75
Grand Total	7	56	0	63	71	12	0	83	0	0	0	0	146
Approach %	11.1	88.9	0.0		85.5	14.5	0.0		0.0	0.0	0.0		
Total %	4.8	38.4	0.0	43.2	48.6	8.2	0.0	56.8	0.0	0.0	0.0	0.0	
Exiting Leg Total				71				56				19	146

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:30 AM	2	11	0	13	14	1	0	15	0	0	0	0	28
7:45 AM	0	7	0	7	8	4	0	12	0	0	0	0	19
8:00 AM	1	8	0	9	7	0	0	7	0	0	0	0	16
8:15 AM	1	11	0	12	12	1	0	13	0	0	0	0	25
Total Volume	4	37	0	41	41	6	0	47	0	0	0	0	88
% Approach Total	9.8	90.2	0.0		87.2	12.8	0.0		0.0	0.0	0.0		
PHF	0.500	0.841	0.000	0.788	0.732	0.375	0.000	0.783	0.000	0.000	0.000	0.000	0.786
Entering Leg	4	37	0	41	41	6	0	47	0	0	0	0	88
Exiting Leg				41				37				10	88
Total				82				84				10	176

PDI File #: **186102 D**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Buses

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	1	6	0	7	13	1	0	14	0	0	0	0	21
7:15 AM	1	7	0	8	8	1	0	9	0	0	0	0	17
7:30 AM	0	10	0	10	16	3	0	19	0	0	0	0	29
7:45 AM	1	10	0	11	11	2	0	13	0	0	0	0	24
Total	3	33	0	36	48	7	0	55	0	0	0	0	91
8:00 AM	0	11	0	11	10	3	0	13	0	0	0	0	24
8:15 AM	0	8	0	8	12	2	0	14	0	0	0	0	22
8:30 AM	1	8	0	9	11	4	0	15	0	0	0	0	24
8:45 AM	0	4	0	4	15	2	0	17	0	0	0	0	21
Total	1	31	0	32	48	11	0	59	0	0	0	0	91
Grand Total	4	64	0	68	96	18	0	114	0	0	0	0	182
Approach %	5.9	94.1	0.0		84.2	15.8	0.0		0.0	0.0	0.0		
Total %	2.2	35.2	0.0	37.4	52.7	9.9	0.0	62.6	0.0	0.0	0.0	0.0	
Exiting Leg Total				96				64				22	182

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:30 AM	0	10	0	10	16	3	0	19	0	0	0	0	29
7:45 AM	1	10	0	11	11	2	0	13	0	0	0	0	24
8:00 AM	0	11	0	11	10	3	0	13	0	0	0	0	24
8:15 AM	0	8	0	8	12	2	0	14	0	0	0	0	22
Total Volume	1	39	0	40	49	10	0	59	0	0	0	0	99
% Approach Total	2.5	97.5	0.0		83.1	16.9	0.0		0.0	0.0	0.0		
PHF	0.250	0.886	0.000	0.909	0.766	0.833	0.000	0.776	0.000	0.000	0.000	0.000	0.853
Entering Leg	1	39	0	40	49	10	0	59	0	0	0	0	99
Exiting Leg				49				39				11	99
Total				89				98				11	198

PDI File #: **186102 D**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Single-Unit Trucks**

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	0	3	0	3	4	0	0	4	0	0	0	0	7
7:15 AM	0	2	0	2	2	0	0	2	0	0	0	0	4
7:30 AM	0	2	0	2	3	0	0	3	0	0	0	0	5
7:45 AM	1	4	0	5	2	0	0	2	0	0	0	0	7
Total	1	11	0	12	11	0	0	11	0	0	0	0	23
8:00 AM	0	2	0	2	1	0	0	1	0	0	0	0	3
8:15 AM	1	5	0	6	2	0	0	2	0	0	0	0	8
8:30 AM	0	3	0	3	4	0	0	4	0	0	0	0	7
8:45 AM	0	2	0	2	7	0	0	7	0	0	0	0	9
Total	1	12	0	13	14	0	0	14	0	0	0	0	27
Grand Total	2	23	0	25	25	0	0	25	0	0	0	0	50
Approach %	8.0	92.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	4.0	46.0	0.0	50.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				25				23				2	50

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
8:00 AM	0	2	0	2	1	0	0	1	0	0	0	0	3
8:15 AM	1	5	0	6	2	0	0	2	0	0	0	0	8
8:30 AM	0	3	0	3	4	0	0	4	0	0	0	0	7
8:45 AM	0	2	0	2	7	0	0	7	0	0	0	0	9
Total Volume	1	12	0	13	14	0	0	14	0	0	0	0	27
% Approach Total	7.7	92.3	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.250	0.600	0.000	0.542	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.750
Entering Leg	1	12	0	13	14	0	0	14	0	0	0	0	27
Exiting Leg				14				12				1	27
Total				27				26				1	54

PDI File #: **186102 D**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class:

Articulated Trucks

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	2	0	2	0	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	2	0	2	1	0	0	1	0	0	0	0	3
8:00 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	0	0	0	0	1
Grand Total	0	2	0	2	2	0	0	2	0	0	0	0	4
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	50.0	0.0	50.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				2				2				0	4

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
7:15 AM	0	2	0	2	0	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
8:00 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
Total Volume	0	2	0	2	2	0	0	2	0	0	0	0	4
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.250	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	2	0	2	2	0	0	2	0	0	0	0	4
Exiting Leg				2				2				0	4
Total				4				4				0	8

PDI File #: **186102 D**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Brookline Avenue from North						Brookline Avenue from South						Joslin Place from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	1	0	1	3
7:15 AM	0	2	0	0	0	2	2	0	0	0	0	2	0	0	0	0	0	0	4
7:30 AM	0	1	0	0	0	1	2	0	0	0	0	2	0	0	0	0	0	0	3
7:45 AM	0	2	0	0	0	2	2	0	0	0	0	2	0	0	0	0	0	0	4
Total	0	6	0	0	0	6	7	0	0	0	0	7	0	0	0	1	0	1	14
8:00 AM	0	1	0	0	0	1	2	0	0	0	0	2	0	0	0	0	0	0	3
8:15 AM	0	1	0	0	0	1	2	0	0	0	0	2	0	0	0	0	0	0	3
8:30 AM	0	5	0	0	0	5	6	0	0	0	0	6	0	0	0	0	0	0	11
8:45 AM	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	3
Total	0	7	0	0	0	7	13	0	0	0	0	13	0	0	0	0	0	0	20
Grand Total	0	13	0	0	0	13	20	0	0	0	0	20	0	0	0	1	0	1	34
Approach %	0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	100.0	0.0		
Total %	0.0	38.2	0.0	0.0	0.0	38.2	58.8	0.0	0.0	0.0	0.0	58.8	0.0	0.0	0.0	2.9	0.0	2.9	
Exiting Leg Total						20						13						1	34

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Brookline Avenue from North						Brookline Avenue from South						Joslin Place from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:45 AM	0	2	0	0	0	2	2	0	0	0	0	2	0	0	0	0	0	0	4
8:00 AM	0	1	0	0	0	1	2	0	0	0	0	2	0	0	0	0	0	0	3
8:15 AM	0	1	0	0	0	1	2	0	0	0	0	2	0	0	0	0	0	0	3
8:30 AM	0	5	0	0	0	5	6	0	0	0	0	6	0	0	0	0	0	0	11
Total Volume	0	9	0	0	0	9	12	0	0	0	0	12	0	0	0	0	0	0	21
% Approach Total	0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.450	0.000	0.000	0.000	0.450	0.500	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.477
Entering Leg	0	9	0	0	0	9	12	0	0	0	0	12	0	0	0	0	0	0	21
Exiting Leg						12						9						0	21
Total						21						21						0	42

PDI File #: **186102 D**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Pedestrians

	Brookline Avenue						Brookline Avenue						Joslin Place						
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	13	7	20	0	0	0	1	10	11	0	0	0	10	34	44	75
7:15 AM	0	0	0	11	3	14	0	0	0	0	1	1	0	0	0	19	50	69	84
7:30 AM	0	0	0	25	3	28	0	0	0	1	0	1	0	0	0	22	44	66	95
7:45 AM	0	0	0	17	1	18	0	0	0	0	0	0	0	0	0	16	42	58	76
Total	0	0	0	66	14	80	0	0	0	2	11	13	0	0	0	67	170	237	330
8:00 AM	0	0	0	9	5	14	0	0	0	0	0	0	0	0	0	28	48	76	90
8:15 AM	0	0	0	30	6	36	0	0	0	2	8	10	0	0	0	26	63	89	135
8:30 AM	0	0	0	15	8	23	0	0	0	1	0	1	0	0	0	27	35	62	86
8:45 AM	0	0	0	27	5	32	0	0	0	2	2	4	0	0	0	32	40	72	108
Total	0	0	0	81	24	105	0	0	0	5	10	15	0	0	0	113	186	299	419
Grand Total	0	0	0	147	38	185	0	0	0	7	21	28	0	0	0	180	356	536	749
Approach %	0	0	0	79.459	20.541		0	0	0	25	75		0	0	0	33.582	66.418		
Total %	0	0	0	19.626	5.0734	24.7	0	0	0	0.9346	2.8037	3.7383	0	0	0	24.032	47.53	71.562	
Exiting Leg Total						185						28						536	749

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Brookline Avenue						Brookline Avenue						Joslin Place						
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	9	5	14	0	0	0	0	0	0	0	0	0	28	48	76	90
8:15 AM	0	0	0	30	6	36	0	0	0	2	8	10	0	0	0	26	63	89	135
8:30 AM	0	0	0	15	8	23	0	0	0	1	0	1	0	0	0	27	35	62	86
8:45 AM	0	0	0	27	5	32	0	0	0	2	2	4	0	0	0	32	40	72	108
Total Volume	0	0	0	81	24	105	0	0	0	5	10	15	0	0	0	113	186	299	419
% Approach Total	0.0	0.0	0.0	77.1	22.9		0.0	0.0	0.0	33.3	66.7		0.0	0.0	0.0	37.8	62.2		
PHF	0.000	0.000	0.000	0.675	0.750	0.729	0.000	0.000	0.000	0.625	0.313	0.375	0.000	0.000	0.000	0.883	0.738	0.840	0.776
Entering Leg	0	0	0	81	24	105	0	0	0	5	10	15	0	0	0	113	186	299	419
Exiting Leg						105						15						299	419
Total						210						30						598	838

PDI File #: **186102 DD**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
3:00 PM	17	179	0	196	137	13	0	150	0	0	0	0	346
3:15 PM	12	181	0	193	146	10	0	156	0	0	0	0	349
3:30 PM	17	197	0	214	174	16	0	190	0	0	0	0	404
3:45 PM	13	163	0	176	164	24	0	188	0	0	0	0	364
Total	59	720	0	779	621	63	0	684	0	0	0	0	1463
4:00 PM	16	168	0	184	155	25	0	180	0	0	0	0	364
4:15 PM	13	200	0	213	169	10	0	179	0	0	0	0	392
4:30 PM	11	193	0	204	168	13	0	181	0	0	0	0	385
4:45 PM	12	205	0	217	144	13	0	157	0	0	0	0	374
Total	52	766	0	818	636	61	0	697	0	0	0	0	1515
5:00 PM	22	207	0	229	146	17	0	163	0	0	0	0	392
5:15 PM	16	191	1	208	126	12	0	138	0	0	0	0	346
5:30 PM	11	218	0	229	138	15	0	153	0	0	0	0	382
5:45 PM	9	187	0	196	128	19	1	148	0	0	0	0	344
Total	58	803	1	862	538	63	1	602	0	0	0	0	1464
Grand Total	169	2289	1	2459	1795	187	1	1983	0	0	0	0	4442
Approach %	6.9	93.1	0.0		90.5	9.4	0.1		0.0	0.0	0.0		
Total %	3.8	51.5	0.0	55.4	40.4	4.2	0.0	44.6	0.0	0.0	0.0	0.0	
Exiting Leg Total				1796				2290				356	4442
Cars	126	2207	1	2334	1666	170	1	1837	0	0	0	0	4171
% Cars	74.6	96.4	100.0	94.9	92.8	90.9	100.0	92.6	0.0	0.0	0.0	0.0	93.9
Exiting Leg Total				1667				2208				296	4171
Heavy Vehicles	43	82	0	125	129	17	0	146	0	0	0	0	271
% Heavy Vehicles	25.4	3.6	0.0	5.1	7.2	9.1	0.0	7.4	0.0	0.0	0.0	0.0	6.1
Exiting Leg Total				129				82				60	271

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:15 PM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:15 PM	13	200	0	213	169	10	0	179	0	0	0	0	392
4:30 PM	11	193	0	204	168	13	0	181	0	0	0	0	385
4:45 PM	12	205	0	217	144	13	0	157	0	0	0	0	374
5:00 PM	22	207	0	229	146	17	0	163	0	0	0	0	392
Total Volume	58	805	0	863	627	53	0	680	0	0	0	0	1543
% Approach Total	6.7	93.3	0.0		92.2	7.8	0.0		0.0	0.0	0.0		
PHF	0.659	0.972	0.000	0.942	0.928	0.779	0.000	0.939	0.000	0.000	0.000	0.000	0.984
Cars	44	776	0	820	583	47	0	630	0	0	0	0	1450
Cars %	75.9	96.4	0.0	95.0	93.0	88.7	0.0	92.6	0.0	0.0	0.0	0.0	94.0
Heavy Vehicles	14	29	0	43	44	6	0	50	0	0	0	0	93
Heavy Vehicles %	24.1	3.6	0.0	5.0	7.0	11.3	0.0	7.4	0.0	0.0	0.0	0.0	6.0
Cars Enter Leg	44	776	0	820	583	47	0	630	0	0	0	0	1450
Heavy Enter Leg	14	29	0	43	44	6	0	50	0	0	0	0	93
Total Entering Leg	58	805	0	863	627	53	0	680	0	0	0	0	1543
Cars Exiting Leg				583				776				91	1450
Heavy Exiting Leg				44				29				20	93
Total Exiting Leg				627				805				111	1543

PDI File #: **186102 DD**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
3:00 PM	10	174	0	184	124	12	0	136	0	0	0	0	320
3:15 PM	11	173	0	184	133	9	0	142	0	0	0	0	326
3:30 PM	14	189	0	203	166	14	0	180	0	0	0	0	383
3:45 PM	12	156	0	168	152	22	0	174	0	0	0	0	342
Total	47	692	0	739	575	57	0	632	0	0	0	0	1371
4:00 PM	11	161	0	172	142	24	0	166	0	0	0	0	338
4:15 PM	10	190	0	200	157	8	0	165	0	0	0	0	365
4:30 PM	8	187	0	195	158	12	0	170	0	0	0	0	365
4:45 PM	9	199	0	208	134	12	0	146	0	0	0	0	354
Total	38	737	0	775	591	56	0	647	0	0	0	0	1422
5:00 PM	17	200	0	217	134	15	0	149	0	0	0	0	366
5:15 PM	12	183	1	196	118	11	0	129	0	0	0	0	325
5:30 PM	7	212	0	219	127	14	0	141	0	0	0	0	360
5:45 PM	5	183	0	188	121	17	1	139	0	0	0	0	327
Total	41	778	1	820	500	57	1	558	0	0	0	0	1378
Grand Total	126	2207	1	2334	1666	170	1	1837	0	0	0	0	4171
Approach %	5.4	94.6	0.0		90.7	9.3	0.1		0.0	0.0	0.0		
Total %	3.0	52.9	0.0	56.0	39.9	4.1	0.0	44.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				1667				2208				296	4171

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:15 PM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:15 PM	10	190	0	200	157	8	0	165	0	0	0	0	365
4:30 PM	8	187	0	195	158	12	0	170	0	0	0	0	365
4:45 PM	9	199	0	208	134	12	0	146	0	0	0	0	354
5:00 PM	17	200	0	217	134	15	0	149	0	0	0	0	366
Total Volume	44	776	0	820	583	47	0	630	0	0	0	0	1450
% Approach Total	5.4	94.6	0.0		92.5	7.5	0.0		0.0	0.0	0.0		
PHF	0.647	0.970	0.000	0.945	0.922	0.783	0.000	0.926	0.000	0.000	0.000	0.000	0.990
Entering Leg	44	776	0	820	583	47	0	630	0	0	0	0	1450
Exiting Leg				583				776				91	1450
Total				1403				1406				91	2900

PDI File #: **186102 DD**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
3:00 PM	7	5	0	12	13	1	0	14	0	0	0	0	26
3:15 PM	1	8	0	9	13	1	0	14	0	0	0	0	23
3:30 PM	3	8	0	11	8	2	0	10	0	0	0	0	21
3:45 PM	1	7	0	8	12	2	0	14	0	0	0	0	22
Total	12	28	0	40	46	6	0	52	0	0	0	0	92
4:00 PM	5	7	0	12	13	1	0	14	0	0	0	0	26
4:15 PM	3	10	0	13	12	2	0	14	0	0	0	0	27
4:30 PM	3	6	0	9	10	1	0	11	0	0	0	0	20
4:45 PM	3	6	0	9	10	1	0	11	0	0	0	0	20
Total	14	29	0	43	45	5	0	50	0	0	0	0	93
5:00 PM	5	7	0	12	12	2	0	14	0	0	0	0	26
5:15 PM	4	8	0	12	8	1	0	9	0	0	0	0	21
5:30 PM	4	6	0	10	11	1	0	12	0	0	0	0	22
5:45 PM	4	4	0	8	7	2	0	9	0	0	0	0	17
Total	17	25	0	42	38	6	0	44	0	0	0	0	86
Grand Total	43	82	0	125	129	17	0	146	0	0	0	0	271
Approach %	34.4	65.6	0.0		88.4	11.6	0.0		0.0	0.0	0.0		
Total %	15.9	30.3	0.0	46.1	47.6	6.3	0.0	53.9	0.0	0.0	0.0	0.0	
Exiting Leg Total				129				82				60	271
Buses	38	72	0	110	109	16	0	125	0	0	0	0	235
% Buses	88.4	87.8	0.0	88.0	84.5	94.1	0.0	85.6	0.0	0.0	0.0	0.0	86.7
Exiting Leg Total				109				72				54	235
Single-Unit Trucks	5	9	0	14	19	1	0	20	0	0	0	0	34
% Single-Unit	11.6	11.0	0.0	11.2	14.7	5.9	0.0	13.7	0.0	0.0	0.0	0.0	12.5
Exiting Leg Total				19				9				6	34
Articulated Trucks	0	1	0	1	1	0	0	1	0	0	0	0	2
% Articulated	0.0	1.2	0.0	0.8	0.8	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.7
Exiting Leg Total				1				1				0	2

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:30 PM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
3:30 PM	3	8	0	11	8	2	0	10	0	0	0	0	21
3:45 PM	1	7	0	8	12	2	0	14	0	0	0	0	22
4:00 PM	5	7	0	12	13	1	0	14	0	0	0	0	26
4:15 PM	3	10	0	13	12	2	0	14	0	0	0	0	27
Total Volume	12	32	0	44	45	7	0	52	0	0	0	0	96
% Approach Total	27.3	72.7	0.0		86.5	13.5	0.0		0.0	0.0	0.0		
PHF	0.600	0.800	0.000	0.846	0.865	0.875	0.000	0.929	0.000	0.000	0.000	0.000	0.889
Buses	12	28	0	40	39	7	0	46	0	0	0	0	86
Buses %	100.0	87.5	0.0	90.9	86.7	100.0	0.0	88.5	0.0	0.0	0.0	0.0	89.6
Single-Unit Trucks	0	4	0	4	6	0	0	6	0	0	0	0	10
Single-Unit %	0.0	12.5	0.0	9.1	13.3	0.0	0.0	11.5	0.0	0.0	0.0	0.0	10.4
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	12	28	0	40	39	7	0	46	0	0	0	0	86
Single-Unit Trucks	0	4	0	4	6	0	0	6	0	0	0	0	10
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	12	32	0	44	45	7	0	52	0	0	0	0	96
Buses				39				28				19	86
Single-Unit Trucks				6				4				0	10
Articulated Trucks				0				0				0	0
Total Exiting Leg				45				32				19	96

PDI File #: **186102 DD**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class:

Cars

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
3:00 PM	9	162	0	171	116	11	0	127	0	0	0	0	298
3:15 PM	11	156	0	167	122	9	0	131	0	0	0	0	298
3:30 PM	14	177	0	191	158	13	0	171	0	0	0	0	362
3:45 PM	12	149	0	161	148	21	0	169	0	0	0	0	330
Total	46	644	0	690	544	54	0	598	0	0	0	0	1288
4:00 PM	10	153	0	163	139	22	0	161	0	0	0	0	324
4:15 PM	10	178	0	188	149	8	0	157	0	0	0	0	345
4:30 PM	8	180	0	188	144	11	0	155	0	0	0	0	343
4:45 PM	9	189	0	198	125	12	0	137	0	0	0	0	335
Total	37	700	0	737	557	53	0	610	0	0	0	0	1347
5:00 PM	15	189	0	204	127	15	0	142	0	0	0	0	346
5:15 PM	11	177	1	189	109	10	0	119	0	0	0	0	308
5:30 PM	7	203	0	210	120	13	0	133	0	0	0	0	343
5:45 PM	4	182	0	186	117	16	1	134	0	0	0	0	320
Total	37	751	1	789	473	54	1	528	0	0	0	0	1317
Grand Total	120	2095	1	2216	1574	161	1	1736	0	0	0	0	3952
Approach %	5.4	94.5	0.0		90.7	9.3	0.1		0.0	0.0	0.0		
Total %	3.0	53.0	0.0	56.1	39.8	4.1	0.0	43.9	0.0	0.0	0.0	0.0	
Exiting Leg Total				1575				2096				281	3952

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:15 PM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:15 PM	10	178	0	188	149	8	0	157	0	0	0	0	345
4:30 PM	8	180	0	188	144	11	0	155	0	0	0	0	343
4:45 PM	9	189	0	198	125	12	0	137	0	0	0	0	335
5:00 PM	15	189	0	204	127	15	0	142	0	0	0	0	346
Total Volume	42	736	0	778	545	46	0	591	0	0	0	0	1369
% Approach Total	5.4	94.6	0.0		92.2	7.8	0.0		0.0	0.0	0.0		
PHF	0.700	0.974	0.000	0.953	0.914	0.767	0.000	0.941	0.000	0.000	0.000	0.000	0.989
Entering Leg	42	736	0	778	545	46	0	591	0	0	0	0	1369
Exiting Leg				545				736				88	1369
Total				1323				1327				88	2738

PDI File #: **186102 DD**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Light Goods Vehicle**

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
3:00 PM	1	12	0	13	8	1	0	9	0	0	0	0	22
3:15 PM	0	17	0	17	11	0	0	11	0	0	0	0	28
3:30 PM	0	12	0	12	8	1	0	9	0	0	0	0	21
3:45 PM	0	7	0	7	4	1	0	5	0	0	0	0	12
Total	1	48	0	49	31	3	0	34	0	0	0	0	83
4:00 PM	1	8	0	9	3	2	0	5	0	0	0	0	14
4:15 PM	0	12	0	12	8	0	0	8	0	0	0	0	20
4:30 PM	0	7	0	7	14	1	0	15	0	0	0	0	22
4:45 PM	0	10	0	10	9	0	0	9	0	0	0	0	19
Total	1	37	0	38	34	3	0	37	0	0	0	0	75
5:00 PM	2	11	0	13	7	0	0	7	0	0	0	0	20
5:15 PM	1	5	0	6	9	1	0	10	0	0	0	0	16
5:30 PM	0	9	0	9	7	1	0	8	0	0	0	0	17
5:45 PM	1	1	0	2	3	1	0	4	0	0	0	0	6
Total	4	26	0	30	26	3	0	29	0	0	0	0	59
Grand Total	6	111	0	117	91	9	0	100	0	0	0	0	217
Approach %	5.1	94.9	0.0		91.0	9.0	0.0		0.0	0.0	0.0		
Total %	2.8	51.2	0.0	53.9	41.9	4.1	0.0	46.1	0.0	0.0	0.0	0.0	
Exiting Leg Total				91				111				15	217

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
3:00 PM	1	12	0	13	8	1	0	9	0	0	0	0	22
3:15 PM	0	17	0	17	11	0	0	11	0	0	0	0	28
3:30 PM	0	12	0	12	8	1	0	9	0	0	0	0	21
3:45 PM	0	7	0	7	4	1	0	5	0	0	0	0	12
Total Volume	1	48	0	49	31	3	0	34	0	0	0	0	83
% Approach Total	2.0	98.0	0.0		91.2	8.8	0.0		0.0	0.0	0.0		
PHF	0.250	0.706	0.000	0.721	0.705	0.750	0.000	0.773	0.000	0.000	0.000	0.000	0.741
Entering Leg	1	48	0	49	31	3	0	34	0	0	0	0	83
Exiting Leg				31				48				4	83
Total				80				82				4	166

PDI File #: **186102 DD**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Buses

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
3:00 PM	6	5	0	11	10	1	0	11	0	0	0	0	22
3:15 PM	1	7	0	8	11	1	0	12	0	0	0	0	20
3:30 PM	3	6	0	9	7	2	0	9	0	0	0	0	18
3:45 PM	1	7	0	8	12	2	0	14	0	0	0	0	22
Total	11	25	0	36	40	6	0	46	0	0	0	0	82
4:00 PM	5	6	0	11	10	1	0	11	0	0	0	0	22
4:15 PM	3	9	0	12	10	2	0	12	0	0	0	0	24
4:30 PM	3	6	0	9	10	1	0	11	0	0	0	0	20
4:45 PM	3	5	0	8	9	1	0	10	0	0	0	0	18
Total	14	26	0	40	39	5	0	44	0	0	0	0	84
5:00 PM	2	6	0	8	9	2	0	11	0	0	0	0	19
5:15 PM	4	7	0	11	8	1	0	9	0	0	0	0	20
5:30 PM	4	5	0	9	7	1	0	8	0	0	0	0	17
5:45 PM	3	3	0	6	6	1	0	7	0	0	0	0	13
Total	13	21	0	34	30	5	0	35	0	0	0	0	69
Grand Total	38	72	0	110	109	16	0	125	0	0	0	0	235
Approach %	34.5	65.5	0.0		87.2	12.8	0.0		0.0	0.0	0.0		
Total %	16.2	30.6	0.0	46.8	46.4	6.8	0.0	53.2	0.0	0.0	0.0	0.0	
Exiting Leg Total				109				72				54	235

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
3:45 PM	1	7	0	8	12	2	0	14	0	0	0	0	22
4:00 PM	5	6	0	11	10	1	0	11	0	0	0	0	22
4:15 PM	3	9	0	12	10	2	0	12	0	0	0	0	24
4:30 PM	3	6	0	9	10	1	0	11	0	0	0	0	20
Total Volume	12	28	0	40	42	6	0	48	0	0	0	0	88
% Approach Total	30.0	70.0	0.0		87.5	12.5	0.0		0.0	0.0	0.0		
PHF	0.600	0.778	0.000	0.833	0.875	0.750	0.000	0.857	0.000	0.000	0.000	0.000	0.917
Entering Leg	12	28	0	40	42	6	0	48	0	0	0	0	88
Exiting Leg				42				28				18	88
Total				82				76				18	176

PDI File #: **186102 DD**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class:

Single-Unit Trucks

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
3:00 PM	1	0	0	1	3	0	0	3	0	0	0	0	4
3:15 PM	0	0	0	0	2	0	0	2	0	0	0	0	2
3:30 PM	0	2	0	2	1	0	0	1	0	0	0	0	3
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	2	0	3	6	0	0	6	0	0	0	0	9
4:00 PM	0	1	0	1	3	0	0	3	0	0	0	0	4
4:15 PM	0	1	0	1	2	0	0	2	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
Total	0	3	0	3	6	0	0	6	0	0	0	0	9
5:00 PM	3	1	0	4	3	0	0	3	0	0	0	0	7
5:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
5:30 PM	0	1	0	1	4	0	0	4	0	0	0	0	5
5:45 PM	1	1	0	2	0	1	0	1	0	0	0	0	3
Total	4	4	0	8	7	1	0	8	0	0	0	0	16
Grand Total	5	9	0	14	19	1	0	20	0	0	0	0	34
Approach %	35.7	64.3	0.0		95.0	5.0	0.0		0.0	0.0	0.0		
Total %	14.7	26.5	0.0	41.2	55.9	2.9	0.0	58.8	0.0	0.0	0.0	0.0	
Exiting Leg Total				19				9				6	34

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
3:00 PM	1	0	0	1	3	0	0	3	0	0	0	0	4
3:15 PM	0	0	0	0	2	0	0	2	0	0	0	0	2
3:30 PM	0	2	0	2	1	0	0	1	0	0	0	0	3
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	2	0	3	6	0	0	6	0	0	0	0	9
% Approach Total	33.3	66.7	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.250	0.250	0.000	0.375	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.563
Entering Leg	1	2	0	3	6	0	0	6	0	0	0	0	9
Exiting Leg				6				2				1	9
Total				9				8				1	18

PDI File #: **186102 DD**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Articulated Trucks

	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	0	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	1	0	0	1	0	0	0	0	1
Grand Total	0	1	0	1	1	0	0	1	0	0	0	0	2
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	50.0	0.0	50.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				1				1				0	2

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North				Brookline Avenue from South				Joslin Place from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	1
% Approach Total	0.0	100.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	1	0	1	0	0	0	0	0	0	0	0	1
Exiting Leg				0				1				0	1
Total				1				1				0	2

PDI File #: **186102 DD**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Brookline Avenue from North						Brookline Avenue from South						Joslin Place from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
3:15 PM	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	1	0	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	3
4:00 PM	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	0	0	4
4:15 PM	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	1	1	3
4:30 PM	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
4:45 PM	0	3	0	0	0	3	4	2	0	0	0	6	0	0	0	0	1	1	10
Total	0	8	0	0	0	8	9	2	0	0	0	11	0	0	0	0	2	2	21
5:00 PM	0	3	0	0	0	3	2	1	0	0	0	3	0	0	0	0	0	0	6
5:15 PM	0	3	0	0	0	3	1	1	0	0	0	2	0	0	0	0	1	1	6
5:30 PM	0	5	0	0	0	5	2	1	0	0	0	3	0	0	0	0	0	0	8
5:45 PM	0	2	0	0	0	2	2	1	0	0	0	3	0	0	0	0	0	0	5
Total	0	13	0	0	0	13	7	4	0	0	0	11	0	0	0	0	1	1	25
Grand Total	1	22	0	0	0	23	16	7	0	0	0	23	0	0	0	0	3	3	49
Approach %	4.3	95.7	0.0	0.0	0.0		69.6	30.4	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0		
Total %	2.0	44.9	0.0	0.0	0.0	46.9	32.7	14.3	0.0	0.0	0.0	46.9	0.0	0.0	0.0	0.0	6.1	6.1	
Exiting Leg Total						16						22						11	49

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:45 PM	Brookline Avenue from North						Brookline Avenue from South						Joslin Place from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:45 PM	0	3	0	0	0	3	4	2	0	0	0	6	0	0	0	0	1	1	10
5:00 PM	0	3	0	0	0	3	2	1	0	0	0	3	0	0	0	0	0	0	6
5:15 PM	0	3	0	0	0	3	1	1	0	0	0	2	0	0	0	0	1	1	6
5:30 PM	0	5	0	0	0	5	2	1	0	0	0	3	0	0	0	0	0	0	8
Total Volume	0	14	0	0	0	14	9	5	0	0	0	14	0	0	0	0	2	2	30
% Approach Total	0.0	100.0	0.0	0.0	0.0		64.3	35.7	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0		
PHF	0.000	0.700	0.000	0.000	0.000	0.700	0.563	0.625	0.000	0.000	0.000	0.583	0.000	0.000	0.000	0.000	0.500	0.500	0.750
Entering Leg	0	14	0	0	0	14	9	5	0	0	0	14	0	0	0	0	2	2	30
Exiting Leg						9						14						7	30
Total						23						28						9	60

PDI File #: **186102 DD**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **W: Joslin Place**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Pedestrians

	Brookline Avenue from North						Brookline Avenue from South						Joslin Place from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	6	11	17	0	0	0	0	2	2	0	0	0	32	24	56	75
3:15 PM	0	0	0	4	1	5	0	0	0	3	0	3	0	0	0	52	17	69	77
3:30 PM	0	0	0	5	1	6	0	0	0	1	0	1	0	0	0	34	25	59	66
3:45 PM	0	0	0	9	1	10	0	0	0	0	1	1	0	0	0	21	34	55	66
Total	0	0	0	24	14	38	0	0	0	4	3	7	0	0	0	139	100	239	284
4:00 PM	0	0	0	3	0	3	0	0	0	0	4	4	0	0	0	26	31	57	64
4:15 PM	0	0	0	3	5	8	0	0	0	3	1	4	0	0	0	29	21	50	62
4:30 PM	0	0	0	5	5	10	0	0	0	1	2	3	0	0	0	44	26	70	83
4:45 PM	0	0	0	5	5	10	0	0	0	0	1	1	0	0	0	45	28	73	84
Total	0	0	0	16	15	31	0	0	0	4	8	12	0	0	0	144	106	250	293
5:00 PM	0	0	0	2	8	10	0	0	0	0	0	0	0	0	0	45	31	76	86
5:15 PM	0	0	0	1	5	6	0	0	0	0	0	0	0	0	0	43	30	73	79
5:30 PM	0	0	0	2	4	6	0	0	0	0	0	0	0	0	0	39	17	56	62
5:45 PM	0	0	0	1	6	7	0	0	0	0	0	0	0	0	0	32	20	52	59
Total	0	0	0	6	23	29	0	0	0	0	0	0	0	0	0	159	98	257	286
Grand Total	0	0	0	46	52	98	0	0	0	8	11	19	0	0	0	442	304	746	863
Approach %	0	0	0	46.939	53.061		0	0	0	42.105	57.895		0	0	0	59.249	40.751		
Total %	0	0	0	5.3302	6.0255	11.356	0	0	0	0.927	1.2746	2.2016	0	0	0	51.217	35.226	86.443	
Exiting Leg Total						98						19						746	863

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:30 PM	Brookline Avenue from North						Brookline Avenue from South						Joslin Place from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:30 PM	0	0	0	5	5	10	0	0	0	1	2	3	0	0	0	44	26	70	83
4:45 PM	0	0	0	5	5	10	0	0	0	0	1	1	0	0	0	45	28	73	84
5:00 PM	0	0	0	2	8	10	0	0	0	0	0	0	0	0	0	45	31	76	86
5:15 PM	0	0	0	1	5	6	0	0	0	0	0	0	0	0	0	43	30	73	79
Total Volume	0	0	0	13	23	36	0	0	0	1	3	4	0	0	0	177	115	292	332
% Approach Total	0.0	0.0	0.0	36.1	63.9		0.0	0.0	0.0	25.0	75.0		0.0	0.0	0.0	60.6	39.4		
PHF	0.000	0.000	0.000	0.650	0.719	0.900	0.000	0.000	0.000	0.250	0.375	0.333	0.000	0.000	0.000	0.983	0.927	0.961	0.965
Entering Leg	0	0	0	13	23	36	0	0	0	1	3	4	0	0	0	177	115	292	332
Exiting Leg						36						4						292	332
Total						72						8						584	664

PDI File #: **186102 E**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	44	101	38	0	183	55	34	30	0	119	63	161	14	0	238	10	32	13	0	55	595
7:15 AM	35	103	41	0	179	69	60	23	0	152	65	134	11	0	210	13	59	15	0	87	628
7:30 AM	51	124	38	0	213	70	57	22	0	149	45	163	13	0	221	10	51	10	0	71	654
7:45 AM	39	133	53	0	225	68	71	29	0	168	35	147	12	0	194	6	53	12	0	71	658
Total	169	461	170	0	800	262	222	104	0	588	208	605	50	0	863	39	195	50	0	284	2535
8:00 AM	45	145	49	0	239	44	46	18	0	108	41	129	18	0	188	6	53	13	0	72	607
8:15 AM	37	126	46	0	209	42	48	28	0	118	40	140	18	0	198	13	50	18	0	81	606
8:30 AM	44	129	42	0	215	46	45	15	0	106	61	144	11	0	216	8	49	19	0	76	613
8:45 AM	33	109	48	0	190	46	44	27	0	117	48	124	13	0	185	7	50	19	0	76	568
Total	159	509	185	0	853	178	183	88	0	449	190	537	60	0	787	34	202	69	0	305	2394
Grand Total	328	970	355	0	1653	440	405	192	0	1037	398	1142	110	0	1650	73	397	119	0	589	4929
Approach %	19.8	58.7	21.5	0.0		42.4	39.1	18.5	0.0		24.1	69.2	6.7	0.0		12.4	67.4	20.2	0.0		
Total %	6.7	19.7	7.2	0.0	33.5	8.9	8.2	3.9	0.0	21.0	8.1	23.2	2.2	0.0	33.5	1.5	8.1	2.4	0.0	11.9	
Exiting Leg Total					1701					1150					1235					843	4929
Cars	324	899	314	0	1537	377	385	166	0	928	364	1058	104	0	1526	73	385	115	0	573	4564
% Cars	98.8	92.7	88.5	0.0	93.0	85.7	95.1	86.5	0.0	89.5	91.5	92.6	94.5	0.0	92.5	100.0	97.0	96.6	0.0	97.3	92.6
Exiting Leg Total					1550					1063					1138					813	4564
Heavy Vehicles	4	71	41	0	116	63	20	26	0	109	34	84	6	0	124	0	12	4	0	16	365
% Heavy Vehicles	1.2	7.3	11.5	0.0	7.0	14.3	4.9	13.5	0.0	10.5	8.5	7.4	5.5	0.0	7.5	0.0	3.0	3.4	0.0	2.7	7.4
Exiting Leg Total					151					87					97					30	365

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	35	103	41	0	179	69	60	23	0	152	65	134	11	0	210	13	59	15	0	87	628
7:30 AM	51	124	38	0	213	70	57	22	0	149	45	163	13	0	221	10	51	10	0	71	654
7:45 AM	39	133	53	0	225	68	71	29	0	168	35	147	12	0	194	6	53	12	0	71	658
8:00 AM	45	145	49	0	239	44	46	18	0	108	41	129	18	0	188	6	53	13	0	72	607
Total Volume	170	505	181	0	856	251	234	92	0	577	186	573	54	0	813	35	216	50	0	301	2547
% Approach Total	19.9	59.0	21.1	0.0		43.5	40.6	15.9	0.0		22.9	70.5	6.6	0.0		11.6	71.8	16.6	0.0		
PHF	0.833	0.871	0.854	0.000	0.895	0.896	0.824	0.793	0.000	0.859	0.715	0.879	0.750	0.000	0.920	0.673	0.915	0.833	0.000	0.865	0.968
Cars	169	465	162	0	796	215	225	79	0	519	173	533	52	0	758	35	208	50	0	293	2366
Cars %	99.4	92.1	89.5	0.0	93.0	85.7	96.2	85.9	0.0	89.9	93.0	93.0	96.3	0.0	93.2	100.0	96.3	100.0	0.0	97.3	92.9
Heavy Vehicles	1	40	19	0	60	36	9	13	0	58	13	40	2	0	55	0	8	0	0	8	181
Heavy Vehicles %	0.6	7.9	10.5	0.0	7.0	14.3	3.8	14.1	0.0	10.1	7.0	7.0	3.7	0.0	6.8	0.0	3.7	0.0	0.0	2.7	7.1
Cars Enter Leg	169	465	162	0	796	215	225	79	0	519	173	533	52	0	758	35	208	50	0	293	2366
Heavy Enter Leg	1	40	19	0	60	36	9	13	0	58	13	40	2	0	55	0	8	0	0	8	181
Total Entering Leg	170	505	181	0	856	251	234	92	0	577	186	573	54	0	813	35	216	50	0	301	2547
Cars Exiting Leg					798					543					579					446	2366
Heavy Exiting Leg					76					40					53					12	181
Total Exiting Leg					874					583					632					458	2547

PDI File #: **186102 E**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars-Combined (Motorcycles, Cars, Light Goods)

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	44	93	34	0	171	45	33	28	0	106	59	147	13	0	219	10	31	13	0	54	550
7:15 AM	34	93	38	0	165	59	57	20	0	136	61	130	10	0	201	13	58	15	0	86	588
7:30 AM	51	115	32	0	198	62	55	20	0	137	42	147	12	0	201	10	51	10	0	71	607
7:45 AM	39	120	48	0	207	60	67	25	0	152	31	137	12	0	180	6	51	12	0	69	608
Total	168	421	152	0	741	226	212	93	0	531	193	561	47	0	801	39	191	50	0	280	2353
8:00 AM	45	137	44	0	226	34	46	14	0	94	39	119	18	0	176	6	48	13	0	67	563
8:15 AM	37	114	41	0	192	38	44	24	0	106	36	132	18	0	186	13	48	16	0	77	561
8:30 AM	43	121	36	0	200	41	44	11	0	96	54	135	11	0	200	8	48	17	0	73	569
8:45 AM	31	106	41	0	178	38	39	24	0	101	42	111	10	0	163	7	50	19	0	76	518
Total	156	478	162	0	796	151	173	73	0	397	171	497	57	0	725	34	194	65	0	293	2211
Grand Total	324	899	314	0	1537	377	385	166	0	928	364	1058	104	0	1526	73	385	115	0	573	4564
Approach %	21.1	58.5	20.4	0.0		40.6	41.5	17.9	0.0		23.9	69.3	6.8	0.0		12.7	67.2	20.1	0.0		
Total %	7.1	19.7	6.9	0.0	33.7	8.3	8.4	3.6	0.0	20.3	8.0	23.2	2.3	0.0	33.4	1.6	8.4	2.5	0.0	12.6	
Exiting Leg Total					1550					1063					1138					813	4564

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	34	93	38	0	165	59	57	20	0	136	61	130	10	0	201	13	58	15	0	86	588
7:30 AM	51	115	32	0	198	62	55	20	0	137	42	147	12	0	201	10	51	10	0	71	607
7:45 AM	39	120	48	0	207	60	67	25	0	152	31	137	12	0	180	6	51	12	0	69	608
8:00 AM	45	137	44	0	226	34	46	14	0	94	39	119	18	0	176	6	48	13	0	67	563
Total Volume	169	465	162	0	796	215	225	79	0	519	173	533	52	0	758	35	208	50	0	293	2366
% Approach Total	21.2	58.4	20.4	0.0		41.4	43.4	15.2	0.0		22.8	70.3	6.9	0.0		11.9	71.0	17.1	0.0		
PHF	0.828	0.849	0.844	0.000	0.881	0.867	0.840	0.790	0.000	0.854	0.709	0.906	0.722	0.000	0.943	0.673	0.897	0.833	0.000	0.852	0.973
Entering Leg	169	465	162	0	796	215	225	79	0	519	173	533	52	0	758	35	208	50	0	293	2366
Exiting Leg					798					543					579					446	2366
Total					1594					1062					1337					739	4732

PDI File #: **186102 E**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	8	4	0	12	10	1	2	0	13	4	14	1	0	19	0	1	0	0	1	45
7:15 AM	1	10	3	0	14	10	3	3	0	16	4	4	1	0	9	0	1	0	0	1	40
7:30 AM	0	9	6	0	15	8	2	2	0	12	3	16	1	0	20	0	0	0	0	0	47
7:45 AM	0	13	5	0	18	8	4	4	0	16	4	10	0	0	14	0	2	0	0	2	50
Total	1	40	18	0	59	36	10	11	0	57	15	44	3	0	62	0	4	0	0	4	182
8:00 AM	0	8	5	0	13	10	0	4	0	14	2	10	0	0	12	0	5	0	0	5	44
8:15 AM	0	12	5	0	17	4	4	4	0	12	4	8	0	0	12	0	2	2	0	4	45
8:30 AM	1	8	6	0	15	5	1	4	0	10	7	9	0	0	16	0	1	2	0	3	44
8:45 AM	2	3	7	0	12	8	5	3	0	16	6	13	3	0	22	0	0	0	0	0	50
Total	3	31	23	0	57	27	10	15	0	52	19	40	3	0	62	0	8	4	0	12	183
Grand Total	4	71	41	0	116	63	20	26	0	109	34	84	6	0	124	0	12	4	0	16	365
Approach %	3.4	61.2	35.3	0.0		57.8	18.3	23.9	0.0		27.4	67.7	4.8	0.0		0.0	75.0	25.0	0.0		
Total %	1.1	19.5	11.2	0.0	31.8	17.3	5.5	7.1	0.0	29.9	9.3	23.0	1.6	0.0	34.0	0.0	3.3	1.1	0.0	4.4	
Exiting Leg Total					151					87					97					30	365
Buses	0	52	34	0	86	49	8	16	0	73	27	67	1	0	95	0	2	1	0	3	257
% Buses	0.0	73.2	82.9	0.0	74.1	77.8	40.0	61.5	0.0	67.0	79.4	79.8	16.7	0.0	76.6	0.0	16.7	25.0	0.0	18.8	70.4
Exiting Leg Total					117					63					68					9	257
Single-Unit Trucks	4	17	7	0	28	14	11	9	0	34	5	15	5	0	25	0	10	2	0	12	99
% Single-Unit	100.0	23.9	17.1	0.0	24.1	22.2	55.0	34.6	0.0	31.2	14.7	17.9	83.3	0.0	20.2	0.0	83.3	50.0	0.0	75.0	27.1
Exiting Leg Total					31					22					26					20	99
Articulated Trucks	0	2	0	0	2	0	1	1	0	2	2	2	0	0	4	0	0	1	0	1	9
% Articulated	0.0	2.8	0.0	0.0	1.7	0.0	5.0	3.8	0.0	1.8	5.9	2.4	0.0	0.0	3.2	0.0	0.0	25.0	0.0	6.3	2.5
Exiting Leg Total					3					2					3					1	9

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	0	9	6	0	15	8	2	2	0	12	3	16	1	0	20	0	0	0	0	0	47
7:45 AM	0	13	5	0	18	8	4	4	0	16	4	10	0	0	14	0	2	0	0	2	50
8:00 AM	0	8	5	0	13	10	0	4	0	14	2	10	0	0	12	0	5	0	0	5	44
8:15 AM	0	12	5	0	17	4	4	4	0	12	4	8	0	0	12	0	2	2	0	4	45
Total Volume	0	42	21	0	63	30	10	14	0	54	13	44	1	0	58	0	9	2	0	11	186
% Approach Total	0.0	66.7	33.3	0.0		55.6	18.5	25.9	0.0		22.4	75.9	1.7	0.0		0.0	81.8	18.2	0.0		
PHF	0.000	0.808	0.875	0.000	0.875	0.750	0.625	0.875	0.000	0.844	0.813	0.688	0.250	0.000	0.725	0.000	0.450	0.250	0.000	0.550	0.930
Buses	0	31	17	0	48	23	3	9	0	35	11	38	0	0	49	0	1	0	0	1	133
Buses %	0.0	73.8	81.0	0.0	76.2	76.7	30.0	64.3	0.0	64.8	84.6	86.4	0.0	0.0	84.5	0.0	11.1	0.0	0.0	9.1	71.5
Single-Unit Trucks	0	11	4	0	15	7	6	5	0	18	1	5	1	0	7	0	8	2	0	10	50
Single-Unit %	0.0	26.2	19.0	0.0	23.8	23.3	60.0	35.7	0.0	33.3	7.7	11.4	100.0	0.0	12.1	0.0	88.9	100.0	0.0	90.9	26.9
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	1	1	0	0	2	0	0	0	0	0	3
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	1.9	7.7	2.3	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	1.6
Buses	0	31	17	0	48	23	3	9	0	35	11	38	0	0	49	0	1	0	0	1	133
Single-Unit Trucks	0	11	4	0	15	7	6	5	0	18	1	5	1	0	7	0	8	2	0	10	50
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	1	1	0	0	2	0	0	0	0	0	3
Total Entering Leg	0	42	21	0	63	30	10	14	0	54	13	44	1	0	58	0	9	2	0	11	186
Buses					61					29					40					3	133
Single-Unit Trucks					14					13					16					7	50
Articulated Trucks					1					1					0					1	3
Total Exiting Leg					76					43					56					11	186

PDI File #: **186102 E**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	41	90	31	0	162	43	32	27	0	102	57	143	13	0	213	9	30	13	0	52	529
7:15 AM	33	90	36	0	159	56	56	20	0	132	59	125	10	0	194	13	57	13	0	83	568
7:30 AM	50	102	31	0	183	59	54	20	0	133	42	134	12	0	188	9	47	10	0	66	570
7:45 AM	39	114	46	0	199	58	63	23	0	144	31	131	11	0	173	4	48	11	0	63	579
Total	163	396	144	0	703	216	205	90	0	511	189	533	46	0	768	35	182	47	0	264	2246
8:00 AM	42	130	43	0	215	31	45	13	0	89	38	112	17	0	167	6	45	13	0	64	535
8:15 AM	35	102	39	0	176	38	42	22	0	102	34	126	17	0	177	13	47	16	0	76	531
8:30 AM	42	114	33	0	189	38	43	10	0	91	54	127	11	0	192	7	47	17	0	71	543
8:45 AM	29	100	40	0	169	35	37	23	0	95	42	106	9	0	157	7	47	19	0	73	494
Total	148	446	155	0	749	142	167	68	0	377	168	471	54	0	693	33	186	65	0	284	2103
Grand Total	311	842	299	0	1452	358	372	158	0	888	357	1004	100	0	1461	68	368	112	0	548	4349
Approach %	21.4	58.0	20.6	0.0		40.3	41.9	17.8	0.0		24.4	68.7	6.8	0.0		12.4	67.2	20.4	0.0		
Total %	7.2	19.4	6.9	0.0	33.4	8.2	8.6	3.6	0.0	20.4	8.2	23.1	2.3	0.0	33.6	1.6	8.5	2.6	0.0	12.6	
Exiting Leg Total					1474					1024					1068					783	4349

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	33	90	36	0	159	56	56	20	0	132	59	125	10	0	194	13	57	13	0	83	568
7:30 AM	50	102	31	0	183	59	54	20	0	133	42	134	12	0	188	9	47	10	0	66	570
7:45 AM	39	114	46	0	199	58	63	23	0	144	31	131	11	0	173	4	48	11	0	63	579
8:00 AM	42	130	43	0	215	31	45	13	0	89	38	112	17	0	167	6	45	13	0	64	535
Total Volume	164	436	156	0	756	204	218	76	0	498	170	502	50	0	722	32	197	47	0	276	2252
% Approach Total	21.7	57.7	20.6	0.0		41.0	43.8	15.3	0.0		23.5	69.5	6.9	0.0		11.6	71.4	17.0	0.0		
PHF	0.820	0.838	0.848	0.000	0.879	0.864	0.865	0.826	0.000	0.865	0.720	0.937	0.735	0.000	0.930	0.615	0.864	0.904	0.000	0.831	0.972
Entering Leg	164	436	156	0	756	204	218	76	0	498	170	502	50	0	722	32	197	47	0	276	2252
Exiting Leg					753					523					544					432	2252
Total					1509					1021					1266					708	4504

PDI File #: **186102 E**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Light Goods Vehicle

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	3	3	3	0	9	2	1	1	0	4	2	4	0	0	6	1	1	0	0	2	21
7:15 AM	1	3	2	0	6	3	1	0	0	4	2	5	0	0	7	0	1	2	0	3	20
7:30 AM	1	12	1	0	14	3	1	0	0	4	0	13	0	0	13	1	3	0	0	4	35
7:45 AM	0	6	2	0	8	2	4	2	0	8	0	6	1	0	7	2	3	1	0	6	29
Total	5	24	8	0	37	10	7	3	0	20	4	28	1	0	33	4	8	3	0	15	105
8:00 AM	3	7	1	0	11	3	1	1	0	5	1	7	1	0	9	0	3	0	0	3	28
8:15 AM	2	12	2	0	16	0	2	2	0	4	2	6	1	0	9	0	1	0	0	1	30
8:30 AM	1	7	3	0	11	3	1	1	0	5	0	7	0	0	7	1	1	0	0	2	25
8:45 AM	2	6	1	0	9	3	2	1	0	6	0	5	1	0	6	0	3	0	0	3	24
Total	8	32	7	0	47	9	6	5	0	20	3	25	3	0	31	1	8	0	0	9	107
Grand Total	13	56	15	0	84	19	13	8	0	40	7	53	4	0	64	5	16	3	0	24	212
Approach %	15.5	66.7	17.9	0.0		47.5	32.5	20.0	0.0		10.9	82.8	6.3	0.0		20.8	66.7	12.5	0.0		
Total %	6.1	26.4	7.1	0.0	39.6	9.0	6.1	3.8	0.0	18.9	3.3	25.0	1.9	0.0	30.2	2.4	7.5	1.4	0.0	11.3	
Exiting Leg Total					75					38					69					30	212

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	1	12	1	0	14	3	1	0	0	4	0	13	0	0	13	1	3	0	0	4	35
7:45 AM	0	6	2	0	8	2	4	2	0	8	0	6	1	0	7	2	3	1	0	6	29
8:00 AM	3	7	1	0	11	3	1	1	0	5	1	7	1	0	9	0	3	0	0	3	28
8:15 AM	2	12	2	0	16	0	2	2	0	4	2	6	1	0	9	0	1	0	0	1	30
Total Volume	6	37	6	0	49	8	8	5	0	21	3	32	3	0	38	3	10	1	0	14	122
% Approach Total	12.2	75.5	12.2	0.0		38.1	38.1	23.8	0.0		7.9	84.2	7.9	0.0		21.4	71.4	7.1	0.0		
PHF	0.500	0.771	0.750	0.000	0.766	0.667	0.500	0.625	0.000	0.656	0.375	0.615	0.750	0.000	0.731	0.375	0.833	0.250	0.000	0.583	0.871
Entering Leg	6	37	6	0	49	8	8	5	0	21	3	32	3	0	38	3	10	1	0	14	122
Exiting Leg					41					19					45					17	122
Total					90					40					83					31	244

PDI File #: **186102 E**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Buses

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	5	4	0	9	7	0	2	0	9	4	10	0	0	14	0	1	0	0	1	33
7:15 AM	0	7	3	0	10	8	1	2	0	11	4	3	0	0	7	0	0	0	0	0	28
7:30 AM	0	7	5	0	12	5	1	2	0	8	2	15	0	0	17	0	0	0	0	0	37
7:45 AM	0	9	3	0	12	8	1	3	0	12	4	7	0	0	11	0	0	0	0	0	35
Total	0	28	15	0	43	28	3	9	0	40	14	35	0	0	49	0	1	0	0	1	133
8:00 AM	0	8	4	0	12	6	0	2	0	8	1	9	0	0	10	0	1	0	0	1	31
8:15 AM	0	7	5	0	12	4	1	2	0	7	4	7	0	0	11	0	0	0	0	0	30
8:30 AM	0	6	5	0	11	5	0	2	0	7	4	7	0	0	11	0	0	1	0	1	30
8:45 AM	0	3	5	0	8	6	4	1	0	11	4	9	1	0	14	0	0	0	0	0	33
Total	0	24	19	0	43	21	5	7	0	33	13	32	1	0	46	0	1	1	0	2	124
Grand Total	0	52	34	0	86	49	8	16	0	73	27	67	1	0	95	0	2	1	0	3	257
Approach %	0.0	60.5	39.5	0.0		67.1	11.0	21.9	0.0		28.4	70.5	1.1	0.0		0.0	66.7	33.3	0.0		
Total %	0.0	20.2	13.2	0.0	33.5	19.1	3.1	6.2	0.0	28.4	10.5	26.1	0.4	0.0	37.0	0.0	0.8	0.4	0.0	1.2	
Exiting Leg Total					117					63					68					9	257

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	5	4	0	9	7	0	2	0	9	4	10	0	0	14	0	1	0	0	1	33
7:15 AM	0	7	3	0	10	8	1	2	0	11	4	3	0	0	7	0	0	0	0	0	28
7:30 AM	0	7	5	0	12	5	1	2	0	8	2	15	0	0	17	0	0	0	0	0	37
7:45 AM	0	9	3	0	12	8	1	3	0	12	4	7	0	0	11	0	0	0	0	0	35
Total Volume	0	28	15	0	43	28	3	9	0	40	14	35	0	0	49	0	1	0	0	1	133
% Approach Total	0.0	65.1	34.9	0.0		70.0	7.5	22.5	0.0		28.6	71.4	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.778	0.750	0.000	0.896	0.875	0.750	0.750	0.000	0.833	0.875	0.583	0.000	0.000	0.721	0.000	0.250	0.000	0.000	0.250	0.899
Entering Leg	0	28	15	0	43	28	3	9	0	40	14	35	0	0	49	0	1	0	0	1	133
Exiting Leg					63					30					37					3	133
Total					106					70					86					4	266

PDI File #: **186102 E**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class:

Single-Unit Trucks

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	3	0	0	3	3	1	0	0	4	0	3	1	0	4	0	0	0	0	0	11
7:15 AM	1	1	0	0	2	2	2	1	0	5	0	1	1	0	2	0	1	0	0	1	10
7:30 AM	0	2	1	0	3	3	1	0	0	4	1	1	1	0	3	0	0	0	0	0	10
7:45 AM	0	4	2	0	6	0	3	1	0	4	0	2	0	0	2	0	2	0	0	2	14
Total	1	10	3	0	14	8	7	2	0	17	1	7	3	0	11	0	3	0	0	3	45
8:00 AM	0	0	1	0	1	4	0	2	0	6	0	1	0	0	1	0	4	0	0	4	12
8:15 AM	0	5	0	0	5	0	2	2	0	4	0	1	0	0	1	0	2	2	0	4	14
8:30 AM	1	2	1	0	4	0	1	2	0	3	2	2	0	0	4	0	1	0	0	1	12
8:45 AM	2	0	2	0	4	2	1	1	0	4	2	4	2	0	8	0	0	0	0	0	16
Total	3	7	4	0	14	6	4	7	0	17	4	8	2	0	14	0	7	2	0	9	54
Grand Total	4	17	7	0	28	14	11	9	0	34	5	15	5	0	25	0	10	2	0	12	99
Approach %	14.3	60.7	25.0	0.0		41.2	32.4	26.5	0.0		20.0	60.0	20.0	0.0		0.0	83.3	16.7	0.0		
Total %	4.0	17.2	7.1	0.0	28.3	14.1	11.1	9.1	0.0	34.3	5.1	15.2	5.1	0.0	25.3	0.0	10.1	2.0	0.0	12.1	
Exiting Leg Total					31					22					26					20	99

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	0	1	0	1	4	0	2	0	6	0	1	0	0	1	0	4	0	0	4	12
8:15 AM	0	5	0	0	5	0	2	2	0	4	0	1	0	0	1	0	2	2	0	4	14
8:30 AM	1	2	1	0	4	0	1	2	0	3	2	2	0	0	4	0	1	0	0	1	12
8:45 AM	2	0	2	0	4	2	1	1	0	4	2	4	2	0	8	0	0	0	0	0	16
Total Volume	3	7	4	0	14	6	4	7	0	17	4	8	2	0	14	0	7	2	0	9	54
% Approach Total	21.4	50.0	28.6	0.0		35.3	23.5	41.2	0.0		28.6	57.1	14.3	0.0		0.0	77.8	22.2	0.0		
PHF	0.375	0.350	0.500	0.000	0.700	0.375	0.500	0.875	0.000	0.708	0.500	0.500	0.250	0.000	0.438	0.000	0.438	0.250	0.000	0.563	0.844
Entering Leg	3	7	4	0	14	6	4	7	0	17	4	8	2	0	14	0	7	2	0	9	54
Exiting Leg					16					15					14					9	54
Total					30					32					28					18	108

PDI File #: **186102 E**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Articulated Trucks

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
7:15 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	2
8:45 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	1	0	2	2	0	0	0	2	0	0	1	0	1	5
Grand Total	0	2	0	0	2	0	1	1	0	2	2	2	0	0	4	0	0	1	0	1	9
Approach %	0.0	100.0	0.0	0.0		0.0	50.0	50.0	0.0		50.0	50.0	0.0	0.0		0.0	0.0	100.0	0.0		
Total %	0.0	22.2	0.0	0.0	22.2	0.0	11.1	11.1	0.0	22.2	22.2	22.2	0.0	0.0	44.4	0.0	0.0	11.1	0.0	11.1	
Exiting Leg Total					3					2					3					1	9

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	2
Total Volume	0	0	0	0	0	0	1	0	0	1	2	1	0	0	3	0	0	1	0	1	5
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		66.7	33.3	0.0	0.0		0.0	0.0	100.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.500	0.250	0.000	0.000	0.750	0.000	0.000	0.250	0.000	0.250	0.625
Entering Leg	0	0	0	0	0	0	1	0	0	1	2	1	0	0	3	0	0	1	0	1	5
Exiting Leg					2					2					0					1	5
Total					2					3					3					2	10

PDI File #: **186102 E**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Brookline Avenue from North							Longwood Avenue from East							Brookline Avenue from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0	0	0	1	3	2	3	0	0	0	1	6	10
7:15 AM	0	2	0	0	0	0	2	1	2	0	0	0	1	4	0	1	0	0	0	0	1	0	7	1	0	0	0	8	15
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	2	0	9	2	0	0	0	11	14
7:45 AM	0	1	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	1	1	1	18	1	0	0	0	20	23
Total	0	3	0	0	0	0	3	1	4	0	0	1	1	7	2	3	0	0	0	2	7	3	37	4	0	0	1	45	62
8:00 AM	0	1	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	9	0	0	0	0	9	11
8:15 AM	0	2	0	0	1	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	22	1	0	0	0	23	27
8:30 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	7	1	0	0	0	8	0	19	0	0	0	0	19	28
8:45 AM	0	1	0	0	0	0	1	0	1	0	0	0	1	2	0	1	0	0	0	0	1	0	23	0	0	0	0	23	27
Total	0	5	0	0	1	0	6	0	1	0	0	0	2	3	0	9	1	0	0	0	10	0	73	1	0	0	0	74	93
Grand Total	0	8	0	0	1	0	9	1	5	0	0	1	3	10	2	12	1	0	0	2	17	3	110	5	0	0	1	119	155
Approach %	0.0	88.9	0.0	0.0	11.1	0.0		10.0	50.0	0.0	0.0	10.0	30.0		11.8	70.6	5.9	0.0	0.0	11.8		2.5	92.4	4.2	0.0	0.0	0.8		
Total %	0.0	5.2	0.0	0.0	0.6	0.0	5.8	0.6	3.2	0.0	0.0	0.6	1.9	6.5	1.3	7.7	0.6	0.0	0.0	1.3	11.0	1.9	71.0	3.2	0.0	0.0	0.6	76.8	
Exiting Leg Total							19							116							13							7	155

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Brookline Avenue from North							Longwood Avenue from East							Brookline Avenue from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	1	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	9	0	0	0	0	9	11
8:15 AM	0	2	0	0	1	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	22	1	0	0	0	23	27
8:30 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	7	1	0	0	0	8	0	19	0	0	0	0	19	28
8:45 AM	0	1	0	0	0	0	1	0	1	0	0	0	1	2	0	1	0	0	0	0	1	0	23	0	0	0	0	23	27
Total Volume	0	5	0	0	1	0	6	0	1	0	0	0	2	3	0	9	1	0	0	0	10	0	73	1	0	0	0	74	93
% Approach Total	0.0	83.3	0.0	0.0	16.7	0.0		0.0	33.3	0.0	0.0	0.0	66.7		0.0	90.0	10.0	0.0	0.0	0.0		0.0	98.6	1.4	0.0	0.0	0.0		
PHF	0.000	0.625	0.000	0.000	0.250	0.000	0.500	0.000	0.250	0.000	0.000	0.000	0.500	0.375	0.000	0.321	0.250	0.000	0.000	0.000	0.313	0.000	0.793	0.250	0.000	0.000	0.000	0.804	0.830
Entering Leg	0	5	0	0	1	0	6	0	1	0	0	0	2	3	0	9	1	0	0	0	10	0	73	1	0	0	0	74	93
Exiting Leg							11							75							5							2	93
Total							17							78							15							76	186

PDI File #: **186102 E**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Pedestrians

	Brookline Avenue from North							Longwood Avenue from East							Brookline Avenue from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	29	7	36	0	0	0	0	13	15	28	0	0	0	0	15	46	61	0	0	0	0	3	9	12	137
7:15 AM	0	0	0	0	40	12	52	0	0	0	0	13	20	33	0	0	0	0	33	57	90	0	0	0	0	3	10	13	188
7:30 AM	0	0	0	0	45	20	65	0	0	0	0	19	30	49	0	0	0	0	22	51	73	0	0	0	0	6	15	21	208
7:45 AM	0	0	0	0	84	23	107	0	0	0	0	22	27	49	0	0	0	0	36	97	133	0	0	0	0	3	3	6	295
Total	0	0	0	0	198	62	260	0	0	0	0	67	92	159	0	0	0	0	106	251	357	0	0	0	0	15	37	52	828
8:00 AM	0	0	0	0	88	20	108	0	0	0	0	14	31	45	0	0	0	0	24	47	71	0	0	0	0	9	8	17	241
8:15 AM	0	0	0	0	97	18	115	0	0	0	0	25	47	72	0	0	0	0	24	80	104	0	0	0	0	9	11	20	311
8:30 AM	0	0	0	0	100	26	126	0	0	0	0	24	33	57	0	0	0	0	34	64	98	0	0	0	0	5	4	9	290
8:45 AM	0	0	0	0	137	31	168	0	0	0	0	27	41	68	0	0	0	0	40	97	137	0	0	0	0	6	15	21	394
Total	0	0	0	0	422	95	517	0	0	0	0	90	152	242	0	0	0	0	122	288	410	0	0	0	0	29	38	67	1236
Grand Total	0	0	0	0	620	157	777	0	0	0	0	157	244	401	0	0	0	0	228	539	767	0	0	0	0	44	75	119	2064
Approach %	0	0	0	0	79.8	20.2		0	0	0	0	39.2	60.8		0	0	0	0	29.7	70.3		0	0	0	0	37	63		
Total %	0	0	0	0	30	7.61	37.6	0	0	0	0	7.61	11.8	19.4	0	0	0	0	11	26.1	37.2	0	0	0	0	2.13	3.63	5.77	
Exiting Leg Total							777							401							767							119	2064

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Brookline Avenue from North							Longwood Avenue from East							Brookline Avenue from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	0	88	20	108	0	0	0	0	14	31	45	0	0	0	0	24	47	71	0	0	0	0	9	8	17	241
8:15 AM	0	0	0	0	97	18	115	0	0	0	0	25	47	72	0	0	0	0	24	80	104	0	0	0	0	9	11	20	311
8:30 AM	0	0	0	0	100	26	126	0	0	0	0	24	33	57	0	0	0	0	34	64	98	0	0	0	0	5	4	9	290
8:45 AM	0	0	0	0	137	31	168	0	0	0	0	27	41	68	0	0	0	0	40	97	137	0	0	0	0	6	15	21	394
Total Volume	0	0	0	0	422	95	517	0	0	0	0	90	152	242	0	0	0	0	122	288	410	0	0	0	0	29	38	67	1236
% Approach Total	0.0	0.0	0.0	0.0	81.6	18.4		0.0	0.0	0.0	0.0	37.2	62.8		0.0	0.0	0.0	0.0	29.8	70.2		0.0	0.0	0.0	0.0	43.3	56.7		
PHF	0.000	0.000	0.000	0.000	0.770	0.766	0.769	0.000	0.000	0.000	0.000	0.833	0.809	0.840	0.000	0.000	0.000	0.000	0.763	0.742	0.748	0.000	0.000	0.000	0.000	0.806	0.633	0.798	0.784
Entering Leg	0	0	0	0	422	95	517	0	0	0	0	90	152	242	0	0	0	0	122	288	410	0	0	0	0	29	38	67	1236
Exiting Leg							517							242							410							67	1236
Total							1034							484							820							134	2472

PDI File #: **186102 EE**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	26	163	52	0	241	67	47	25	0	139	34	103	14	0	151	7	35	12	0	54	585
3:15 PM	29	153	45	0	227	77	57	41	0	175	25	98	13	0	136	6	51	13	0	70	608
3:30 PM	24	149	53	0	226	73	54	41	0	168	39	121	18	0	178	13	26	15	0	54	626
3:45 PM	19	124	47	0	190	75	63	42	0	180	22	119	11	0	152	8	43	14	0	65	587
Total	98	589	197	0	884	292	221	149	0	662	120	441	56	0	617	34	155	54	0	243	2406
4:00 PM	18	161	51	0	230	64	44	33	0	141	29	130	12	0	171	6	35	6	0	47	589
4:15 PM	16	156	49	0	221	69	60	39	0	168	26	119	12	0	157	8	41	4	0	53	599
4:30 PM	23	165	38	0	226	75	63	35	0	173	27	138	12	0	177	6	40	7	0	53	629
4:45 PM	24	159	42	0	225	61	62	35	0	158	20	115	12	0	147	13	47	6	0	66	596
Total	81	641	180	0	902	269	229	142	0	640	102	502	48	0	652	33	163	23	0	219	2413
5:00 PM	19	177	37	0	233	53	36	34	0	123	22	108	10	0	140	13	43	13	0	69	565
5:15 PM	13	159	38	0	210	71	64	38	0	173	24	100	14	0	138	7	48	11	0	66	587
5:30 PM	23	178	44	0	245	60	62	35	0	157	21	103	8	0	132	8	38	17	0	63	597
5:45 PM	24	154	46	0	224	56	58	41	0	155	31	103	8	0	142	4	27	10	0	41	562
Total	79	668	165	0	912	240	220	148	0	608	98	414	40	0	552	32	156	51	0	239	2311
Grand Total	258	1898	542	0	2698	801	670	439	0	1910	320	1357	144	0	1821	99	474	128	0	701	7130
Approach %	9.6	70.3	20.1	0.0		41.9	35.1	23.0	0.0		17.6	74.5	7.9	0.0		14.1	67.6	18.3	0.0		
Total %	3.6	26.6	7.6	0.0	37.8	11.2	9.4	6.2	0.0	26.8	4.5	19.0	2.0	0.0	25.5	1.4	6.6	1.8	0.0	9.8	
Exiting Leg Total					2286					1336					2436					1072	7130
Cars	243	1803	503	0	2549	740	645	411	0	1796	277	1274	139	0	1690	98	461	127	0	686	6721
% Cars	94.2	95.0	92.8	0.0	94.5	92.4	96.3	93.6	0.0	94.0	86.6	93.9	96.5	0.0	92.8	99.0	97.3	99.2	0.0	97.9	94.3
Exiting Leg Total					2141					1241					2312					1027	6721
Heavy Vehicles	15	95	39	0	149	61	25	28	0	114	43	83	5	0	131	1	13	1	0	15	409
% Heavy Vehicles	5.8	5.0	7.2	0.0	5.5	7.6	3.7	6.4	0.0	6.0	13.4	6.1	3.5	0.0	7.2	1.0	2.7	0.8	0.0	2.1	5.7
Exiting Leg Total					145					95					124					45	409

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:00 PM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	18	161	51	0	230	64	44	33	0	141	29	130	12	0	171	6	35	6	0	47	589
4:15 PM	16	156	49	0	221	69	60	39	0	168	26	119	12	0	157	8	41	4	0	53	599
4:30 PM	23	165	38	0	226	75	63	35	0	173	27	138	12	0	177	6	40	7	0	53	629
4:45 PM	24	159	42	0	225	61	62	35	0	158	20	115	12	0	147	13	47	6	0	66	596
Total Volume	81	641	180	0	902	269	229	142	0	640	102	502	48	0	652	33	163	23	0	219	2413
% Approach Total	9.0	71.1	20.0	0.0		42.0	35.8	22.2	0.0		15.6	77.0	7.4	0.0		15.1	74.4	10.5	0.0		
PHF	0.844	0.971	0.882	0.000	0.980	0.897	0.909	0.910	0.000	0.925	0.879	0.909	1.000	0.000	0.921	0.635	0.867	0.821	0.000	0.830	0.959
Cars	76	606	171	0	853	249	228	134	0	611	85	474	46	0	605	32	158	23	0	213	2282
Cars %	93.8	94.5	95.0	0.0	94.6	92.6	99.6	94.4	0.0	95.5	83.3	94.4	95.8	0.0	92.8	97.0	96.9	100.0	0.0	97.3	94.6
Heavy Vehicles	5	35	9	0	49	20	1	8	0	29	17	28	2	0	47	1	5	0	0	6	131
Heavy Vehicles %	6.2	5.5	5.0	0.0	5.4	7.4	0.4	5.6	0.0	4.5	16.7	5.6	4.2	0.0	7.2	3.0	3.1	0.0	0.0	2.7	5.4
Cars Enter Leg	76	606	171	0	853	249	228	134	0	611	85	474	46	0	605	32	158	23	0	213	2282
Heavy Enter Leg	5	35	9	0	49	20	1	8	0	29	17	28	2	0	47	1	5	0	0	6	131
Total Entering Leg	81	641	180	0	902	269	229	142	0	640	102	502	48	0	652	33	163	23	0	219	2413
Cars Exiting Leg					746					414					772					350	2282
Heavy Exiting Leg					48					31					44					8	131
Total Exiting Leg					794					445					816					358	2413

PDI File #: **186102 EE**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars-Combined (Motorcycles, Cars, Light Goods)

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	24	154	49	0	227	63	39	22	0	124	31	93	14	0	138	7	33	12	0	52	541
3:15 PM	27	146	42	0	215	69	55	38	0	162	21	91	13	0	125	6	50	13	0	69	571
3:30 PM	22	139	47	0	208	70	50	40	0	160	36	114	18	0	168	13	25	15	0	53	589
3:45 PM	18	118	43	0	179	70	55	40	0	165	19	113	10	0	142	8	42	14	0	64	550
Total	91	557	181	0	829	272	199	140	0	611	107	411	55	0	573	34	150	54	0	238	2251
4:00 PM	16	151	51	0	218	58	44	30	0	132	22	122	12	0	156	6	33	6	0	45	551
4:15 PM	15	146	46	0	207	63	60	37	0	160	22	112	12	0	146	8	40	4	0	52	565
4:30 PM	23	158	34	0	215	71	63	34	0	168	24	131	11	0	166	6	39	7	0	52	601
4:45 PM	22	151	40	0	213	57	61	33	0	151	17	109	11	0	137	12	46	6	0	64	565
Total	76	606	171	0	853	249	228	134	0	611	85	474	46	0	605	32	158	23	0	213	2282
5:00 PM	17	168	33	0	218	47	36	32	0	115	19	99	9	0	127	13	41	13	0	67	527
5:15 PM	13	153	35	0	201	65	63	34	0	162	21	95	13	0	129	7	48	11	0	66	558
5:30 PM	23	169	39	0	231	56	61	33	0	150	18	96	8	0	122	8	37	17	0	62	565
5:45 PM	23	150	44	0	217	51	58	38	0	147	27	99	8	0	134	4	27	9	0	40	538
Total	76	640	151	0	867	219	218	137	0	574	85	389	38	0	512	32	153	50	0	235	2188
Grand Total	243	1803	503	0	2549	740	645	411	0	1796	277	1274	139	0	1690	98	461	127	0	686	6721
Approach %	9.5	70.7	19.7	0.0		41.2	35.9	22.9	0.0		16.4	75.4	8.2	0.0		14.3	67.2	18.5	0.0		
Total %	3.6	26.8	7.5	0.0	37.9	11.0	9.6	6.1	0.0	26.7	4.1	19.0	2.1	0.0	25.1	1.5	6.9	1.9	0.0	10.2	
Exiting Leg Total					2141					1241					2312					1027	6721

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:00 PM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	16	151	51	0	218	58	44	30	0	132	22	122	12	0	156	6	33	6	0	45	551
4:15 PM	15	146	46	0	207	63	60	37	0	160	22	112	12	0	146	8	40	4	0	52	565
4:30 PM	23	158	34	0	215	71	63	34	0	168	24	131	11	0	166	6	39	7	0	52	601
4:45 PM	22	151	40	0	213	57	61	33	0	151	17	109	11	0	137	12	46	6	0	64	565
Total Volume	76	606	171	0	853	249	228	134	0	611	85	474	46	0	605	32	158	23	0	213	2282
% Approach Total	8.9	71.0	20.0	0.0		40.8	37.3	21.9	0.0		14.0	78.3	7.6	0.0		15.0	74.2	10.8	0.0		
PHF	0.826	0.959	0.838	0.000	0.978	0.877	0.905	0.905	0.000	0.909	0.885	0.905	0.958	0.000	0.911	0.667	0.859	0.821	0.000	0.832	0.949
Entering Leg	76	606	171	0	853	249	228	134	0	611	85	474	46	0	605	32	158	23	0	213	2282
Exiting Leg					746					414					772					350	2282
Total					1599					1025					1377					563	4564

PDI File #: **186102 EE**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	2	9	3	0	14	4	8	3	0	15	3	10	0	0	13	0	2	0	0	2	44
3:15 PM	2	7	3	0	12	8	2	3	0	13	4	7	0	0	11	0	1	0	0	1	37
3:30 PM	2	10	6	0	18	3	4	1	0	8	3	7	0	0	10	0	1	0	0	1	37
3:45 PM	1	6	4	0	11	5	8	2	0	15	3	6	1	0	10	0	1	0	0	1	37
Total	7	32	16	0	55	20	22	9	0	51	13	30	1	0	44	0	5	0	0	5	155
4:00 PM	2	10	0	0	12	6	0	3	0	9	7	8	0	0	15	0	2	0	0	2	38
4:15 PM	1	10	3	0	14	6	0	2	0	8	4	7	0	0	11	0	1	0	0	1	34
4:30 PM	0	7	4	0	11	4	0	1	0	5	3	7	1	0	11	0	1	0	0	1	28
4:45 PM	2	8	2	0	12	4	1	2	0	7	3	6	1	0	10	1	1	0	0	2	31
Total	5	35	9	0	49	20	1	8	0	29	17	28	2	0	47	1	5	0	0	6	131
5:00 PM	2	9	4	0	15	6	0	2	0	8	3	9	1	0	13	0	2	0	0	2	38
5:15 PM	0	6	3	0	9	6	1	4	0	11	3	5	1	0	9	0	0	0	0	0	29
5:30 PM	0	9	5	0	14	4	1	2	0	7	3	7	0	0	10	0	1	0	0	1	32
5:45 PM	1	4	2	0	7	5	0	3	0	8	4	4	0	0	8	0	0	1	0	1	24
Total	3	28	14	0	45	21	2	11	0	34	13	25	2	0	40	0	3	1	0	4	123
Grand Total	15	95	39	0	149	61	25	28	0	114	43	83	5	0	131	1	13	1	0	15	409
Approach %	10.1	63.8	26.2	0.0		53.5	21.9	24.6	0.0		32.8	63.4	3.8	0.0		6.7	86.7	6.7	0.0		
Total %	3.7	23.2	9.5	0.0	36.4	14.9	6.1	6.8	0.0	27.9	10.5	20.3	1.2	0.0	32.0	0.2	3.2	0.2	0.0	3.7	
Exiting Leg Total					145					95					124					45	409
Buses	12	84	35	0	131	55	10	22	0	87	38	68	4	0	110	0	12	1	0	13	341
% Buses	80.0	88.4	89.7	0.0	87.9	90.2	40.0	78.6	0.0	76.3	88.4	81.9	80.0	0.0	84.0	0.0	92.3	100.0	0.0	86.7	83.4
Exiting Leg Total					124					85					106					26	341
Single-Unit Trucks	3	11	4	0	18	4	3	5	0	12	4	14	1	0	19	1	1	0	0	2	51
% Single-Unit	20.0	11.6	10.3	0.0	12.1	6.6	12.0	17.9	0.0	10.5	9.3	16.9	20.0	0.0	14.5	100.0	7.7	0.0	0.0	13.3	12.5
Exiting Leg Total					18					9					17					7	51
Articulated Trucks	0	0	0	0	0	2	12	1	0	15	1	1	0	0	2	0	0	0	0	0	17
% Articulated	0.0	0.0	0.0	0.0	0.0	3.3	48.0	3.6	0.0	13.2	2.3	1.2	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	4.2
Exiting Leg Total					3					1					1					12	17

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	2	9	3	0	14	4	8	3	0	15	3	10	0	0	13	0	2	0	0	2	44
3:15 PM	2	7	3	0	12	8	2	3	0	13	4	7	0	0	11	0	1	0	0	1	37
3:30 PM	2	10	6	0	18	3	4	1	0	8	3	7	0	0	10	0	1	0	0	1	37
3:45 PM	1	6	4	0	11	5	8	2	0	15	3	6	1	0	10	0	1	0	0	1	37
Total Volume	7	32	16	0	55	20	22	9	0	51	13	30	1	0	44	0	5	0	0	5	155
% Approach Total	12.7	58.2	29.1	0.0		39.2	43.1	17.6	0.0		29.5	68.2	2.3	0.0		0.0	100.0	0.0	0.0		
PHF	0.875	0.800	0.667	0.000	0.764	0.625	0.688	0.750	0.000	0.850	0.813	0.750	0.250	0.000	0.846	0.000	0.625	0.000	0.000	0.625	0.881
Buses	6	28	14	0	48	16	7	8	0	31	12	25	1	0	38	0	5	0	0	5	122
Buses %	85.7	87.5	87.5	0.0	87.3	80.0	31.8	88.9	0.0	60.8	92.3	83.3	100.0	0.0	86.4	0.0	100.0	0.0	0.0	100.0	78.7
Single-Unit Trucks	1	4	2	0	7	3	3	0	0	6	1	4	0	0	5	0	0	0	0	0	18
Single-Unit %	14.3	12.5	12.5	0.0	12.7	15.0	13.6	0.0	0.0	11.8	7.7	13.3	0.0	0.0	11.4	0.0	0.0	0.0	0.0	0.0	11.6
Articulated Trucks	0	0	0	0	0	1	12	1	0	14	0	1	0	0	1	0	0	0	0	0	15
Articulated %	0.0	0.0	0.0	0.0	0.0	5.0	54.5	11.1	0.0	27.5	0.0	3.3	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	9.7
Buses	6	28	14	0	48	16	7	8	0	31	12	25	1	0	38	0	5	0	0	5	122
Single-Unit Trucks	1	4	2	0	7	3	3	0	0	6	1	4	0	0	5	0	0	0	0	0	18
Articulated Trucks	0	0	0	0	0	1	12	1	0	14	0	1	0	0	1	0	0	0	0	0	15
Total Entering Leg	7	32	16	0	55	20	22	9	0	51	13	30	1	0	44	0	5	0	0	5	155
Buses					41					31					36					14	122
Single-Unit Trucks					7					3					4					4	18
Articulated Trucks					2					0					1					12	15
Total Exiting Leg					50					34					41					30	155

PDI File #: **186102 EE**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	23	141	43	0	207	63	38	22	0	123	30	86	13	0	129	6	33	12	0	51	510
3:15 PM	27	130	39	0	196	66	53	38	0	157	21	79	13	0	113	5	46	12	0	63	529
3:30 PM	22	129	46	0	197	64	46	40	0	150	35	106	18	0	159	12	23	15	0	50	556
3:45 PM	16	111	40	0	167	64	54	40	0	158	19	107	9	0	135	8	40	14	0	62	522
Total	88	511	168	0	767	257	191	140	0	588	105	378	53	0	536	31	142	53	0	226	2117
4:00 PM	16	138	51	0	205	57	44	29	0	130	21	118	12	0	151	6	30	5	0	41	527
4:15 PM	14	138	43	0	195	60	59	35	0	154	22	105	12	0	139	8	40	3	0	51	539
4:30 PM	22	149	33	0	204	70	62	33	0	165	23	118	10	0	151	6	39	7	0	52	572
4:45 PM	22	142	35	0	199	55	58	33	0	146	17	101	10	0	128	12	45	6	0	63	536
Total	74	567	162	0	803	242	223	130	0	595	83	442	44	0	569	32	154	21	0	207	2174
5:00 PM	17	163	32	0	212	44	35	30	0	109	19	92	9	0	120	10	40	12	0	62	503
5:15 PM	13	149	33	0	195	64	61	32	0	157	21	84	13	0	118	7	48	10	0	65	535
5:30 PM	22	166	39	0	227	55	58	33	0	146	16	94	8	0	118	7	36	17	0	60	551
5:45 PM	23	148	40	0	211	48	57	37	0	142	27	95	8	0	130	3	27	9	0	39	522
Total	75	626	144	0	845	211	211	132	0	554	83	365	38	0	486	27	151	48	0	226	2111
Grand Total	237	1704	474	0	2415	710	625	402	0	1737	271	1185	135	0	1591	90	447	122	0	659	6402
Approach %	9.8	70.6	19.6	0.0		40.9	36.0	23.1	0.0		17.0	74.5	8.5	0.0		13.7	67.8	18.5	0.0		
Total %	3.7	26.6	7.4	0.0	37.7	11.1	9.8	6.3	0.0	27.1	4.2	18.5	2.1	0.0	24.9	1.4	7.0	1.9	0.0	10.3	
Exiting Leg Total					2017					1192					2196					997	6402

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:00 PM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	16	138	51	0	205	57	44	29	0	130	21	118	12	0	151	6	30	5	0	41	527
4:15 PM	14	138	43	0	195	60	59	35	0	154	22	105	12	0	139	8	40	3	0	51	539
4:30 PM	22	149	33	0	204	70	62	33	0	165	23	118	10	0	151	6	39	7	0	52	572
4:45 PM	22	142	35	0	199	55	58	33	0	146	17	101	10	0	128	12	45	6	0	63	536
Total Volume	74	567	162	0	803	242	223	130	0	595	83	442	44	0	569	32	154	21	0	207	2174
% Approach Total	9.2	70.6	20.2	0.0		40.7	37.5	21.8	0.0		14.6	77.7	7.7	0.0		15.5	74.4	10.1	0.0		
PHF	0.841	0.951	0.794	0.000	0.979	0.864	0.899	0.929	0.000	0.902	0.902	0.936	0.917	0.000	0.942	0.667	0.856	0.750	0.000	0.821	0.950
Entering Leg	74	567	162	0	803	242	223	130	0	595	83	442	44	0	569	32	154	21	0	207	2174
Exiting Leg					705					399					729					341	2174
Total					1508					994					1298					548	4348

PDI File #: **186102 EE**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Light Goods Vehicle

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	1	13	6	0	20	0	1	0	0	1	1	7	1	0	9	1	0	0	0	1	31
3:15 PM	0	16	3	0	19	3	2	0	0	5	0	12	0	0	12	1	4	1	0	6	42
3:30 PM	0	10	1	0	11	6	4	0	0	10	1	8	0	0	9	1	2	0	0	3	33
3:45 PM	2	7	3	0	12	6	1	0	0	7	0	6	1	0	7	0	2	0	0	2	28
Total	3	46	13	0	62	15	8	0	0	23	2	33	2	0	37	3	8	1	0	12	134
4:00 PM	0	13	0	0	13	1	0	1	0	2	1	4	0	0	5	0	3	1	0	4	24
4:15 PM	1	8	3	0	12	3	1	2	0	6	0	7	0	0	7	0	0	1	0	1	26
4:30 PM	1	9	1	0	11	1	1	1	0	3	1	13	1	0	15	0	0	0	0	0	29
4:45 PM	0	9	5	0	14	2	1	0	0	3	0	8	1	0	9	0	1	0	0	1	27
Total	2	39	9	0	50	7	3	4	0	14	2	32	2	0	36	0	4	2	0	6	106
5:00 PM	0	5	1	0	6	3	1	2	0	6	0	7	0	0	7	3	1	1	0	5	24
5:15 PM	0	3	2	0	5	1	2	2	0	5	0	11	0	0	11	0	0	1	0	1	22
5:30 PM	1	3	0	0	4	1	2	0	0	3	2	2	0	0	4	1	1	0	0	2	13
5:45 PM	0	2	4	0	6	3	1	1	0	5	0	3	0	0	3	1	0	0	0	1	15
Total	1	13	7	0	21	8	6	5	0	19	2	23	0	0	25	5	2	2	0	9	74
Grand Total	6	98	29	0	133	30	17	9	0	56	6	88	4	0	98	8	14	5	0	27	314
Approach %	4.5	73.7	21.8	0.0		53.6	30.4	16.1	0.0		6.1	89.8	4.1	0.0		29.6	51.9	18.5	0.0		
Total %	1.9	31.2	9.2	0.0	42.4	9.6	5.4	2.9	0.0	17.8	1.9	28.0	1.3	0.0	31.2	2.5	4.5	1.6	0.0	8.6	
Exiting Leg Total					123					49					115					27	314

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	1	13	6	0	20	0	1	0	0	1	1	7	1	0	9	1	0	0	0	1	31
3:15 PM	0	16	3	0	19	3	2	0	0	5	0	12	0	0	12	1	4	1	0	6	42
3:30 PM	0	10	1	0	11	6	4	0	0	10	1	8	0	0	9	1	2	0	0	3	33
3:45 PM	2	7	3	0	12	6	1	0	0	7	0	6	1	0	7	0	2	0	0	2	28
Total Volume	3	46	13	0	62	15	8	0	0	23	2	33	2	0	37	3	8	1	0	12	134
% Approach Total	4.8	74.2	21.0	0.0		65.2	34.8	0.0	0.0		5.4	89.2	5.4	0.0		25.0	66.7	8.3	0.0		
PHF	0.375	0.719	0.542	0.000	0.775	0.625	0.500	0.000	0.000	0.575	0.500	0.688	0.500	0.000	0.771	0.750	0.500	0.250	0.000	0.500	0.798
Entering Leg	3	46	13	0	62	15	8	0	0	23	2	33	2	0	37	3	8	1	0	12	134
Exiting Leg					49					23					49					13	134
Total					111					46					86					25	268

PDI File #: **186102 EE**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Buses

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	2	8	3	0	13	3	4	3	0	10	2	8	0	0	10	0	2	0	0	2	35
3:15 PM	1	6	2	0	9	6	0	2	0	8	4	5	0	0	9	0	1	0	0	1	27
3:30 PM	2	8	5	0	15	3	0	1	0	4	3	6	0	0	9	0	1	0	0	1	29
3:45 PM	1	6	4	0	11	4	3	2	0	9	3	6	1	0	10	0	1	0	0	1	31
Total	6	28	14	0	48	16	7	8	0	31	12	25	1	0	38	0	5	0	0	5	122
4:00 PM	1	9	0	0	10	5	0	2	0	7	5	7	0	0	12	0	2	0	0	2	31
4:15 PM	1	9	3	0	13	6	0	2	0	8	3	6	0	0	9	0	0	0	0	0	30
4:30 PM	0	7	4	0	11	4	0	1	0	5	3	6	1	0	10	0	1	0	0	1	27
4:45 PM	2	6	1	0	9	3	1	1	0	5	3	5	1	0	9	0	1	0	0	1	24
Total	4	31	8	0	43	18	1	6	0	25	14	24	2	0	40	0	4	0	0	4	112
5:00 PM	2	9	4	0	15	6	0	1	0	7	3	7	1	0	11	0	2	0	0	2	35
5:15 PM	0	5	2	0	7	6	1	3	0	10	3	5	0	0	8	0	0	0	0	0	25
5:30 PM	0	8	5	0	13	4	1	2	0	7	3	3	0	0	6	0	1	0	0	1	27
5:45 PM	0	3	2	0	5	5	0	2	0	7	3	4	0	0	7	0	0	1	0	1	20
Total	2	25	13	0	40	21	2	8	0	31	12	19	1	0	32	0	3	1	0	4	107
Grand Total	12	84	35	0	131	55	10	22	0	87	38	68	4	0	110	0	12	1	0	13	341
Approach %	9.2	64.1	26.7	0.0		63.2	11.5	25.3	0.0		34.5	61.8	3.6	0.0		0.0	92.3	7.7	0.0		
Total %	3.5	24.6	10.3	0.0	38.4	16.1	2.9	6.5	0.0	25.5	11.1	19.9	1.2	0.0	32.3	0.0	3.5	0.3	0.0	3.8	
Exiting Leg Total					124					85					106					26	341

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	2	8	3	0	13	3	4	3	0	10	2	8	0	0	10	0	2	0	0	2	35
3:15 PM	1	6	2	0	9	6	0	2	0	8	4	5	0	0	9	0	1	0	0	1	27
3:30 PM	2	8	5	0	15	3	0	1	0	4	3	6	0	0	9	0	1	0	0	1	29
3:45 PM	1	6	4	0	11	4	3	2	0	9	3	6	1	0	10	0	1	0	0	1	31
Total Volume	6	28	14	0	48	16	7	8	0	31	12	25	1	0	38	0	5	0	0	5	122
% Approach Total	12.5	58.3	29.2	0.0		51.6	22.6	25.8	0.0		31.6	65.8	2.6	0.0		0.0	100.0	0.0	0.0		
PHF	0.750	0.875	0.700	0.000	0.800	0.667	0.438	0.667	0.000	0.775	0.750	0.781	0.250	0.000	0.950	0.000	0.625	0.000	0.000	0.625	0.871
Entering Leg	6	28	14	0	48	16	7	8	0	31	12	25	1	0	38	0	5	0	0	5	122
Exiting Leg					41					31					36					14	122
Total					89					62					74					19	244

PDI File #: **186102 EE**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Single-Unit Trucks

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	1	0	0	1	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	4
3:15 PM	1	1	1	0	3	2	1	0	0	3	0	1	0	0	1	0	0	0	0	0	7
3:30 PM	0	2	1	0	3	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	5
3:45 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	1	4	2	0	7	3	3	0	0	6	1	4	0	0	5	0	0	0	0	0	18
4:00 PM	1	1	0	0	2	1	0	1	0	2	2	1	0	0	3	0	0	0	0	0	7
4:15 PM	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	0	1	0	0	1	4
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
4:45 PM	0	2	1	0	3	0	0	1	0	1	0	1	0	0	1	1	0	0	0	1	6
Total	1	4	1	0	6	1	0	2	0	3	3	4	0	0	7	1	1	0	0	2	18
5:00 PM	0	0	0	0	0	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	3
5:15 PM	0	1	1	0	2	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	4
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	5
5:45 PM	1	1	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3
Total	1	3	1	0	5	0	0	3	0	3	0	6	1	0	7	0	0	0	0	0	15
Grand Total	3	11	4	0	18	4	3	5	0	12	4	14	1	0	19	1	1	0	0	2	51
Approach %	16.7	61.1	22.2	0.0		33.3	25.0	41.7	0.0		21.1	73.7	5.3	0.0		50.0	50.0	0.0	0.0		
Total %	5.9	21.6	7.8	0.0	35.3	7.8	5.9	9.8	0.0	23.5	7.8	27.5	2.0	0.0	37.3	2.0	2.0	0.0	0.0	3.9	
Exiting Leg Total					18					9					17					7	51

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	1	0	0	1	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	4
3:15 PM	1	1	1	0	3	2	1	0	0	3	0	1	0	0	1	0	0	0	0	0	7
3:30 PM	0	2	1	0	3	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	5
3:45 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total Volume	1	4	2	0	7	3	3	0	0	6	1	4	0	0	5	0	0	0	0	0	18
% Approach Total	14.3	57.1	28.6	0.0		50.0	50.0	0.0	0.0		20.0	80.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.250	0.500	0.500	0.000	0.583	0.375	0.750	0.000	0.000	0.500	0.250	0.500	0.000	0.000	0.417	0.000	0.000	0.000	0.000	0.000	0.643
Entering Leg	1	4	2	0	7	3	3	0	0	6	1	4	0	0	5	0	0	0	0	0	18
Exiting Leg					7					3					4					4	18
Total					14					9					9					4	36

PDI File #: **186102 EE**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Articulated Trucks

	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	0	0	0	0	5
3:15 PM	0	0	0	0	0	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	3
3:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
3:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4
Total	0	0	0	0	0	1	12	1	0	14	0	1	0	0	1	0	0	0	0	0	15
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Grand Total	0	0	0	0	0	2	12	1	0	15	1	1	0	0	2	0	0	0	0	0	17
Approach %	0.0	0.0	0.0	0.0		13.3	80.0	6.7	0.0		50.0	50.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	11.8	70.6	5.9	0.0	88.2	5.9	5.9	0.0	0.0	11.8	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					3					1					1					12	17

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Brookline Avenue from North					Longwood Avenue from East					Brookline Avenue from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	0	0	0	0	5
3:15 PM	0	0	0	0	0	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	3
3:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
3:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4
Total Volume	0	0	0	0	0	1	12	1	0	14	0	1	0	0	1	0	0	0	0	0	15
% Approach Total	0.0	0.0	0.0	0.0		7.1	85.7	7.1	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.250	0.750	0.250	0.000	0.700	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.750
Entering Leg	0	0	0	0	0	1	12	1	0	14	0	1	0	0	1	0	0	0	0	0	15
Exiting Leg					2					0					1					12	15
Total					2					14					2					12	30

PDI File #: **186102 EE**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Brookline Avenue from North							Longwood Avenue from East							Brookline Avenue from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	1	0	0	0	0	1	3
3:15 PM	1	2	0	0	0	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	1	5
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	2	0	0	0	0	3	0	0	0	0	0	0	0	1	1	0	0	0	1	3	0	2	0	0	0	0	2	8
4:00 PM	0	0	0	0	0	0	0	0	9	0	0	0	1	10	0	2	0	0	0	0	2	0	1	0	0	0	0	1	13
4:15 PM	0	0	0	0	0	0	0	3	5	1	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
4:30 PM	0	3	0	0	0	0	3	0	7	0	0	1	0	8	0	0	0	0	0	0	0	0	1	0	0	0	0	1	12
4:45 PM	0	2	0	0	0	0	2	0	13	1	0	1	0	15	0	2	0	0	0	0	2	0	1	0	0	0	0	1	20
Total	0	5	0	0	0	0	5	3	34	2	0	2	1	42	0	4	0	0	0	0	4	0	3	0	0	0	0	3	54
5:00 PM	0	0	0	0	0	0	0	1	17	0	0	0	0	18	0	4	1	0	0	0	5	0	2	0	0	0	0	2	25
5:15 PM	0	1	0	0	0	0	1	0	17	0	0	0	0	17	0	0	1	0	0	0	1	0	4	0	0	0	0	4	23
5:30 PM	1	4	0	0	0	0	5	0	13	0	0	0	0	13	0	0	0	0	0	0	0	0	2	0	0	0	0	2	20
5:45 PM	0	2	1	0	0	0	3	1	17	0	0	0	0	18	0	2	1	0	0	1	4	0	1	0	0	0	0	1	26
Total	1	7	1	0	0	0	9	2	64	0	0	0	0	66	0	6	3	0	0	1	10	0	9	0	0	0	0	9	94
Grand Total	2	14	1	0	0	0	17	5	98	2	0	2	1	108	1	11	3	0	0	2	17	0	14	0	0	0	0	14	156
Approach %	11.8	82.4	5.9	0.0	0.0	0.0		4.6	90.7	1.9	0.0	1.9	0.9		5.9	64.7	17.6	0.0	0.0	11.8		0.0	100.0	0.0	0.0	0.0	0.0		
Total %	1.3	9.0	0.6	0.0	0.0	0.0	10.9	3.2	62.8	1.3	0.0	1.3	0.6	69.2	0.6	7.1	1.9	0.0	0.0	1.3	10.9	0.0	9.0	0.0	0.0	0.0	0.0	9.0	
Exiting Leg Total							16							19							18							103	156

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

5:00 PM	Brookline Avenue from North							Longwood Avenue from East							Brookline Avenue from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	0	0	0	0	0	0	1	17	0	0	0	0	18	0	4	1	0	0	0	5	0	2	0	0	0	0	2	25
5:15 PM	0	1	0	0	0	0	1	0	17	0	0	0	0	17	0	0	1	0	0	0	1	0	4	0	0	0	0	4	23
5:30 PM	1	4	0	0	0	0	5	0	13	0	0	0	0	13	0	0	0	0	0	0	0	0	2	0	0	0	0	2	20
5:45 PM	0	2	1	0	0	0	3	1	17	0	0	0	0	18	0	2	1	0	0	1	4	0	1	0	0	0	0	1	26
Total Volume	1	7	1	0	0	0	9	2	64	0	0	0	0	66	0	6	3	0	0	1	10	0	9	0	0	0	0	9	94
% Approach Total	11.1	77.8	11.1	0.0	0.0	0.0		3.0	97.0	0.0	0.0	0.0	0.0		0.0	60.0	30.0	0.0	0.0	10.0		0.0	100.0	0.0	0.0	0.0	0.0		
PHF	0.250	0.438	0.250	0.000	0.000	0.000	0.450	0.500	0.941	0.000	0.000	0.000	0.000	0.917	0.000	0.375	0.750	0.000	0.000	0.250	0.500	0.000	0.563	0.000	0.000	0.000	0.000	0.563	0.904
Entering Leg	1	7	1	0	0	0	9	2	64	0	0	0	0	66	0	6	3	0	0	1	10	0	9	0	0	0	0	9	94
Exiting Leg							8							10							8							68	94
Total							17							76							18							77	188

PDI File #: **186102 EE**
Location: **N: Brookline Avenue S: Brookline Avenue**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Pedestrians

	Brookline Avenue from North							Longwood Avenue from East							Brookline Avenue from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	26	29	55	0	0	0	0	23	34	57	0	0	0	0	46	53	99	0	0	0	0	15	10	25	236
3:15 PM	0	0	0	0	25	26	51	0	0	0	0	26	50	76	0	0	0	0	39	56	95	0	0	0	0	6	7	13	235
3:30 PM	0	0	0	0	14	41	55	0	0	0	0	30	34	64	0	0	0	0	35	39	74	0	0	0	0	8	5	13	206
3:45 PM	0	0	0	0	19	37	56	0	0	0	0	23	31	54	0	0	0	0	43	40	83	0	0	0	0	10	5	15	208
Total	0	0	0	0	84	133	217	0	0	0	0	102	149	251	0	0	0	0	163	188	351	0	0	0	0	39	27	66	885
4:00 PM	0	0	0	0	10	49	59	0	0	0	0	35	33	68	0	0	0	0	50	40	90	0	0	0	0	5	0	5	222
4:15 PM	0	0	0	0	31	52	83	0	0	0	0	26	29	55	0	0	0	0	66	34	100	0	0	0	0	7	6	13	251
4:30 PM	0	0	0	0	15	57	72	0	0	0	0	35	31	66	0	0	0	0	51	38	89	0	0	0	0	8	5	13	240
4:45 PM	0	0	0	0	28	75	103	0	0	0	0	29	46	75	0	0	0	0	61	34	95	0	0	0	0	16	10	26	299
Total	0	0	0	0	84	233	317	0	0	0	0	125	139	264	0	0	0	0	228	146	374	0	0	0	0	36	21	57	1012
5:00 PM	0	0	0	0	14	99	113	0	0	0	0	23	46	69	0	0	0	0	72	34	106	0	0	0	0	20	12	32	320
5:15 PM	0	0	0	0	31	105	136	0	0	0	0	33	48	81	0	0	0	0	84	30	114	0	0	0	0	15	6	21	352
5:30 PM	0	0	0	0	35	95	130	0	0	0	0	34	32	66	0	0	0	0	60	32	92	0	0	0	0	14	7	21	309
5:45 PM	0	0	0	0	20	115	135	0	0	0	0	24	33	57	0	0	0	0	49	30	79	0	0	0	0	8	12	20	291
Total	0	0	0	0	100	414	514	0	0	0	0	114	159	273	0	0	0	0	265	126	391	0	0	0	0	57	37	94	1272
Grand Total	0	0	0	0	268	780	1048	0	0	0	0	341	447	788	0	0	0	0	656	460	1116	0	0	0	0	132	85	217	3169
Approach %	0	0	0	0	25.6	74.4		0	0	0	0	43.3	56.7		0	0	0	0	58.8	41.2		0	0	0	0	60.8	39.2		
Total %	0	0	0	0	8.46	24.6	33.1	0	0	0	0	10.8	14.1	24.9	0	0	0	0	20.7	14.5	35.2	0	0	0	0	4.17	2.68	6.85	
Exiting Leg Total							1048							788							1116							217	3169

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:45 PM	Brookline Avenue from North							Longwood Avenue from East							Brookline Avenue from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:45 PM	0	0	0	0	28	75	103	0	0	0	0	29	46	75	0	0	0	0	61	34	95	0	0	0	0	16	10	26	299
5:00 PM	0	0	0	0	14	99	113	0	0	0	0	23	46	69	0	0	0	0	72	34	106	0	0	0	0	20	12	32	320
5:15 PM	0	0	0	0	31	105	136	0	0	0	0	33	48	81	0	0	0	0	84	30	114	0	0	0	0	15	6	21	352
5:30 PM	0	0	0	0	35	95	130	0	0	0	0	34	32	66	0	0	0	0	60	32	92	0	0	0	0	14	7	21	309
Total Volume	0	0	0	0	108	374	482	0	0	0	0	119	172	291	0	0	0	0	277	130	407	0	0	0	0	65	35	100	1280
% Approach Total	0.0	0.0	0.0	0.0	22.4	77.6		0.0	0.0	0.0	0.0	40.9	59.1		0.0	0.0	0.0	0.0	68.1	31.9		0.0	0.0	0.0	0.0	65.0	35.0		
PHF	0.000	0.000	0.000	0.000	0.771	0.890	0.886	0.000	0.000	0.000	0.000	0.875	0.896	0.898	0.000	0.000	0.000	0.000	0.824	0.956	0.893	0.000	0.000	0.000	0.000	0.813	0.729	0.781	0.909
Entering Leg	0	0	0	0	108	374	482	0	0	0	0	119	172	291	0	0	0	0	277	130	407	0	0	0	0	65	35	100	1280
Exiting Leg							482							291							407							100	1280
Total							964							582							814							200	2560

PDI File #: **186102 F**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	13	135	21	0	169	27	1	1	0	29	6	293	0	0	299	0	10	40	0	50	547
7:15 AM	15	148	20	0	183	30	2	0	0	32	5	279	0	0	284	0	12	44	0	56	555
7:30 AM	26	190	19	0	235	34	3	0	0	37	6	274	0	0	280	0	11	55	0	66	618
7:45 AM	23	178	17	0	218	31	0	0	0	31	7	286	0	0	293	0	14	63	0	77	619
Total	77	651	77	0	805	122	6	1	0	129	24	1132	0	0	1156	0	47	202	0	249	2339
8:00 AM	24	175	29	0	228	42	7	2	0	51	6	271	0	0	277	1	12	60	0	73	629
8:15 AM	25	167	16	0	208	27	1	1	0	29	4	276	1	0	281	0	12	58	0	70	588
8:30 AM	17	138	16	0	171	24	9	2	0	35	1	268	0	0	269	1	15	75	0	91	566
8:45 AM	15	129	23	0	167	21	5	0	0	26	2	246	0	0	248	0	15	65	0	80	521
Total	81	609	84	0	774	114	22	5	0	141	13	1061	1	0	1075	2	54	258	0	314	2304
Grand Total	158	1260	161	0	1579	236	28	6	0	270	37	2193	1	0	2231	2	101	460	0	563	4643
Approach %	10.0	79.8	10.2	0.0		87.4	10.4	2.2	0.0		1.7	98.3	0.0	0.0		0.4	17.9	81.7	0.0		
Total %	3.4	27.1	3.5	0.0	34.0	5.1	0.6	0.1	0.0	5.8	0.8	47.2	0.0	0.0	48.1	0.0	2.2	9.9	0.0	12.1	
Exiting Leg Total					2889					299					1268					187	4643
Cars	158	1245	161	0	1564	233	28	6	0	267	36	2179	1	0	2216	2	90	458	0	550	4597
% Cars	100.0	98.8	100.0	0.0	99.1	98.7	100.0	100.0	0.0	98.9	97.3	99.4	100.0	0.0	99.3	100.0	89.1	99.6	0.0	97.7	99.0
Exiting Leg Total					2870					287					1253					187	4597
Heavy Vehicles	0	15	0	0	15	3	0	0	0	3	1	14	0	0	15	0	11	2	0	13	46
% Heavy Vehicles	0.0	1.2	0.0	0.0	0.9	1.3	0.0	0.0	0.0	1.1	2.7	0.6	0.0	0.0	0.7	0.0	10.9	0.4	0.0	2.3	1.0
Exiting Leg Total					19					12					15					0	46

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	26	190	19	0	235	34	3	0	0	37	6	274	0	0	280	0	11	55	0	66	618
7:45 AM	23	178	17	0	218	31	0	0	0	31	7	286	0	0	293	0	14	63	0	77	619
8:00 AM	24	175	29	0	228	42	7	2	0	51	6	271	0	0	277	1	12	60	0	73	629
8:15 AM	25	167	16	0	208	27	1	1	0	29	4	276	1	0	281	0	12	58	0	70	588
Total Volume	98	710	81	0	889	134	11	3	0	148	23	1107	1	0	1131	1	49	236	0	286	2454
% Approach Total	11.0	79.9	9.1	0.0		90.5	7.4	2.0	0.0		2.0	97.9	0.1	0.0		0.3	17.1	82.5	0.0		
PHF	0.942	0.934	0.698	0.000	0.946	0.798	0.393	0.375	0.000	0.725	0.821	0.968	0.250	0.000	0.965	0.250	0.875	0.937	0.000	0.929	0.975
Cars	98	697	81	0	876	132	11	3	0	146	22	1101	1	0	1124	1	46	234	0	281	2427
Cars %	100.0	98.2	100.0	0.0	98.5	98.5	100.0	100.0	0.0	98.6	95.7	99.5	100.0	0.0	99.4	100.0	93.9	99.2	0.0	98.3	98.9
Heavy Vehicles	0	13	0	0	13	2	0	0	0	2	1	6	0	0	7	0	3	2	0	5	27
Heavy Vehicles %	0.0	1.8	0.0	0.0	1.5	1.5	0.0	0.0	0.0	1.4	4.3	0.5	0.0	0.0	0.6	0.0	6.1	0.8	0.0	1.7	1.1
Cars Enter Leg	98	697	81	0	876	132	11	3	0	146	22	1101	1	0	1124	1	46	234	0	281	2427
Heavy Enter Leg	0	13	0	0	13	2	0	0	0	2	1	6	0	0	7	0	3	2	0	5	27
Total Entering Leg	98	710	81	0	889	134	11	3	0	148	23	1107	1	0	1131	1	49	236	0	286	2454
Cars Exiting Leg					1467					149					701					110	2427
Heavy Exiting Leg					10					4					13					0	27
Total Exiting Leg					1477					153					714					110	2454

PDI File #: **186102 F**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars-Combined (Motorcycles, Cars, Light Goods)

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	13	135	21	0	169	27	1	1	0	29	6	291	0	0	297	0	7	40	0	47	542
7:15 AM	15	147	20	0	182	30	2	0	0	32	5	278	0	0	283	0	10	44	0	54	551
7:30 AM	26	187	19	0	232	33	3	0	0	36	5	273	0	0	278	0	11	54	0	65	611
7:45 AM	23	173	17	0	213	31	0	0	0	31	7	283	0	0	290	0	12	63	0	75	609
Total	77	642	77	0	796	121	6	1	0	128	23	1125	0	0	1148	0	40	201	0	241	2313
8:00 AM	24	172	29	0	225	42	7	2	0	51	6	271	0	0	277	1	12	59	0	72	625
8:15 AM	25	165	16	0	206	26	1	1	0	28	4	274	1	0	279	0	11	58	0	69	582
8:30 AM	17	137	16	0	170	23	9	2	0	34	1	263	0	0	264	1	14	75	0	90	558
8:45 AM	15	129	23	0	167	21	5	0	0	26	2	246	0	0	248	0	13	65	0	78	519
Total	81	603	84	0	768	112	22	5	0	139	13	1054	1	0	1068	2	50	257	0	309	2284
Grand Total	158	1245	161	0	1564	233	28	6	0	267	36	2179	1	0	2216	2	90	458	0	550	4597
Approach %	10.1	79.6	10.3	0.0		87.3	10.5	2.2	0.0		1.6	98.3	0.0	0.0		0.4	16.4	83.3	0.0		
Total %	3.4	27.1	3.5	0.0	34.0	5.1	0.6	0.1	0.0	5.8	0.8	47.4	0.0	0.0	48.2	0.0	2.0	10.0	0.0	12.0	
Exiting Leg Total					2870					287					1253					187	4597

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	26	187	19	0	232	33	3	0	0	36	5	273	0	0	278	0	11	54	0	65	611
7:45 AM	23	173	17	0	213	31	0	0	0	31	7	283	0	0	290	0	12	63	0	75	609
8:00 AM	24	172	29	0	225	42	7	2	0	51	6	271	0	0	277	1	12	59	0	72	625
8:15 AM	25	165	16	0	206	26	1	1	0	28	4	274	1	0	279	0	11	58	0	69	582
Total Volume	98	697	81	0	876	132	11	3	0	146	22	1101	1	0	1124	1	46	234	0	281	2427
% Approach Total	11.2	79.6	9.2	0.0		90.4	7.5	2.1	0.0		2.0	98.0	0.1	0.0		0.4	16.4	83.3	0.0		
PHF	0.942	0.932	0.698	0.000	0.944	0.786	0.393	0.375	0.000	0.716	0.786	0.973	0.250	0.000	0.969	0.250	0.958	0.929	0.000	0.937	0.971
Entering Leg	98	697	81	0	876	132	11	3	0	146	22	1101	1	0	1124	1	46	234	0	281	2427
Exiting Leg					1467					149					701					110	2427
Total					2343					295					1825					391	4854

PDI File #: **186102 F**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	3	0	0	3	5
7:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	4
7:30 AM	0	3	0	0	3	1	0	0	0	1	1	1	0	0	2	0	0	1	0	1	7
7:45 AM	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	0	2	0	0	2	10
Total	0	9	0	0	9	1	0	0	0	1	1	7	0	0	8	0	7	1	0	8	26
8:00 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4
8:15 AM	0	2	0	0	2	1	0	0	0	1	0	2	0	0	2	0	1	0	0	1	6
8:30 AM	0	1	0	0	1	1	0	0	0	1	0	5	0	0	5	0	1	0	0	1	8
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Total	0	6	0	0	6	2	0	0	0	2	0	7	0	0	7	0	4	1	0	5	20
Grand Total	0	15	0	0	15	3	0	0	0	3	1	14	0	0	15	0	11	2	0	13	46
Approach %	0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		6.7	93.3	0.0	0.0		0.0	84.6	15.4	0.0		
Total %	0.0	32.6	0.0	0.0	32.6	6.5	0.0	0.0	0.0	6.5	2.2	30.4	0.0	0.0	32.6	0.0	23.9	4.3	0.0	28.3	
Exiting Leg Total					19					12					15					0	46
Buses	0	10	0	0	10	1	0	0	0	1	1	8	0	0	9	0	11	2	0	13	33
% Buses	0.0	66.7	0.0	0.0	66.7	33.3	0.0	0.0	0.0	33.3	100.0	57.1	0.0	0.0	60.0	0.0	100.0	100.0	0.0	100.0	71.7
Exiting Leg Total					11					12					10					0	33
Single-Unit Trucks	0	5	0	0	5	2	0	0	0	2	0	5	0	0	5	0	0	0	0	0	12
% Single-Unit	0.0	33.3	0.0	0.0	33.3	66.7	0.0	0.0	0.0	66.7	0.0	35.7	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	26.1
Exiting Leg Total					7					0					5					0	12
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	0.0	0.0	6.7	0.0	0.0	0.0	0.0	0.0	2.2
Exiting Leg Total					1					0					0					0	1

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	0	2	0	0	2	10
8:00 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4
8:15 AM	0	2	0	0	2	1	0	0	0	1	0	2	0	0	2	0	1	0	0	1	6
8:30 AM	0	1	0	0	1	1	0	0	0	1	0	5	0	0	5	0	1	0	0	1	8
Total Volume	0	11	0	0	11	2	0	0	0	2	0	10	0	0	10	0	4	1	0	5	28
% Approach Total	0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	80.0	20.0	0.0		
PHF	0.000	0.550	0.000	0.000	0.550	0.500	0.000	0.000	0.000	0.500	0.000	0.500	0.000	0.000	0.500	0.000	0.500	0.250	0.000	0.625	0.700
Buses	0	8	0	0	8	1	0	0	0	1	0	5	0	0	5	0	4	1	0	5	19
Buses %	0.0	72.7	0.0	0.0	72.7	50.0	0.0	0.0	0.0	50.0	0.0	50.0	0.0	0.0	50.0	0.0	100.0	100.0	0.0	100.0	67.9
Single-Unit Trucks	0	3	0	0	3	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	9
Single-Unit %	0.0	27.3	0.0	0.0	27.3	50.0	0.0	0.0	0.0	50.0	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	32.1
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	8	0	0	8	1	0	0	0	1	0	5	0	0	5	0	4	1	0	5	19
Single-Unit Trucks	0	3	0	0	3	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	9
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	11	0	0	11	2	0	0	0	2	0	10	0	0	10	0	4	1	0	5	28
Buses					7					4					8					0	19
Single-Unit Trucks					6					0					3					0	9
Articulated Trucks					0					0					0					0	0
Total Exiting Leg					13					4					11					0	28

PDI File #: **186102 F**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	12	130	21	0	163	26	1	1	0	28	6	278	0	0	284	0	7	39	0	46	521
7:15 AM	15	131	18	0	164	30	2	0	0	32	5	267	0	0	272	0	10	42	0	52	520
7:30 AM	26	174	18	0	218	33	3	0	0	36	5	263	0	0	268	0	10	54	0	64	586
7:45 AM	22	170	17	0	209	30	0	0	0	30	7	273	0	0	280	0	12	63	0	75	594
Total	75	605	74	0	754	119	6	1	0	126	23	1081	0	0	1104	0	39	198	0	237	2221
8:00 AM	24	156	29	0	209	40	7	2	0	49	6	258	0	0	264	1	12	59	0	72	594
8:15 AM	24	153	16	0	193	26	1	1	0	28	4	263	1	0	268	0	11	58	0	69	558
8:30 AM	17	128	16	0	161	22	7	1	0	30	1	250	0	0	251	1	14	74	0	89	531
8:45 AM	12	124	23	0	159	21	4	0	0	25	2	234	0	0	236	0	13	63	0	76	496
Total	77	561	84	0	722	109	19	4	0	132	13	1005	1	0	1019	2	50	254	0	306	2179
Grand Total	152	1166	158	0	1476	228	25	5	0	258	36	2086	1	0	2123	2	89	452	0	543	4400
Approach %	10.3	79.0	10.7	0.0		88.4	9.7	1.9	0.0		1.7	98.3	0.0	0.0		0.4	16.4	83.2	0.0		
Total %	3.5	26.5	3.6	0.0	33.5	5.2	0.6	0.1	0.0	5.9	0.8	47.4	0.0	0.0	48.3	0.0	2.0	10.3	0.0	12.3	
Exiting Leg Total					2766					283					1173					178	4400

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	26	174	18	0	218	33	3	0	0	36	5	263	0	0	268	0	10	54	0	64	586
7:45 AM	22	170	17	0	209	30	0	0	0	30	7	273	0	0	280	0	12	63	0	75	594
8:00 AM	24	156	29	0	209	40	7	2	0	49	6	258	0	0	264	1	12	59	0	72	594
8:15 AM	24	153	16	0	193	26	1	1	0	28	4	263	1	0	268	0	11	58	0	69	558
Total Volume	96	653	80	0	829	129	11	3	0	143	22	1057	1	0	1080	1	45	234	0	280	2332
% Approach Total	11.6	78.8	9.7	0.0		90.2	7.7	2.1	0.0		2.0	97.9	0.1	0.0		0.4	16.1	83.6	0.0		
PHF	0.923	0.938	0.690	0.000	0.951	0.806	0.393	0.375	0.000	0.730	0.786	0.968	0.250	0.000	0.964	0.250	0.938	0.929	0.000	0.933	0.981
Entering Leg	96	653	80	0	829	129	11	3	0	143	22	1057	1	0	1080	1	45	234	0	280	2332
Exiting Leg					1420					147					657					108	2332
Total					2249					290					1737					388	4664

PDI File #: **186102 F**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Light Goods Vehicle

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	1	5	0	0	6	1	0	0	0	1	0	13	0	0	13	0	0	1	0	1	21
7:15 AM	0	16	2	0	18	0	0	0	0	0	0	11	0	0	11	0	0	2	0	2	31
7:30 AM	0	13	1	0	14	0	0	0	0	0	0	10	0	0	10	0	1	0	0	1	25
7:45 AM	1	3	0	0	4	1	0	0	0	1	0	10	0	0	10	0	0	0	0	0	15
Total	2	37	3	0	42	2	0	0	0	2	0	44	0	0	44	0	1	3	0	4	92
8:00 AM	0	15	0	0	15	2	0	0	0	2	0	13	0	0	13	0	0	0	0	0	30
8:15 AM	1	12	0	0	13	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	24
8:30 AM	0	9	0	0	9	1	2	1	0	4	0	13	0	0	13	0	0	1	0	1	27
8:45 AM	3	5	0	0	8	0	1	0	0	1	0	11	0	0	11	0	0	2	0	2	22
Total	4	41	0	0	45	3	3	1	0	7	0	48	0	0	48	0	0	3	0	3	103
Grand Total	6	78	3	0	87	5	3	1	0	9	0	92	0	0	92	0	1	6	0	7	195
Approach %	6.9	89.7	3.4	0.0		55.6	33.3	11.1	0.0		0.0	100.0	0.0	0.0		0.0	14.3	85.7	0.0		
Total %	3.1	40.0	1.5	0.0	44.6	2.6	1.5	0.5	0.0	4.6	0.0	47.2	0.0	0.0	47.2	0.0	0.5	3.1	0.0	3.6	
Exiting Leg Total					103					4					79					9	195

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	15	0	0	15	2	0	0	0	2	0	13	0	0	13	0	0	0	0	0	30
8:15 AM	1	12	0	0	13	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	24
8:30 AM	0	9	0	0	9	1	2	1	0	4	0	13	0	0	13	0	0	1	0	1	27
8:45 AM	3	5	0	0	8	0	1	0	0	1	0	11	0	0	11	0	0	2	0	2	22
Total Volume	4	41	0	0	45	3	3	1	0	7	0	48	0	0	48	0	0	3	0	3	103
% Approach Total	8.9	91.1	0.0	0.0		42.9	42.9	14.3	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		
PHF	0.333	0.683	0.000	0.000	0.750	0.375	0.375	0.250	0.000	0.438	0.000	0.923	0.000	0.000	0.923	0.000	0.000	0.375	0.000	0.375	0.858
Entering Leg	4	41	0	0	45	3	3	1	0	7	0	48	0	0	48	0	0	3	0	3	103
Exiting Leg					54					0					42					7	103
Total					99					7					90					10	206

PDI File #: **186102 F**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Buses

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	4
7:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	4
7:30 AM	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	1	0	1	4
7:45 AM	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	7
Total	0	6	0	0	6	0	0	0	0	0	1	4	0	0	5	0	7	1	0	8	19
8:00 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	3
8:30 AM	0	0	0	0	0	1	0	0	0	1	0	3	0	0	3	0	1	0	0	1	5
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Total	0	4	0	0	4	1	0	0	0	1	0	4	0	0	4	0	4	1	0	5	14
Grand Total	0	10	0	0	10	1	0	0	0	1	1	8	0	0	9	0	11	2	0	13	33
Approach %	0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		11.1	88.9	0.0	0.0		0.0	84.6	15.4	0.0		
Total %	0.0	30.3	0.0	0.0	30.3	3.0	0.0	0.0	0.0	3.0	3.0	24.2	0.0	0.0	27.3	0.0	33.3	6.1	0.0	39.4	
Exiting Leg Total					11					12					10					0	33

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	4
7:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	4
7:30 AM	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	1	0	1	4
7:45 AM	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	7
Total Volume	0	6	0	0	6	0	0	0	0	0	1	4	0	0	5	0	7	1	0	8	19
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		20.0	80.0	0.0	0.0		0.0	87.5	12.5	0.0		
PHF	0.000	0.375	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.250	1.000	0.000	0.000	0.625	0.000	0.583	0.250	0.000	0.667	0.679
Entering Leg	0	6	0	0	6	0	0	0	0	0	1	4	0	0	5	0	7	1	0	8	19
Exiting Leg					5					8					6					0	19
Total					11					8					11					8	38

PDI File #: **186102 F**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Single-Unit Trucks

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
Total	0	3	0	0	3	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	6
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	3
8:30 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	2	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	6
Grand Total	0	5	0	0	5	2	0	0	0	2	0	5	0	0	5	0	0	0	0	0	12
Approach %	0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	41.7	0.0	0.0	41.7	16.7	0.0	0.0	0.0	16.7	0.0	41.7	0.0	0.0	41.7	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					7					0					5					0	12

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	3
Total Volume	0	4	0	0	4	2	0	0	0	2	0	3	0	0	3	0	0	0	0	0	9
% Approach Total	0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.000	0.500	0.500	0.000	0.000	0.000	0.500	0.000	0.375	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.750
Entering Leg	0	4	0	0	4	2	0	0	0	2	0	3	0	0	3	0	0	0	0	0	9
Exiting Leg					5					0					4					0	9
Total					9					2					7					0	18

PDI File #: **186102 F**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Articulated Trucks

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					1					0					0					0	1

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 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	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Exiting Leg					1					0					0					0	1
Total					1					0					1					0	2

PDI File #: **186102 F**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Riverway from North							Pilgrim Road from East							Riverway from South							Netherlands Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	1	2
7:15 AM	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	0	0	0	0	2	0	0	0	0	1	0	1	0	0	0	0	0	2	2	0	2	0	0	0	0	2	7
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	3	4	0	0	0	0	0	1	1	0	0	0	0	0	0	0	5
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	2	0	0	0	0	2	5
Total	0	0	0	0	0	0	0	0	0	0	0	3	4	7	0	0	0	0	0	2	2	0	5	0	0	0	0	5	14
Grand Total	0	2	0	0	0	0	2	0	0	0	0	4	4	8	0	0	0	0	0	4	4	0	7	0	0	0	0	7	21
Approach %	0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	50.0	50.0		0.0	0.0	0.0	0.0	0.0	100.0		0.0	100.0	0.0	0.0	0.0	0.0		
Total %	0.0	9.5	0.0	0.0	0.0	0.0	9.5	0.0	0.0	0.0	0.0	19.0	19.0	38.1	0.0	0.0	0.0	0.0	0.0	19.0	19.0	0.0	33.3	0.0	0.0	0.0	0.0	33.3	
Exiting Leg Total							0							15							6							0	21

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Riverway from North							Pilgrim Road from East							Riverway from South							Netherlands Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	3	4	0	0	0	0	0	1	1	0	0	0	0	0	0	0	5
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	2	0	0	0	0	2	5
Total Volume	0	0	0	0	0	0	0	0	0	0	0	3	4	7	0	0	0	0	0	2	2	0	5	0	0	0	0	5	14
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	42.9	57.1		0.0	0.0	0.0	0.0	0.0	100.0		0.0	100.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.333	0.438	0.000	0.000	0.000	0.000	0.000	0.500	0.500	0.000	0.417	0.000	0.000	0.000	0.000	0.417	0.700
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	3	4	7	0	0	0	0	0	2	2	0	5	0	0	0	0	5	14
Exiting Leg							0							12							2							0	14
Total							0							19							4							5	28

PDI File #: **186102 F**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Pedestrians

	Riverway from North							Pilgrim Road from East							Riverway from South							Netherlands Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	1	0	1	0	0	0	0	0	1	1	0	0	0	0	0	2	2	0	0	0	0	0	0	0	4
7:15 AM	0	0	0	0	0	2	2	0	0	0	0	5	3	8	0	0	0	0	0	1	1	0	0	0	0	0	0	0	11
7:30 AM	0	0	0	0	1	0	1	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7:45 AM	0	0	0	0	4	0	4	0	0	0	0	3	2	5	0	0	0	0	0	1	1	0	0	0	0	0	0	0	10
Total	0	0	0	0	6	2	8	0	0	0	0	9	7	16	0	0	0	0	0	4	4	0	0	0	0	0	0	0	28
8:00 AM	0	0	0	0	5	0	5	0	0	0	0	5	0	5	0	0	0	0	0	3	3	0	0	0	0	0	3	3	16
8:15 AM	0	0	0	0	6	0	6	0	0	0	0	2	2	4	0	0	0	0	0	1	1	0	0	0	0	0	0	0	11
8:30 AM	0	0	0	0	4	0	4	0	0	0	0	2	2	4	0	0	0	0	0	0	0	0	0	0	0	0	2	2	10
8:45 AM	0	0	0	0	9	0	9	0	0	0	0	4	3	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
Total	0	0	0	0	24	0	24	0	0	0	0	13	7	20	0	0	0	0	0	4	4	0	0	0	0	0	5	5	53
Grand Total	0	0	0	0	30	2	32	0	0	0	0	22	14	36	0	0	0	0	0	8	8	0	0	0	0	0	5	5	81
Approach %	0	0	0	0	93.8	6.25		0	0	0	0	61.1	38.9		0	0	0	0	0	100		0	0	0	0	0	100		
Total %	0	0	0	0	37	2.47	39.5	0	0	0	0	27.2	17.3	44.4	0	0	0	0	0	9.88	9.88	0	0	0	0	0	6.17	6.17	
Exiting Leg Total							32							36							8							5	81

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Riverway from North							Pilgrim Road from East							Riverway from South							Netherlands Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	0	5	0	5	0	0	0	0	5	0	5	0	0	0	0	0	3	3	0	0	0	0	0	3	3	16
8:15 AM	0	0	0	0	6	0	6	0	0	0	0	2	2	4	0	0	0	0	0	1	1	0	0	0	0	0	0	0	11
8:30 AM	0	0	0	0	4	0	4	0	0	0	0	2	2	4	0	0	0	0	0	0	0	0	0	0	0	0	2	2	10
8:45 AM	0	0	0	0	9	0	9	0	0	0	0	4	3	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
Total Volume	0	0	0	0	24	0	24	0	0	0	0	13	7	20	0	0	0	0	0	4	4	0	0	0	0	0	5	5	53
% Approach Total	0.0	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	65.0	35.0		0.0	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	0.0	0.0	100.0		
PHF	0.000	0.000	0.000	0.000	0.667	0.000	0.667	0.000	0.000	0.000	0.000	0.650	0.583	0.714	0.000	0.000	0.000	0.000	0.000	0.333	0.333	0.000	0.000	0.000	0.000	0.000	0.417	0.417	0.828
Entering Leg	0	0	0	0	24	0	24	0	0	0	0	13	7	20	0	0	0	0	0	4	4	0	0	0	0	0	5	5	53
Exiting Leg							24							20							4							5	53
Total							48							40							8							10	106

PDI File #: **186102 FF**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	45	277	9	0	331	37	2	2	0	41	2	207	0	0	209	2	0	11	0	13	594
3:15 PM	55	272	6	0	333	43	4	2	0	49	2	181	1	0	184	1	1	13	0	15	581
3:30 PM	37	277	17	0	331	36	10	1	1	48	1	199	0	0	200	0	0	12	0	12	591
3:45 PM	43	286	14	0	343	37	11	1	0	49	3	238	0	0	241	0	1	19	0	20	653
Total	180	1112	46	0	1338	153	27	6	1	187	8	825	1	0	834	3	2	55	0	60	2419
4:00 PM	42	282	11	0	335	42	3	1	0	46	4	190	0	0	194	0	1	19	0	20	595
4:15 PM	45	287	8	0	340	31	3	3	0	37	6	181	1	0	188	0	1	6	0	7	572
4:30 PM	64	288	2	0	354	50	11	5	0	66	7	194	2	0	203	0	1	11	0	12	635
4:45 PM	39	235	0	0	274	33	4	1	0	38	1	196	0	0	197	0	0	13	0	13	522
Total	190	1092	21	0	1303	156	21	10	0	187	18	761	3	0	782	0	3	49	0	52	2324
5:00 PM	34	222	4	0	260	38	12	0	0	50	2	177	1	0	180	0	1	7	0	8	498
5:15 PM	45	244	0	0	289	29	14	0	0	43	0	203	0	0	203	1	6	9	0	16	551
5:30 PM	63	259	4	0	326	41	10	0	0	51	0	159	0	0	159	0	1	12	0	13	549
5:45 PM	50	202	3	0	255	30	15	0	0	45	0	188	0	0	188	2	0	13	0	15	503
Total	192	927	11	0	1130	138	51	0	0	189	2	727	1	0	730	3	8	41	0	52	2101
Grand Total	562	3131	78	0	3771	447	99	16	1	563	28	2313	5	0	2346	6	13	145	0	164	6844
Approach %	14.9	83.0	2.1	0.0		79.4	17.6	2.8	0.2		1.2	98.6	0.2	0.0		3.7	7.9	88.4	0.0		
Total %	8.2	45.7	1.1	0.0	55.1	6.5	1.4	0.2	0.0	8.2	0.4	33.8	0.1	0.0	34.3	0.1	0.2	2.1	0.0	2.4	
Exiting Leg Total					2905					120					3153					666	6844
Cars	560	3116	77	0	3753	440	99	15	1	555	25	2297	5	0	2327	6	13	144	0	163	6798
% Cars	99.6	99.5	98.7	0.0	99.5	98.4	100.0	93.8	100.0	98.6	89.3	99.3	100.0	0.0	99.2	100.0	100.0	99.3	0.0	99.4	99.3
Exiting Leg Total					2881					116					3137					664	6798
Heavy Vehicles	2	15	1	0	18	7	0	1	0	8	3	16	0	0	19	0	0	1	0	1	46
% Heavy Vehicles	0.4	0.5	1.3	0.0	0.5	1.6	0.0	6.3	0.0	1.4	10.7	0.7	0.0	0.0	0.8	0.0	0.0	0.7	0.0	0.6	0.7
Exiting Leg Total					24					4					16					2	46

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:45 PM	43	286	14	0	343	37	11	1	0	49	3	238	0	0	241	0	1	19	0	20	653
4:00 PM	42	282	11	0	335	42	3	1	0	46	4	190	0	0	194	0	1	19	0	20	595
4:15 PM	45	287	8	0	340	31	3	3	0	37	6	181	1	0	188	0	1	6	0	7	572
4:30 PM	64	288	2	0	354	50	11	5	0	66	7	194	2	0	203	0	1	11	0	12	635
Total Volume	194	1143	35	0	1372	160	28	10	0	198	20	803	3	0	826	0	4	55	0	59	2455
% Approach Total	14.1	83.3	2.6	0.0		80.8	14.1	5.1	0.0		2.4	97.2	0.4	0.0		0.0	6.8	93.2	0.0		
PHF	0.758	0.992	0.625	0.000	0.969	0.800	0.636	0.500	0.000	0.750	0.714	0.843	0.375	0.000	0.857	0.000	1.000	0.724	0.000	0.738	0.940
Cars	194	1138	34	0	1366	155	28	9	0	192	19	800	3	0	822	0	4	54	0	58	2438
Cars %	100.0	99.6	97.1	0.0	99.6	96.9	100.0	90.0	0.0	97.0	95.0	99.6	100.0	0.0	99.5	0.0	100.0	98.2	0.0	98.3	99.3
Heavy Vehicles	0	5	1	0	6	5	0	1	0	6	1	3	0	0	4	0	0	1	0	1	17
Heavy Vehicles %	0.0	0.4	2.9	0.0	0.4	3.1	0.0	10.0	0.0	3.0	5.0	0.4	0.0	0.0	0.5	0.0	0.0	1.8	0.0	1.7	0.7
Cars Enter Leg	194	1138	34	0	1366	155	28	9	0	192	19	800	3	0	822	0	4	54	0	58	2438
Heavy Enter Leg	0	5	1	0	6	5	0	1	0	6	1	3	0	0	4	0	0	1	0	1	17
Total Entering Leg	194	1143	35	0	1372	160	28	10	0	198	20	803	3	0	826	0	4	55	0	59	2455
Cars Exiting Leg					1009					57					1147					225	2438
Heavy Exiting Leg					9					2					6					0	17
Total Exiting Leg					1018					59					1153					225	2455

PDI File #: **186102 FF**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars-Combined (Motorcycles, Cars, Light Goods)

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	45	275	9	0	329	37	2	2	0	41	1	202	0	0	203	2	0	11	0	13	586
3:15 PM	53	271	6	0	330	42	4	2	0	48	2	180	1	0	183	1	1	13	0	15	576
3:30 PM	37	276	17	0	330	36	10	1	1	48	0	196	0	0	196	0	0	12	0	12	586
3:45 PM	43	283	13	0	339	37	11	1	0	49	3	237	0	0	240	0	1	19	0	20	648
Total	178	1105	45	0	1328	152	27	6	1	186	6	815	1	0	822	3	2	55	0	60	2396
4:00 PM	42	281	11	0	334	40	3	1	0	44	3	189	0	0	192	0	1	18	0	19	589
4:15 PM	45	287	8	0	340	29	3	3	0	35	6	181	1	0	188	0	1	6	0	7	570
4:30 PM	64	287	2	0	353	49	11	4	0	64	7	193	2	0	202	0	1	11	0	12	631
4:45 PM	39	235	0	0	274	33	4	1	0	38	1	196	0	0	197	0	0	13	0	13	522
Total	190	1090	21	0	1301	151	21	9	0	181	17	759	3	0	779	0	3	48	0	51	2312
5:00 PM	34	221	4	0	259	38	12	0	0	50	2	175	1	0	178	0	1	7	0	8	495
5:15 PM	45	242	0	0	287	29	14	0	0	43	0	201	0	0	201	1	6	9	0	16	547
5:30 PM	63	258	4	0	325	40	10	0	0	50	0	159	0	0	159	0	1	12	0	13	547
5:45 PM	50	200	3	0	253	30	15	0	0	45	0	188	0	0	188	2	0	13	0	15	501
Total	192	921	11	0	1124	137	51	0	0	188	2	723	1	0	726	3	8	41	0	52	2090
Grand Total	560	3116	77	0	3753	440	99	15	1	555	25	2297	5	0	2327	6	13	144	0	163	6798
Approach %	14.9	83.0	2.1	0.0		79.3	17.8	2.7	0.2		1.1	98.7	0.2	0.0		3.7	8.0	88.3	0.0		
Total %	8.2	45.8	1.1	0.0	55.2	6.5	1.5	0.2	0.0	8.2	0.4	33.8	0.1	0.0	34.2	0.1	0.2	2.1	0.0	2.4	
Exiting Leg Total					2881					116					3137					664	6798

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:45 PM	43	283	13	0	339	37	11	1	0	49	3	237	0	0	240	0	1	19	0	20	648
4:00 PM	42	281	11	0	334	40	3	1	0	44	3	189	0	0	192	0	1	18	0	19	589
4:15 PM	45	287	8	0	340	29	3	3	0	35	6	181	1	0	188	0	1	6	0	7	570
4:30 PM	64	287	2	0	353	49	11	4	0	64	7	193	2	0	202	0	1	11	0	12	631
Total Volume	194	1138	34	0	1366	155	28	9	0	192	19	800	3	0	822	0	4	54	0	58	2438
% Approach Total	14.2	83.3	2.5	0.0		80.7	14.6	4.7	0.0		2.3	97.3	0.4	0.0		0.0	6.9	93.1	0.0		
PHF	0.758	0.991	0.654	0.000	0.967	0.791	0.636	0.563	0.000	0.750	0.679	0.844	0.375	0.000	0.856	0.000	1.000	0.711	0.000	0.725	0.941
Entering Leg	194	1138	34	0	1366	155	28	9	0	192	19	800	3	0	822	0	4	54	0	58	2438
Exiting Leg					1009					57					1147					225	2438
Total					2375					249					1969					283	4876

PDI File #: **186102 FF**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	2	0	0	2	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	8
3:15 PM	2	1	0	0	3	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	5
3:30 PM	0	1	0	0	1	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	5
3:45 PM	0	3	1	0	4	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	5
Total	2	7	1	0	10	1	0	0	0	1	2	10	0	0	12	0	0	0	0	0	23
4:00 PM	0	1	0	0	1	2	0	0	0	2	1	1	0	0	2	0	0	1	0	1	6
4:15 PM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	1	0	0	1	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	4
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	2	5	0	1	0	6	1	2	0	0	3	0	0	1	0	1	12
5:00 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
5:15 PM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
5:30 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	6	0	0	6	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	11
Grand Total	2	15	1	0	18	7	0	1	0	8	3	16	0	0	19	0	0	1	0	1	46
Approach %	11.1	83.3	5.6	0.0		87.5	0.0	12.5	0.0		15.8	84.2	0.0	0.0		0.0	0.0	100.0	0.0		
Total %	4.3	32.6	2.2	0.0	39.1	15.2	0.0	2.2	0.0	17.4	6.5	34.8	0.0	0.0	41.3	0.0	0.0	2.2	0.0	2.2	
Exiting Leg Total					24					4					16					2	46
Buses	2	11	0	0	13	2	0	0	0	2	0	8	0	0	8	0	0	1	0	1	24
% Buses	100.0	73.3	0.0	0.0	72.2	28.6	0.0	0.0	0.0	25.0	0.0	50.0	0.0	0.0	42.1	0.0	0.0	100.0	0.0	100.0	52.2
Exiting Leg Total					11					0					11					2	24
Single-Unit Trucks	0	4	1	0	5	5	0	1	0	6	3	8	0	0	11	0	0	0	0	0	22
% Single-Unit	0.0	26.7	100.0	0.0	27.8	71.4	0.0	100.0	0.0	75.0	100.0	50.0	0.0	0.0	57.9	0.0	0.0	0.0	0.0	0.0	47.8
Exiting Leg Total					13					4					5					0	22
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	2	0	0	2	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	8
3:15 PM	2	1	0	0	3	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	5
3:30 PM	0	1	0	0	1	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	5
3:45 PM	0	3	1	0	4	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	5
Total Volume	2	7	1	0	10	1	0	0	0	1	2	10	0	0	12	0	0	0	0	0	23
% Approach Total	20.0	70.0	10.0	0.0		100.0	0.0	0.0	0.0		16.7	83.3	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.250	0.583	0.250	0.000	0.625	0.250	0.000	0.000	0.000	0.250	0.500	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.719
Buses	2	6	0	0	8	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	14
Buses %	100.0	85.7	0.0	0.0	80.0	100.0	0.0	0.0	0.0	100.0	0.0	50.0	0.0	0.0	41.7	0.0	0.0	0.0	0.0	0.0	60.9
Single-Unit Trucks	0	1	1	0	2	0	0	0	0	0	2	5	0	0	7	0	0	0	0	0	9
Single-Unit %	0.0	14.3	100.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	100.0	50.0	0.0	0.0	58.3	0.0	0.0	0.0	0.0	0.0	39.1
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	2	6	0	0	8	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	14
Single-Unit Trucks	0	1	1	0	2	0	0	0	0	0	2	5	0	0	7	0	0	0	0	0	9
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	2	7	1	0	10	1	0	0	0	1	2	10	0	0	12	0	0	0	0	0	23
Buses					6					0					6					2	14
Single-Unit Trucks					5					3					1					0	9
Articulated Trucks					0					0					0					0	0
Total Exiting Leg					11					3					7					2	23

PDI File #: **186102 FF**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	42	240	9	0	291	36	2	2	0	40	1	192	0	0	193	1	0	11	0	12	536
3:15 PM	48	251	6	0	305	38	4	1	0	43	2	169	1	0	172	0	1	12	0	13	533
3:30 PM	35	257	17	0	309	34	10	1	1	46	0	189	0	0	189	0	0	9	0	9	553
3:45 PM	42	264	13	0	319	35	11	1	0	47	3	229	0	0	232	0	1	19	0	20	618
Total	167	1012	45	0	1224	143	27	5	1	176	6	779	1	0	786	1	2	51	0	54	2240
4:00 PM	39	266	11	0	316	40	3	0	0	43	3	174	0	0	177	0	1	17	0	18	554
4:15 PM	45	273	8	0	326	29	3	3	0	35	6	171	1	0	178	0	1	6	0	7	546
4:30 PM	62	273	2	0	337	49	10	4	0	63	6	188	2	0	196	0	1	11	0	12	608
4:45 PM	38	229	0	0	267	31	4	1	0	36	1	187	0	0	188	0	0	12	0	12	503
Total	184	1041	21	0	1246	149	20	8	0	177	16	720	3	0	739	0	3	46	0	49	2211
5:00 PM	33	212	4	0	249	37	12	0	0	49	2	166	1	0	169	0	1	7	0	8	475
5:15 PM	45	233	0	0	278	28	14	0	0	42	0	190	0	0	190	1	6	9	0	16	526
5:30 PM	62	251	4	0	317	38	10	0	0	48	0	155	0	0	155	0	1	12	0	13	533
5:45 PM	49	193	3	0	245	30	15	0	0	45	0	183	0	0	183	2	0	13	0	15	488
Total	189	889	11	0	1089	133	51	0	0	184	2	694	1	0	697	3	8	41	0	52	2022
Grand Total	540	2942	77	0	3559	425	98	13	1	537	24	2193	5	0	2222	4	13	138	0	155	6473
Approach %	15.2	82.7	2.2	0.0		79.1	18.2	2.4	0.2		1.1	98.7	0.2	0.0		2.6	8.4	89.0	0.0		
Total %	8.3	45.5	1.2	0.0	55.0	6.6	1.5	0.2	0.0	8.3	0.4	33.9	0.1	0.0	34.3	0.1	0.2	2.1	0.0	2.4	
Exiting Leg Total					2756					115					2959					643	6473

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:45 PM	42	264	13	0	319	35	11	1	0	47	3	229	0	0	232	0	1	19	0	20	618
4:00 PM	39	266	11	0	316	40	3	0	0	43	3	174	0	0	177	0	1	17	0	18	554
4:15 PM	45	273	8	0	326	29	3	3	0	35	6	171	1	0	178	0	1	6	0	7	546
4:30 PM	62	273	2	0	337	49	10	4	0	63	6	188	2	0	196	0	1	11	0	12	608
Total Volume	188	1076	34	0	1298	153	27	8	0	188	18	762	3	0	783	0	4	53	0	57	2326
% Approach Total	14.5	82.9	2.6	0.0		81.4	14.4	4.3	0.0		2.3	97.3	0.4	0.0		0.0	7.0	93.0	0.0		
PHF	0.758	0.985	0.654	0.000	0.963	0.781	0.614	0.500	0.000	0.746	0.750	0.832	0.375	0.000	0.844	0.000	1.000	0.697	0.000	0.713	0.941
Entering Leg	188	1076	34	0	1298	153	27	8	0	188	18	762	3	0	783	0	4	53	0	57	2326
Exiting Leg					968					56					1084					218	2326
Total					2266					244					1867					275	4652

PDI File #: **186102 FF**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Light Goods Vehicle

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	3	35	0	0	38	1	0	0	0	1	0	10	0	0	10	1	0	0	0	1	50
3:15 PM	5	19	0	0	24	4	0	1	0	5	0	11	0	0	11	1	0	1	0	2	42
3:30 PM	2	19	0	0	21	2	0	0	0	2	0	7	0	0	7	0	0	3	0	3	33
3:45 PM	1	19	0	0	20	2	0	0	0	2	0	8	0	0	8	0	0	0	0	0	30
Total	11	92	0	0	103	9	0	1	0	10	0	36	0	0	36	2	0	4	0	6	155
4:00 PM	3	15	0	0	18	0	0	1	0	1	0	15	0	0	15	0	0	1	0	1	35
4:15 PM	0	14	0	0	14	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	24
4:30 PM	2	14	0	0	16	0	1	0	0	1	1	5	0	0	6	0	0	0	0	0	23
4:45 PM	1	6	0	0	7	2	0	0	0	2	0	9	0	0	9	0	0	1	0	1	19
Total	6	49	0	0	55	2	1	1	0	4	1	39	0	0	40	0	0	2	0	2	101
5:00 PM	1	9	0	0	10	1	0	0	0	1	0	9	0	0	9	0	0	0	0	0	20
5:15 PM	0	9	0	0	9	1	0	0	0	1	0	11	0	0	11	0	0	0	0	0	21
5:30 PM	1	7	0	0	8	2	0	0	0	2	0	4	0	0	4	0	0	0	0	0	14
5:45 PM	1	7	0	0	8	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	13
Total	3	32	0	0	35	4	0	0	0	4	0	29	0	0	29	0	0	0	0	0	68
Grand Total	20	173	0	0	193	15	1	2	0	18	1	104	0	0	105	2	0	6	0	8	324
Approach %	10.4	89.6	0.0	0.0		83.3	5.6	11.1	0.0		1.0	99.0	0.0	0.0		25.0	0.0	75.0	0.0		
Total %	6.2	53.4	0.0	0.0	59.6	4.6	0.3	0.6	0.0	5.6	0.3	32.1	0.0	0.0	32.4	0.6	0.0	1.9	0.0	2.5	
Exiting Leg Total					125					1					177					21	324

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	3	35	0	0	38	1	0	0	0	1	0	10	0	0	10	1	0	0	0	1	50
3:15 PM	5	19	0	0	24	4	0	1	0	5	0	11	0	0	11	1	0	1	0	2	42
3:30 PM	2	19	0	0	21	2	0	0	0	2	0	7	0	0	7	0	0	3	0	3	33
3:45 PM	1	19	0	0	20	2	0	0	0	2	0	8	0	0	8	0	0	0	0	0	30
Total Volume	11	92	0	0	103	9	0	1	0	10	0	36	0	0	36	2	0	4	0	6	155
% Approach Total	10.7	89.3	0.0	0.0		90.0	0.0	10.0	0.0		0.0	100.0	0.0	0.0		33.3	0.0	66.7	0.0		
PHF	0.550	0.657	0.000	0.000	0.678	0.563	0.000	0.250	0.000	0.500	0.000	0.818	0.000	0.000	0.818	0.500	0.000	0.333	0.000	0.500	0.775
Entering Leg	11	92	0	0	103	9	0	1	0	10	0	36	0	0	36	2	0	4	0	6	155
Exiting Leg					49					0					95					11	155
Total					152					10					131					17	310

PDI File #: **186102 FF**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Buses

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
3:15 PM	2	1	0	0	3	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	5
3:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	2	6	0	0	8	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	14
4:00 PM	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	1	0	1	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	1	0	1	4
5:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
5:15 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	6
Grand Total	2	11	0	0	13	2	0	0	0	2	0	8	0	0	8	0	0	1	0	1	24
Approach %	15.4	84.6	0.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		
Total %	8.3	45.8	0.0	0.0	54.2	8.3	0.0	0.0	0.0	8.3	0.0	33.3	0.0	0.0	33.3	0.0	0.0	4.2	0.0	4.2	
Exiting Leg Total					11					0					11					2	24

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
3:15 PM	2	1	0	0	3	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	5
3:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total Volume	2	6	0	0	8	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	14
% Approach Total	25.0	75.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.250	0.750	0.000	0.000	0.667	0.250	0.000	0.000	0.000	0.250	0.000	0.313	0.000	0.000	0.313	0.000	0.000	0.000	0.000	0.000	0.583
Entering Leg	2	6	0	0	8	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	14
Exiting Leg					6					0					6					2	14
Total					14					1					11					2	28

PDI File #: **186102 FF**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Single-Unit Trucks

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	4
3:45 PM	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Total	0	1	1	0	2	0	0	0	0	0	2	5	0	0	7	0	0	0	0	0	9
4:00 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	1	0	0	1	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	4
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	4	0	1	0	5	1	1	0	0	2	0	0	0	0	0	8
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	2	0	0	2	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	5
Grand Total	0	4	1	0	5	5	0	1	0	6	3	8	0	0	11	0	0	0	0	0	22
Approach %	0.0	80.0	20.0	0.0		83.3	0.0	16.7	0.0		27.3	72.7	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	18.2	4.5	0.0	22.7	22.7	0.0	4.5	0.0	27.3	13.6	36.4	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					13					4					5					0	22

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:30 PM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:30 PM	0	0	0	0	0	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	4
3:45 PM	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
4:00 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	1	1	0	2	3	0	0	0	3	2	4	0	0	6	0	0	0	0	0	11
% Approach Total	0.0	50.0	50.0	0.0		100.0	0.0	0.0	0.0		33.3	66.7	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.250	0.000	0.250	0.375	0.000	0.000	0.000	0.375	0.500	0.333	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.688
Entering Leg	0	1	1	0	2	3	0	0	0	3	2	4	0	0	6	0	0	0	0	0	11
Exiting Leg					7					3					1					0	11
Total					9					6					7					0	22

PDI File #: **186102 FF**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Articulated Trucks

	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway from North					Pilgrim Road from East					Riverway from South					Netherlands Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

PDI File #: **186102 FF**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Riverway from North							Pilgrim Road from East							Riverway from South							Netherlands Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
3:15 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3:30 PM	0	0	1	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	0	0	1	1	0	0	0	1	2	4	0	0	0	0	0	0	0	0	1	0	0	0	0	1	6
4:00 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	1	1	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	1	0	0	0	1	2	0	2	0	0	1	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
5:00 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	2	0	0	1	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	3	0	0	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Total	0	0	0	0	0	0	0	0	8	0	0	2	3	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
Grand Total	0	1	1	0	0	1	3	1	10	0	0	4	7	22	0	0	0	0	0	0	0	0	1	0	0	0	0	1	26
Approach %	0.0	33.3	33.3	0.0	0.0	33.3		4.5	45.5	0.0	0.0	18.2	31.8		0.0	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		
Total %	0.0	3.8	3.8	0.0	0.0	3.8	11.5	3.8	38.5	0.0	0.0	15.4	26.9	84.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	0.0	0.0	3.8	
Exiting Leg Total							2							13							1							10	26

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

5:00 PM	Riverway from North							Pilgrim Road from East							Riverway from South							Netherlands Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	2	0	0	1	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	3	0	0	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Total Volume	0	0	0	0	0	0	0	0	8	0	0	2	3	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	61.5	0.0	0.0	15.4	23.1		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.667	0.000	0.000	0.500	0.375	0.650	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.650
Entering Leg	0	0	0	0	0	0	0	0	8	0	0	2	3	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
Exiting Leg							0							5							0							8	13
Total							0							18							0							8	26

PDI File #: **186102 FF**
Location: **N: Riverway S: Riverway**
Location: **E: Pilgrim Road W: Netherlands Road**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Pedestrians

	Riverway from North							Pilgrim Road from East							Riverway from South							Netherlands Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3
3:15 PM	0	0	0	0	2	0	2	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5
3:30 PM	0	0	0	0	0	1	1	0	0	0	0	1	5	6	0	0	0	0	1	0	1	0	0	0	0	5	1	6	14
3:45 PM	0	0	0	0	2	3	5	0	0	0	0	1	0	1	0	0	0	0	2	1	3	0	0	0	0	2	1	3	12
Total	0	0	0	0	4	4	8	0	0	0	0	3	7	10	0	0	0	0	3	1	4	0	0	0	0	8	4	12	34
4:00 PM	0	0	0	0	2	4	6	0	0	0	0	2	2	4	0	0	0	0	2	0	2	0	0	0	0	0	0	0	12
4:15 PM	0	0	0	0	1	1	2	0	0	0	0	1	2	3	0	0	0	0	2	1	3	0	0	0	0	0	0	0	8
4:30 PM	0	0	0	0	0	2	2	0	0	0	0	4	5	9	0	0	0	0	1	0	1	0	0	0	0	0	0	0	12
4:45 PM	0	0	0	0	2	2	4	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Total	0	0	0	0	5	9	14	0	0	0	0	7	13	20	0	0	0	0	5	1	6	0	0	0	0	0	0	0	40
5:00 PM	0	0	0	0	0	3	3	0	0	0	0	7	6	13	0	0	0	0	2	0	2	0	0	0	0	0	0	0	18
5:15 PM	0	0	0	0	0	9	9	0	0	0	0	3	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
5:30 PM	0	0	0	0	0	1	1	0	0	0	0	2	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:45 PM	0	0	0	0	0	2	2	0	0	0	0	2	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Total	0	0	0	0	0	15	15	0	0	0	0	14	15	29	0	0	0	0	2	0	2	0	0	0	0	0	0	0	46
Grand Total	0	0	0	0	9	28	37	0	0	0	0	24	35	59	0	0	0	0	10	2	12	0	0	0	0	8	4	12	120
Approach %	0	0	0	0	24.3	75.7		0	0	0	0	40.7	59.3		0	0	0	0	83.3	16.7		0	0	0	0	66.7	33.3		
Total %	0	0	0	0	7.5	23.3	30.8	0	0	0	0	20	29.2	49.2	0	0	0	0	8.33	1.67	10	0	0	0	0	6.67	3.33	10	
Exiting Leg Total							37							59							12							12	120

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway from North							Pilgrim Road from East							Riverway from South							Netherlands Road from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3
3:15 PM	0	0	0	0	2	0	2	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5
3:30 PM	0	0	0	0	0	1	1	0	0	0	0	1	5	6	0	0	0	0	1	0	1	0	0	0	0	5	1	6	14
3:45 PM	0	0	0	0	2	3	5	0	0	0	0	1	0	1	0	0	0	0	2	1	3	0	0	0	0	2	1	3	12
Total Volume	0	0	0	0	4	4	8	0	0	0	0	3	7	10	0	0	0	0	3	1	4	0	0	0	0	8	4	12	34
% Approach Total	0.0	0.0	0.0	0.0	50.0	50.0		0.0	0.0	0.0	0.0	30.0	70.0		0.0	0.0	0.0	0.0	75.0	25.0		0.0	0.0	0.0	0.0	66.7	33.3		
PHF	0.000	0.000	0.000	0.000	0.500	0.333	0.400	0.000	0.000	0.000	0.000	0.750	0.350	0.417	0.000	0.000	0.000	0.000	0.375	0.250	0.333	0.000	0.000	0.000	0.000	0.400	1.000	0.500	0.607
Entering Leg	0	0	0	0	4	4	8	0	0	0	0	3	7	10	0	0	0	0	3	1	4	0	0	0	0	8	4	12	34
Exiting Leg							8							10							4							12	34
Total							16							20							8							24	68

PDI File #: **186102 G**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	164	13	0	177	0	0	0	0	34	329	0	363	540
7:15 AM	192	17	0	209	0	0	0	0	34	318	0	352	561
7:30 AM	242	19	0	261	0	0	0	0	19	349	0	368	629
7:45 AM	228	13	0	241	0	0	0	0	40	338	0	378	619
Total	826	62	0	888	0	0	0	0	127	1334	0	1461	2349
8:00 AM	226	16	0	242	0	0	0	0	31	347	0	378	620
8:15 AM	209	11	0	220	0	0	0	0	18	338	0	356	576
8:30 AM	165	10	0	175	0	0	0	0	35	335	0	370	545
8:45 AM	162	15	0	177	0	0	0	0	19	312	0	331	508
Total	762	52	0	814	0	0	0	0	103	1332	0	1435	2249
Grand Total	1588	114	0	1702	0	0	0	0	230	2666	0	2896	4598
Approach %	93.3	6.7	0.0		0.0	0.0	0.0		7.9	92.1	0.0		
Total %	34.5	2.5	0.0	37.0	0.0	0.0	0.0	0.0	5.0	58.0	0.0	63.0	
Exiting Leg Total				2666				344				1588	4598
Cars	1577	106	0	1683	0	0	0	0	227	2648	0	2875	4558
% Cars	99.3	93.0	0.0	98.9	0.0	0.0	0.0	0.0	98.7	99.3	0.0	99.3	99.1
Exiting Leg Total				2648				333				1577	4558
Heavy Vehicles	11	8	0	19	0	0	0	0	3	18	0	21	40
% Heavy Vehicles	0.7	7.0	0.0	1.1	0.0	0.0	0.0	0.0	1.3	0.7	0.0	0.7	0.9
Exiting Leg Total				18				11				11	40

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:30 AM	242	19	0	261	0	0	0	0	19	349	0	368	629
7:45 AM	228	13	0	241	0	0	0	0	40	338	0	378	619
8:00 AM	226	16	0	242	0	0	0	0	31	347	0	378	620
8:15 AM	209	11	0	220	0	0	0	0	18	338	0	356	576
Total Volume	905	59	0	964	0	0	0	0	108	1372	0	1480	2444
% Approach Total	93.9	6.1	0.0		0.0	0.0	0.0		7.3	92.7	0.0		
PHF	0.935	0.776	0.000	0.923	0.000	0.000	0.000	0.000	0.675	0.983	0.000	0.979	0.971
Cars	896	55	0	951	0	0	0	0	106	1365	0	1471	2422
Cars %	99.0	93.2	0.0	98.7	0.0	0.0	0.0	0.0	98.1	99.5	0.0	99.4	99.1
Heavy Vehicles	9	4	0	13	0	0	0	0	2	7	0	9	22
Heavy Vehicles %	1.0	6.8	0.0	1.3	0.0	0.0	0.0	0.0	1.9	0.5	0.0	0.6	0.9
Cars Enter Leg	896	55	0	951	0	0	0	0	106	1365	0	1471	2422
Heavy Enter Leg	9	4	0	13	0	0	0	0	2	7	0	9	22
Total Entering Leg	905	59	0	964	0	0	0	0	108	1372	0	1480	2444
Cars Exiting Leg				1365				161				896	2422
Heavy Exiting Leg				7				6				9	22
Total Exiting Leg				1372				167				905	2444

PDI File #: **186102 G**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	164	13	0	177	0	0	0	0	34	326	0	360	537
7:15 AM	191	16	0	207	0	0	0	0	34	317	0	351	558
7:30 AM	239	18	0	257	0	0	0	0	18	347	0	365	622
7:45 AM	224	12	0	236	0	0	0	0	40	334	0	374	610
Total	818	59	0	877	0	0	0	0	126	1324	0	1450	2327
8:00 AM	224	15	0	239	0	0	0	0	30	347	0	377	616
8:15 AM	209	10	0	219	0	0	0	0	18	337	0	355	574
8:30 AM	164	9	0	173	0	0	0	0	34	328	0	362	535
8:45 AM	162	13	0	175	0	0	0	0	19	312	0	331	506
Total	759	47	0	806	0	0	0	0	101	1324	0	1425	2231
Grand Total	1577	106	0	1683	0	0	0	0	227	2648	0	2875	4558
Approach %	93.7	6.3	0.0		0.0	0.0	0.0		7.9	92.1	0.0		
Total %	34.6	2.3	0.0	36.9	0.0	0.0	0.0	0.0	5.0	58.1	0.0	63.1	
Exiting Leg Total				2648				333				1577	4558

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:30 AM	239	18	0	257	0	0	0	0	18	347	0	365	622
7:45 AM	224	12	0	236	0	0	0	0	40	334	0	374	610
8:00 AM	224	15	0	239	0	0	0	0	30	347	0	377	616
8:15 AM	209	10	0	219	0	0	0	0	18	337	0	355	574
Total Volume	896	55	0	951	0	0	0	0	106	1365	0	1471	2422
% Approach Total	94.2	5.8	0.0		0.0	0.0	0.0		7.2	92.8	0.0		
PHF	0.937	0.764	0.000	0.925	0.000	0.000	0.000	0.000	0.663	0.983	0.000	0.975	0.973
Entering Leg	896	55	0	951	0	0	0	0	106	1365	0	1471	2422
Exiting Leg				1365				161				896	2422
Total				2316				161				2367	4844

PDI File #: **186102 G**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	3	0	3	3
7:15 AM	1	1	0	2	0	0	0	0	0	1	0	1	3
7:30 AM	3	1	0	4	0	0	0	0	1	2	0	3	7
7:45 AM	4	1	0	5	0	0	0	0	0	4	0	4	9
Total	8	3	0	11	0	0	0	0	1	10	0	11	22
8:00 AM	2	1	0	3	0	0	0	0	1	0	0	1	4
8:15 AM	0	1	0	1	0	0	0	0	0	1	0	1	2
8:30 AM	1	1	0	2	0	0	0	0	1	7	0	8	10
8:45 AM	0	2	0	2	0	0	0	0	0	0	0	0	2
Total	3	5	0	8	0	0	0	0	2	8	0	10	18
Grand Total	11	8	0	19	0	0	0	0	3	18	0	21	40
Approach %	57.9	42.1	0.0		0.0	0.0	0.0		14.3	85.7	0.0		
Total %	27.5	20.0	0.0	47.5	0.0	0.0	0.0	0.0	7.5	45.0	0.0	52.5	
Exiting Leg Total				18				11				11	40
Buses	8	8	0	16	0	0	0	0	2	9	0	11	27
% Buses	72.7	100.0	0.0	84.2	0.0	0.0	0.0	0.0	66.7	50.0	0.0	52.4	67.5
Exiting Leg Total				9				10				8	27
Single-Unit Trucks	3	0	0	3	0	0	0	0	1	9	0	10	13
% Single-Unit	27.3	0.0	0.0	15.8	0.0	0.0	0.0	0.0	33.3	50.0	0.0	47.6	32.5
Exiting Leg Total				9				1				3	13
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:45 AM	4	1	0	5	0	0	0	0	0	4	0	4	9
8:00 AM	2	1	0	3	0	0	0	0	1	0	0	1	4
8:15 AM	0	1	0	1	0	0	0	0	0	1	0	1	2
8:30 AM	1	1	0	2	0	0	0	0	1	7	0	8	10
Total Volume	7	4	0	11	0	0	0	0	2	12	0	14	25
% Approach Total	63.6	36.4	0.0		0.0	0.0	0.0		14.3	85.7	0.0		
PHF	0.438	1.000	0.000	0.550	0.000	0.000	0.000	0.000	0.500	0.429	0.000	0.438	0.625
Buses	6	4	0	10	0	0	0	0	1	6	0	7	17
Buses %	85.7	100.0	0.0	90.9	0.0	0.0	0.0	0.0	50.0	50.0	0.0	50.0	68.0
Single-Unit Trucks	1	0	0	1	0	0	0	0	1	6	0	7	8
Single-Unit %	14.3	0.0	0.0	9.1	0.0	0.0	0.0	0.0	50.0	50.0	0.0	50.0	32.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	6	4	0	10	0	0	0	0	1	6	0	7	17
Single-Unit Trucks	1	0	0	1	0	0	0	0	1	6	0	7	8
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	7	4	0	11	0	0	0	0	2	12	0	14	25
Buses				6				5				6	17
Single-Unit Trucks				6				1				1	8
Articulated Trucks				0				0				0	0
Total Exiting Leg				12				6				7	25

PDI File #: **186102 G**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Cars**

	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	159	13	0	172	0	0	0	0	34	304	0	338	510
7:15 AM	172	16	0	188	0	0	0	0	32	304	0	336	524
7:30 AM	225	15	0	240	0	0	0	0	17	335	0	352	592
7:45 AM	218	12	0	230	0	0	0	0	40	321	0	361	591
Total	774	56	0	830	0	0	0	0	123	1264	0	1387	2217
8:00 AM	212	14	0	226	0	0	0	0	29	332	0	361	587
8:15 AM	198	9	0	207	0	0	0	0	18	324	0	342	549
8:30 AM	157	9	0	166	0	0	0	0	34	318	0	352	518
8:45 AM	155	13	0	168	0	0	0	0	19	310	0	329	497
Total	722	45	0	767	0	0	0	0	100	1284	0	1384	2151
Grand Total	1496	101	0	1597	0	0	0	0	223	2548	0	2771	4368
Approach %	93.7	6.3	0.0		0.0	0.0	0.0		8.0	92.0	0.0		
Total %	34.2	2.3	0.0	36.6	0.0	0.0	0.0	0.0	5.1	58.3	0.0	63.4	
Exiting Leg Total				2548				324				1496	4368

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:30 AM	225	15	0	240	0	0	0	0	17	335	0	352	592
7:45 AM	218	12	0	230	0	0	0	0	40	321	0	361	591
8:00 AM	212	14	0	226	0	0	0	0	29	332	0	361	587
8:15 AM	198	9	0	207	0	0	0	0	18	324	0	342	549
Total Volume	853	50	0	903	0	0	0	0	104	1312	0	1416	2319
% Approach Total	94.5	5.5	0.0		0.0	0.0	0.0		7.3	92.7	0.0		
PHF	0.948	0.833	0.000	0.941	0.000	0.000	0.000	0.000	0.650	0.979	0.000	0.981	0.979
Entering Leg	853	50	0	903	0	0	0	0	104	1312	0	1416	2319
Exiting Leg				1312				154				853	2319
Total				2215				154				2269	4638

PDI File #: **186102 G**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Light Goods Vehicle**

	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	5	0	0	5	0	0	0	0	0	22	0	22	27
7:15 AM	19	0	0	19	0	0	0	0	2	13	0	15	34
7:30 AM	14	3	0	17	0	0	0	0	1	12	0	13	30
7:45 AM	6	0	0	6	0	0	0	0	0	13	0	13	19
Total	44	3	0	47	0	0	0	0	3	60	0	63	110
8:00 AM	11	1	0	12	0	0	0	0	1	15	0	16	28
8:15 AM	11	1	0	12	0	0	0	0	0	13	0	13	25
8:30 AM	7	0	0	7	0	0	0	0	0	10	0	10	17
8:45 AM	7	0	0	7	0	0	0	0	0	1	0	1	8
Total	36	2	0	38	0	0	0	0	1	39	0	40	78
Grand Total	80	5	0	85	0	0	0	0	4	99	0	103	188
Approach %	94.1	5.9	0.0		0.0	0.0	0.0		3.9	96.1	0.0		
Total %	42.6	2.7	0.0	45.2	0.0	0.0	0.0	0.0	2.1	52.7	0.0	54.8	
Exiting Leg Total				99				9				80	188

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:15 AM	19	0	0	19	0	0	0	0	2	13	0	15	34
7:30 AM	14	3	0	17	0	0	0	0	1	12	0	13	30
7:45 AM	6	0	0	6	0	0	0	0	0	13	0	13	19
8:00 AM	11	1	0	12	0	0	0	0	1	15	0	16	28
Total Volume	50	4	0	54	0	0	0	0	4	53	0	57	111
% Approach Total	92.6	7.4	0.0		0.0	0.0	0.0		7.0	93.0	0.0		
PHF	0.658	0.333	0.000	0.711	0.000	0.000	0.000	0.000	0.500	0.883	0.000	0.891	0.816
Entering Leg	50	4	0	54	0	0	0	0	4	53	0	57	111
Exiting Leg				53				8				50	111
Total				107				8				107	222

PDI File #: **186102 G**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Buses**

	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
7:15 AM	1	1	0	2	0	0	0	0	0	1	0	1	3
7:30 AM	1	1	0	2	0	0	0	0	1	1	0	2	4
7:45 AM	4	1	0	5	0	0	0	0	0	1	0	1	6
Total	6	3	0	9	0	0	0	0	1	4	0	5	14
8:00 AM	2	1	0	3	0	0	0	0	1	0	0	1	4
8:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
8:30 AM	0	1	0	1	0	0	0	0	0	5	0	5	6
8:45 AM	0	2	0	2	0	0	0	0	0	0	0	0	2
Total	2	5	0	7	0	0	0	0	1	5	0	6	13
Grand Total	8	8	0	16	0	0	0	0	2	9	0	11	27
Approach %	50.0	50.0	0.0		0.0	0.0	0.0		18.2	81.8	0.0		
Total %	29.6	29.6	0.0	59.3	0.0	0.0	0.0	0.0	7.4	33.3	0.0	40.7	
Exiting Leg Total				9				10				8	27

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:15 AM	1	1	0	2	0	0	0	0	0	1	0	1	3
7:30 AM	1	1	0	2	0	0	0	0	1	1	0	2	4
7:45 AM	4	1	0	5	0	0	0	0	0	1	0	1	6
8:00 AM	2	1	0	3	0	0	0	0	1	0	0	1	4
Total Volume	8	4	0	12	0	0	0	0	2	3	0	5	17
% Approach Total	66.7	33.3	0.0		0.0	0.0	0.0		40.0	60.0	0.0		
PHF	0.500	1.000	0.000	0.600	0.000	0.000	0.000	0.000	0.500	0.750	0.000	0.625	0.708
Entering Leg	8	4	0	12	0	0	0	0	2	3	0	5	17
Exiting Leg				3				6				8	17
Total				15				6				13	34

PDI File #: **186102 G**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Single-Unit Trucks**

	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	2	0	2	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	2	0	0	2	0	0	0	0	0	1	0	1	3
7:45 AM	0	0	0	0	0	0	0	0	0	3	0	3	3
Total	2	0	0	2	0	0	0	0	0	6	0	6	8
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
8:30 AM	1	0	0	1	0	0	0	0	1	2	0	3	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	1	0	0	0	0	1	3	0	4	5
Grand Total	3	0	0	3	0	0	0	0	1	9	0	10	13
Approach %	100.0	0.0	0.0		0.0	0.0	0.0		10.0	90.0	0.0		
Total %	23.1	0.0	0.0	23.1	0.0	0.0	0.0	0.0	7.7	69.2	0.0	76.9	
Exiting Leg Total				9				1				3	13

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	2	0	2	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	2	0	0	2	0	0	0	0	0	1	0	1	3
7:45 AM	0	0	0	0	0	0	0	0	0	3	0	3	3
Total Volume	2	0	0	2	0	0	0	0	0	6	0	6	8
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.667
Entering Leg	2	0	0	2	0	0	0	0	0	6	0	6	8
Exiting Leg				6				0				2	8
Total				8				0				8	16

PDI File #: **186102 G**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Articulated Trucks

	Riverway				Autumn Street				Riverway				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Riverway				Autumn Street				Riverway				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **186102 G**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Riverway from North						Autumn Street from East						Riverway from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
7:15 AM	2	0	0	0	0	2	0	0	0	0	1	1	0	0	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	3
Total	2	0	0	0	0	2	0	0	0	4	1	5	0	0	0	0	0	0	7
8:00 AM	0	0	0	0	0	0	0	0	0	1	2	3	1	0	0	0	0	1	4
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
8:30 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	3	2	5	0	0	0	0	0	0	5
Total	1	0	0	0	0	1	0	0	0	4	4	8	2	0	0	0	0	2	11
Grand Total	3	0	0	0	0	3	0	0	0	8	5	13	2	0	0	0	0	2	18
Approach %	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	61.5	38.5		100.0	0.0	0.0	0.0	0.0		
Total %	16.7	0.0	0.0	0.0	0.0	16.7	0.0	0.0	0.0	44.4	27.8	72.2	11.1	0.0	0.0	0.0	0.0	11.1	
Exiting Leg Total						0						15						3	18

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Riverway from North						Autumn Street from East						Riverway from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
8:00 AM	0	0	0	0	0	0	0	0	0	1	2	3	1	0	0	0	0	1	4
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
8:30 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	3	2	5	0	0	0	0	0	0	5
Total Volume	1	0	0	0	0	1	0	0	0	4	4	8	2	0	0	0	0	2	11
% Approach Total	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	50.0	50.0		100.0	0.0	0.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.333	0.500	0.400	0.500	0.000	0.000	0.000	0.000	0.500	0.550
Entering Leg	1	0	0	0	0	1	0	0	0	4	4	8	2	0	0	0	0	2	11
Exiting Leg						0						10						1	11
Total						1						18						3	22

PDI File #: **186102 G**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class:

Pedestrians

	Riverway from North						Autumn Street from East						Riverway from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	2	2	4	0	0	0	0	0	0	4
7:15 AM	0	0	0	0	0	0	0	0	0	10	2	12	0	0	0	0	0	0	12
7:30 AM	0	0	0	0	0	0	0	0	0	7	1	8	0	0	0	0	0	0	8
7:45 AM	0	0	0	0	0	0	0	0	0	8	1	9	0	0	0	0	0	0	9
Total	0	0	0	0	0	0	0	0	0	27	6	33	0	0	0	0	0	0	33
8:00 AM	0	0	0	0	0	0	0	0	0	11	1	12	0	0	0	0	0	0	12
8:15 AM	0	0	0	0	0	0	0	0	0	8	1	9	0	0	0	0	0	0	9
8:30 AM	0	0	0	0	0	0	0	0	0	7	5	12	0	0	0	0	0	0	12
8:45 AM	0	0	0	0	0	0	0	0	0	11	3	14	0	0	0	0	0	0	14
Total	0	0	0	0	0	0	0	0	0	37	10	47	0	0	0	0	0	0	47
Grand Total	0	0	0	0	0	0	0	0	0	64	16	80	0	0	0	0	0	0	80
Approach %	0	0	0	0	0		0	0	0	80	20		0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	80	20	100	0	0	0	0	0	0	
Exiting Leg Total						0						80						0	80

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Riverway from North						Autumn Street from East						Riverway from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
8:00 AM	0	0	0	0	0	0	0	0	0	11	1	12	0	0	0	0	0	0	12
8:15 AM	0	0	0	0	0	0	0	0	0	8	1	9	0	0	0	0	0	0	9
8:30 AM	0	0	0	0	0	0	0	0	0	7	5	12	0	0	0	0	0	0	12
8:45 AM	0	0	0	0	0	0	0	0	0	11	3	14	0	0	0	0	0	0	14
Total Volume	0	0	0	0	0	0	0	0	0	37	10	47	0	0	0	0	0	0	47
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	78.7	21.3		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.841	0.500	0.839	0.000	0.000	0.000	0.000	0.000	0.000	0.839
Entering Leg	0	0	0	0	0	0	0	0	0	37	10	47	0	0	0	0	0	0	47
Exiting Leg						0						47						0	47
Total						0						94						0	94

PDI File #: **186102 GG**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	334	10	0	344	0	1	0	1	15	243	0	258	603
3:15 PM	325	4	0	329	0	0	0	0	6	228	0	234	563
3:30 PM	351	5	1	357	0	0	0	0	4	243	0	247	604
3:45 PM	311	5	0	316	1	0	0	1	10	279	0	289	606
Total	1321	24	1	1346	1	1	0	2	35	993	0	1028	2376
4:00 PM	338	4	0	342	0	0	0	0	9	249	0	258	600
4:15 PM	350	6	0	356	0	0	0	0	5	210	0	215	571
4:30 PM	369	10	0	379	0	0	0	0	10	249	0	259	638
4:45 PM	279	8	0	287	0	0	0	0	7	227	0	234	521
Total	1336	28	0	1364	0	0	0	0	31	935	0	966	2330
5:00 PM	282	13	0	295	0	0	0	0	10	219	0	229	524
5:15 PM	296	7	0	303	0	0	0	0	6	229	0	235	538
5:30 PM	306	5	0	311	0	0	0	0	7	208	0	215	526
5:45 PM	288	9	0	297	0	0	0	0	13	224	0	237	534
Total	1172	34	0	1206	0	0	0	0	36	880	0	916	2122
Grand Total	3829	86	1	3916	1	1	0	2	102	2808	0	2910	6828
Approach %	97.8	2.2	0.0		50.0	50.0	0.0		3.5	96.5	0.0		
Total %	56.1	1.3	0.0	57.4	0.0	0.0	0.0	0.0	1.5	41.1	0.0	42.6	
Exiting Leg Total				2810				188				3830	6828
Cars	3811	73	1	3885	1	1	0	2	101	2785	0	2886	6773
% Cars	99.5	84.9	100.0	99.2	100.0	100.0	0.0	100.0	99.0	99.2	0.0	99.2	99.2
Exiting Leg Total				2787				174				3812	6773
Heavy Vehicles	18	13	0	31	0	0	0	0	1	23	0	24	55
% Heavy Vehicles	0.5	15.1	0.0	0.8	0.0	0.0	0.0	0.0	1.0	0.8	0.0	0.8	0.8
Exiting Leg Total				23				14				18	55

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:45 PM	311	5	0	316	1	0	0	1	10	279	0	289	606
4:00 PM	338	4	0	342	0	0	0	0	9	249	0	258	600
4:15 PM	350	6	0	356	0	0	0	0	5	210	0	215	571
4:30 PM	369	10	0	379	0	0	0	0	10	249	0	259	638
Total Volume	1368	25	0	1393	1	0	0	1	34	987	0	1021	2415
% Approach Total	98.2	1.8	0.0		100.0	0.0	0.0		3.3	96.7	0.0		
PHF	0.927	0.625	0.000	0.919	0.250	0.000	0.000	0.250	0.850	0.884	0.000	0.883	0.946
Cars	1361	21	0	1382	1	0	0	1	33	979	0	1012	2395
Cars %	99.5	84.0	0.0	99.2	100.0	0.0	0.0	100.0	97.1	99.2	0.0	99.1	99.2
Heavy Vehicles	7	4	0	11	0	0	0	0	1	8	0	9	20
Heavy Vehicles %	0.5	16.0	0.0	0.8	0.0	0.0	0.0	0.0	2.9	0.8	0.0	0.9	0.8
Cars Enter Leg	1361	21	0	1382	1	0	0	1	33	979	0	1012	2395
Heavy Enter Leg	7	4	0	11	0	0	0	0	1	8	0	9	20
Total Entering Leg	1368	25	0	1393	1	0	0	1	34	987	0	1021	2415
Cars Exiting Leg				980				54				1361	2395
Heavy Exiting Leg				8				5				7	20
Total Exiting Leg				988				59				1368	2415

PDI File #: **186102 GG**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	332	9	0	341	0	1	0	1	15	238	0	253	595
3:15 PM	321	3	0	324	0	0	0	0	6	226	0	232	556
3:30 PM	350	4	1	355	0	0	0	0	4	240	0	244	599
3:45 PM	306	4	0	310	1	0	0	1	10	278	0	288	599
Total	1309	20	1	1330	1	1	0	2	35	982	0	1017	2349
4:00 PM	337	3	0	340	0	0	0	0	8	246	0	254	594
4:15 PM	350	5	0	355	0	0	0	0	5	208	0	213	568
4:30 PM	368	9	0	377	0	0	0	0	10	247	0	257	634
4:45 PM	279	6	0	285	0	0	0	0	7	227	0	234	519
Total	1334	23	0	1357	0	0	0	0	30	928	0	958	2315
5:00 PM	281	12	0	293	0	0	0	0	10	217	0	227	520
5:15 PM	294	6	0	300	0	0	0	0	6	227	0	233	533
5:30 PM	305	4	0	309	0	0	0	0	7	207	0	214	523
5:45 PM	288	8	0	296	0	0	0	0	13	224	0	237	533
Total	1168	30	0	1198	0	0	0	0	36	875	0	911	2109
Grand Total	3811	73	1	3885	1	1	0	2	101	2785	0	2886	6773
Approach %	98.1	1.9	0.0		50.0	50.0	0.0		3.5	96.5	0.0		
Total %	56.3	1.1	0.0	57.4	0.0	0.0	0.0	0.0	1.5	41.1	0.0	42.6	
Exiting Leg Total				2787				174				3812	6773

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:45 PM	306	4	0	310	1	0	0	1	10	278	0	288	599
4:00 PM	337	3	0	340	0	0	0	0	8	246	0	254	594
4:15 PM	350	5	0	355	0	0	0	0	5	208	0	213	568
4:30 PM	368	9	0	377	0	0	0	0	10	247	0	257	634
Total Volume	1361	21	0	1382	1	0	0	1	33	979	0	1012	2395
% Approach Total	98.5	1.5	0.0		100.0	0.0	0.0		3.3	96.7	0.0		
PHF	0.925	0.583	0.000	0.916	0.250	0.000	0.000	0.250	0.825	0.880	0.000	0.878	0.944
Entering Leg	1361	21	0	1382	1	0	0	1	33	979	0	1012	2395
Exiting Leg				980				54				1361	2395
Total				2362				55				2373	4790

PDI File #: **186102 GG**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	2	1	0	3	0	0	0	0	0	5	0	5	8
3:15 PM	4	1	0	5	0	0	0	0	0	2	0	2	7
3:30 PM	1	1	0	2	0	0	0	0	0	3	0	3	5
3:45 PM	5	1	0	6	0	0	0	0	0	1	0	1	7
Total	12	4	0	16	0	0	0	0	0	11	0	11	27
4:00 PM	1	1	0	2	0	0	0	0	1	3	0	4	6
4:15 PM	0	1	0	1	0	0	0	0	0	2	0	2	3
4:30 PM	1	1	0	2	0	0	0	0	0	2	0	2	4
4:45 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
Total	2	5	0	7	0	0	0	0	1	7	0	8	15
5:00 PM	1	1	0	2	0	0	0	0	0	2	0	2	4
5:15 PM	2	1	0	3	0	0	0	0	0	2	0	2	5
5:30 PM	1	1	0	2	0	0	0	0	0	1	0	1	3
5:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	4	4	0	8	0	0	0	0	0	5	0	5	13
Grand Total	18	13	0	31	0	0	0	0	1	23	0	24	55
Approach %	58.1	41.9	0.0		0.0	0.0	0.0		4.2	95.8	0.0		
Total %	32.7	23.6	0.0	56.4	0.0	0.0	0.0	0.0	1.8	41.8	0.0	43.6	
Exiting Leg Total				23				14				18	55
Buses	13	12	0	25	0	0	0	0	1	10	0	11	36
% Buses	72.2	92.3	0.0	80.6	0.0	0.0	0.0	0.0	100.0	43.5	0.0	45.8	65.5
Exiting Leg Total				10				13				13	36
Single-Unit Trucks	4	1	0	5	0	0	0	0	0	13	0	13	18
% Single-Unit	22.2	7.7	0.0	16.1	0.0	0.0	0.0	0.0	0.0	56.5	0.0	54.2	32.7
Exiting Leg Total				13				1				4	18
Articulated Trucks	1	0	0	1	0	0	0	0	0	0	0	0	1
% Articulated	5.6	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8
Exiting Leg Total				0				0				1	1

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	2	1	0	3	0	0	0	0	0	5	0	5	8
3:15 PM	4	1	0	5	0	0	0	0	0	2	0	2	7
3:30 PM	1	1	0	2	0	0	0	0	0	3	0	3	5
3:45 PM	5	1	0	6	0	0	0	0	0	1	0	1	7
Total Volume	12	4	0	16	0	0	0	0	0	11	0	11	27
% Approach Total	75.0	25.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.600	1.000	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.550	0.000	0.550	0.844
Buses	8	4	0	12	0	0	0	0	0	6	0	6	18
Buses %	66.7	100.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	54.5	0.0	54.5	66.7
Single-Unit Trucks	3	0	0	3	0	0	0	0	0	5	0	5	8
Single-Unit %	25.0	0.0	0.0	18.8	0.0	0.0	0.0	0.0	0.0	45.5	0.0	45.5	29.6
Articulated Trucks	1	0	0	1	0	0	0	0	0	0	0	0	1
Articulated %	8.3	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7
Buses	8	4	0	12	0	0	0	0	0	6	0	6	18
Single-Unit Trucks	3	0	0	3	0	0	0	0	0	5	0	5	8
Articulated Trucks	1	0	0	1	0	0	0	0	0	0	0	0	1
Total Entering Leg	12	4	0	16	0	0	0	0	0	11	0	11	27
Buses				6				4				8	18
Single-Unit Trucks				5				0				3	8
Articulated Trucks				0				0				1	1
Total Exiting Leg				11				4				12	27

PDI File #: **186102 GG**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars

	Riverway				Autumn Street				Riverway				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	300	9	0	309	0	1	0	1	14	228	0	242	552
3:15 PM	298	3	0	301	0	0	0	0	6	208	0	214	515
3:30 PM	333	4	1	338	0	0	0	0	4	228	0	232	570
3:45 PM	293	4	0	297	1	0	0	1	10	265	0	275	573
Total	1224	20	1	1245	1	1	0	2	34	929	0	963	2210
4:00 PM	325	3	0	328	0	0	0	0	8	227	0	235	563
4:15 PM	338	5	0	343	0	0	0	0	5	198	0	203	546
4:30 PM	351	8	0	359	0	0	0	0	10	243	0	253	612
4:45 PM	274	5	0	279	0	0	0	0	7	218	0	225	504
Total	1288	21	0	1309	0	0	0	0	30	886	0	916	2225
5:00 PM	270	12	0	282	0	0	0	0	8	209	0	217	499
5:15 PM	281	6	0	287	0	0	0	0	6	217	0	223	510
5:30 PM	297	4	0	301	0	0	0	0	7	201	0	208	509
5:45 PM	274	8	0	282	0	0	0	0	12	220	0	232	514
Total	1122	30	0	1152	0	0	0	0	33	847	0	880	2032
Grand Total	3634	71	1	3706	1	1	0	2	97	2662	0	2759	6467
Approach %	98.1	1.9	0.0		50.0	50.0	0.0		3.5	96.5	0.0		
Total %	56.2	1.1	0.0	57.3	0.0	0.0	0.0	0.0	1.5	41.2	0.0	42.7	
Exiting Leg Total				2664				168				3635	6467

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway				Autumn Street				Riverway				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	300	9	0	309	0	1	0	1	14	228	0	242	552
3:15 PM	298	3	0	301	0	0	0	0	6	208	0	214	515
3:30 PM	333	4	1	338	0	0	0	0	4	228	0	232	570
3:45 PM	293	4	0	297	1	0	0	1	10	265	0	275	573
Total Volume	1224	20	1	1245	1	1	0	2	34	929	0	963	2210
% Approach Total	98.3	1.6	0.1		50.0	50.0	0.0		3.5	96.5	0.0		
PHF	0.919	0.556	0.250	0.921	0.250	0.250	0.000	0.500	0.607	0.876	0.000	0.875	0.964
Entering Leg	1224	20	1	1245	1	1	0	2	34	929	0	963	2210
Exiting Leg				931				54				1225	2210
Total				2176				56				2188	4420

PDI File #: **186102 GG**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Light Goods Vehicle**

	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	32	0	0	32	0	0	0	0	1	10	0	11	43
3:15 PM	22	0	0	22	0	0	0	0	0	18	0	18	40
3:30 PM	17	0	0	17	0	0	0	0	0	12	0	12	29
3:45 PM	13	0	0	13	0	0	0	0	0	13	0	13	26
Total	84	0	0	84	0	0	0	0	1	53	0	54	138
4:00 PM	12	0	0	12	0	0	0	0	0	19	0	19	31
4:15 PM	12	0	0	12	0	0	0	0	0	10	0	10	22
4:30 PM	17	1	0	18	0	0	0	0	0	4	0	4	22
4:45 PM	5	1	0	6	0	0	0	0	0	9	0	9	15
Total	46	2	0	48	0	0	0	0	0	42	0	42	90
5:00 PM	11	0	0	11	0	0	0	0	2	8	0	10	21
5:15 PM	13	0	0	13	0	0	0	0	0	10	0	10	23
5:30 PM	8	0	0	8	0	0	0	0	0	6	0	6	14
5:45 PM	14	0	0	14	0	0	0	0	1	4	0	5	19
Total	46	0	0	46	0	0	0	0	3	28	0	31	77
Grand Total	176	2	0	178	0	0	0	0	4	123	0	127	305
Approach %	98.9	1.1	0.0		0.0	0.0	0.0		3.1	96.9	0.0		
Total %	57.7	0.7	0.0	58.4	0.0	0.0	0.0	0.0	1.3	40.3	0.0	41.6	
Exiting Leg Total				123				6				176	305

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	32	0	0	32	0	0	0	0	1	10	0	11	43
3:15 PM	22	0	0	22	0	0	0	0	0	18	0	18	40
3:30 PM	17	0	0	17	0	0	0	0	0	12	0	12	29
3:45 PM	13	0	0	13	0	0	0	0	0	13	0	13	26
Total Volume	84	0	0	84	0	0	0	0	1	53	0	54	138
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		1.9	98.1	0.0		
PHF	0.656	0.000	0.000	0.656	0.000	0.000	0.000	0.000	0.250	0.736	0.000	0.750	0.802
Entering Leg	84	0	0	84	0	0	0	0	1	53	0	54	138
Exiting Leg				53				1				84	138
Total				137				1				138	276

PDI File #: **186102 GG**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Buses

	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	2	1	0	3	0	0	0	0	0	4	0	4	7
3:15 PM	3	1	0	4	0	0	0	0	0	2	0	2	6
3:30 PM	1	1	0	2	0	0	0	0	0	0	0	0	2
3:45 PM	2	1	0	3	0	0	0	0	0	0	0	0	3
Total	8	4	0	12	0	0	0	0	0	6	0	6	18
4:00 PM	1	1	0	2	0	0	0	0	1	2	0	3	5
4:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
4:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	1	4	0	5	0	0	0	0	1	2	0	3	8
5:00 PM	1	1	0	2	0	0	0	0	0	1	0	1	3
5:15 PM	2	1	0	3	0	0	0	0	0	1	0	1	4
5:30 PM	1	1	0	2	0	0	0	0	0	0	0	0	2
5:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	4	4	0	8	0	0	0	0	0	2	0	2	10
Grand Total	13	12	0	25	0	0	0	0	1	10	0	11	36
Approach %	52.0	48.0	0.0		0.0	0.0	0.0		9.1	90.9	0.0		
Total %	36.1	33.3	0.0	69.4	0.0	0.0	0.0	0.0	2.8	27.8	0.0	30.6	
Exiting Leg Total				10				13				13	36

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	2	1	0	3	0	0	0	0	0	4	0	4	7
3:15 PM	3	1	0	4	0	0	0	0	0	2	0	2	6
3:30 PM	1	1	0	2	0	0	0	0	0	0	0	0	2
3:45 PM	2	1	0	3	0	0	0	0	0	0	0	0	3
Total Volume	8	4	0	12	0	0	0	0	0	6	0	6	18
% Approach Total	66.7	33.3	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.667	1.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.375	0.643
Entering Leg	8	4	0	12	0	0	0	0	0	6	0	6	18
Exiting Leg				6				4				8	18
Total				18				4				14	36

PDI File #: **186102 GG**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Single-Unit Trucks**

	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
3:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	0	0	3	0	3	3
3:45 PM	2	0	0	2	0	0	0	0	0	1	0	1	3
Total	3	0	0	3	0	0	0	0	0	5	0	5	8
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	2	0	2	2
4:30 PM	1	0	0	1	0	0	0	0	0	2	0	2	3
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	1	1	0	2	0	0	0	0	0	5	0	5	7
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	3	0	3	3
Grand Total	4	1	0	5	0	0	0	0	0	13	0	13	18
Approach %	80.0	20.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
Total %	22.2	5.6	0.0	27.8	0.0	0.0	0.0	0.0	0.0	72.2	0.0	72.2	
Exiting Leg Total				13				1				4	18

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:30 PM	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:30 PM	0	0	0	0	0	0	0	0	0	3	0	3	3
3:45 PM	2	0	0	2	0	0	0	0	0	1	0	1	3
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	2	0	2	2
Total Volume	2	0	0	2	0	0	0	0	0	7	0	7	9
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.583	0.000	0.583	0.750
Entering Leg	2	0	0	2	0	0	0	0	0	7	0	7	9
Exiting Leg				7				0				2	9
Total				9				0				9	18

PDI File #: **186102 GG**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class:

Articulated Trucks

	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	1	0	0	1	0	0	0	0	0	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	0	0	1	0	0	0	0	0	0	0	0	1
Approach %	100.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				1	1

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway from North				Autumn Street from East				Riverway from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total Volume	1	0	0	1	0	0	0	0	0	0	0	0	1
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	1	0	0	1	0	0	0	0	0	0	0	0	1
Exiting Leg				0				0				1	1
Total				1				0				1	2

PDI File #: **186102 GG**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Riverway from North						Autumn Street from East						Riverway from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
3:30 PM	1	0	0	0	0	1	0	0	0	0	2	2	0	0	0	0	0	0	3
3:45 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
Total	1	0	0	0	0	1	0	0	0	1	3	4	0	1	0	0	0	1	6
4:00 PM	1	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	1	2
Total	1	0	0	0	0	1	0	0	0	1	5	6	0	1	0	0	0	1	8
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	0	1	5	6	0	0	0	0	0	0	6
Grand Total	2	0	0	0	0	2	0	0	0	3	13	16	0	2	0	0	0	2	20
Approach %	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	18.8	81.3		0.0	100.0	0.0	0.0	0.0		
Total %	10.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	15.0	65.0	80.0	0.0	10.0	0.0	0.0	0.0	10.0	
Exiting Leg Total						2						16						2	20

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway from North						Autumn Street from East						Riverway from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
3:30 PM	1	0	0	0	0	1	0	0	0	0	2	2	0	0	0	0	0	0	3
3:45 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
Total Volume	1	0	0	0	0	1	0	0	0	1	3	4	0	1	0	0	0	1	6
% Approach Total	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	25.0	75.0		0.0	100.0	0.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.375	0.500	0.000	0.250	0.000	0.000	0.000	0.250	0.500
Entering Leg	1	0	0	0	0	1	0	0	0	1	3	4	0	1	0	0	0	1	6
Exiting Leg						1						4						1	6
Total						2						8						2	12

PDI File #: **186102 GG**
Location: **N: Riverway S: Riverway**
Location: **E: Autumn Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Pedestrians

	Riverway from North						Autumn Street from East						Riverway from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	1	3	4	0	0	0	0	0	0	4
3:15 PM	0	0	0	0	0	0	0	0	0	2	2	4	0	0	0	0	0	0	4
3:30 PM	0	0	0	0	0	0	0	0	0	2	11	13	0	0	0	0	0	0	13
3:45 PM	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	4
Total	0	0	0	0	0	0	0	0	0	5	20	25	0	0	0	0	0	0	25
4:00 PM	0	0	0	0	0	0	0	0	0	1	5	6	0	0	0	0	0	0	6
4:15 PM	0	0	0	0	0	0	0	0	0	1	9	10	0	0	0	0	0	0	10
4:30 PM	0	0	0	0	0	0	0	0	0	1	12	13	0	0	0	0	0	0	13
4:45 PM	0	0	0	0	0	0	0	0	0	0	10	10	0	0	0	0	0	0	10
Total	0	0	0	0	0	0	0	0	0	3	36	39	0	0	0	0	0	0	39
5:00 PM	0	0	0	0	0	0	0	0	0	6	15	21	0	0	0	0	0	0	21
5:15 PM	0	0	0	0	0	0	0	0	0	2	8	10	0	0	0	0	0	0	10
5:30 PM	0	0	0	0	0	0	0	0	0	1	12	13	0	0	0	0	0	0	13
5:45 PM	0	0	0	0	0	0	0	0	0	2	10	12	0	0	0	0	0	0	12
Total	0	0	0	0	0	0	0	0	0	11	45	56	0	0	0	0	0	0	56
Grand Total	0	0	0	0	0	0	0	0	0	19	101	120	0	0	0	0	0	0	120
Approach %	0	0	0	0	0		0	0	0	15.833	84.167		0	0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	15.833	84.167	100	0	0	0	0	0	0	
Exiting Leg Total						0						120						0	120

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

5:00 PM	Riverway from North						Autumn Street from East						Riverway from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
5:00 PM	0	0	0	0	0	0	0	0	0	6	15	21	0	0	0	0	0	0	21
5:15 PM	0	0	0	0	0	0	0	0	0	2	8	10	0	0	0	0	0	0	10
5:30 PM	0	0	0	0	0	0	0	0	0	1	12	13	0	0	0	0	0	0	13
5:45 PM	0	0	0	0	0	0	0	0	0	2	10	12	0	0	0	0	0	0	12
Total Volume	0	0	0	0	0	0	0	0	0	11	45	56	0	0	0	0	0	0	56
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	19.6	80.4		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.458	0.750	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.667
Entering Leg	0	0	0	0	0	0	0	0	0	11	45	56	0	0	0	0	0	0	56
Exiting Leg						0						56						0	56
Total						0						112						0	112

PDI File #: **186102 H**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	7	139	0	0	146	10	52	1	0	63	27	193	90	0	310	31	82	19	0	132	651
7:15 AM	9	149	2	0	160	18	58	10	0	86	35	223	61	0	319	30	86	22	0	138	703
7:30 AM	20	224	0	0	244	20	55	12	0	87	26	250	72	0	348	23	81	27	0	131	810
7:45 AM	23	201	0	0	224	14	65	15	0	94	29	258	60	0	347	24	64	27	0	115	780
Total	59	713	2	0	774	62	230	38	0	330	117	924	283	0	1324	108	313	95	0	516	2944
8:00 AM	25	185	0	0	210	4	53	6	0	63	24	233	74	0	331	37	85	23	0	145	749
8:15 AM	22	186	0	0	208	9	46	6	0	61	24	258	64	0	346	21	88	24	0	133	748
8:30 AM	20	144	0	0	164	16	64	5	0	85	23	256	49	0	328	22	75	21	0	118	695
8:45 AM	11	146	0	0	157	11	43	6	0	60	24	244	50	0	318	25	76	34	0	135	670
Total	78	661	0	0	739	40	206	23	0	269	95	991	237	0	1323	105	324	102	0	531	2862
Grand Total	137	1374	2	0	1513	102	436	61	0	599	212	1915	520	0	2647	213	637	197	0	1047	5806
Approach %	9.1	90.8	0.1	0.0		17.0	72.8	10.2	0.0		8.0	72.3	19.6	0.0		20.3	60.8	18.8	0.0		
Total %	2.4	23.7	0.0	0.0	26.1	1.8	7.5	1.1	0.0	10.3	3.7	33.0	9.0	0.0	45.6	3.7	11.0	3.4	0.0	18.0	
Exiting Leg Total					2214					851					1648					1093	5806
Cars	136	1359	2	0	1497	93	425	61	0	579	212	1907	510	0	2629	212	625	192	0	1029	5734
% Cars	99.3	98.9	100.0	0.0	98.9	91.2	97.5	100.0	0.0	96.7	100.0	99.6	98.1	0.0	99.3	99.5	98.1	97.5	0.0	98.3	98.8
Exiting Leg Total					2192					839					1632					1071	5734
Heavy Vehicles	1	15	0	0	16	9	11	0	0	20	0	8	10	0	18	1	12	5	0	18	72
% Heavy Vehicles	0.7	1.1	0.0	0.0	1.1	8.8	2.5	0.0	0.0	3.3	0.0	0.4	1.9	0.0	0.7	0.5	1.9	2.5	0.0	1.7	1.2
Exiting Leg Total					22					12					16					22	72

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	20	224	0	0	244	20	55	12	0	87	26	250	72	0	348	23	81	27	0	131	810
7:45 AM	23	201	0	0	224	14	65	15	0	94	29	258	60	0	347	24	64	27	0	115	780
8:00 AM	25	185	0	0	210	4	53	6	0	63	24	233	74	0	331	37	85	23	0	145	749
8:15 AM	22	186	0	0	208	9	46	6	0	61	24	258	64	0	346	21	88	24	0	133	748
Total Volume	90	796	0	0	886	47	219	39	0	305	103	999	270	0	1372	105	318	101	0	524	3087
% Approach Total	10.2	89.8	0.0	0.0		15.4	71.8	12.8	0.0		7.5	72.8	19.7	0.0		20.0	60.7	19.3	0.0		
PHF	0.900	0.888	0.000	0.000	0.908	0.588	0.842	0.650	0.000	0.811	0.888	0.968	0.912	0.000	0.986	0.709	0.903	0.935	0.000	0.903	0.953
Cars	89	785	0	0	874	43	216	39	0	298	103	997	265	0	1365	105	309	98	0	512	3049
Cars %	98.9	98.6	0.0	0.0	98.6	91.5	98.6	100.0	0.0	97.7	100.0	99.8	98.1	0.0	99.5	100.0	97.2	97.0	0.0	97.7	98.8
Heavy Vehicles	1	11	0	0	12	4	3	0	0	7	0	2	5	0	7	0	9	3	0	12	38
Heavy Vehicles %	1.1	1.4	0.0	0.0	1.4	8.5	1.4	0.0	0.0	2.3	0.0	0.2	1.9	0.0	0.5	0.0	2.8	3.0	0.0	2.3	1.2
Cars Enter Leg	89	785	0	0	874	43	216	39	0	298	103	997	265	0	1365	105	309	98	0	512	3049
Heavy Enter Leg	1	11	0	0	12	4	3	0	0	7	0	2	5	0	7	0	9	3	0	12	38
Total Entering Leg	90	796	0	0	886	47	219	39	0	305	103	999	270	0	1372	105	318	101	0	524	3087
Cars Exiting Leg					1138					412					929					570	3049
Heavy Exiting Leg					9					9					11					9	38
Total Exiting Leg					1147					421					940					579	3087

PDI File #: **186102 H**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	7	139	0	0	146	9	51	1	0	61	27	191	89	0	307	31	82	18	0	131	645
7:15 AM	9	148	2	0	159	17	56	10	0	83	35	223	61	0	319	30	85	21	0	136	697
7:30 AM	20	222	0	0	242	19	55	12	0	86	26	249	70	0	345	23	81	27	0	131	804
7:45 AM	23	196	0	0	219	13	63	15	0	91	29	257	59	0	345	24	63	25	0	112	767
Total	59	705	2	0	766	58	225	38	0	321	117	920	279	0	1316	108	311	91	0	510	2913
8:00 AM	25	182	0	0	207	3	53	6	0	62	24	233	73	0	330	37	82	23	0	142	741
8:15 AM	21	185	0	0	206	8	45	6	0	59	24	258	63	0	345	21	83	23	0	127	737
8:30 AM	20	142	0	0	162	15	63	5	0	83	23	253	45	0	321	22	73	21	0	116	682
8:45 AM	11	145	0	0	156	9	39	6	0	54	24	243	50	0	317	24	76	34	0	134	661
Total	77	654	0	0	731	35	200	23	0	258	95	987	231	0	1313	104	314	101	0	519	2821
Grand Total	136	1359	2	0	1497	93	425	61	0	579	212	1907	510	0	2629	212	625	192	0	1029	5734
Approach %	9.1	90.8	0.1	0.0		16.1	73.4	10.5	0.0		8.1	72.5	19.4	0.0		20.6	60.7	18.7	0.0		
Total %	2.4	23.7	0.0	0.0	26.1	1.6	7.4	1.1	0.0	10.1	3.7	33.3	8.9	0.0	45.8	3.7	10.9	3.3	0.0	17.9	
Exiting Leg Total					2192					839					1632					1071	5734

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	20	222	0	0	242	19	55	12	0	86	26	249	70	0	345	23	81	27	0	131	804
7:45 AM	23	196	0	0	219	13	63	15	0	91	29	257	59	0	345	24	63	25	0	112	767
8:00 AM	25	182	0	0	207	3	53	6	0	62	24	233	73	0	330	37	82	23	0	142	741
8:15 AM	21	185	0	0	206	8	45	6	0	59	24	258	63	0	345	21	83	23	0	127	737
Total Volume	89	785	0	0	874	43	216	39	0	298	103	997	265	0	1365	105	309	98	0	512	3049
% Approach Total	10.2	89.8	0.0	0.0		14.4	72.5	13.1	0.0		7.5	73.0	19.4	0.0		20.5	60.4	19.1	0.0		
PHF	0.890	0.884	0.000	0.000	0.903	0.566	0.857	0.650	0.000	0.819	0.888	0.966	0.908	0.000	0.989	0.709	0.931	0.907	0.000	0.901	0.948
Entering Leg	89	785	0	0	874	43	216	39	0	298	103	997	265	0	1365	105	309	98	0	512	3049
Exiting Leg					1138					412					929					570	3049
Total					2012					710					2294					1082	6098

PDI File #: **186102 H**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	1	1	0	0	2	0	2	1	0	3	0	0	1	0	1	6
7:15 AM	0	1	0	0	1	1	2	0	0	3	0	0	0	0	0	0	1	1	0	2	6
7:30 AM	0	2	0	0	2	1	0	0	0	1	0	1	2	0	3	0	0	0	0	0	6
7:45 AM	0	5	0	0	5	1	2	0	0	3	0	1	1	0	2	0	1	2	0	3	13
Total	0	8	0	0	8	4	5	0	0	9	0	4	4	0	8	0	2	4	0	6	31
8:00 AM	0	3	0	0	3	1	0	0	0	1	0	0	1	0	1	0	3	0	0	3	8
8:15 AM	1	1	0	0	2	1	1	0	0	2	0	0	1	0	1	0	5	1	0	6	11
8:30 AM	0	2	0	0	2	1	1	0	0	2	0	3	4	0	7	0	2	0	0	2	13
8:45 AM	0	1	0	0	1	2	4	0	0	6	0	1	0	0	1	1	0	0	0	1	9
Total	1	7	0	0	8	5	6	0	0	11	0	4	6	0	10	1	10	1	0	12	41
Grand Total	1	15	0	0	16	9	11	0	0	20	0	8	10	0	18	1	12	5	0	18	72
Approach %	6.3	93.8	0.0	0.0		45.0	55.0	0.0	0.0		0.0	44.4	55.6	0.0		5.6	66.7	27.8	0.0		
Total %	1.4	20.8	0.0	0.0	22.2	12.5	15.3	0.0	0.0	27.8	0.0	11.1	13.9	0.0	25.0	1.4	16.7	6.9	0.0	25.0	
Exiting Leg Total					22					12					16					22	72
Buses	1	14	0	0	15	9	4	0	0	13	0	6	4	0	10	1	3	2	0	6	44
% Buses	100.0	93.3	0.0	0.0	93.8	100.0	36.4	0.0	0.0	65.0	0.0	75.0	40.0	0.0	55.6	100.0	25.0	40.0	0.0	33.3	61.1
Exiting Leg Total					17					3					15					9	44
Single-Unit Trucks	0	1	0	0	1	0	7	0	0	7	0	2	6	0	8	0	9	3	0	12	28
% Single-Unit	0.0	6.7	0.0	0.0	6.3	0.0	63.6	0.0	0.0	35.0	0.0	25.0	60.0	0.0	44.4	0.0	75.0	60.0	0.0	66.7	38.9
Exiting Leg Total					5					9					1					13	28
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	5	0	0	5	1	2	0	0	3	0	1	1	0	2	0	1	2	0	3	13
8:00 AM	0	3	0	0	3	1	0	0	0	1	0	0	1	0	1	0	3	0	0	3	8
8:15 AM	1	1	0	0	2	1	1	0	0	2	0	0	1	0	1	0	5	1	0	6	11
8:30 AM	0	2	0	0	2	1	1	0	0	2	0	3	4	0	7	0	2	0	0	2	13
Total Volume	1	11	0	0	12	4	4	0	0	8	0	4	7	0	11	0	11	3	0	14	45
% Approach Total	8.3	91.7	0.0	0.0		50.0	50.0	0.0	0.0		0.0	36.4	63.6	0.0		0.0	78.6	21.4	0.0		
PHF	0.250	0.550	0.000	0.000	0.600	1.000	0.500	0.000	0.000	0.667	0.000	0.333	0.438	0.000	0.393	0.000	0.550	0.375	0.000	0.583	0.865
Buses	1	10	0	0	11	4	1	0	0	5	0	4	1	0	5	0	3	2	0	5	26
Buses %	100.0	90.9	0.0	0.0	91.7	100.0	25.0	0.0	0.0	62.5	0.0	100.0	14.3	0.0	45.5	0.0	27.3	66.7	0.0	35.7	57.8
Single-Unit Trucks	0	1	0	0	1	0	3	0	0	3	0	0	6	0	6	0	8	1	0	9	19
Single-Unit %	0.0	9.1	0.0	0.0	8.3	0.0	75.0	0.0	0.0	37.5	0.0	0.0	85.7	0.0	54.5	0.0	72.7	33.3	0.0	64.3	42.2
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	1	10	0	0	11	4	1	0	0	5	0	4	1	0	5	0	3	2	0	5	26
Single-Unit Trucks	0	1	0	0	1	0	3	0	0	3	0	0	6	0	6	0	8	1	0	9	19
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	1	11	0	0	12	4	4	0	0	8	0	4	7	0	11	0	11	3	0	14	45
Buses					10					3					10					3	26
Single-Unit Trucks					1					8					1					9	19
Articulated Trucks					0					0					0					0	0
Total Exiting Leg					11					11					11					12	45

PDI File #: **186102 H**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars

	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	7	138	0	0	145	9	49	1	0	59	27	174	83	0	284	30	80	18	0	128	616
7:15 AM	8	137	2	0	147	17	55	10	0	82	35	215	60	0	310	29	84	19	0	132	671
7:30 AM	19	203	0	0	222	19	54	12	0	85	26	245	67	0	338	23	80	27	0	130	775
7:45 AM	23	189	0	0	212	12	61	15	0	88	29	248	57	0	334	23	61	24	0	108	742
Total	57	667	2	0	726	57	219	38	0	314	117	882	267	0	1266	105	305	88	0	498	2804
8:00 AM	25	168	0	0	193	3	53	6	0	62	24	223	71	0	318	37	78	23	0	138	711
8:15 AM	20	174	0	0	194	6	43	5	0	54	24	255	62	0	341	21	82	22	0	125	714
8:30 AM	18	133	0	0	151	14	62	5	0	81	23	240	45	0	308	22	72	21	0	115	655
8:45 AM	11	140	0	0	151	9	38	5	0	52	23	233	47	0	303	24	75	32	0	131	637
Total	74	615	0	0	689	32	196	21	0	249	94	951	225	0	1270	104	307	98	0	509	2717
Grand Total	131	1282	2	0	1415	89	415	59	0	563	211	1833	492	0	2536	209	612	186	0	1007	5521
Approach %	9.3	90.6	0.1	0.0		15.8	73.7	10.5	0.0		8.3	72.3	19.4	0.0		20.8	60.8	18.5	0.0		
Total %	2.4	23.2	0.0	0.0	25.6	1.6	7.5	1.1	0.0	10.2	3.8	33.2	8.9	0.0	45.9	3.8	11.1	3.4	0.0	18.2	
Exiting Leg Total					2108					825					1550					1038	5521

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	19	203	0	0	222	19	54	12	0	85	26	245	67	0	338	23	80	27	0	130	775
7:45 AM	23	189	0	0	212	12	61	15	0	88	29	248	57	0	334	23	61	24	0	108	742
8:00 AM	25	168	0	0	193	3	53	6	0	62	24	223	71	0	318	37	78	23	0	138	711
8:15 AM	20	174	0	0	194	6	43	5	0	54	24	255	62	0	341	21	82	22	0	125	714
Total Volume	87	734	0	0	821	40	211	38	0	289	103	971	257	0	1331	104	301	96	0	501	2942
% Approach Total	10.6	89.4	0.0	0.0		13.8	73.0	13.1	0.0		7.7	73.0	19.3	0.0		20.8	60.1	19.2	0.0		
PHF	0.870	0.904	0.000	0.000	0.925	0.526	0.865	0.633	0.000	0.821	0.888	0.952	0.905	0.000	0.976	0.703	0.918	0.889	0.000	0.908	0.949
Entering Leg	87	734	0	0	821	40	211	38	0	289	103	971	257	0	1331	104	301	96	0	501	2942
Exiting Leg					1107					404					876					555	2942
Total					1928					693					2207					1056	5884

PDI File #: **186102 H**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class:

Light Goods Vehicle

	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	1	0	0	1	0	2	0	0	2	0	17	6	0	23	1	2	0	0	3	29
7:15 AM	1	11	0	0	12	0	1	0	0	1	0	8	1	0	9	1	1	2	0	4	26
7:30 AM	1	19	0	0	20	0	1	0	0	1	0	4	3	0	7	0	1	0	0	1	29
7:45 AM	0	7	0	0	7	1	2	0	0	3	0	9	2	0	11	1	2	1	0	4	25
Total	2	38	0	0	40	1	6	0	0	7	0	38	12	0	50	3	6	3	0	12	109
8:00 AM	0	13	0	0	13	0	0	0	0	0	0	10	2	0	12	0	4	0	0	4	29
8:15 AM	1	11	0	0	12	2	2	1	0	5	0	3	1	0	4	0	1	1	0	2	23
8:30 AM	2	9	0	0	11	1	1	0	0	2	0	13	0	0	13	0	0	0	0	0	26
8:45 AM	0	5	0	0	5	0	1	1	0	2	1	9	3	0	13	0	1	1	0	2	22
Total	3	38	0	0	41	3	4	2	0	9	1	35	6	0	42	0	6	2	0	8	100
Grand Total	5	76	0	0	81	4	10	2	0	16	1	73	18	0	92	3	12	5	0	20	209
Approach %	6.2	93.8	0.0	0.0		25.0	62.5	12.5	0.0		1.1	79.3	19.6	0.0		15.0	60.0	25.0	0.0		
Total %	2.4	36.4	0.0	0.0	38.8	1.9	4.8	1.0	0.0	7.7	0.5	34.9	8.6	0.0	44.0	1.4	5.7	2.4	0.0	9.6	
Exiting Leg Total					82					13					81					33	209

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	1	0	0	1	0	2	0	0	2	0	17	6	0	23	1	2	0	0	3	29
7:15 AM	1	11	0	0	12	0	1	0	0	1	0	8	1	0	9	1	1	2	0	4	26
7:30 AM	1	19	0	0	20	0	1	0	0	1	0	4	3	0	7	0	1	0	0	1	29
7:45 AM	0	7	0	0	7	1	2	0	0	3	0	9	2	0	11	1	2	1	0	4	25
Total Volume	2	38	0	0	40	1	6	0	0	7	0	38	12	0	50	3	6	3	0	12	109
% Approach Total	5.0	95.0	0.0	0.0		14.3	85.7	0.0	0.0		0.0	76.0	24.0	0.0		25.0	50.0	25.0	0.0		
PHF	0.500	0.500	0.000	0.000	0.500	0.250	0.750	0.000	0.000	0.583	0.000	0.559	0.500	0.000	0.543	0.750	0.750	0.375	0.000	0.750	0.940
Entering Leg	2	38	0	0	40	1	6	0	0	7	0	38	12	0	50	3	6	3	0	12	109
Exiting Leg					42					6					41					20	109
Total					82					13					91					32	218

PDI File #: **186102 H**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Buses

	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	2
7:15 AM	0	1	0	0	1	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3
7:30 AM	0	2	0	0	2	1	0	0	0	1	0	1	2	0	3	0	0	0	0	0	6
7:45 AM	0	5	0	0	5	1	1	0	0	2	0	1	0	0	1	0	0	2	0	2	10
Total	0	8	0	0	8	4	2	0	0	6	0	2	3	0	5	0	0	2	0	2	21
8:00 AM	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	5
8:15 AM	1	1	0	0	2	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	5
8:30 AM	0	1	0	0	1	1	0	0	0	1	0	3	1	0	4	0	0	0	0	0	6
8:45 AM	0	1	0	0	1	2	2	0	0	4	0	1	0	0	1	1	0	0	0	1	7
Total	1	6	0	0	7	5	2	0	0	7	0	4	1	0	5	1	3	0	0	4	23
Grand Total	1	14	0	0	15	9	4	0	0	13	0	6	4	0	10	1	3	2	0	6	44
Approach %	6.7	93.3	0.0	0.0		69.2	30.8	0.0	0.0		0.0	60.0	40.0	0.0		16.7	50.0	33.3	0.0		
Total %	2.3	31.8	0.0	0.0	34.1	20.5	9.1	0.0	0.0	29.5	0.0	13.6	9.1	0.0	22.7	2.3	6.8	4.5	0.0	13.6	
Exiting Leg Total					17					3					15					9	44

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	0	2	0	0	2	1	0	0	0	1	0	1	2	0	3	0	0	0	0	0	6
7:45 AM	0	5	0	0	5	1	1	0	0	2	0	1	0	0	1	0	0	2	0	2	10
8:00 AM	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	5
8:15 AM	1	1	0	0	2	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	5
Total Volume	1	11	0	0	12	4	1	0	0	5	0	2	2	0	4	0	3	2	0	5	26
% Approach Total	8.3	91.7	0.0	0.0		80.0	20.0	0.0	0.0		0.0	50.0	50.0	0.0		0.0	60.0	40.0	0.0		
PHF	0.250	0.550	0.000	0.000	0.600	1.000	0.250	0.000	0.000	0.625	0.000	0.500	0.250	0.000	0.333	0.000	0.375	0.250	0.000	0.625	0.650
Entering Leg	1	11	0	0	12	4	1	0	0	5	0	2	2	0	4	0	3	2	0	5	26
Exiting Leg					8					3					11					4	26
Total					20					8					15					9	52

PDI File #: **186102 H**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Single-Unit Trucks**

	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	0	0	1	0	1	4
7:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	3
Total	0	0	0	0	0	0	3	0	0	3	0	2	1	0	3	0	2	2	0	4	10
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	2	3
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	3	1	0	4	6
8:30 AM	0	1	0	0	1	0	1	0	0	1	0	0	3	0	3	0	2	0	0	2	7
8:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	1	0	0	1	0	4	0	0	4	0	0	5	0	5	0	7	1	0	8	18
Grand Total	0	1	0	0	1	0	7	0	0	7	0	2	6	0	8	0	9	3	0	12	28
Approach %	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	25.0	75.0	0.0		0.0	75.0	25.0	0.0		
Total %	0.0	3.6	0.0	0.0	3.6	0.0	25.0	0.0	0.0	25.0	0.0	7.1	21.4	0.0	28.6	0.0	32.1	10.7	0.0	42.9	
Exiting Leg Total					5					9					1					13	28

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	2	3
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	3	1	0	4	6
8:30 AM	0	1	0	0	1	0	1	0	0	1	0	0	3	0	3	0	2	0	0	2	7
Total Volume	0	1	0	0	1	0	3	0	0	3	0	0	6	0	6	0	8	1	0	9	19
% Approach Total	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		0.0	88.9	11.1	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.750	0.000	0.000	0.750	0.000	0.000	0.500	0.000	0.500	0.000	0.667	0.250	0.000	0.563	0.679
Entering Leg	0	1	0	0	1	0	3	0	0	3	0	0	6	0	6	0	8	1	0	9	19
Exiting Leg					1					8					1					9	19
Total					2					11					7					18	38

PDI File #: **186102 H**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Articulated Trucks

	Riverway					Longwood Avenue					Riverway					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Riverway					Longwood Avenue					Riverway					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

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

PDI File #: **186102 H**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

Bicycles (on Roadway and Crosswalks)

	Riverway							Longwood Avenue							Riverway							Crosswalk			Longwood Avenue							
	from North							from East							from South							from Southwest			from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	CW-NWB	CW-SEB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	8	8
7:15 AM	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	16	19
7:30 AM	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	12	1	0	0	0	13	16
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	33	0	0	0	0	33	35
Total	0	0	0	0	0	0	0	0	7	0	0	0	0	7	0	0	0	0	0	1	1	0	0	0	0	69	1	0	0	0	70	78
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	1	0	22	0	0	0	0	22	24
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	0	0	0	0	28	28
8:30 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	1	1	0	30	0	0	0	0	30	33
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	0	37	0	0	0	0	37	40
Total	0	0	0	0	0	0	0	0	2	0	0	0	1	3	0	0	0	0	0	0	0	2	3	5	0	117	0	0	0	0	117	125
Grand Total	0	0	0	0	0	0	0	0	9	0	0	0	1	10	0	0	0	0	0	1	1	2	3	5	0	186	1	0	0	0	187	203
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	90.0	0.0	0.0	0.0	10.0		0.0	0.0	0.0	0.0	0.0	100.0		40.0	60.0		0.0	99.5	0.5	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.0	0.5	4.9	0.0	0.0	0.0	0.0	0.0	0.5	0.5	1.0	1.5	2.5	0.0	91.6	0.5	0.0	0.0	0.0	92.1	
Exiting Leg Total							1							187							1			5							9	203

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Riverway							Longwood Avenue							Riverway							Crosswalk			Longwood Avenue							
	from North							from East							from South							from Southwest			from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	CW-NWB	CW-SEB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	1	0	22	0	0	0	0	22	24
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	0	0	0	0	28	28
8:30 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	1	1	0	30	0	0	0	0	30	33
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	0	37	0	0	0	0	37	40
Total Volume	0	0	0	0	0	0	0	0	2	0	0	0	1	3	0	0	0	0	0	0	0	2	3	5	0	117	0	0	0	0	117	125
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	66.7	0.0	0.0	0.0	33.3		0.0	0.0	0.0	0.0	0.0	0.0		40.0	60.0		0.0	100.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.375	0.417	0.000	0.791	0.000	0.000	0.000	0.000	0.791	0.781
Entering Leg	0	0	0	0	0	0	0	0	2	0	0	0	1	3	0	0	0	0	0	0	0	2	3	5	0	117	0	0	0	0	117	125
Exiting Leg							0							118							0			5							2	125
Total							0							121							0			10							119	250

PDI File #: **186102 H**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Pedestrians

	Riverway from North							Longwood Avenue from East							Riverway from South							Crosswalk from Southwest			Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	CW-NWB	CW-SEB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	30	2	32	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	90	92	0	0	0	0	2	0	2	128
7:15 AM	0	0	0	0	45	5	50	0	0	0	0	0	0	0	0	0	0	0	3	4	7	5	107	112	0	0	0	0	2	0	2	171
7:30 AM	0	0	0	0	85	8	93	0	0	0	0	0	1	1	0	0	0	0	0	4	4	4	132	136	0	0	0	0	4	1	5	239
7:45 AM	0	0	0	0	101	6	107	0	0	0	0	0	0	0	0	0	0	0	0	15	15	8	229	237	0	0	0	0	4	1	5	367
Total	0	0	0	0	261	21	282	0	0	0	0	0	1	1	0	0	0	0	3	25	28	19	558	577	0	0	0	0	12	2	14	905
8:00 AM	0	0	0	0	82	4	86	0	0	0	0	0	0	0	0	0	0	0	0	8	8	5	161	166	0	0	0	0	8	2	10	270
8:15 AM	0	0	0	0	107	5	112	0	0	0	0	0	0	0	0	0	0	0	0	5	5	3	133	136	0	0	0	0	12	0	12	265
8:30 AM	0	0	0	0	135	10	145	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	141	145	0	0	0	0	6	2	8	302
8:45 AM	0	0	0	0	141	9	150	0	0	0	0	0	1	1	0	0	0	0	0	5	5	5	153	158	0	0	0	0	7	1	8	322
Total	0	0	0	0	465	28	493	0	0	0	0	0	1	1	0	0	0	0	0	22	22	17	588	605	0	0	0	0	33	5	38	1159
Grand Total	0	0	0	0	726	49	775	0	0	0	0	0	2	2	0	0	0	0	3	47	50	36	1146	1182	0	0	0	0	45	7	52	2064
Approach %	0	0	0	0	93.7	6.32		0	0	0	0	0	100		0	0	0	0	6	94		3.05	97		0	0	0	0	86.5	13.5		
Total %	0	0	0	0	35.2	2.37	37.5	0	0	0	0	0	0.1	0.1	0	0	0	0	0.15	2.28	2.42	1.74	55.5	57.3	0	0	0	0	2.18	0.34	2.52	
Exiting Leg Total							775							2							50			1182							52	2064

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Riverway from North							Longwood Avenue from East							Riverway from South							Crosswalk from Southwest			Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	CW-NWB	CW-SEB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:45 AM	0	0	0	0	101	6	107	0	0	0	0	0	0	0	0	0	0	0	0	15	15	8	229	237	0	0	0	0	4	1	5	367
8:00 AM	0	0	0	0	82	4	86	0	0	0	0	0	0	0	0	0	0	0	0	8	8	5	161	166	0	0	0	0	8	2	10	270
8:15 AM	0	0	0	0	107	5	112	0	0	0	0	0	0	0	0	0	0	0	0	5	5	3	133	136	0	0	0	0	12	0	12	265
8:30 AM	0	0	0	0	135	10	145	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	141	145	0	0	0	0	6	2	8	302
Total Volume	0	0	0	0	425	25	450	0	0	0	0	0	0	0	0	0	0	0	0	32	32	20	664	684	0	0	0	0	30	5	35	1204
% Approach Total	0.0	0.0	0.0	0.0	94.4	5.6		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0		2.9	97.1		0.0	0.0	0.0	0.0	85.7	14.3		
PHF	0.000	0.000	0.000	0.000	0.787	0.625	0.776	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.533	0.533	0.625	0.725	0.722	0.000	0.000	0.000	0.000	0.625	0.625	0.729	0.820
Entering Leg	0	0	0	0	425	25	450	0	0	0	0	0	0	0	0	0	0	0	0	32	32	20	664	684	0	0	0	0	30	5	35	1204
Exiting Leg							450							0							32			684							35	1204
Total							900							0							64			1368							70	2408

PDI File #: **186102 HH**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	29	266	2	0	297	20	52	13	0	85	5	156	74	0	235	59	42	18	0	119	736
3:15 PM	30	223	1	0	254	19	68	19	0	106	6	144	74	0	224	46	46	19	0	111	695
3:30 PM	23	278	0	0	301	19	79	15	0	113	7	175	50	0	232	57	46	12	0	115	761
3:45 PM	26	245	0	0	271	13	71	16	0	100	13	162	91	0	266	54	57	18	0	129	766
Total	108	1012	3	0	1123	71	270	63	0	404	31	637	289	0	957	216	191	67	0	474	2958
4:00 PM	29	270	1	0	300	10	65	17	0	92	12	170	59	0	241	51	49	25	0	125	758
4:15 PM	22	299	0	0	321	10	53	24	0	87	8	164	55	0	227	35	43	20	0	98	733
4:30 PM	23	315	0	0	338	10	76	22	0	108	9	169	76	0	254	37	43	18	0	98	798
4:45 PM	40	241	0	0	281	7	87	21	0	115	7	158	56	0	221	41	54	17	0	112	729
Total	114	1125	1	0	1240	37	281	84	0	402	36	661	246	0	943	164	189	80	0	433	3018
5:00 PM	38	197	0	0	235	19	68	17	0	104	5	147	72	0	224	39	53	20	0	112	675
5:15 PM	38	265	0	0	303	14	68	9	0	91	9	161	55	0	225	33	46	23	0	102	721
5:30 PM	35	230	0	0	265	8	77	20	0	105	5	131	63	0	199	34	67	18	0	119	688
5:45 PM	43	256	0	0	299	6	75	13	0	94	4	167	61	0	232	27	42	22	0	91	716
Total	154	948	0	0	1102	47	288	59	0	394	23	606	251	0	880	133	208	83	0	424	2800
Grand Total	376	3085	4	0	3465	155	839	206	0	1200	90	1904	786	0	2780	513	588	230	0	1331	8776
Approach %	10.9	89.0	0.1	0.0		12.9	69.9	17.2	0.0		3.2	68.5	28.3	0.0		38.5	44.2	17.3	0.0		
Total %	4.3	35.2	0.0	0.0	39.5	1.8	9.6	2.3	0.0	13.7	1.0	21.7	9.0	0.0	31.7	5.8	6.7	2.6	0.0	15.2	
Exiting Leg Total					2289					682					3804					2001	8776
Cars	372	3060	4	0	3436	135	832	204	0	1171	90	1887	781	0	2758	512	579	228	0	1319	8684
% Cars	98.9	99.2	100.0	0.0	99.2	87.1	99.2	99.0	0.0	97.6	100.0	99.1	99.4	0.0	99.2	99.8	98.5	99.1	0.0	99.1	99.0
Exiting Leg Total					2250					673					3776					1985	8684
Heavy Vehicles	4	25	0	0	29	20	7	2	0	29	0	17	5	0	22	1	9	2	0	12	92
% Heavy Vehicles	1.1	0.8	0.0	0.0	0.8	12.9	0.8	1.0	0.0	2.4	0.0	0.9	0.6	0.0	0.8	0.2	1.5	0.9	0.0	0.9	1.0
Exiting Leg Total					39					9					28					16	92

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:45 PM	26	245	0	0	271	13	71	16	0	100	13	162	91	0	266	54	57	18	0	129	766
4:00 PM	29	270	1	0	300	10	65	17	0	92	12	170	59	0	241	51	49	25	0	125	758
4:15 PM	22	299	0	0	321	10	53	24	0	87	8	164	55	0	227	35	43	20	0	98	733
4:30 PM	23	315	0	0	338	10	76	22	0	108	9	169	76	0	254	37	43	18	0	98	798
Total Volume	100	1129	1	0	1230	43	265	79	0	387	42	665	281	0	988	177	192	81	0	450	3055
% Approach Total	8.1	91.8	0.1	0.0		11.1	68.5	20.4	0.0		4.3	67.3	28.4	0.0		39.3	42.7	18.0	0.0		
PHF	0.862	0.896	0.250	0.000	0.910	0.827	0.872	0.823	0.000	0.896	0.808	0.978	0.772	0.000	0.929	0.819	0.842	0.810	0.000	0.872	0.957
Cars	100	1121	1	0	1222	39	262	79	0	380	42	659	279	0	980	177	188	81	0	446	3028
Cars %	100.0	99.3	100.0	0.0	99.3	90.7	98.9	100.0	0.0	98.2	100.0	99.1	99.3	0.0	99.2	100.0	97.9	100.0	0.0	99.1	99.1
Heavy Vehicles	0	8	0	0	8	4	3	0	0	7	0	6	2	0	8	0	4	0	0	4	27
Heavy Vehicles %	0.0	0.7	0.0	0.0	0.7	9.3	1.1	0.0	0.0	1.8	0.0	0.9	0.7	0.0	0.8	0.0	2.1	0.0	0.0	0.9	0.9
Cars Enter Leg	100	1121	1	0	1222	39	262	79	0	380	42	659	279	0	980	177	188	81	0	446	3028
Heavy Enter Leg	0	8	0	0	8	4	3	0	0	7	0	6	2	0	8	0	4	0	0	4	27
Total Entering Leg	100	1129	1	0	1230	43	265	79	0	387	42	665	281	0	988	177	192	81	0	450	3055
Cars Exiting Leg					779					231					1377					641	3028
Heavy Exiting Leg					10					4					8					5	27
Total Exiting Leg					789					235					1385					646	3055

PDI File #: **186102 HH**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars-Combined (Motorcycles, Cars, Light Goods)

	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	28	264	2	0	294	18	51	12	0	81	5	151	74	0	230	59	40	18	0	117	722
3:15 PM	28	219	1	0	248	16	68	18	0	102	6	143	73	0	222	46	46	19	0	111	683
3:30 PM	23	276	0	0	299	17	79	15	0	111	7	172	50	0	229	57	46	12	0	115	754
3:45 PM	26	241	0	0	267	12	68	16	0	96	13	161	91	0	265	54	56	18	0	128	756
Total	105	1000	3	0	1108	63	266	61	0	390	31	627	288	0	946	216	188	67	0	471	2915
4:00 PM	29	268	1	0	298	9	65	17	0	91	12	167	59	0	238	51	47	25	0	123	750
4:15 PM	22	298	0	0	320	9	53	24	0	86	8	163	54	0	225	35	42	20	0	97	728
4:30 PM	23	314	0	0	337	9	76	22	0	107	9	168	75	0	252	37	43	18	0	98	794
4:45 PM	39	239	0	0	278	6	85	21	0	112	7	158	56	0	221	41	53	17	0	111	722
Total	113	1119	1	0	1233	33	279	84	0	396	36	656	244	0	936	164	185	80	0	429	2994
5:00 PM	38	195	0	0	233	16	68	17	0	101	5	146	72	0	223	38	53	19	0	110	667
5:15 PM	38	263	0	0	301	11	67	9	0	87	9	160	54	0	223	33	45	22	0	100	711
5:30 PM	35	228	0	0	263	7	77	20	0	104	5	131	62	0	198	34	67	18	0	119	684
5:45 PM	43	255	0	0	298	5	75	13	0	93	4	167	61	0	232	27	41	22	0	90	713
Total	154	941	0	0	1095	39	287	59	0	385	23	604	249	0	876	132	206	81	0	419	2775
Grand Total	372	3060	4	0	3436	135	832	204	0	1171	90	1887	781	0	2758	512	579	228	0	1319	8684
Approach %	10.8	89.1	0.1	0.0		11.5	71.1	17.4	0.0		3.3	68.4	28.3	0.0		38.8	43.9	17.3	0.0		
Total %	4.3	35.2	0.0	0.0	39.6	1.6	9.6	2.3	0.0	13.5	1.0	21.7	9.0	0.0	31.8	5.9	6.7	2.6	0.0	15.2	
Exiting Leg Total					2250					673					3776					1985	8684

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:45 PM	26	241	0	0	267	12	68	16	0	96	13	161	91	0	265	54	56	18	0	128	756
4:00 PM	29	268	1	0	298	9	65	17	0	91	12	167	59	0	238	51	47	25	0	123	750
4:15 PM	22	298	0	0	320	9	53	24	0	86	8	163	54	0	225	35	42	20	0	97	728
4:30 PM	23	314	0	0	337	9	76	22	0	107	9	168	75	0	252	37	43	18	0	98	794
Total Volume	100	1121	1	0	1222	39	262	79	0	380	42	659	279	0	980	177	188	81	0	446	3028
% Approach Total	8.2	91.7	0.1	0.0		10.3	68.9	20.8	0.0		4.3	67.2	28.5	0.0		39.7	42.2	18.2	0.0		
PHF	0.862	0.893	0.250	0.000	0.907	0.813	0.862	0.823	0.000	0.888	0.808	0.981	0.766	0.000	0.925	0.819	0.839	0.810	0.000	0.871	0.953
Entering Leg	100	1121	1	0	1222	39	262	79	0	380	42	659	279	0	980	177	188	81	0	446	3028
Exiting Leg					779					231					1377					641	3028
Total					2001					611					2357					1087	6056

PDI File #: **186102 HH**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	1	2	0	0	3	2	1	1	0	4	0	5	0	0	5	0	2	0	0	2	14
3:15 PM	2	4	0	0	6	3	0	1	0	4	0	1	1	0	2	0	0	0	0	0	12
3:30 PM	0	2	0	0	2	2	0	0	0	2	0	3	0	0	3	0	0	0	0	0	7
3:45 PM	0	4	0	0	4	1	3	0	0	4	0	1	0	0	1	0	1	0	0	1	10
Total	3	12	0	0	15	8	4	2	0	14	0	10	1	0	11	0	3	0	0	3	43
4:00 PM	0	2	0	0	2	1	0	0	0	1	0	3	0	0	3	0	2	0	0	2	8
4:15 PM	0	1	0	0	1	1	0	0	0	1	0	1	1	0	2	0	1	0	0	1	5
4:30 PM	0	1	0	0	1	1	0	0	0	1	0	1	1	0	2	0	0	0	0	0	4
4:45 PM	1	2	0	0	3	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	7
Total	1	6	0	0	7	4	2	0	0	6	0	5	2	0	7	0	4	0	0	4	24
5:00 PM	0	2	0	0	2	3	0	0	0	3	0	1	0	0	1	1	0	1	0	2	8
5:15 PM	0	2	0	0	2	3	1	0	0	4	0	1	1	0	2	0	1	1	0	2	10
5:30 PM	0	2	0	0	2	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	4
5:45 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	3
Total	0	7	0	0	7	8	1	0	0	9	0	2	2	0	4	1	2	2	0	5	25
Grand Total	4	25	0	0	29	20	7	2	0	29	0	17	5	0	22	1	9	2	0	12	92
Approach %	13.8	86.2	0.0	0.0		69.0	24.1	6.9	0.0		0.0	77.3	22.7	0.0		8.3	75.0	16.7	0.0		
Total %	4.3	27.2	0.0	0.0	31.5	21.7	7.6	2.2	0.0	31.5	0.0	18.5	5.4	0.0	23.9	1.1	9.8	2.2	0.0	13.0	
Exiting Leg Total					39					9					28					16	92
Buses	2	22	0	0	24	16	6	2	0	24	0	8	2	0	10	1	7	1	0	9	67
% Buses	50.0	88.0	0.0	0.0	82.8	80.0	85.7	100.0	0.0	82.8	0.0	47.1	40.0	0.0	45.5	100.0	77.8	50.0	0.0	75.0	72.8
Exiting Leg Total					25					7					25					10	67
Single-Unit Trucks	2	3	0	0	5	4	1	0	0	5	0	9	3	0	12	0	2	1	0	3	25
% Single-Unit	50.0	12.0	0.0	0.0	17.2	20.0	14.3	0.0	0.0	17.2	0.0	52.9	60.0	0.0	54.5	0.0	22.2	50.0	0.0	25.0	27.2
Exiting Leg Total					14					2					3					6	25
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	1	2	0	0	3	2	1	1	0	4	0	5	0	0	5	0	2	0	0	2	14
3:15 PM	2	4	0	0	6	3	0	1	0	4	0	1	1	0	2	0	0	0	0	0	12
3:30 PM	0	2	0	0	2	2	0	0	0	2	0	3	0	0	3	0	0	0	0	0	7
3:45 PM	0	4	0	0	4	1	3	0	0	4	0	1	0	0	1	0	1	0	0	1	10
Total Volume	3	12	0	0	15	8	4	2	0	14	0	10	1	0	11	0	3	0	0	3	43
% Approach Total	20.0	80.0	0.0	0.0		57.1	28.6	14.3	0.0		0.0	90.9	9.1	0.0		0.0	100.0	0.0	0.0		
PHF	0.375	0.750	0.000	0.000	0.625	0.667	0.333	0.500	0.000	0.875	0.000	0.500	0.250	0.000	0.550	0.000	0.375	0.000	0.000	0.375	0.768
Buses	2	10	0	0	12	5	3	2	0	10	0	5	1	0	6	0	3	0	0	3	31
Buses %	66.7	83.3	0.0	0.0	80.0	62.5	75.0	100.0	0.0	71.4	0.0	50.0	100.0	0.0	54.5	0.0	100.0	0.0	0.0	100.0	72.1
Single-Unit Trucks	1	2	0	0	3	3	1	0	0	4	0	5	0	0	5	0	0	0	0	0	12
Single-Unit %	33.3	16.7	0.0	0.0	20.0	37.5	25.0	0.0	0.0	28.6	0.0	50.0	0.0	0.0	45.5	0.0	0.0	0.0	0.0	0.0	27.9
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	2	10	0	0	12	5	3	2	0	10	0	5	1	0	6	0	3	0	0	3	31
Single-Unit Trucks	1	2	0	0	3	3	1	0	0	4	0	5	0	0	5	0	0	0	0	0	12
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	3	12	0	0	15	8	4	2	0	14	0	10	1	0	11	0	3	0	0	3	43
Buses					10					3					12					6	31
Single-Unit Trucks					8					0					2					2	12
Articulated Trucks					0					0					0					0	0
Total Exiting Leg					18					3					14					8	43

PDI File #: **186102 HH**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars

	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	28	229	2	0	259	18	51	12	0	81	5	150	70	0	225	57	37	18	0	112	677
3:15 PM	26	201	1	0	228	16	66	18	0	100	5	134	69	0	208	44	43	19	0	106	642
3:30 PM	23	257	0	0	280	16	75	14	0	105	6	160	48	0	214	56	44	12	0	112	711
3:45 PM	25	226	0	0	251	12	64	16	0	92	13	155	89	0	257	53	55	17	0	125	725
Total	102	913	3	0	1018	62	256	60	0	378	29	599	276	0	904	210	179	66	0	455	2755
4:00 PM	27	253	1	0	281	9	65	17	0	91	11	154	56	0	221	48	43	25	0	116	709
4:15 PM	22	284	0	0	306	9	53	24	0	86	8	154	54	0	216	34	41	19	0	94	702
4:30 PM	22	299	0	0	321	9	75	21	0	105	9	162	74	0	245	34	42	18	0	94	765
4:45 PM	38	233	0	0	271	5	83	21	0	109	7	149	56	0	212	40	52	17	0	109	701
Total	109	1069	1	0	1179	32	276	83	0	391	35	619	240	0	894	156	178	79	0	413	2877
5:00 PM	37	192	0	0	229	15	68	16	0	99	5	143	70	0	218	38	52	16	0	106	652
5:15 PM	38	254	0	0	292	11	66	9	0	86	9	150	54	0	213	33	45	22	0	100	691
5:30 PM	35	227	0	0	262	6	75	20	0	101	4	129	62	0	195	34	65	18	0	117	675
5:45 PM	42	251	0	0	293	5	75	13	0	93	4	166	61	0	231	27	41	22	0	90	707
Total	152	924	0	0	1076	37	284	58	0	379	22	588	247	0	857	132	203	78	0	413	2725
Grand Total	363	2906	4	0	3273	131	816	201	0	1148	86	1806	763	0	2655	498	560	223	0	1281	8357
Approach %	11.1	88.8	0.1	0.0		11.4	71.1	17.5	0.0		3.2	68.0	28.7	0.0		38.9	43.7	17.4	0.0		
Total %	4.3	34.8	0.0	0.0	39.2	1.6	9.8	2.4	0.0	13.7	1.0	21.6	9.1	0.0	31.8	6.0	6.7	2.7	0.0	15.3	
Exiting Leg Total					2160					650					3605					1942	8357

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:45 PM	25	226	0	0	251	12	64	16	0	92	13	155	89	0	257	53	55	17	0	125	725
4:00 PM	27	253	1	0	281	9	65	17	0	91	11	154	56	0	221	48	43	25	0	116	709
4:15 PM	22	284	0	0	306	9	53	24	0	86	8	154	54	0	216	34	41	19	0	94	702
4:30 PM	22	299	0	0	321	9	75	21	0	105	9	162	74	0	245	34	42	18	0	94	765
Total Volume	96	1062	1	0	1159	39	257	78	0	374	41	625	273	0	939	169	181	79	0	429	2901
% Approach Total	8.3	91.6	0.1	0.0		10.4	68.7	20.9	0.0		4.4	66.6	29.1	0.0		39.4	42.2	18.4	0.0		
PHF	0.889	0.888	0.250	0.000	0.903	0.813	0.857	0.813	0.000	0.890	0.788	0.965	0.767	0.000	0.913	0.797	0.823	0.790	0.000	0.858	0.948
Entering Leg	96	1062	1	0	1159	39	257	78	0	374	41	625	273	0	939	169	181	79	0	429	2901
Exiting Leg					743					223					1309					626	2901
Total					1902					597					2248					1055	5802

PDI File #: **186102 HH**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Light Goods Vehicle

	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	35	0	0	35	0	0	0	0	0	0	1	4	0	5	2	3	0	0	5	45
3:15 PM	2	18	0	0	20	0	2	0	0	2	1	9	4	0	14	2	3	0	0	5	41
3:30 PM	0	19	0	0	19	1	4	1	0	6	1	12	2	0	15	1	2	0	0	3	43
3:45 PM	1	15	0	0	16	0	4	0	0	4	0	6	2	0	8	1	1	1	0	3	31
Total	3	87	0	0	90	1	10	1	0	12	2	28	12	0	42	6	9	1	0	16	160
4:00 PM	2	15	0	0	17	0	0	0	0	0	1	13	3	0	17	3	4	0	0	7	41
4:15 PM	0	14	0	0	14	0	0	0	0	0	0	9	0	0	9	1	1	1	0	3	26
4:30 PM	1	15	0	0	16	0	1	1	0	2	0	6	1	0	7	3	1	0	0	4	29
4:45 PM	1	6	0	0	7	1	2	0	0	3	0	9	0	0	9	1	1	0	0	2	21
Total	4	50	0	0	54	1	3	1	0	5	1	37	4	0	42	8	7	1	0	16	117
5:00 PM	1	3	0	0	4	1	0	1	0	2	0	3	2	0	5	0	1	3	0	4	15
5:15 PM	0	9	0	0	9	0	1	0	0	1	0	10	0	0	10	0	0	0	0	0	20
5:30 PM	0	1	0	0	1	1	1	0	0	2	1	2	0	0	3	0	2	0	0	2	8
5:45 PM	1	4	0	0	5	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	6
Total	2	17	0	0	19	2	2	1	0	5	1	16	2	0	19	0	3	3	0	6	49
Grand Total	9	154	0	0	163	4	15	3	0	22	4	81	18	0	103	14	19	5	0	38	326
Approach %	5.5	94.5	0.0	0.0		18.2	68.2	13.6	0.0		3.9	78.6	17.5	0.0		36.8	50.0	13.2	0.0		
Total %	2.8	47.2	0.0	0.0	50.0	1.2	4.6	0.9	0.0	6.7	1.2	24.8	5.5	0.0	31.6	4.3	5.8	1.5	0.0	11.7	
Exiting Leg Total					90					23					171					42	326

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	35	0	0	35	0	0	0	0	0	0	1	4	0	5	2	3	0	0	5	45
3:15 PM	2	18	0	0	20	0	2	0	0	2	1	9	4	0	14	2	3	0	0	5	41
3:30 PM	0	19	0	0	19	1	4	1	0	6	1	12	2	0	15	1	2	0	0	3	43
3:45 PM	1	15	0	0	16	0	4	0	0	4	0	6	2	0	8	1	1	1	0	3	31
Total Volume	3	87	0	0	90	1	10	1	0	12	2	28	12	0	42	6	9	1	0	16	160
% Approach Total	3.3	96.7	0.0	0.0		8.3	83.3	8.3	0.0		4.8	66.7	28.6	0.0		37.5	56.3	6.3	0.0		
PHF	0.375	0.621	0.000	0.000	0.643	0.250	0.625	0.250	0.000	0.500	0.500	0.583	0.750	0.000	0.700	0.750	0.750	0.250	0.000	0.800	0.889
Entering Leg	3	87	0	0	90	1	10	1	0	12	2	28	12	0	42	6	9	1	0	16	160
Exiting Leg					30					11					94					25	160
Total					120					23					136					41	320

PDI File #: **186102 HH**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Buses

	Riverway					Longwood Avenue					Riverway					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	2	0	0	2	1	1	1	0	3	0	4	0	0	4	0	2	0	0	2	11
3:15 PM	2	3	0	0	5	1	0	1	0	2	0	1	1	0	2	0	0	0	0	0	9
3:30 PM	0	2	0	0	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
3:45 PM	0	3	0	0	3	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	7
Total	2	10	0	0	12	5	3	2	0	10	0	5	1	0	6	0	3	0	0	3	31
4:00 PM	0	2	0	0	2	1	0	0	0	1	0	2	0	0	2	0	2	0	0	2	7
4:15 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	1	0	0	1	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	5
Total	0	5	0	0	5	4	2	0	0	6	0	2	0	0	2	0	3	0	0	3	16
5:00 PM	0	2	0	0	2	3	0	0	0	3	0	1	0	0	1	1	0	1	0	2	8
5:15 PM	0	2	0	0	2	2	1	0	0	3	0	0	1	0	1	0	0	0	0	0	6
5:30 PM	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	3
Total	0	7	0	0	7	7	1	0	0	8	0	1	1	0	2	1	1	1	0	3	20
Grand Total	2	22	0	0	24	16	6	2	0	24	0	8	2	0	10	1	7	1	0	9	67
Approach %	8.3	91.7	0.0	0.0		66.7	25.0	8.3	0.0		0.0	80.0	20.0	0.0		11.1	77.8	11.1	0.0		
Total %	3.0	32.8	0.0	0.0	35.8	23.9	9.0	3.0	0.0	35.8	0.0	11.9	3.0	0.0	14.9	1.5	10.4	1.5	0.0	13.4	
Exiting Leg Total					25					7					25					10	67

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway					Longwood Avenue					Riverway					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	2	0	0	2	1	1	1	0	3	0	4	0	0	4	0	2	0	0	2	11
3:15 PM	2	3	0	0	5	1	0	1	0	2	0	1	1	0	2	0	0	0	0	0	9
3:30 PM	0	2	0	0	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
3:45 PM	0	3	0	0	3	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	7
Total Volume	2	10	0	0	12	5	3	2	0	10	0	5	1	0	6	0	3	0	0	3	31
% Approach Total	16.7	83.3	0.0	0.0		50.0	30.0	20.0	0.0		0.0	83.3	16.7	0.0		0.0	100.0	0.0	0.0		
PHF	0.250	0.833	0.000	0.000	0.600	0.625	0.375	0.500	0.000	0.833	0.000	0.313	0.250	0.000	0.375	0.000	0.375	0.000	0.000	0.375	0.705
Entering Leg	2	10	0	0	12	5	3	2	0	10	0	5	1	0	6	0	3	0	0	3	31
Exiting Leg					10					3					12					6	31
Total					22					13					18					9	62

PDI File #: **186102 HH**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Single-Unit Trucks

	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	1	0	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	3
3:15 PM	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
3:45 PM	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	3
Total	1	2	0	0	3	3	1	0	0	4	0	5	0	0	5	0	0	0	0	0	12
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	1	0	0	1	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	2
4:45 PM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	1	1	0	0	2	0	0	0	0	0	0	3	2	0	5	0	1	0	0	1	8
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	1	1	0	2	4
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	0	1	0	1	1	0	2	0	1	1	0	2	5
Grand Total	2	3	0	0	5	4	1	0	0	5	0	9	3	0	12	0	2	1	0	3	25
Approach %	40.0	60.0	0.0	0.0		80.0	20.0	0.0	0.0		0.0	75.0	25.0	0.0		0.0	66.7	33.3	0.0		
Total %	8.0	12.0	0.0	0.0	20.0	16.0	4.0	0.0	0.0	20.0	0.0	36.0	12.0	0.0	48.0	0.0	8.0	4.0	0.0	12.0	
Exiting Leg Total					14					2					3					6	25

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	1	0	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	3
3:15 PM	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
3:45 PM	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	3
Total Volume	1	2	0	0	3	3	1	0	0	4	0	5	0	0	5	0	0	0	0	0	12
% Approach Total	33.3	66.7	0.0	0.0		75.0	25.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.250	0.500	0.000	0.000	0.750	0.375	0.250	0.000	0.000	0.500	0.000	0.417	0.000	0.000	0.417	0.000	0.000	0.000	0.000	0.000	1.000
Entering Leg	1	2	0	0	3	3	1	0	0	4	0	5	0	0	5	0	0	0	0	0	12
Exiting Leg					8					0					2					2	12
Total					11					4					7					2	24

PDI File #: **186102 HH**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Articulated Trucks

	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Riverway from North					Longwood Avenue from East					Riverway from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

PDI File #: **186102 HH**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Riverway from North							Longwood Avenue from East							Riverway from South							Crosswalk from Southwest			Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	CW-NWB	CW-SEB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	6	0	0	0	0	6	0	0	0	0	0	0	0	1	1	2	0	2	0	0	0	0	2	10
3:15 PM	0	0	0	0	1	0	1	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	5
3:30 PM	0	0	0	0	0	0	0	0	8	0	0	0	1	9	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	10
3:45 PM	0	0	0	0	1	0	1	0	6	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Total	0	0	0	0	2	0	2	0	23	0	0	0	1	24	0	0	0	0	0	0	0	2	1	3	0	3	0	0	0	0	3	32
4:00 PM	0	0	0	0	1	0	1	0	11	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	13
4:15 PM	0	0	0	0	0	0	0	0	8	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
4:30 PM	0	0	0	0	0	0	0	0	9	0	0	1	0	10	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	1	12
4:45 PM	0	0	0	0	0	0	0	0	21	0	0	0	0	21	0	0	0	0	0	0	0	2	0	2	0	4	0	0	0	0	4	27
Total	0	0	0	0	1	0	1	0	49	0	0	1	0	50	0	0	1	0	0	0	1	2	0	2	0	6	0	0	0	0	6	60
5:00 PM	0	0	0	0	0	0	0	0	21	0	1	0	0	22	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	23
5:15 PM	0	0	0	0	0	0	0	0	20	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	24
5:30 PM	0	0	0	0	0	0	0	0	21	0	0	0	0	21	0	0	0	0	0	0	0	1	0	1	0	3	0	0	0	0	3	25
5:45 PM	0	0	0	0	0	0	0	0	19	0	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	22
Total	0	0	0	0	0	0	0	0	81	0	1	0	0	82	0	0	0	0	0	0	0	1	0	1	0	11	0	0	0	0	11	94
Grand Total	0	0	0	0	3	0	3	0	153	0	1	1	1	156	0	0	1	0	0	0	1	5	1	6	0	20	0	0	0	0	20	186
Approach %	0.0	0.0	0.0	0.0	100.0	0.0		0.0	98.1	0.0	0.6	0.6	0.6		0.0	0.0	100.0	0.0	0.0	0.0		83.3	16.7		0.0	100.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	1.6	0.0	1.6	0.0	82.3	0.0	0.5	0.5	0.5	83.9	0.0	0.0	0.5	0.0	0.0	0.0	0.5	2.7	0.5	3.2	0.0	10.8	0.0	0.0	0.0	0.0	10.8	
Exiting Leg Total							3							23							0			6							154	186

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:45 PM	Riverway from North							Longwood Avenue from East							Riverway from South							Crosswalk from Southwest			Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	CW-NWB	CW-SEB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:45 PM	0	0	0	0	0	0	0	0	21	0	0	0	0	21	0	0	0	0	0	0	0	2	0	2	0	4	0	0	0	0	4	27
5:00 PM	0	0	0	0	0	0	0	0	21	0	1	0	0	22	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	23
5:15 PM	0	0	0	0	0	0	0	0	20	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	24
5:30 PM	0	0	0	0	0	0	0	0	21	0	0	0	0	21	0	0	0	0	0	0	0	1	0	1	0	3	0	0	0	0	3	25
Total Volume	0	0	0	0	0	0	0	0	83	0	1	0	0	84	0	0	0	0	0	0	0	3	0	3	0	12	0	0	0	0	12	99
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	98.8	0.0	1.2	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		100.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.988	0.000	0.250	0.000	0.000	0.955	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.375	0.000	0.750	0.000	0.000	0.000	0.000	0.750	0.917
Entering Leg	0	0	0	0	0	0	0	0	83	0	1	0	0	84	0	0	0	0	0	0	0	3	0	3	0	12	0	0	0	0	12	99
Exiting Leg							0							13							0			3							83	99
Total							0							97							0			6							95	198

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

PDI File #: **186102 HH**
Location: **N: Riverway S: Riverway**
Location: **E: Longwood Avenue W: Longwood Avenue SW: Crosswalk**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class: **Pedestrians**

	Riverway from North							Longwood Avenue from East							Riverway from South							Crosswalk from Southwest			Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	CW-NWB	CW-SEB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	17	44	61	0	0	0	0	1	0	1	0	0	0	0	2	3	5	35	11	46	0	0	0	0	3	1	4	117
3:15 PM	0	0	0	0	19	34	53	0	0	0	0	1	0	1	0	0	0	0	1	1	2	34	13	47	0	0	0	0	6	0	6	109
3:30 PM	0	0	0	0	9	68	77	0	0	0	0	0	1	1	0	0	0	0	3	0	3	50	7	57	0	0	0	0	1	1	2	140
3:45 PM	0	0	0	0	19	40	59	0	0	0	0	0	2	2	0	0	0	0	3	1	4	35	11	46	0	0	0	0	0	1	1	112
Total	0	0	0	0	64	186	250	0	0	0	0	2	3	5	0	0	0	0	9	5	14	154	42	196	0	0	0	0	10	3	13	478
4:00 PM	0	0	0	0	7	69	76	0	0	0	0	0	0	0	0	0	0	0	3	0	3	68	5	73	0	0	0	0	4	2	6	158
4:15 PM	0	0	0	0	13	74	87	0	0	0	0	1	1	2	0	0	0	0	7	0	7	65	4	69	0	0	0	0	2	3	5	170
4:30 PM	0	0	0	0	16	107	123	0	0	0	0	1	3	4	0	0	0	0	1	0	1	101	6	107	0	0	0	0	0	2	2	237
4:45 PM	0	0	0	0	7	114	121	0	0	0	0	0	4	4	0	0	0	0	4	0	4	74	11	85	0	0	0	0	3	4	7	221
Total	0	0	0	0	43	364	407	0	0	0	0	2	8	10	0	0	0	0	15	0	15	308	26	334	0	0	0	0	9	11	20	786
5:00 PM	0	0	0	0	7	143	150	0	0	0	0	1	1	2	0	0	0	0	6	2	8	116	14	130	0	0	0	0	2	2	4	294
5:15 PM	0	0	0	0	8	166	174	0	0	0	0	2	3	5	0	0	0	0	3	0	3	89	6	95	0	0	0	0	0	0	0	277
5:30 PM	0	0	0	0	15	137	152	0	0	0	0	0	3	3	0	0	0	0	0	0	0	115	8	123	0	0	0	0	0	0	0	278
5:45 PM	0	0	0	0	8	133	141	0	0	0	0	0	0	0	0	0	0	0	3	0	3	124	6	130	0	0	0	0	0	0	0	274
Total	0	0	0	0	38	579	617	0	0	0	0	3	7	10	0	0	0	0	12	2	14	444	34	478	0	0	0	0	2	2	4	1123
Grand Total	0	0	0	0	145	1129	1274	0	0	0	0	7	18	25	0	0	0	0	36	7	43	906	102	1008	0	0	0	0	21	16	37	2387
Approach %	0	0	0	0	11.4	88.6		0	0	0	0	28	72		0	0	0	0	83.7	16.3		89.9	10.1		0	0	0	0	56.8	43.2		
Total %	0	0	0	0	6.07	47.3	53.4	0	0	0	0	0.29	0.75	1.05	0	0	0	0	1.51	0.29	1.8	38	4.27	42.2	0	0	0	0	0.88	0.67	1.55	
Exiting Leg Total							1274							25							43			1008						37	2387

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

5:00 PM	Riverway from North							Longwood Avenue from East							Riverway from South							Crosswalk from Southwest			Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	CW-NWB	CW-SEB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	0	0	0	7	143	150	0	0	0	0	1	1	2	0	0	0	0	6	2	8	116	14	130	0	0	0	0	2	2	4	294
5:15 PM	0	0	0	0	8	166	174	0	0	0	0	2	3	5	0	0	0	0	3	0	3	89	6	95	0	0	0	0	0	0	0	277
5:30 PM	0	0	0	0	15	137	152	0	0	0	0	0	3	3	0	0	0	0	0	0	0	115	8	123	0	0	0	0	0	0	0	278
5:45 PM	0	0	0	0	8	133	141	0	0	0	0	0	0	0	0	0	0	0	3	0	3	124	6	130	0	0	0	0	0	0	0	274
Total Volume	0	0	0	0	38	579	617	0	0	0	0	3	7	10	0	0	0	0	12	2	14	444	34	478	0	0	0	0	2	2	4	1123
% Approach Total	0.0	0.0	0.0	0.0	6.2	93.8		0.0	0.0	0.0	0.0	30.0	70.0		0.0	0.0	0.0	0.0	85.7	14.3		92.9	7.1		0.0	0.0	0.0	0.0	50.0	50.0		
PHF	0.000	0.000	0.000	0.000	0.633	0.872	0.886	0.000	0.000	0.000	0.000	0.375	0.583	0.500	0.000	0.000	0.000	0.000	0.500	0.250	0.438	0.895	0.607	0.919	0.000	0.000	0.000	0.000	0.250	0.250	0.250	0.955
Entering Leg	0	0	0	0	38	579	617	0	0	0	0	3	7	10	0	0	0	0	12	2	14	444	34	478	0	0	0	0	2	2	4	1123
Exiting Leg							617							10							14			478						4	1123
Total							1234							20							28			956						8	2246

PDI File #: **186102 I**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Nessel Way					Longwood Avenue					Autumn Street					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	1	0	2	0	3	0	54	0	0	54	14	3	11	0	28	0	113	3	0	116	201
7:15 AM	1	0	4	0	5	2	63	0	0	65	25	0	23	0	48	0	123	2	0	125	243
7:30 AM	2	0	1	0	3	0	65	0	0	65	18	2	23	0	43	0	106	0	0	106	217
7:45 AM	2	0	1	0	3	0	70	0	0	70	16	0	15	0	31	0	89	2	0	91	195
Total	6	0	8	0	14	2	252	0	0	254	73	5	72	0	150	0	431	7	0	438	856
8:00 AM	2	0	2	0	4	1	53	0	0	54	13	0	10	0	23	0	108	1	0	109	190
8:15 AM	0	0	2	0	2	1	53	0	0	54	11	1	7	0	19	0	109	4	0	113	188
8:30 AM	3	0	2	0	5	2	74	0	1	77	15	1	8	0	24	0	92	8	0	100	206
8:45 AM	1	0	4	0	5	0	53	0	0	53	19	1	6	0	26	0	95	4	0	99	183
Total	6	0	10	0	16	4	233	0	1	238	58	3	31	0	92	0	404	17	0	421	767
Grand Total	12	0	18	0	30	6	485	0	1	492	131	8	103	0	242	0	835	24	0	859	1623
Approach %	40.0	0.0	60.0	0.0		1.2	98.6	0.0	0.2		54.1	3.3	42.6	0.0		0.0	97.2	2.8	0.0		
Total %	0.7	0.0	1.1	0.0	1.8	0.4	29.9	0.0	0.1	30.3	8.1	0.5	6.3	0.0	14.9	0.0	51.4	1.5	0.0	52.9	
Exiting Leg Total					38					985					0					600	1623
Cars	12	0	18	0	30	4	474	0	1	479	121	8	94	0	223	0	822	24	0	846	1578
% Cars	100.0	0.0	100.0	0.0	100.0	66.7	97.7	0.0	100.0	97.4	92.4	100.0	91.3	0.0	92.1	0.0	98.4	100.0	0.0	98.5	97.2
Exiting Leg Total					36					962					0					580	1578
Heavy Vehicles	0	0	0	0	0	2	11	0	0	13	10	0	9	0	19	0	13	0	0	13	45
% Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	33.3	2.3	0.0	0.0	2.6	7.6	0.0	8.7	0.0	7.9	0.0	1.6	0.0	0.0	1.5	2.8
Exiting Leg Total					2					23					0					20	45

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Nessel Way					Longwood Avenue					Autumn Street					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	1	0	2	0	3	0	54	0	0	54	14	3	11	0	28	0	113	3	0	116	201
7:15 AM	1	0	4	0	5	2	63	0	0	65	25	0	23	0	48	0	123	2	0	125	243
7:30 AM	2	0	1	0	3	0	65	0	0	65	18	2	23	0	43	0	106	0	0	106	217
7:45 AM	2	0	1	0	3	0	70	0	0	70	16	0	15	0	31	0	89	2	0	91	195
Total Volume	6	0	8	0	14	2	252	0	0	254	73	5	72	0	150	0	431	7	0	438	856
% Approach Total	42.9	0.0	57.1	0.0		0.8	99.2	0.0	0.0		48.7	3.3	48.0	0.0		0.0	98.4	1.6	0.0		
PHF	0.750	0.000	0.500	0.000	0.700	0.250	0.900	0.000	0.000	0.907	0.730	0.417	0.783	0.000	0.781	0.000	0.876	0.583	0.000	0.876	0.881
Cars	6	0	8	0	14	1	247	0	0	248	69	5	68	0	142	0	428	7	0	435	839
Cars %	100.0	0.0	100.0	0.0	100.0	50.0	98.0	0.0	0.0	97.6	94.5	100.0	94.4	0.0	94.7	0.0	99.3	100.0	0.0	99.3	98.0
Heavy Vehicles	0	0	0	0	0	1	5	0	0	6	4	0	4	0	8	0	3	0	0	3	17
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	50.0	2.0	0.0	0.0	2.4	5.5	0.0	5.6	0.0	5.3	0.0	0.7	0.0	0.0	0.7	2.0
Cars Enter Leg	6	0	8	0	14	1	247	0	0	248	69	5	68	0	142	0	428	7	0	435	839
Heavy Enter Leg	0	0	0	0	0	1	5	0	0	6	4	0	4	0	8	0	3	0	0	3	17
Total Entering Leg	6	0	8	0	14	2	252	0	0	254	73	5	72	0	150	0	431	7	0	438	856
Cars Exiting Leg					13					505					0					321	839
Heavy Exiting Leg					1					7					0					9	17
Total Exiting Leg					14					512					0					330	856

PDI File #: **186102 I**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	1	0	2	0	3	0	53	0	0	53	14	3	10	0	27	0	112	3	0	115	198
7:15 AM	1	0	4	0	5	1	61	0	0	62	24	0	22	0	46	0	122	2	0	124	237
7:30 AM	2	0	1	0	3	0	65	0	0	65	17	2	22	0	41	0	106	0	0	106	215
7:45 AM	2	0	1	0	3	0	68	0	0	68	14	0	14	0	28	0	88	2	0	90	189
Total	6	0	8	0	14	1	247	0	0	248	69	5	68	0	142	0	428	7	0	435	839
8:00 AM	2	0	2	0	4	1	53	0	0	54	12	0	9	0	21	0	105	1	0	106	185
8:15 AM	0	0	2	0	2	0	52	0	0	52	10	1	6	0	17	0	104	4	0	108	179
8:30 AM	3	0	2	0	5	2	72	0	1	75	14	1	7	0	22	0	90	8	0	98	200
8:45 AM	1	0	4	0	5	0	50	0	0	50	16	1	4	0	21	0	95	4	0	99	175
Total	6	0	10	0	16	3	227	0	1	231	52	3	26	0	81	0	394	17	0	411	739
Grand Total	12	0	18	0	30	4	474	0	1	479	121	8	94	0	223	0	822	24	0	846	1578
Approach %	40.0	0.0	60.0	0.0		0.8	99.0	0.0	0.2		54.3	3.6	42.2	0.0		0.0	97.2	2.8	0.0		
Total %	0.8	0.0	1.1	0.0	1.9	0.3	30.0	0.0	0.1	30.4	7.7	0.5	6.0	0.0	14.1	0.0	52.1	1.5	0.0	53.6	
Exiting Leg Total					36					962					0					580	1578

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	1	0	2	0	3	0	53	0	0	53	14	3	10	0	27	0	112	3	0	115	198
7:15 AM	1	0	4	0	5	1	61	0	0	62	24	0	22	0	46	0	122	2	0	124	237
7:30 AM	2	0	1	0	3	0	65	0	0	65	17	2	22	0	41	0	106	0	0	106	215
7:45 AM	2	0	1	0	3	0	68	0	0	68	14	0	14	0	28	0	88	2	0	90	189
Total Volume	6	0	8	0	14	1	247	0	0	248	69	5	68	0	142	0	428	7	0	435	839
% Approach Total	42.9	0.0	57.1	0.0		0.4	99.6	0.0	0.0		48.6	3.5	47.9	0.0		0.0	98.4	1.6	0.0		
PHF	0.750	0.000	0.500	0.000	0.700	0.250	0.908	0.000	0.000	0.912	0.719	0.417	0.773	0.000	0.772	0.000	0.877	0.583	0.000	0.877	0.885
Entering Leg	6	0	8	0	14	1	247	0	0	248	69	5	68	0	142	0	428	7	0	435	839
Exiting Leg					13					505					0					321	839
Total					27					753					142					756	1678

PDI File #: **186102 I**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	3
7:15 AM	0	0	0	0	0	1	2	0	0	3	1	0	1	0	2	0	1	0	0	1	6
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	2	0	0	2	2	0	1	0	3	0	1	0	0	1	6
Total	0	0	0	0	0	1	5	0	0	6	4	0	4	0	8	0	3	0	0	3	17
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	3	0	0	3	5
8:15 AM	0	0	0	0	0	1	1	0	0	2	1	0	1	0	2	0	5	0	0	5	9
8:30 AM	0	0	0	0	0	0	2	0	0	2	1	0	1	0	2	0	2	0	0	2	6
8:45 AM	0	0	0	0	0	0	3	0	0	3	3	0	2	0	5	0	0	0	0	0	8
Total	0	0	0	0	0	1	6	0	0	7	6	0	5	0	11	0	10	0	0	10	28
Grand Total	0	0	0	0	0	2	11	0	0	13	10	0	9	0	19	0	13	0	0	13	45
Approach %	0.0	0.0	0.0	0.0		15.4	84.6	0.0	0.0		52.6	0.0	47.4	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	4.4	24.4	0.0	0.0	28.9	22.2	0.0	20.0	0.0	42.2	0.0	28.9	0.0	0.0	28.9	
Exiting Leg Total					2					23					0					20	45
Buses	0	0	0	0	0	0	4	0	0	4	7	0	9	0	16	0	4	0	0	4	24
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	36.4	0.0	0.0	30.8	70.0	0.0	100.0	0.0	84.2	0.0	30.8	0.0	0.0	30.8	53.3
Exiting Leg Total					0					11					0					13	24
Single-Unit Trucks	0	0	0	0	0	1	7	0	0	8	3	0	0	0	3	0	9	0	0	9	20
% Single-Unit	0.0	0.0	0.0	0.0	0.0	50.0	63.6	0.0	0.0	61.5	30.0	0.0	0.0	0.0	15.8	0.0	69.2	0.0	0.0	69.2	44.4
Exiting Leg Total					1					12					0					7	20
Articulated Trucks	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Articulated	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
Exiting Leg Total					1					0					0					0	1

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	3	0	0	3	5
8:15 AM	0	0	0	0	0	1	1	0	0	2	1	0	1	0	2	0	5	0	0	5	9
8:30 AM	0	0	0	0	0	0	2	0	0	2	1	0	1	0	2	0	2	0	0	2	6
8:45 AM	0	0	0	0	0	0	3	0	0	3	3	0	2	0	5	0	0	0	0	0	8
Total Volume	0	0	0	0	0	1	6	0	0	7	6	0	5	0	11	0	10	0	0	10	28
% Approach Total	0.0	0.0	0.0	0.0		14.3	85.7	0.0	0.0		54.5	0.0	45.5	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.250	0.500	0.000	0.000	0.583	0.500	0.000	0.625	0.000	0.550	0.000	0.500	0.000	0.000	0.500	0.778
Buses	0	0	0	0	0	0	2	0	0	2	4	0	5	0	9	0	3	0	0	3	14
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	28.6	66.7	0.0	100.0	0.0	81.8	0.0	30.0	0.0	0.0	30.0	50.0
Single-Unit Trucks	0	0	0	0	0	0	4	0	0	4	2	0	0	0	2	0	7	0	0	7	13
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	57.1	33.3	0.0	0.0	0.0	18.2	0.0	70.0	0.0	0.0	70.0	46.4
Articulated Trucks	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Articulated %	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6
Buses	0	0	0	0	0	0	2	0	0	2	4	0	5	0	9	0	3	0	0	3	14
Single-Unit Trucks	0	0	0	0	0	0	4	0	0	4	2	0	0	0	2	0	7	0	0	7	13
Articulated Trucks	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Entering Leg	0	0	0	0	0	1	6	0	0	7	6	0	5	0	11	0	10	0	0	10	28
Buses					0					7					0					7	14
Single-Unit Trucks					0					9					0					4	13
Articulated Trucks					1					0					0					0	1
Total Exiting Leg					1					16					0					11	28

PDI File #: **186102 I**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars

	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	1	0	2	0	3	0	51	0	0	51	14	3	10	0	27	0	108	3	0	111	192
7:15 AM	1	0	4	0	5	1	59	0	0	60	24	0	22	0	46	0	122	2	0	124	235
7:30 AM	2	0	1	0	3	0	64	0	0	64	15	2	22	0	39	0	105	0	0	105	211
7:45 AM	2	0	1	0	3	0	65	0	0	65	14	0	13	0	27	0	85	2	0	87	182
Total	6	0	8	0	14	1	239	0	0	240	67	5	67	0	139	0	420	7	0	427	820
8:00 AM	2	0	2	0	4	1	53	0	0	54	12	0	8	0	20	0	101	1	0	102	180
8:15 AM	0	0	2	0	2	0	48	0	0	48	10	1	6	0	17	0	103	4	0	107	174
8:30 AM	3	0	2	0	5	2	70	0	1	73	14	1	7	0	22	0	86	8	0	94	194
8:45 AM	1	0	4	0	5	0	46	0	0	46	15	1	4	0	20	0	92	4	0	96	167
Total	6	0	10	0	16	3	217	0	1	221	51	3	25	0	79	0	382	17	0	399	715
Grand Total	12	0	18	0	30	4	456	0	1	461	118	8	92	0	218	0	802	24	0	826	1535
Approach %	40.0	0.0	60.0	0.0		0.9	98.9	0.0	0.2		54.1	3.7	42.2	0.0		0.0	97.1	2.9	0.0		
Total %	0.8	0.0	1.2	0.0	2.0	0.3	29.7	0.0	0.1	30.0	7.7	0.5	6.0	0.0	14.2	0.0	52.2	1.6	0.0	53.8	
Exiting Leg Total					36					939					0					560	1535

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	1	0	2	0	3	0	51	0	0	51	14	3	10	0	27	0	108	3	0	111	192
7:15 AM	1	0	4	0	5	1	59	0	0	60	24	0	22	0	46	0	122	2	0	124	235
7:30 AM	2	0	1	0	3	0	64	0	0	64	15	2	22	0	39	0	105	0	0	105	211
7:45 AM	2	0	1	0	3	0	65	0	0	65	14	0	13	0	27	0	85	2	0	87	182
Total Volume	6	0	8	0	14	1	239	0	0	240	67	5	67	0	139	0	420	7	0	427	820
% Approach Total	42.9	0.0	57.1	0.0		0.4	99.6	0.0	0.0		48.2	3.6	48.2	0.0		0.0	98.4	1.6	0.0		
PHF	0.750	0.000	0.500	0.000	0.700	0.250	0.919	0.000	0.000	0.923	0.698	0.417	0.761	0.000	0.755	0.000	0.861	0.583	0.000	0.861	0.872
Entering Leg	6	0	8	0	14	1	239	0	0	240	67	5	67	0	139	0	420	7	0	427	820
Exiting Leg					13					495					0					312	820
Total					27					735					139					739	1640

PDI File #: **186102 I**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class:

Light Goods Vehicle

	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	6
7:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	1	0	0	1	4
7:45 AM	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	0	3	0	0	3	7
Total	0	0	0	0	0	0	8	0	0	8	2	0	1	0	3	0	8	0	0	8	19
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	4	0	0	4	5
8:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5
8:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
8:45 AM	0	0	0	0	0	0	4	0	0	4	1	0	0	0	1	0	3	0	0	3	8
Total	0	0	0	0	0	0	10	0	0	10	1	0	1	0	2	0	11	0	0	11	23
Grand Total	0	0	0	0	0	0	18	0	0	18	3	0	2	0	5	0	19	0	0	19	42
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		60.0	0.0	40.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	42.9	0.0	0.0	42.9	7.1	0.0	4.8	0.0	11.9	0.0	45.2	0.0	0.0	45.2	
Exiting Leg Total					0					22					0					20	42

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	4	0	0	4	5
8:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5
8:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
8:45 AM	0	0	0	0	0	0	4	0	0	4	1	0	0	0	1	0	3	0	0	3	8
Total Volume	0	0	0	0	0	0	10	0	0	10	1	0	1	0	2	0	11	0	0	11	23
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		50.0	0.0	50.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.625	0.250	0.000	0.250	0.000	0.500	0.000	0.688	0.000	0.000	0.688	0.719
Entering Leg	0	0	0	0	0	0	10	0	0	10	1	0	1	0	2	0	11	0	0	11	23
Exiting Leg					0					12					0					11	23
Total					0					22					2					22	46

PDI File #: **186102 I**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Buses

	Nessel Way					Longwood Avenue					Autumn Street					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	2
7:15 AM	0	0	0	0	0	0	1	0	0	1	1	0	1	0	2	0	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	1	0	0	1	1	0	1	0	2	0	0	0	0	0	3
Total	0	0	0	0	0	0	2	0	0	2	3	0	4	0	7	0	1	0	0	1	10
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	1	0	0	1	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	0	0	2	4
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	2	0	0	2	1	0	2	0	3	0	0	0	0	0	5
Total	0	0	0	0	0	0	2	0	0	2	4	0	5	0	9	0	3	0	0	3	14
Grand Total	0	0	0	0	0	0	4	0	0	4	7	0	9	0	16	0	4	0	0	4	24
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		43.8	0.0	56.3	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0	16.7	29.2	0.0	37.5	0.0	66.7	0.0	16.7	0.0	0.0	16.7	
Exiting Leg Total					0					11					0					13	24

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Nessel Way					Longwood Avenue					Autumn Street					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	1	0	0	1	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	0	0	2	4
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	2	0	0	2	1	0	2	0	3	0	0	0	0	0	5
Total Volume	0	0	0	0	0	0	2	0	0	2	4	0	5	0	9	0	3	0	0	3	14
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		44.4	0.0	55.6	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	1.000	0.000	0.625	0.000	0.750	0.000	0.375	0.000	0.000	0.375	0.700
Entering Leg	0	0	0	0	0	0	2	0	0	2	4	0	5	0	9	0	3	0	0	3	14
Exiting Leg					0					7					0					7	14
Total					0					9					9					10	28

PDI File #: **186102 I**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Single-Unit Trucks**

	Nessel Way					Longwood Avenue					Autumn Street					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	3
Total	0	0	0	0	0	1	3	0	0	4	1	0	0	0	1	0	2	0	0	2	7
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
8:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
8:45 AM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	3
Total	0	0	0	0	0	0	4	0	0	4	2	0	0	0	2	0	7	0	0	7	13
Grand Total	0	0	0	0	0	1	7	0	0	8	3	0	0	0	3	0	9	0	0	9	20
Approach %	0.0	0.0	0.0	0.0		12.5	87.5	0.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	5.0	35.0	0.0	0.0	40.0	15.0	0.0	0.0	0.0	15.0	0.0	45.0	0.0	0.0	45.0	
Exiting Leg Total					1					12					0					7	20

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Nessel Way					Longwood Avenue					Autumn Street					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
8:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
Total Volume	0	0	0	0	0	0	4	0	0	4	1	0	0	0	1	0	8	0	0	8	13
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.250	0.000	0.000	0.000	0.250	0.000	0.667	0.000	0.000	0.667	0.813
Entering Leg	0	0	0	0	0	0	4	0	0	4	1	0	0	0	1	0	8	0	0	8	13
Exiting Leg					0					9					0					4	13
Total					0					13					1					12	26

PDI File #: **186102 I**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Articulated Trucks

	Nessel Way					Longwood Avenue					Autumn Street					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Approach %	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					1					0					0					0	1

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Nessel Way					Longwood Avenue					Autumn Street					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Approach Total	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exiting Leg					1					0					0					0	1
Total					1					1					0					0	2

PDI File #: **186102 I**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Nessel Way							Longwood Avenue							Autumn Street							Longwood Avenue							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	6
7:15 AM	0	0	0	0	1	0	1	0	4	0	0	0	0	4	0	0	1	0	0	0	1	2	13	0	0	0	0	15	21
7:30 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	1	1	0	13	0	0	0	0	13	16
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	33	0	0	0	0	33	35
Total	0	0	0	0	1	0	1	0	7	0	0	1	0	8	0	0	1	0	0	1	2	2	65	0	0	0	0	67	78
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	17	0	0	0	0	18	20
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	26	0	0	0	0	26	27
8:30 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	1	30	0	0	0	0	31	33
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	33	0	0	0	0	35	35
Total	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	3	3	4	106	0	0	0	0	110	115
Grand Total	0	0	0	0	1	0	1	0	9	0	0	1	0	10	0	0	1	0	0	4	5	6	171	0	0	0	0	177	193
Approach %	0.0	0.0	0.0	0.0	100.0	0.0		0.0	90.0	0.0	0.0	10.0	0.0		0.0	0.0	20.0	0.0	0.0	80.0		3.4	96.6	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0	4.7	0.0	0.0	0.5	0.0	5.2	0.0	0.0	0.5	0.0	0.0	2.1	2.6	3.1	88.6	0.0	0.0	0.0	0.0	91.7	
Exiting Leg Total							1							172							10							10	193

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Nessel Way							Longwood Avenue							Autumn Street							Longwood Avenue							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	33	0	0	0	0	33	35
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	17	0	0	0	0	18	20
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	26	0	0	0	0	26	27
8:30 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	1	30	0	0	0	0	31	33
Total Volume	0	0	0	0	0	0	0	0	3	0	0	1	0	4	0	0	0	0	0	3	3	2	106	0	0	0	0	108	115
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	75.0	0.0	0.0	25.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0		1.9	98.1	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.375	0.375	0.500	0.803	0.000	0.000	0.000	0.000	0.818	0.821
Entering Leg	0	0	0	0	0	0	0	0	3	0	0	1	0	4	0	0	0	0	0	3	3	2	106	0	0	0	0	108	115
Exiting Leg							0							107							5							3	115
Total							0							111							8							111	230

PDI File #: **186102 I**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Pedestrians

	Nessel Way from North							Longwood Avenue from East							Autumn Street from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	31	1	32	0	0	0	0	8	1	9	0	0	0	0	9	52	61	0	0	0	0	0	1	1	103
7:15 AM	0	0	0	0	39	9	48	0	0	0	0	10	0	10	0	0	0	0	8	59	67	0	0	0	0	0	0	0	125
7:30 AM	0	0	0	0	69	8	77	0	0	0	0	1	2	3	0	0	0	0	4	80	84	0	0	0	0	0	0	0	164
7:45 AM	0	0	0	0	107	5	112	0	0	0	0	4	0	4	0	0	0	0	9	140	149	0	0	0	0	0	0	0	265
Total	0	0	0	0	246	23	269	0	0	0	0	23	3	26	0	0	0	0	30	331	361	0	0	0	0	0	1	1	657
8:00 AM	0	0	0	0	70	4	74	0	0	0	0	4	3	7	0	0	0	0	5	109	114	0	0	0	0	0	0	0	195
8:15 AM	0	0	0	0	96	4	100	0	0	0	0	9	0	9	0	0	0	0	15	119	134	0	0	0	0	0	0	0	243
8:30 AM	0	0	0	0	110	4	114	0	0	0	0	5	1	6	0	0	0	0	9	106	115	0	0	0	0	0	0	0	235
8:45 AM	0	0	0	0	137	4	141	0	0	0	0	5	1	6	0	0	0	0	16	142	158	0	0	0	0	0	0	0	305
Total	0	0	0	0	413	16	429	0	0	0	0	23	5	28	0	0	0	0	45	476	521	0	0	0	0	0	0	0	978
Grand Total	0	0	0	0	659	39	698	0	0	0	0	46	8	54	0	0	0	0	75	807	882	0	0	0	0	0	1	1	1635
Approach %	0	0	0	0	94.4	5.59		0	0	0	0	85.2	14.8		0	0	0	0	8.5	91.5		0	0	0	0	0	100		
Total %	0	0	0	0	40.3	2.39	42.7	0	0	0	0	2.81	0.49	3.3	0	0	0	0	4.59	49.4	53.9	0	0	0	0	0	0.06	0.06	
Exiting Leg Total							698							54							882							1	1635

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Nessel Way from North							Longwood Avenue from East							Autumn Street from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	0	70	4	74	0	0	0	0	4	3	7	0	0	0	0	5	109	114	0	0	0	0	0	0	0	195
8:15 AM	0	0	0	0	96	4	100	0	0	0	0	9	0	9	0	0	0	0	15	119	134	0	0	0	0	0	0	0	243
8:30 AM	0	0	0	0	110	4	114	0	0	0	0	5	1	6	0	0	0	0	9	106	115	0	0	0	0	0	0	0	235
8:45 AM	0	0	0	0	137	4	141	0	0	0	0	5	1	6	0	0	0	0	16	142	158	0	0	0	0	0	0	0	305
Total Volume	0	0	0	0	413	16	429	0	0	0	0	23	5	28	0	0	0	0	45	476	521	0	0	0	0	0	0	0	978
% Approach Total	0.0	0.0	0.0	0.0	96.3	3.7		0.0	0.0	0.0	0.0	82.1	17.9		0.0	0.0	0.0	0.0	8.6	91.4		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.754	1.000	0.761	0.000	0.000	0.000	0.000	0.639	0.417	0.778	0.000	0.000	0.000	0.000	0.703	0.838	0.824	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.802
Entering Leg	0	0	0	0	413	16	429	0	0	0	0	23	5	28	0	0	0	0	45	476	521	0	0	0	0	0	0	0	978
Exiting Leg							429							28							521							0	978
Total							858							56							1042							0	1956

PDI File #: **186102 II**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Nessel Way					Longwood Avenue					Autumn Street					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	3	0	1	0	4	1	78	0	0	79	9	3	9	0	21	0	48	1	0	49	153
3:15 PM	1	0	1	0	2	3	94	0	0	97	6	0	9	0	15	0	51	2	0	53	167
3:30 PM	1	0	0	0	1	3	88	0	0	91	5	1	15	0	21	0	53	1	0	54	167
3:45 PM	7	0	0	0	7	0	88	0	0	88	2	3	7	0	12	0	63	5	0	68	175
Total	12	0	2	0	14	7	348	0	0	355	22	7	40	0	69	0	215	9	0	224	662
4:00 PM	0	0	0	0	0	0	82	0	0	82	4	0	9	0	13	0	55	7	0	62	157
4:15 PM	2	0	0	0	2	3	82	0	0	85	5	0	4	0	9	0	51	1	1	53	149
4:30 PM	1	0	2	0	3	1	101	0	0	102	5	1	14	0	20	0	52	2	0	54	179
4:45 PM	1	0	2	0	3	1	106	0	0	107	8	1	14	0	23	0	60	0	0	60	193
Total	4	0	4	0	8	5	371	0	0	376	22	2	41	0	65	0	218	10	1	229	678
5:00 PM	7	0	3	0	10	5	83	0	0	88	8	3	19	0	30	0	61	2	0	63	191
5:15 PM	2	0	0	0	2	4	85	0	0	89	4	3	7	0	14	0	52	0	0	52	157
5:30 PM	4	0	2	0	6	0	87	0	0	87	4	3	13	0	20	0	66	2	0	68	181
5:45 PM	6	0	1	0	7	3	76	0	0	79	7	2	14	0	23	0	44	3	0	47	156
Total	19	0	6	0	25	12	331	0	0	343	23	11	53	0	87	0	223	7	0	230	685
Grand Total	35	0	12	0	47	24	1050	0	0	1074	67	20	134	0	221	0	656	26	1	683	2025
Approach %	74.5	0.0	25.5	0.0		2.2	97.8	0.0	0.0		30.3	9.0	60.6	0.0		0.0	96.0	3.8	0.1		
Total %	1.7	0.0	0.6	0.0	2.3	1.2	51.9	0.0	0.0	53.0	3.3	1.0	6.6	0.0	10.9	0.0	32.4	1.3	0.0	33.7	
Exiting Leg Total					70					735					0					1220	2025
Cars	34	0	11	0	45	24	1034	0	0	1058	54	19	122	0	195	0	648	26	1	675	1973
% Cars	97.1	0.0	91.7	0.0	95.7	100.0	98.5	0.0	0.0	98.5	80.6	95.0	91.0	0.0	88.2	0.0	98.8	100.0	100.0	98.8	97.4
Exiting Leg Total					69					713					0					1191	1973
Heavy Vehicles	1	0	1	0	2	0	16	0	0	16	13	1	12	0	26	0	8	0	0	8	52
% Heavy Vehicles	2.9	0.0	8.3	0.0	4.3	0.0	1.5	0.0	0.0	1.5	19.4	5.0	9.0	0.0	11.8	0.0	1.2	0.0	0.0	1.2	2.6
Exiting Leg Total					1					22					0					29	52

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:45 PM	Nessel Way					Longwood Avenue					Autumn Street					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	1	0	2	0	3	1	106	0	0	107	8	1	14	0	23	0	60	0	0	60	193
5:00 PM	7	0	3	0	10	5	83	0	0	88	8	3	19	0	30	0	61	2	0	63	191
5:15 PM	2	0	0	0	2	4	85	0	0	89	4	3	7	0	14	0	52	0	0	52	157
5:30 PM	4	0	2	0	6	0	87	0	0	87	4	3	13	0	20	0	66	2	0	68	181
Total Volume	14	0	7	0	21	10	361	0	0	371	24	10	53	0	87	0	239	4	0	243	722
% Approach Total	66.7	0.0	33.3	0.0		2.7	97.3	0.0	0.0		27.6	11.5	60.9	0.0		0.0	98.4	1.6	0.0		
PHF	0.500	0.000	0.583	0.000	0.525	0.500	0.851	0.000	0.000	0.867	0.750	0.833	0.697	0.000	0.725	0.000	0.905	0.500	0.000	0.893	0.935
Cars	13	0	6	0	19	10	354	0	0	364	19	9	49	0	77	0	238	4	0	242	702
Cars %	92.9	0.0	85.7	0.0	90.5	100.0	98.1	0.0	0.0	98.1	79.2	90.0	92.5	0.0	88.5	0.0	99.6	100.0	0.0	99.6	97.2
Heavy Vehicles	1	0	1	0	2	0	7	0	0	7	5	1	4	0	10	0	1	0	0	1	20
Heavy Vehicles %	7.1	0.0	14.3	0.0	9.5	0.0	1.9	0.0	0.0	1.9	20.8	10.0	7.5	0.0	11.5	0.0	0.4	0.0	0.0	0.4	2.8
Cars Enter Leg	13	0	6	0	19	10	354	0	0	364	19	9	49	0	77	0	238	4	0	242	702
Heavy Enter Leg	1	0	1	0	2	0	7	0	0	7	5	1	4	0	10	0	1	0	0	1	20
Total Entering Leg	14	0	7	0	21	10	361	0	0	371	24	10	53	0	87	0	239	4	0	243	722
Cars Exiting Leg					23					263					0					416	702
Heavy Exiting Leg					1					7					0					12	20
Total Exiting Leg					24					270					0					428	722

PDI File #: **186102 II**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars-Combined (Motorcycles, Cars, Light Goods)

	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	3	0	1	0	4	1	74	0	0	75	8	3	9	0	20	0	46	1	0	47	146
3:15 PM	1	0	1	0	2	3	92	0	0	95	5	0	8	0	13	0	51	2	0	53	163
3:30 PM	1	0	0	0	1	3	88	0	0	91	4	1	13	0	18	0	53	1	0	54	164
3:45 PM	7	0	0	0	7	0	85	0	0	85	1	3	6	0	10	0	62	5	0	67	169
Total	12	0	2	0	14	7	339	0	0	346	18	7	36	0	61	0	212	9	0	221	642
4:00 PM	0	0	0	0	0	0	82	0	0	82	3	0	8	0	11	0	53	7	0	60	153
4:15 PM	2	0	0	0	2	3	82	0	0	85	4	0	3	0	7	0	50	1	1	52	146
4:30 PM	1	0	2	0	3	1	101	0	0	102	4	1	13	0	18	0	52	2	0	54	177
4:45 PM	1	0	1	0	2	1	104	0	0	105	7	0	13	0	20	0	59	0	0	59	186
Total	4	0	3	0	7	5	369	0	0	374	18	1	37	0	56	0	214	10	1	225	662
5:00 PM	7	0	3	0	10	5	81	0	0	86	6	3	18	0	27	0	61	2	0	63	186
5:15 PM	1	0	0	0	1	4	82	0	0	86	3	3	6	0	12	0	52	0	0	52	151
5:30 PM	4	0	2	0	6	0	87	0	0	87	3	3	12	0	18	0	66	2	0	68	179
5:45 PM	6	0	1	0	7	3	76	0	0	79	6	2	13	0	21	0	43	3	0	46	153
Total	18	0	6	0	24	12	326	0	0	338	18	11	49	0	78	0	222	7	0	229	669
Grand Total	34	0	11	0	45	24	1034	0	0	1058	54	19	122	0	195	0	648	26	1	675	1973
Approach %	75.6	0.0	24.4	0.0		2.3	97.7	0.0	0.0		27.7	9.7	62.6	0.0		0.0	96.0	3.9	0.1		
Total %	1.7	0.0	0.6	0.0	2.3	1.2	52.4	0.0	0.0	53.6	2.7	1.0	6.2	0.0	9.9	0.0	32.8	1.3	0.1	34.2	
Exiting Leg Total					69					713					0					1191	1973

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:45 PM	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	1	0	1	0	2	1	104	0	0	105	7	0	13	0	20	0	59	0	0	59	186
5:00 PM	7	0	3	0	10	5	81	0	0	86	6	3	18	0	27	0	61	2	0	63	186
5:15 PM	1	0	0	0	1	4	82	0	0	86	3	3	6	0	12	0	52	0	0	52	151
5:30 PM	4	0	2	0	6	0	87	0	0	87	3	3	12	0	18	0	66	2	0	68	179
Total Volume	13	0	6	0	19	10	354	0	0	364	19	9	49	0	77	0	238	4	0	242	702
% Approach Total	68.4	0.0	31.6	0.0		2.7	97.3	0.0	0.0		24.7	11.7	63.6	0.0		0.0	98.3	1.7	0.0		
PHF	0.464	0.000	0.500	0.000	0.475	0.500	0.851	0.000	0.000	0.867	0.679	0.750	0.681	0.000	0.713	0.000	0.902	0.500	0.000	0.890	0.944
Entering Leg	13	0	6	0	19	10	354	0	0	364	19	9	49	0	77	0	238	4	0	242	702
Exiting Leg					23					263					0					416	702
Total					42					627					77					658	1404

PDI File #: **186102 II**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	4	0	0	4	1	0	0	0	1	0	2	0	0	2	7
3:15 PM	0	0	0	0	0	0	2	0	0	2	1	0	1	0	2	0	0	0	0	0	4
3:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	0	0	0	0	0	3
3:45 PM	0	0	0	0	0	0	3	0	0	3	1	0	1	0	2	0	1	0	0	1	6
Total	0	0	0	0	0	0	9	0	0	9	4	0	4	0	8	0	3	0	0	3	20
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	0	0	2	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	1	0	0	1	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	2
4:45 PM	0	0	1	0	1	0	2	0	0	2	1	1	1	0	3	0	1	0	0	1	7
Total	0	0	1	0	1	0	2	0	0	2	4	1	4	0	9	0	4	0	0	4	16
5:00 PM	0	0	0	0	0	0	2	0	0	2	2	0	1	0	3	0	0	0	0	0	5
5:15 PM	1	0	0	0	1	0	3	0	0	3	1	0	1	0	2	0	0	0	0	0	6
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	1	0	0	1	3
Total	1	0	0	0	1	0	5	0	0	5	5	0	4	0	9	0	1	0	0	1	16
Grand Total	1	0	1	0	2	0	16	0	0	16	13	1	12	0	26	0	8	0	0	8	52
Approach %	50.0	0.0	50.0	0.0		0.0	100.0	0.0	0.0		50.0	3.8	46.2	0.0		0.0	100.0	0.0	0.0		
Total %	1.9	0.0	1.9	0.0	3.8	0.0	30.8	0.0	0.0	30.8	25.0	1.9	23.1	0.0	50.0	0.0	15.4	0.0	0.0	15.4	
Exiting Leg Total					1					22					0					29	52
Buses	1	0	0	0	1	0	11	0	0	11	13	0	12	0	25	0	7	0	0	7	44
% Buses	100.0	0.0	0.0	0.0	50.0	0.0	68.8	0.0	0.0	68.8	100.0	0.0	100.0	0.0	96.2	0.0	87.5	0.0	0.0	87.5	84.6
Exiting Leg Total					0					20					0					24	44
Single-Unit Trucks	0	0	1	0	1	0	5	0	0	5	0	1	0	0	1	0	1	0	0	1	8
% Single-Unit	0.0	0.0	100.0	0.0	50.0	0.0	31.3	0.0	0.0	31.3	0.0	100.0	0.0	0.0	3.8	0.0	12.5	0.0	0.0	12.5	15.4
Exiting Leg Total					1					2					0					5	8
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	4	0	0	4	1	0	0	0	1	0	2	0	0	2	7
3:15 PM	0	0	0	0	0	0	2	0	0	2	1	0	1	0	2	0	0	0	0	0	4
3:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	0	0	0	0	0	3
3:45 PM	0	0	0	0	0	0	3	0	0	3	1	0	1	0	2	0	1	0	0	1	6
Total Volume	0	0	0	0	0	0	9	0	0	9	4	0	4	0	8	0	3	0	0	3	20
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		50.0	0.0	50.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.563	0.000	0.000	0.563	1.000	0.000	0.500	0.000	0.667	0.000	0.375	0.000	0.000	0.375	0.714
Buses	0	0	0	0	0	0	5	0	0	5	4	0	4	0	8	0	3	0	0	3	16
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	55.6	0.0	0.0	55.6	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0	100.0	80.0
Single-Unit Trucks	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	44.4	0.0	0.0	44.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	0	0	0	0	0	5	0	0	5	4	0	4	0	8	0	3	0	0	3	16
Single-Unit Trucks	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	0	0	0	0	0	9	0	0	9	4	0	4	0	8	0	3	0	0	3	20
Buses					0					7					0					9	16
Single-Unit Trucks					0					0					0					4	4
Articulated Trucks					0					0					0					0	0
Total Exiting Leg					0					7					0					13	20

PDI File #: **186102 II**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars

	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	3	0	1	0	4	1	74	0	0	75	7	3	9	0	19	0	43	1	0	44	142
3:15 PM	1	0	1	0	2	3	89	0	0	92	5	0	8	0	13	0	46	2	0	48	155
3:30 PM	1	0	0	0	1	3	85	0	0	88	4	1	13	0	18	0	49	1	0	50	157
3:45 PM	7	0	0	0	7	0	84	0	0	84	1	3	6	0	10	0	61	5	0	66	167
Total	12	0	2	0	14	7	332	0	0	339	17	7	36	0	60	0	199	9	0	208	621
4:00 PM	0	0	0	0	0	0	82	0	0	82	3	0	8	0	11	0	48	7	0	55	148
4:15 PM	2	0	0	0	2	3	82	0	0	85	4	0	3	0	7	0	49	1	1	51	145
4:30 PM	1	0	2	0	3	1	100	0	0	101	4	1	12	0	17	0	51	2	0	53	174
4:45 PM	1	0	1	0	2	1	97	0	0	98	7	0	13	0	20	0	58	0	0	58	178
Total	4	0	3	0	7	5	361	0	0	366	18	1	36	0	55	0	206	10	1	217	645
5:00 PM	7	0	3	0	10	4	80	0	0	84	5	3	16	0	24	0	59	2	0	61	179
5:15 PM	1	0	0	0	1	4	81	0	0	85	3	3	6	0	12	0	52	0	0	52	150
5:30 PM	4	0	2	0	6	0	84	0	0	84	3	2	12	0	17	0	63	2	0	65	172
5:45 PM	6	0	1	0	7	3	76	0	0	79	6	2	13	0	21	0	43	3	0	46	153
Total	18	0	6	0	24	11	321	0	0	332	17	10	47	0	74	0	217	7	0	224	654
Grand Total	34	0	11	0	45	23	1014	0	0	1037	52	18	119	0	189	0	622	26	1	649	1920
Approach %	75.6	0.0	24.4	0.0		2.2	97.8	0.0	0.0		27.5	9.5	63.0	0.0		0.0	95.8	4.0	0.2		
Total %	1.8	0.0	0.6	0.0	2.3	1.2	52.8	0.0	0.0	54.0	2.7	0.9	6.2	0.0	9.8	0.0	32.4	1.4	0.1	33.8	
Exiting Leg Total					67					685					0					1168	1920

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:30 PM	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	1	0	2	0	3	1	100	0	0	101	4	1	12	0	17	0	51	2	0	53	174
4:45 PM	1	0	1	0	2	1	97	0	0	98	7	0	13	0	20	0	58	0	0	58	178
5:00 PM	7	0	3	0	10	4	80	0	0	84	5	3	16	0	24	0	59	2	0	61	179
5:15 PM	1	0	0	0	1	4	81	0	0	85	3	3	6	0	12	0	52	0	0	52	150
Total Volume	10	0	6	0	16	10	358	0	0	368	19	7	47	0	73	0	220	4	0	224	681
% Approach Total	62.5	0.0	37.5	0.0		2.7	97.3	0.0	0.0		26.0	9.6	64.4	0.0		0.0	98.2	1.8	0.0		
PHF	0.357	0.000	0.500	0.000	0.400	0.625	0.895	0.000	0.000	0.911	0.679	0.583	0.734	0.000	0.760	0.000	0.932	0.500	0.000	0.918	0.951
Entering Leg	10	0	6	0	16	10	358	0	0	368	19	7	47	0	73	0	220	4	0	224	681
Exiting Leg					21					245					0					415	681
Total					37					613					73					639	1362

PDI File #: **186102 II**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Light Goods Vehicle

	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3	0	0	3	4
3:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	8
3:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7
3:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	0	0	7	0	0	7	1	0	0	0	1	0	13	0	0	13	21
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	5
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	3
4:45 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	6
Total	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	0	8	0	0	8	15
5:00 PM	0	0	0	0	0	1	1	0	0	2	1	0	2	0	3	0	2	0	0	2	7
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	3	0	0	3	6
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	4	0	0	5	1	1	2	0	4	0	5	0	0	5	14
Grand Total	0	0	0	0	0	1	17	0	0	18	2	1	3	0	6	0	26	0	0	26	50
Approach %	0.0	0.0	0.0	0.0		5.6	94.4	0.0	0.0		33.3	16.7	50.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	2.0	34.0	0.0	0.0	36.0	4.0	2.0	6.0	0.0	12.0	0.0	52.0	0.0	0.0	52.0	
Exiting Leg Total					2					28					0					20	50

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3	0	0	3	4
3:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	8
3:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7
3:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total Volume	0	0	0	0	0	0	7	0	0	7	1	0	0	0	1	0	13	0	0	13	21
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.583	0.000	0.000	0.583	0.250	0.000	0.000	0.000	0.250	0.000	0.650	0.000	0.000	0.650	0.656
Entering Leg	0	0	0	0	0	0	7	0	0	7	1	0	0	0	1	0	13	0	0	13	21
Exiting Leg					0					14					0					7	21
Total					0					21					1					20	42

PDI File #: **186102 II**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Buses

	Nessel Way					Longwood Avenue					Autumn Street					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	2	0	0	2	6
3:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	2
3:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	0	0	0	0	0	3
3:45 PM	0	0	0	0	0	0	2	0	0	2	1	0	1	0	2	0	1	0	0	1	5
Total	0	0	0	0	0	0	5	0	0	5	4	0	4	0	8	0	3	0	0	3	16
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	0	0	2	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	2	0	0	2	1	0	1	0	2	0	1	0	0	1	5
Total	0	0	0	0	0	0	2	0	0	2	4	0	4	0	8	0	3	0	0	3	13
5:00 PM	0	0	0	0	0	0	2	0	0	2	2	0	1	0	3	0	0	0	0	0	5
5:15 PM	1	0	0	0	1	0	2	0	0	2	1	0	1	0	2	0	0	0	0	0	5
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	1	0	0	1	3
Total	1	0	0	0	1	0	4	0	0	4	5	0	4	0	9	0	1	0	0	1	15
Grand Total	1	0	0	0	1	0	11	0	0	11	13	0	12	0	25	0	7	0	0	7	44
Approach %	100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		52.0	0.0	48.0	0.0		0.0	100.0	0.0	0.0		
Total %	2.3	0.0	0.0	0.0	2.3	0.0	25.0	0.0	0.0	25.0	29.5	0.0	27.3	0.0	56.8	0.0	15.9	0.0	0.0	15.9	
Exiting Leg Total					0					20					0					24	44

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:30 PM	Nessel Way					Longwood Avenue					Autumn Street					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	2	0	0	2	1	0	1	0	2	0	1	0	0	1	5
5:00 PM	0	0	0	0	0	0	2	0	0	2	2	0	1	0	3	0	0	0	0	0	5
5:15 PM	1	0	0	0	1	0	2	0	0	2	1	0	1	0	2	0	0	0	0	0	5
Total Volume	1	0	0	0	1	0	6	0	0	6	5	0	4	0	9	0	1	0	0	1	17
% Approach Total	100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		55.6	0.0	44.4	0.0		0.0	100.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.000	0.250	0.000	0.750	0.000	0.000	0.750	0.625	0.000	1.000	0.000	0.750	0.000	0.250	0.000	0.000	0.250	0.850
Entering Leg	1	0	0	0	1	0	6	0	0	6	5	0	4	0	9	0	1	0	0	1	17
Exiting Leg					0					6					0					11	17
Total					1					12					9					12	34

PDI File #: **186102 II**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Single-Unit Trucks

	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Total	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	1	0	1	0	5	0	0	5	0	1	0	0	1	0	1	0	0	1	8
Approach %	0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	12.5	0.0	12.5	0.0	62.5	0.0	0.0	62.5	0.0	12.5	0.0	0.0	12.5	0.0	12.5	0.0	0.0	12.5	
Exiting Leg Total					1					2					0					5	8

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4
Exiting Leg					0					0					0					4	4
Total					0					4					0					4	8

PDI File #: **186102 II**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Articulated Trucks

	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Nessel Way from North					Longwood Avenue from East					Autumn Street from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

PDI File #: **186102 II**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Nessel Way							Longwood Avenue							Autumn Street							Longwood Avenue							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	6	0	0	0	0	6	0	0	0	0	0	0	0	0	3	0	0	0	0	3	9
3:15 PM	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	1	0	1	0	1	0	0	0	0	1	6
3:30 PM	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	0	3	0	0	0	3	0	0	0	0	0	0	0	7
3:45 PM	0	0	0	0	0	0	0	0	7	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Total	0	0	0	0	0	0	0	0	21	0	0	0	0	21	0	0	3	0	1	0	4	0	4	0	0	0	0	4	29
4:00 PM	1	0	0	0	0	0	1	0	10	0	0	0	0	10	0	0	0	0	0	0	0	0	1	0	0	0	0	1	12
4:15 PM	0	0	0	0	0	0	0	0	8	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
4:30 PM	0	0	0	0	0	0	0	0	10	0	0	0	0	10	0	0	0	0	0	0	0	0	1	0	0	0	0	1	11
4:45 PM	0	0	0	0	0	0	0	0	15	1	0	1	0	17	0	0	2	0	0	0	2	0	4	0	0	0	0	4	23
Total	1	0	0	0	0	0	1	0	43	1	0	1	0	45	0	0	2	0	0	0	2	0	6	0	0	0	0	6	54
5:00 PM	0	0	0	0	0	1	1	0	19	0	0	0	0	19	0	0	4	0	0	0	4	0	2	0	0	0	0	2	26
5:15 PM	0	0	0	0	0	1	1	0	21	1	0	0	0	22	0	0	1	0	0	0	1	0	5	0	0	0	0	5	29
5:30 PM	1	0	0	0	0	1	2	0	17	0	0	0	0	17	0	1	4	0	0	0	5	0	3	0	0	0	0	3	27
5:45 PM	0	0	0	0	0	1	1	0	17	0	0	0	0	17	0	0	2	0	1	0	3	0	2	1	0	0	0	3	24
Total	1	0	0	0	0	4	5	0	74	1	0	0	0	75	0	1	11	0	1	0	13	0	12	1	0	0	0	13	106
Grand Total	2	0	0	0	0	4	6	0	138	2	0	1	0	141	0	1	16	0	2	0	19	0	22	1	0	0	0	23	189
Approach %	33.3	0.0	0.0	0.0	0.0	66.7		0.0	97.9	1.4	0.0	0.7	0.0		0.0	5.3	84.2	0.0	10.5	0.0		0.0	95.7	4.3	0.0	0.0	0.0		
Total %	1.1	0.0	0.0	0.0	0.0	2.1	3.2	0.0	73.0	1.1	0.0	0.5	0.0	74.6	0.0	0.5	8.5	0.0	1.1	0.0	10.1	0.0	11.6	0.5	0.0	0.0	0.0	12.2	
Exiting Leg Total							6							23							4							156	189

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

5:00 PM	Nessel Way							Longwood Avenue							Autumn Street							Longwood Avenue							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	0	0	0	0	1	1	0	19	0	0	0	0	19	0	0	4	0	0	0	4	0	2	0	0	0	0	2	26
5:15 PM	0	0	0	0	0	1	1	0	21	1	0	0	0	22	0	0	1	0	0	0	1	0	5	0	0	0	0	5	29
5:30 PM	1	0	0	0	0	1	2	0	17	0	0	0	0	17	0	1	4	0	0	0	5	0	3	0	0	0	0	3	27
5:45 PM	0	0	0	0	0	1	1	0	17	0	0	0	0	17	0	0	2	0	1	0	3	0	2	1	0	0	0	3	24
Total Volume	1	0	0	0	0	4	5	0	74	1	0	0	0	75	0	1	11	0	1	0	13	0	12	1	0	0	0	13	106
% Approach Total	20.0	0.0	0.0	0.0	0.0	80.0		0.0	98.7	1.3	0.0	0.0	0.0		0.0	7.7	84.6	0.0	7.7	0.0		0.0	92.3	7.7	0.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.000	0.000	1.000	0.625	0.000	0.881	0.250	0.000	0.000	0.000	0.852	0.000	0.250	0.688	0.000	0.250	0.000	0.650	0.000	0.600	0.250	0.000	0.000	0.000	0.650	0.914
Entering Leg	1	0	0	0	0	4	5	0	74	1	0	0	0	75	0	1	11	0	1	0	13	0	12	1	0	0	0	13	106
Exiting Leg							6							12							2							86	106
Total							11							87							15							99	212

PDI File #: **186102 II**
Location: **N: Nessel Way S: Autumn Street**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Pedestrians

	Nessel Way from North							Longwood Avenue from East							Autumn Street from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	15	41	56	0	0	0	0	2	6	8	0	0	0	0	25	14	39	0	0	0	0	0	0	0	103
3:15 PM	0	0	0	0	19	28	47	0	0	0	0	6	3	9	0	0	0	0	22	15	37	0	0	0	0	0	0	0	93
3:30 PM	0	0	0	0	8	56	64	0	0	0	0	0	2	2	0	0	0	0	28	2	30	0	0	0	0	1	0	1	97
3:45 PM	0	0	0	0	15	36	51	0	0	0	0	4	3	7	0	0	0	0	28	18	46	0	0	0	0	0	0	0	104
Total	0	0	0	0	57	161	218	0	0	0	0	12	14	26	0	0	0	0	103	49	152	0	0	0	0	1	0	1	397
4:00 PM	0	0	0	0	4	72	76	0	0	0	0	1	5	6	0	0	0	0	40	7	47	0	0	0	0	1	0	1	130
4:15 PM	0	0	0	0	14	77	91	0	0	0	0	1	7	8	0	0	0	0	49	9	58	0	0	0	0	1	0	1	158
4:30 PM	0	0	0	0	17	109	126	0	0	0	0	1	7	8	0	0	0	0	52	10	62	0	0	0	0	1	0	1	197
4:45 PM	0	0	0	0	6	115	121	0	0	0	0	0	5	5	0	0	0	0	38	13	51	0	0	0	0	0	0	0	177
Total	0	0	0	0	41	373	414	0	0	0	0	3	24	27	0	0	0	0	179	39	218	0	0	0	0	3	0	3	662
5:00 PM	0	0	0	0	12	129	141	0	0	0	0	0	5	5	0	0	0	0	59	9	68	0	0	0	0	2	0	2	216
5:15 PM	0	0	0	0	6	162	168	0	0	0	0	1	3	4	0	0	0	0	37	5	42	0	0	0	0	0	0	0	214
5:30 PM	0	0	0	0	11	117	128	0	0	0	0	0	3	3	0	0	0	0	52	18	70	0	0	0	0	0	0	0	201
5:45 PM	0	0	0	0	10	132	142	0	0	0	0	0	0	0	0	0	0	0	45	7	52	0	0	0	0	0	0	0	194
Total	0	0	0	0	39	540	579	0	0	0	0	1	11	12	0	0	0	0	193	39	232	0	0	0	0	2	0	2	825
Grand Total	0	0	0	0	137	1074	1211	0	0	0	0	16	49	65	0	0	0	0	475	127	602	0	0	0	0	6	0	6	1884
Approach %	0	0	0	0	11.3	88.7		0	0	0	0	24.6	75.4		0	0	0	0	78.9	21.1		0	0	0	0	100	0		
Total %	0	0	0	0	7.27	57	64.3	0	0	0	0	0.85	2.6	3.45	0	0	0	0	25.2	6.74	32	0	0	0	0	0.32	0	0.32	
Exiting Leg Total							1211							65							602							6	1884

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

5:00 PM	Nessel Way from North							Longwood Avenue from East							Autumn Street from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	0	0	0	12	129	141	0	0	0	0	0	5	5	0	0	0	0	59	9	68	0	0	0	0	2	0	2	216
5:15 PM	0	0	0	0	6	162	168	0	0	0	0	1	3	4	0	0	0	0	37	5	42	0	0	0	0	0	0	0	214
5:30 PM	0	0	0	0	11	117	128	0	0	0	0	0	3	3	0	0	0	0	52	18	70	0	0	0	0	0	0	0	201
5:45 PM	0	0	0	0	10	132	142	0	0	0	0	0	0	0	0	0	0	0	45	7	52	0	0	0	0	0	0	0	194
Total Volume	0	0	0	0	39	540	579	0	0	0	0	1	11	12	0	0	0	0	193	39	232	0	0	0	0	2	0	2	825
% Approach Total	0.0	0.0	0.0	0.0	6.7	93.3		0.0	0.0	0.0	0.0	8.3	91.7		0.0	0.0	0.0	0.0	83.2	16.8		0.0	0.0	0.0	0.0	100.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.813	0.833	0.862	0.000	0.000	0.000	0.000	0.250	0.550	0.600	0.000	0.000	0.000	0.000	0.818	0.542	0.829	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.955
Entering Leg	0	0	0	0	39	540	579	0	0	0	0	1	11	12	0	0	0	0	193	39	232	0	0	0	0	2	0	2	825
Exiting Leg							579							12							232							2	825
Total							1158							24							464							4	1650

PDI File #: **186102 J**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	4	1	2	0	7	25	45	22	0	92	7	1	4	0	12	25	52	51	0	128	239
7:15 AM	0	1	2	0	3	19	60	26	0	105	7	3	3	0	13	23	76	56	0	155	276
7:30 AM	1	0	2	0	3	29	62	31	0	122	4	1	2	0	7	23	62	41	0	126	258
7:45 AM	1	0	3	0	4	31	69	18	0	118	9	0	1	0	10	7	60	40	0	107	239
Total	6	2	9	0	17	104	236	97	0	437	27	5	10	0	42	78	250	188	0	516	1012
8:00 AM	1	1	0	0	2	29	51	32	0	112	5	1	1	0	7	12	73	41	0	126	247
8:15 AM	0	1	1	0	2	21	54	26	0	101	2	0	1	0	3	16	72	33	0	121	227
8:30 AM	6	1	1	0	8	24	61	16	0	101	7	2	4	0	13	18	65	28	0	111	233
8:45 AM	2	0	2	0	4	22	47	20	0	89	2	2	1	0	5	13	71	32	0	116	214
Total	9	3	4	0	16	96	213	94	0	403	16	5	7	0	28	59	281	134	0	474	921
Grand Total	15	5	13	0	33	200	449	191	0	840	43	10	17	0	70	137	531	322	0	990	1933
Approach %	45.5	15.2	39.4	0.0		23.8	53.5	22.7	0.0		61.4	14.3	24.3	0.0		13.8	53.6	32.5	0.0		
Total %	0.8	0.3	0.7	0.0	1.7	10.3	23.2	9.9	0.0	43.5	2.2	0.5	0.9	0.0	3.6	7.1	27.5	16.7	0.0	51.2	
Exiting Leg Total					532					587					333					481	1933
Cars	15	4	13	0	32	199	435	176	0	810	38	10	17	0	65	126	521	322	0	969	1876
% Cars	100.0	80.0	100.0	0.0	97.0	99.5	96.9	92.1	0.0	96.4	88.4	100.0	100.0	0.0	92.9	92.0	98.1	100.0	0.0	97.9	97.1
Exiting Leg Total					531					572					306					467	1876
Heavy Vehicles	0	1	0	0	1	1	14	15	0	30	5	0	0	0	5	11	10	0	0	21	57
% Heavy Vehicles	0.0	20.0	0.0	0.0	3.0	0.5	3.1	7.9	0.0	3.6	11.6	0.0	0.0	0.0	7.1	8.0	1.9	0.0	0.0	2.1	2.9
Exiting Leg Total					1					15					27					14	57

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	0	1	2	0	3	19	60	26	0	105	7	3	3	0	13	23	76	56	0	155	276
7:30 AM	1	0	2	0	3	29	62	31	0	122	4	1	2	0	7	23	62	41	0	126	258
7:45 AM	1	0	3	0	4	31	69	18	0	118	9	0	1	0	10	7	60	40	0	107	239
8:00 AM	1	1	0	0	2	29	51	32	0	112	5	1	1	0	7	12	73	41	0	126	247
Total Volume	3	2	7	0	12	108	242	107	0	457	25	5	7	0	37	65	271	178	0	514	1020
% Approach Total	25.0	16.7	58.3	0.0		23.6	53.0	23.4	0.0		67.6	13.5	18.9	0.0		12.6	52.7	34.6	0.0		
PHF	0.750	0.500	0.583	0.000	0.750	0.871	0.877	0.836	0.000	0.936	0.694	0.417	0.583	0.000	0.712	0.707	0.891	0.795	0.000	0.829	0.924
Cars	3	1	7	0	11	107	237	101	0	445	23	5	7	0	35	61	265	178	0	504	995
Cars %	100.0	50.0	100.0	0.0	91.7	99.1	97.9	94.4	0.0	97.4	92.0	100.0	100.0	0.0	94.6	93.8	97.8	100.0	0.0	98.1	97.5
Heavy Vehicles	0	1	0	0	1	1	5	6	0	12	2	0	0	0	2	4	6	0	0	10	25
Heavy Vehicles %	0.0	50.0	0.0	0.0	8.3	0.9	2.1	5.6	0.0	2.6	8.0	0.0	0.0	0.0	5.4	6.2	2.2	0.0	0.0	1.9	2.5
Cars Enter Leg	3	1	7	0	11	107	237	101	0	445	23	5	7	0	35	61	265	178	0	504	995
Heavy Enter Leg	0	1	0	0	1	1	5	6	0	12	2	0	0	0	2	4	6	0	0	10	25
Total Entering Leg	3	2	7	0	12	108	242	107	0	457	25	5	7	0	37	65	271	178	0	514	1020
Cars Exiting Leg					290					295					163					247	995
Heavy Exiting Leg					1					8					11					5	25
Total Exiting Leg					291					303					174					252	1020

PDI File #: **186102 J**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class:

Cars-Combined (Motorcycles, Cars, Light Goods)

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	4	1	2	0	7	25	44	21	0	90	7	1	4	0	12	25	52	51	0	128	237
7:15 AM	0	1	2	0	3	19	57	24	0	100	7	3	3	0	13	22	75	56	0	153	269
7:30 AM	1	0	2	0	3	29	62	28	0	119	4	1	2	0	7	22	62	41	0	125	254
7:45 AM	1	0	3	0	4	31	67	17	0	115	8	0	1	0	9	6	59	40	0	105	233
Total	6	2	9	0	17	104	230	90	0	424	26	5	10	0	41	75	248	188	0	511	993
8:00 AM	1	0	0	0	1	28	51	32	0	111	4	1	1	0	6	11	69	41	0	121	239
8:15 AM	0	1	1	0	2	21	52	24	0	97	1	0	1	0	2	13	69	33	0	115	216
8:30 AM	6	1	1	0	8	24	59	16	0	99	5	2	4	0	11	16	64	28	0	108	226
8:45 AM	2	0	2	0	4	22	43	14	0	79	2	2	1	0	5	11	71	32	0	114	202
Total	9	2	4	0	15	95	205	86	0	386	12	5	7	0	24	51	273	134	0	458	883
Grand Total	15	4	13	0	32	199	435	176	0	810	38	10	17	0	65	126	521	322	0	969	1876
Approach %	46.9	12.5	40.6	0.0		24.6	53.7	21.7	0.0		58.5	15.4	26.2	0.0		13.0	53.8	33.2	0.0		
Total %	0.8	0.2	0.7	0.0	1.7	10.6	23.2	9.4	0.0	43.2	2.0	0.5	0.9	0.0	3.5	6.7	27.8	17.2	0.0	51.7	
Exiting Leg Total					531					572					306					467	1876

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	0	1	2	0	3	19	57	24	0	100	7	3	3	0	13	22	75	56	0	153	269
7:30 AM	1	0	2	0	3	29	62	28	0	119	4	1	2	0	7	22	62	41	0	125	254
7:45 AM	1	0	3	0	4	31	67	17	0	115	8	0	1	0	9	6	59	40	0	105	233
8:00 AM	1	0	0	0	1	28	51	32	0	111	4	1	1	0	6	11	69	41	0	121	239
Total Volume	3	1	7	0	11	107	237	101	0	445	23	5	7	0	35	61	265	178	0	504	995
% Approach Total	27.3	9.1	63.6	0.0		24.0	53.3	22.7	0.0		65.7	14.3	20.0	0.0		12.1	52.6	35.3	0.0		
PHF	0.750	0.250	0.583	0.000	0.688	0.863	0.884	0.789	0.000	0.935	0.719	0.417	0.583	0.000	0.673	0.693	0.883	0.795	0.000	0.824	0.925
Entering Leg	3	1	7	0	11	107	237	101	0	445	23	5	7	0	35	61	265	178	0	504	995
Exiting Leg					290					295					163					247	995
Total					301					740					198					751	1990

PDI File #: **186102 J**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	1	1	0	0	2	7
7:30 AM	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	1	0	0	0	1	4
7:45 AM	0	0	0	0	0	0	2	1	0	3	1	0	0	0	1	1	1	0	0	2	6
Total	0	0	0	0	0	0	6	7	0	13	1	0	0	0	1	3	2	0	0	5	19
8:00 AM	0	1	0	0	1	1	0	0	0	1	1	0	0	0	1	1	4	0	0	5	8
8:15 AM	0	0	0	0	0	0	2	2	0	4	1	0	0	0	1	3	3	0	0	6	11
8:30 AM	0	0	0	0	0	0	2	0	0	2	2	0	0	0	2	2	1	0	0	3	7
8:45 AM	0	0	0	0	0	0	4	6	0	10	0	0	0	0	0	2	0	0	0	2	12
Total	0	1	0	0	1	1	8	8	0	17	4	0	0	0	4	8	8	0	0	16	38
Grand Total	0	1	0	0	1	1	14	15	0	30	5	0	0	0	5	11	10	0	0	21	57
Approach %	0.0	100.0	0.0	0.0		3.3	46.7	50.0	0.0		100.0	0.0	0.0	0.0		52.4	47.6	0.0	0.0		
Total %	0.0	1.8	0.0	0.0	1.8	1.8	24.6	26.3	0.0	52.6	8.8	0.0	0.0	0.0	8.8	19.3	17.5	0.0	0.0	36.8	
Exiting Leg Total					1					15					27					14	57
Buses	0	0	0	0	0	0	4	5	0	9	1	0	0	0	1	9	1	0	0	10	20
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	28.6	33.3	0.0	30.0	20.0	0.0	0.0	0.0	20.0	81.8	10.0	0.0	0.0	47.6	35.1
Exiting Leg Total					0					2					14					4	20
Single-Unit Trucks	0	1	0	0	1	1	9	9	0	19	4	0	0	0	4	2	9	0	0	11	35
% Single-Unit	0.0	100.0	0.0	0.0	100.0	100.0	64.3	60.0	0.0	63.3	80.0	0.0	0.0	0.0	80.0	18.2	90.0	0.0	0.0	52.4	61.4
Exiting Leg Total					1					13					12					9	35
Articulated Trucks	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	2
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	7.1	6.7	0.0	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5
Exiting Leg Total					0					0					1					1	2

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	1	0	0	1	1	0	0	0	1	1	0	0	0	1	1	4	0	0	5	8
8:15 AM	0	0	0	0	0	0	2	2	0	4	1	0	0	0	1	3	3	0	0	6	11
8:30 AM	0	0	0	0	0	0	2	0	0	2	2	0	0	0	2	2	1	0	0	3	7
8:45 AM	0	0	0	0	0	0	4	6	0	10	0	0	0	0	0	2	0	0	0	2	12
Total Volume	0	1	0	0	1	1	8	8	0	17	4	0	0	0	4	8	8	0	0	16	38
% Approach Total	0.0	100.0	0.0	0.0		5.9	47.1	47.1	0.0		100.0	0.0	0.0	0.0		50.0	50.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.250	0.500	0.333	0.000	0.425	0.500	0.000	0.000	0.000	0.500	0.667	0.500	0.000	0.000	0.667	0.792
Buses	0	0	0	0	0	0	2	4	0	6	1	0	0	0	1	6	1	0	0	7	14
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	25.0	50.0	0.0	35.3	25.0	0.0	0.0	0.0	25.0	75.0	12.5	0.0	0.0	43.8	36.8
Single-Unit Trucks	0	1	0	0	1	1	5	4	0	10	3	0	0	0	3	2	7	0	0	9	23
Single-Unit %	0.0	100.0	0.0	0.0	100.0	100.0	62.5	50.0	0.0	58.8	75.0	0.0	0.0	0.0	75.0	25.0	87.5	0.0	0.0	56.3	60.5
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6
Buses	0	0	0	0	0	0	2	4	0	6	1	0	0	0	1	6	1	0	0	7	14
Single-Unit Trucks	0	1	0	0	1	1	5	4	0	10	3	0	0	0	3	2	7	0	0	9	23
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Entering Leg	0	1	0	0	1	1	8	8	0	17	4	0	0	0	4	8	8	0	0	16	38
Buses					0					2					10					2	14
Single-Unit Trucks					1					10					7					5	23
Articulated Trucks					0					0					0					1	1
Total Exiting Leg					1					12					17					8	38

PDI File #: **186102 J**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Cars

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	4	1	2	0	7	23	43	20	0	86	7	1	3	0	11	25	50	49	0	124	228
7:15 AM	0	1	2	0	3	19	55	24	0	98	6	1	2	0	9	22	74	56	0	152	262
7:30 AM	1	0	0	0	1	29	61	28	0	118	4	1	2	0	7	21	59	40	0	120	246
7:45 AM	1	0	3	0	4	31	64	17	0	112	8	0	1	0	9	6	54	40	0	100	225
Total	6	2	7	0	15	102	223	89	0	414	25	3	8	0	36	74	237	185	0	496	961
8:00 AM	1	0	0	0	1	26	51	30	0	107	4	0	1	0	5	11	66	40	0	117	230
8:15 AM	0	0	1	0	1	20	49	24	0	93	1	0	1	0	2	13	68	33	0	114	210
8:30 AM	6	1	1	0	8	23	59	16	0	98	5	2	4	0	11	15	61	28	0	104	221
8:45 AM	1	0	2	0	3	20	42	13	0	75	2	2	1	0	5	10	68	32	0	110	193
Total	8	1	4	0	13	89	201	83	0	373	12	4	7	0	23	49	263	133	0	445	854
Grand Total	14	3	11	0	28	191	424	172	0	787	37	7	15	0	59	123	500	318	0	941	1815
Approach %	50.0	10.7	39.3	0.0		24.3	53.9	21.9	0.0		62.7	11.9	25.4	0.0		13.1	53.1	33.8	0.0		
Total %	0.8	0.2	0.6	0.0	1.5	10.5	23.4	9.5	0.0	43.4	2.0	0.4	0.8	0.0	3.3	6.8	27.5	17.5	0.0	51.8	
Exiting Leg Total					516					548					298					453	1815

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	0	1	2	0	3	19	55	24	0	98	6	1	2	0	9	22	74	56	0	152	262
7:30 AM	1	0	0	0	1	29	61	28	0	118	4	1	2	0	7	21	59	40	0	120	246
7:45 AM	1	0	3	0	4	31	64	17	0	112	8	0	1	0	9	6	54	40	0	100	225
8:00 AM	1	0	0	0	1	26	51	30	0	107	4	0	1	0	5	11	66	40	0	117	230
Total Volume	3	1	5	0	9	105	231	99	0	435	22	2	6	0	30	60	253	176	0	489	963
% Approach Total	33.3	11.1	55.6	0.0		24.1	53.1	22.8	0.0		73.3	6.7	20.0	0.0		12.3	51.7	36.0	0.0		
PHF	0.750	0.250	0.417	0.000	0.563	0.847	0.902	0.825	0.000	0.922	0.688	0.500	0.750	0.000	0.833	0.682	0.855	0.786	0.000	0.804	0.919
Entering Leg	3	1	5	0	9	105	231	99	0	435	22	2	6	0	30	60	253	176	0	489	963
Exiting Leg					283					280					160					240	963
Total					292					715					190					729	1926

PDI File #: **186102 J**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Light Goods Vehicle

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	2	1	1	0	4	0	0	1	0	1	0	2	2	0	4	9
7:15 AM	0	0	0	0	0	0	2	0	0	2	1	2	1	0	4	0	1	0	0	1	7
7:30 AM	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	0	2	1	0	3	6
7:45 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	8
Total	0	0	2	0	2	2	7	1	0	10	1	2	2	0	5	0	10	3	0	13	30
8:00 AM	0	0	0	0	0	2	0	2	0	4	0	1	0	0	1	0	3	1	0	4	9
8:15 AM	0	1	0	0	1	1	3	0	0	4	0	0	0	0	0	0	1	0	0	1	6
8:30 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	2	0	0	3	4
8:45 AM	1	0	0	0	1	2	1	1	0	4	0	0	0	0	0	1	3	0	0	4	9
Total	1	1	0	0	2	6	4	3	0	13	0	1	0	0	1	2	9	1	0	12	28
Grand Total	1	1	2	0	4	8	11	4	0	23	1	3	2	0	6	2	19	4	0	25	58
Approach %	25.0	25.0	50.0	0.0		34.8	47.8	17.4	0.0		16.7	50.0	33.3	0.0		8.0	76.0	16.0	0.0		
Total %	1.7	1.7	3.4	0.0	6.9	13.8	19.0	6.9	0.0	39.7	1.7	5.2	3.4	0.0	10.3	3.4	32.8	6.9	0.0	43.1	
Exiting Leg Total					15					22					7					14	58

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	2	1	1	0	4	0	0	1	0	1	0	2	2	0	4	9
7:15 AM	0	0	0	0	0	0	2	0	0	2	1	2	1	0	4	0	1	0	0	1	7
7:30 AM	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	0	2	1	0	3	6
7:45 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	8
Total Volume	0	0	2	0	2	2	7	1	0	10	1	2	2	0	5	0	10	3	0	13	30
% Approach Total	0.0	0.0	100.0	0.0		20.0	70.0	10.0	0.0		20.0	40.0	40.0	0.0		0.0	76.9	23.1	0.0		
PHF	0.000	0.000	0.250	0.000	0.250	0.250	0.583	0.250	0.000	0.625	0.250	0.250	0.500	0.000	0.313	0.000	0.500	0.375	0.000	0.650	0.833
Entering Leg	0	0	2	0	2	2	7	1	0	10	1	2	2	0	5	0	10	3	0	13	30
Exiting Leg					7					13					1					9	30
Total					9					23					6					22	60

PDI File #: **186102 J**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Buses

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	2
7:30 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	2
7:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	2
Total	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	3	0	0	0	3	6
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
8:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	0	0	3	4
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
8:45 AM	0	0	0	0	0	0	2	3	0	5	0	0	0	0	0	1	0	0	0	1	6
Total	0	0	0	0	0	0	2	4	0	6	1	0	0	0	1	6	1	0	0	7	14
Grand Total	0	0	0	0	0	0	4	5	0	9	1	0	0	0	1	9	1	0	0	10	20
Approach %	0.0	0.0	0.0	0.0		0.0	44.4	55.6	0.0		100.0	0.0	0.0	0.0		90.0	10.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	20.0	25.0	0.0	45.0	5.0	0.0	0.0	0.0	5.0	45.0	5.0	0.0	0.0	50.0	
Exiting Leg Total					0					2					14					4	20

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
8:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	0	0	3	4
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
8:45 AM	0	0	0	0	0	0	2	3	0	5	0	0	0	0	0	1	0	0	0	1	6
Total Volume	0	0	0	0	0	0	2	4	0	6	1	0	0	0	1	6	1	0	0	7	14
% Approach Total	0.0	0.0	0.0	0.0		0.0	33.3	66.7	0.0		100.0	0.0	0.0	0.0		85.7	14.3	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.333	0.000	0.300	0.250	0.000	0.000	0.000	0.250	0.500	0.250	0.000	0.000	0.583	0.583
Entering Leg	0	0	0	0	0	0	2	4	0	6	1	0	0	0	1	6	1	0	0	7	14
Exiting Leg					0					2					10					2	14
Total					0					8					11					9	28

PDI File #: **186102 J**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Single-Unit Trucks**

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	1	0	0	1	4
7:30 AM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	0	1	0	0	1	4
Total	0	0	0	0	0	0	4	5	0	9	1	0	0	0	1	0	2	0	0	2	12
8:00 AM	0	1	0	0	1	1	0	0	0	1	1	0	0	0	1	0	3	0	0	3	6
8:15 AM	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	0	3	0	0	3	6
8:30 AM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	1	1	0	0	2	5
8:45 AM	0	0	0	0	0	0	2	3	0	5	0	0	0	0	0	1	0	0	0	1	6
Total	0	1	0	0	1	1	5	4	0	10	3	0	0	0	3	2	7	0	0	9	23
Grand Total	0	1	0	0	1	1	9	9	0	19	4	0	0	0	4	2	9	0	0	11	35
Approach %	0.0	100.0	0.0	0.0		5.3	47.4	47.4	0.0		100.0	0.0	0.0	0.0		18.2	81.8	0.0	0.0		
Total %	0.0	2.9	0.0	0.0	2.9	2.9	25.7	25.7	0.0	54.3	11.4	0.0	0.0	0.0	11.4	5.7	25.7	0.0	0.0	31.4	
Exiting Leg Total					1					13					12					9	35

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	1	0	0	1	1	0	0	0	1	1	0	0	0	1	0	3	0	0	3	6
8:15 AM	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	0	3	0	0	3	6
8:30 AM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	1	1	0	0	2	5
8:45 AM	0	0	0	0	0	0	2	3	0	5	0	0	0	0	0	1	0	0	0	1	6
Total Volume	0	1	0	0	1	1	5	4	0	10	3	0	0	0	3	2	7	0	0	9	23
% Approach Total	0.0	100.0	0.0	0.0		10.0	50.0	40.0	0.0		100.0	0.0	0.0	0.0		22.2	77.8	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.250	0.625	0.333	0.000	0.500	0.750	0.000	0.000	0.000	0.750	0.500	0.583	0.000	0.000	0.750	0.958
Entering Leg	0	1	0	0	1	1	5	4	0	10	3	0	0	0	3	2	7	0	0	9	23
Exiting Leg					1					10					7					5	23
Total					2					20					10					14	46

PDI File #: **186102 J**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class:

Articulated Trucks

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	2
Approach %	0.0	0.0	0.0	0.0		0.0	50.0	50.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					1					1	2

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 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	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Exiting Leg					0					0					1					0	1
Total					0					1					1					0	2

PDI File #: **186102 J**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Pilgrim Road from North							Longwood Avenue from East							Pilgrim Road from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	6	0	0	0	0	6	7
7:15 AM	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	3	11	0	0	0	0	14	18
7:30 AM	0	0	1	0	0	1	2	0	1	0	0	0	0	1	0	0	1	0	0	0	1	2	10	0	0	0	0	12	16
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	4	28	0	0	0	0	32	33
Total	0	0	1	0	0	1	2	0	6	1	0	0	0	7	0	0	1	0	0	0	1	9	55	0	0	0	0	64	74
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4	13	0	0	0	0	17	18
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	24	0	0	0	0	24	25
8:30 AM	0	0	0	0	0	1	1	0	2	0	0	0	1	3	0	0	0	0	0	0	0	1	27	1	0	0	0	29	33
8:45 AM	0	0	0	0	1	1	2	0	0	1	0	0	0	1	0	0	0	0	0	0	0	4	28	0	0	0	0	32	35
Total	0	0	0	0	1	2	3	0	2	1	0	0	1	4	1	0	0	0	0	1	2	9	92	1	0	0	0	102	111
Grand Total	0	0	1	0	1	3	5	0	8	2	0	0	1	11	1	0	1	0	0	1	3	18	147	1	0	0	0	166	185
Approach %	0.0	0.0	20.0	0.0	20.0	60.0		0.0	72.7	18.2	0.0	0.0	9.1		33.3	0.0	33.3	0.0	0.0	33.3		10.8	88.6	0.6	0.0	0.0	0.0		
Total %	0.0	0.0	0.5	0.0	0.5	1.6	2.7	0.0	4.3	1.1	0.0	0.0	0.5	5.9	0.5	0.0	0.5	0.0	0.0	0.5	1.6	9.7	79.5	0.5	0.0	0.0	0.0	89.7	
Exiting Leg Total							5							150							21							9	185

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Pilgrim Road from North							Longwood Avenue from East							Pilgrim Road from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4	13	0	0	0	0	17	18
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	24	0	0	0	0	24	25
8:30 AM	0	0	0	0	0	1	1	0	2	0	0	0	1	3	0	0	0	0	0	0	0	1	27	1	0	0	0	29	33
8:45 AM	0	0	0	0	1	1	2	0	0	1	0	0	0	1	0	0	0	0	0	0	0	4	28	0	0	0	0	32	35
Total Volume	0	0	0	0	1	2	3	0	2	1	0	0	1	4	1	0	0	0	0	1	2	9	92	1	0	0	0	102	111
% Approach Total	0.0	0.0	0.0	0.0	33.3	66.7		0.0	50.0	25.0	0.0	0.0	25.0		50.0	0.0	0.0	0.0	0.0	50.0		8.8	90.2	1.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.250	0.500	0.375	0.000	0.250	0.250	0.000	0.000	0.250	0.333	0.250	0.000	0.000	0.000	0.000	0.250	0.500	0.563	0.821	0.250	0.000	0.000	0.000	0.797	0.793
Entering Leg	0	0	0	0	1	2	3	0	2	1	0	0	1	4	1	0	0	0	0	1	2	9	92	1	0	0	0	102	111
Exiting Leg							4							94							11							2	111
Total							7							98							13							104	222

PDI File #: **186102 J**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Pedestrians

	Pilgrim Road from North							Longwood Avenue from East							Pilgrim Road from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	27	4	31	0	0	0	0	11	1	12	0	0	0	0	8	57	65	0	0	0	0	4	23	27	135
7:15 AM	0	0	0	0	40	15	55	0	0	0	0	8	3	11	0	0	0	0	13	67	80	0	0	0	0	7	27	34	180
7:30 AM	0	0	0	0	66	17	83	0	0	0	0	12	6	18	0	0	0	0	8	78	86	0	0	0	0	10	22	32	219
7:45 AM	0	0	0	0	92	16	108	0	0	0	0	7	2	9	0	0	0	0	9	143	152	0	0	0	0	7	15	22	291
Total	0	0	0	0	225	52	277	0	0	0	0	38	12	50	0	0	0	0	38	345	383	0	0	0	0	28	87	115	825
8:00 AM	0	0	0	0	76	14	90	0	0	0	0	13	1	14	0	0	0	0	18	104	122	0	0	0	0	9	14	23	249
8:15 AM	0	0	0	0	102	16	118	0	0	0	0	13	3	16	0	0	0	0	10	121	131	0	0	0	0	9	12	21	286
8:30 AM	0	0	0	0	103	25	128	0	0	0	0	17	6	23	0	0	0	0	12	108	120	0	0	0	0	10	19	29	300
8:45 AM	0	0	0	0	125	27	152	0	0	0	0	12	10	22	0	0	0	0	21	136	157	0	0	0	0	7	14	21	352
Total	0	0	0	0	406	82	488	0	0	0	0	55	20	75	0	0	0	0	61	469	530	0	0	0	0	35	59	94	1187
Grand Total	0	0	0	0	631	134	765	0	0	0	0	93	32	125	0	0	0	0	99	814	913	0	0	0	0	63	146	209	2012
Approach %	0	0	0	0	82.5	17.5		0	0	0	0	74.4	25.6		0	0	0	0	10.8	89.2		0	0	0	0	30.1	69.9		
Total %	0	0	0	0	31.4	6.66	38	0	0	0	0	4.62	1.59	6.21	0	0	0	0	4.92	40.5	45.4	0	0	0	0	3.13	7.26	10.4	
Exiting Leg Total							765							125							913							209	2012

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Pilgrim Road from North							Longwood Avenue from East							Pilgrim Road from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	0	76	14	90	0	0	0	0	13	1	14	0	0	0	0	18	104	122	0	0	0	0	9	14	23	249
8:15 AM	0	0	0	0	102	16	118	0	0	0	0	13	3	16	0	0	0	0	10	121	131	0	0	0	0	9	12	21	286
8:30 AM	0	0	0	0	103	25	128	0	0	0	0	17	6	23	0	0	0	0	12	108	120	0	0	0	0	10	19	29	300
8:45 AM	0	0	0	0	125	27	152	0	0	0	0	12	10	22	0	0	0	0	21	136	157	0	0	0	0	7	14	21	352
Total Volume	0	0	0	0	406	82	488	0	0	0	0	55	20	75	0	0	0	0	61	469	530	0	0	0	0	35	59	94	1187
% Approach Total	0.0	0.0	0.0	0.0	83.2	16.8		0.0	0.0	0.0	0.0	73.3	26.7		0.0	0.0	0.0	0.0	11.5	88.5		0.0	0.0	0.0	0.0	37.2	62.8		
PHF	0.000	0.000	0.000	0.000	0.812	0.759	0.803	0.000	0.000	0.000	0.000	0.809	0.500	0.815	0.000	0.000	0.000	0.000	0.726	0.862	0.844	0.000	0.000	0.000	0.000	0.875	0.776	0.810	0.843
Entering Leg	0	0	0	0	406	82	488	0	0	0	0	55	20	75	0	0	0	0	61	469	530	0	0	0	0	35	59	94	1187
Exiting Leg							488							75							530							94	1187
Total							976							150							1060							188	2374

PDI File #: **186102 JJ**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars and Heavy Vehicles (Combined)

	Pilgrim Road					Longwood Avenue					Pilgrim Road					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	15	4	3	0	22	8	60	16	0	84	11	0	8	0	19	8	45	1	0	54	179
3:15 PM	17	8	4	0	29	0	73	26	0	99	8	1	4	0	13	6	50	2	0	58	199
3:30 PM	16	4	2	0	22	10	67	15	0	92	10	0	7	0	17	11	42	2	0	55	186
3:45 PM	11	7	5	0	23	9	72	13	1	95	11	3	5	0	19	10	51	9	0	70	207
Total	59	23	14	0	96	27	272	70	1	370	40	4	24	0	68	35	188	14	0	237	771
4:00 PM	16	6	4	0	26	1	61	12	0	74	6	0	2	0	8	11	42	5	0	58	166
4:15 PM	17	4	1	0	22	5	63	13	0	81	5	1	6	0	12	10	40	5	0	55	170
4:30 PM	23	10	4	0	37	7	69	23	0	99	7	0	11	0	18	9	46	5	0	60	214
4:45 PM	20	10	5	0	35	7	75	17	0	99	16	0	8	0	24	15	50	2	0	67	225
Total	76	30	14	0	120	20	268	65	0	353	34	1	27	0	62	45	178	17	0	240	775
5:00 PM	16	9	10	0	35	3	54	8	0	65	8	2	13	0	23	12	57	5	0	74	197
5:15 PM	17	15	6	0	38	6	72	11	0	89	10	1	6	0	17	6	43	9	0	58	202
5:30 PM	10	15	3	0	28	11	72	12	0	95	9	2	3	0	14	11	49	12	0	72	209
5:45 PM	12	16	5	0	33	6	66	11	0	83	5	0	7	0	12	9	35	9	0	53	181
Total	55	55	24	0	134	26	264	42	0	332	32	5	29	0	66	38	184	35	0	257	789
Grand Total	190	108	52	0	350	73	804	177	1	1055	106	10	80	0	196	118	550	66	0	734	2335
Approach %	54.3	30.9	14.9	0.0		6.9	76.2	16.8	0.1		54.1	5.1	40.8	0.0		16.1	74.9	9.0	0.0		
Total %	8.1	4.6	2.2	0.0	15.0	3.1	34.4	7.6	0.0	45.2	4.5	0.4	3.4	0.0	8.4	5.1	23.6	2.8	0.0	31.4	
Exiting Leg Total					149					709					403					1074	2335
Cars	189	108	52	0	349	73	790	158	1	1022	106	10	79	0	195	111	534	66	0	711	2277
% Cars	99.5	100.0	100.0	0.0	99.7	100.0	98.3	89.3	100.0	96.9	100.0	100.0	98.8	0.0	99.5	94.1	97.1	100.0	0.0	96.9	97.5
Exiting Leg Total					149					693					377					1058	2277
Heavy Vehicles	1	0	0	0	1	0	14	19	0	33	0	0	1	0	1	7	16	0	0	23	58
% Heavy Vehicles	0.5	0.0	0.0	0.0	0.3	0.0	1.7	10.7	0.0	3.1	0.0	0.0	1.3	0.0	0.5	5.9	2.9	0.0	0.0	3.1	2.5
Exiting Leg Total					0					16					26					16	58

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:30 PM	Pilgrim Road					Longwood Avenue					Pilgrim Road					Longwood Avenue					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	23	10	4	0	37	7	69	23	0	99	7	0	11	0	18	9	46	5	0	60	214
4:45 PM	20	10	5	0	35	7	75	17	0	99	16	0	8	0	24	15	50	2	0	67	225
5:00 PM	16	9	10	0	35	3	54	8	0	65	8	2	13	0	23	12	57	5	0	74	197
5:15 PM	17	15	6	0	38	6	72	11	0	89	10	1	6	0	17	6	43	9	0	58	202
Total Volume	76	44	25	0	145	23	270	59	0	352	41	3	38	0	82	42	196	21	0	259	838
% Approach Total	52.4	30.3	17.2	0.0		6.5	76.7	16.8	0.0		50.0	3.7	46.3	0.0		16.2	75.7	8.1	0.0		
PHF	0.826	0.733	0.625	0.000	0.954	0.821	0.900	0.641	0.000	0.889	0.641	0.375	0.731	0.000	0.854	0.700	0.860	0.583	0.000	0.875	0.931
Cars	76	44	25	0	145	23	263	56	0	342	41	3	38	0	82	40	191	21	0	252	821
Cars %	100.0	100.0	100.0	0.0	100.0	100.0	97.4	94.9	0.0	97.2	100.0	100.0	100.0	0.0	100.0	95.2	97.4	100.0	0.0	97.3	98.0
Heavy Vehicles	0	0	0	0	0	0	7	3	0	10	0	0	0	0	0	2	5	0	0	7	17
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	2.6	5.1	0.0	2.8	0.0	0.0	0.0	0.0	0.0	4.8	2.6	0.0	0.0	2.7	2.0
Cars Enter Leg	76	44	25	0	145	23	263	56	0	342	41	3	38	0	82	40	191	21	0	252	821
Heavy Enter Leg	0	0	0	0	0	0	7	3	0	10	0	0	0	0	0	2	5	0	0	7	17
Total Entering Leg	76	44	25	0	145	23	270	59	0	352	41	3	38	0	82	42	196	21	0	259	838
Cars Exiting Leg					47					257					140					377	821
Heavy Exiting Leg					0					5					5					7	17
Total Exiting Leg					47					262					145					384	838

PDI File #: **186102 JJ**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars-Combined (Motorcycles, Cars, Light Goods)

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	14	4	3	0	21	8	58	12	0	78	11	0	7	0	18	8	42	1	0	51	168
3:15 PM	17	8	4	0	29	0	71	25	0	96	8	1	4	0	13	5	50	2	0	57	195
3:30 PM	16	4	2	0	22	10	67	12	0	89	10	0	7	0	17	11	41	2	0	54	182
3:45 PM	11	7	5	0	23	9	69	10	1	89	11	3	5	0	19	9	49	9	0	67	198
Total	58	23	14	0	95	27	265	59	1	352	40	4	23	0	67	33	182	14	0	229	743
4:00 PM	16	6	4	0	26	1	61	10	0	72	6	0	2	0	8	10	40	5	0	55	161
4:15 PM	17	4	1	0	22	5	63	12	0	80	5	1	6	0	12	9	39	5	0	53	167
4:30 PM	23	10	4	0	37	7	69	23	0	99	7	0	11	0	18	9	45	5	0	59	213
4:45 PM	20	10	5	0	35	7	73	14	0	94	16	0	8	0	24	14	48	2	0	64	217
Total	76	30	14	0	120	20	266	59	0	345	34	1	27	0	62	42	172	17	0	231	758
5:00 PM	16	9	10	0	35	3	51	8	0	62	8	2	13	0	23	12	55	5	0	72	192
5:15 PM	17	15	6	0	38	6	70	11	0	87	10	1	6	0	17	5	43	9	0	57	199
5:30 PM	10	15	3	0	28	11	72	11	0	94	9	2	3	0	14	11	48	12	0	71	207
5:45 PM	12	16	5	0	33	6	66	10	0	82	5	0	7	0	12	8	34	9	0	51	178
Total	55	55	24	0	134	26	259	40	0	325	32	5	29	0	66	36	180	35	0	251	776
Grand Total	189	108	52	0	349	73	790	158	1	1022	106	10	79	0	195	111	534	66	0	711	2277
Approach %	54.2	30.9	14.9	0.0		7.1	77.3	15.5	0.1		54.4	5.1	40.5	0.0		15.6	75.1	9.3	0.0		
Total %	8.3	4.7	2.3	0.0	15.3	3.2	34.7	6.9	0.0	44.9	4.7	0.4	3.5	0.0	8.6	4.9	23.5	2.9	0.0	31.2	
Exiting Leg Total					149					693					377					1058	2277

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:30 PM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	23	10	4	0	37	7	69	23	0	99	7	0	11	0	18	9	45	5	0	59	213
4:45 PM	20	10	5	0	35	7	73	14	0	94	16	0	8	0	24	14	48	2	0	64	217
5:00 PM	16	9	10	0	35	3	51	8	0	62	8	2	13	0	23	12	55	5	0	72	192
5:15 PM	17	15	6	0	38	6	70	11	0	87	10	1	6	0	17	5	43	9	0	57	199
Total Volume	76	44	25	0	145	23	263	56	0	342	41	3	38	0	82	40	191	21	0	252	821
% Approach Total	52.4	30.3	17.2	0.0		6.7	76.9	16.4	0.0		50.0	3.7	46.3	0.0		15.9	75.8	8.3	0.0		
PHF	0.826	0.733	0.625	0.000	0.954	0.821	0.901	0.609	0.000	0.864	0.641	0.375	0.731	0.000	0.854	0.714	0.868	0.583	0.000	0.875	0.946
Entering Leg	76	44	25	0	145	23	263	56	0	342	41	3	38	0	82	40	191	21	0	252	821
Exiting Leg					47					257					140					377	821
Total					192					599					222					629	1642

PDI File #: **186102 JJ**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	1	0	0	0	1	0	2	4	0	6	0	0	1	0	1	0	3	0	0	3	11
3:15 PM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	1	0	0	0	1	4
3:30 PM	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	1	0	0	1	4
3:45 PM	0	0	0	0	0	0	3	3	0	6	0	0	0	0	0	1	2	0	0	3	9
Total	1	0	0	0	1	0	7	11	0	18	0	0	1	0	1	2	6	0	0	8	28
4:00 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	1	2	0	0	3	5
4:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	0	0	2	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:45 PM	0	0	0	0	0	0	2	3	0	5	0	0	0	0	0	1	2	0	0	3	8
Total	0	0	0	0	0	0	2	6	0	8	0	0	0	0	0	3	6	0	0	9	17
5:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
5:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	3
5:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	2
5:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	0	0	2	3
Total	0	0	0	0	0	0	5	2	0	7	0	0	0	0	0	2	4	0	0	6	13
Grand Total	1	0	0	0	1	0	14	19	0	33	0	0	1	0	1	7	16	0	0	23	58
Approach %	100.0	0.0	0.0	0.0		0.0	42.4	57.6	0.0		0.0	0.0	100.0	0.0		30.4	69.6	0.0	0.0		
Total %	1.7	0.0	0.0	0.0	1.7	0.0	24.1	32.8	0.0	56.9	0.0	0.0	1.7	0.0	1.7	12.1	27.6	0.0	0.0	39.7	
Exiting Leg Total					0					16					26					16	58
Buses	1	0	0	0	1	0	11	16	0	27	0	0	0	0	0	7	13	0	0	20	48
% Buses	100.0	0.0	0.0	0.0	100.0	0.0	78.6	84.2	0.0	81.8	0.0	0.0	0.0	0.0	0.0	100.0	81.3	0.0	0.0	87.0	82.8
Exiting Leg Total					0					13					23					12	48
Single-Unit Trucks	0	0	0	0	0	0	3	3	0	6	0	0	1	0	1	0	3	0	0	3	10
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	21.4	15.8	0.0	18.2	0.0	0.0	100.0	0.0	100.0	0.0	18.8	0.0	0.0	13.0	17.2
Exiting Leg Total					0					3					3					4	10
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	1	0	0	0	1	0	2	4	0	6	0	0	1	0	1	0	3	0	0	3	11
3:15 PM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	1	0	0	0	1	4
3:30 PM	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	1	0	0	1	4
3:45 PM	0	0	0	0	0	0	3	3	0	6	0	0	0	0	0	1	2	0	0	3	9
Total Volume	1	0	0	0	1	0	7	11	0	18	0	0	1	0	1	2	6	0	0	8	28
% Approach Total	100.0	0.0	0.0	0.0		0.0	38.9	61.1	0.0		0.0	0.0	100.0	0.0		25.0	75.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.000	0.250	0.000	0.583	0.688	0.000	0.750	0.000	0.000	0.250	0.000	0.250	0.500	0.500	0.000	0.000	0.667	0.636
Buses	1	0	0	0	1	0	5	10	0	15	0	0	0	0	0	2	5	0	0	7	23
Buses %	100.0	0.0	0.0	0.0	100.0	0.0	71.4	90.9	0.0	83.3	0.0	0.0	0.0	0.0	0.0	100.0	83.3	0.0	0.0	87.5	82.1
Single-Unit Trucks	0	0	0	0	0	0	2	1	0	3	0	0	1	0	1	0	1	0	0	1	5
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	28.6	9.1	0.0	16.7	0.0	0.0	100.0	0.0	100.0	0.0	16.7	0.0	0.0	12.5	17.9
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	1	0	0	0	1	0	5	10	0	15	0	0	0	0	0	2	5	0	0	7	23
Single-Unit Trucks	0	0	0	0	0	0	2	1	0	3	0	0	1	0	1	0	1	0	0	1	5
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	1	0	0	0	1	0	7	11	0	18	0	0	1	0	1	2	6	0	0	8	28
Buses					0					5					12					6	23
Single-Unit Trucks					0					1					1					3	5
Articulated Trucks					0					0					0					0	0
Total Exiting Leg					0					6					13					9	28

PDI File #: **186102 JJ**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Cars

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	14	4	3	0	21	8	55	12	0	75	11	0	7	0	18	7	40	1	0	48	162
3:15 PM	17	6	4	0	27	0	69	25	0	94	8	1	4	0	13	5	45	2	0	52	186
3:30 PM	16	4	2	0	22	10	63	12	0	85	10	0	7	0	17	10	38	2	0	50	174
3:45 PM	11	7	5	0	23	9	67	10	1	87	9	3	5	0	17	9	48	9	0	66	193
Total	58	21	14	0	93	27	254	59	1	341	38	4	23	0	65	31	171	14	0	216	715
4:00 PM	16	6	4	0	26	1	61	10	0	72	5	0	2	0	7	10	35	5	0	50	155
4:15 PM	17	4	1	0	22	5	63	10	0	78	5	1	6	0	12	9	39	4	0	52	164
4:30 PM	23	10	4	0	37	7	67	21	0	95	7	0	11	0	18	9	44	5	0	58	208
4:45 PM	19	10	5	0	34	7	68	13	0	88	15	0	7	0	22	13	46	2	0	61	205
Total	75	30	14	0	119	20	259	54	0	333	32	1	26	0	59	41	164	16	0	221	732
5:00 PM	16	9	10	0	35	3	50	8	0	61	6	2	13	0	21	12	53	5	0	70	187
5:15 PM	17	15	6	0	38	6	69	9	0	84	10	1	6	0	17	5	42	9	0	56	195
5:30 PM	10	14	3	0	27	10	69	10	0	89	9	2	3	0	14	11	45	11	0	67	197
5:45 PM	12	16	5	0	33	6	66	9	0	81	5	0	7	0	12	8	33	9	0	50	176
Total	55	54	24	0	133	25	254	36	0	315	30	5	29	0	64	36	173	34	0	243	755
Grand Total	188	105	52	0	345	72	767	149	1	989	100	10	78	0	188	108	508	64	0	680	2202
Approach %	54.5	30.4	15.1	0.0		7.3	77.6	15.1	0.1		53.2	5.3	41.5	0.0		15.9	74.7	9.4	0.0		
Total %	8.5	4.8	2.4	0.0	15.7	3.3	34.8	6.8	0.0	44.9	4.5	0.5	3.5	0.0	8.5	4.9	23.1	2.9	0.0	30.9	
Exiting Leg Total					146					661					362					1033	2202

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:30 PM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	23	10	4	0	37	7	67	21	0	95	7	0	11	0	18	9	44	5	0	58	208
4:45 PM	19	10	5	0	34	7	68	13	0	88	15	0	7	0	22	13	46	2	0	61	205
5:00 PM	16	9	10	0	35	3	50	8	0	61	6	2	13	0	21	12	53	5	0	70	187
5:15 PM	17	15	6	0	38	6	69	9	0	84	10	1	6	0	17	5	42	9	0	56	195
Total Volume	75	44	25	0	144	23	254	51	0	328	38	3	37	0	78	39	185	21	0	245	795
% Approach Total	52.1	30.6	17.4	0.0		7.0	77.4	15.5	0.0		48.7	3.8	47.4	0.0		15.9	75.5	8.6	0.0		
PHF	0.815	0.733	0.625	0.000	0.947	0.821	0.920	0.607	0.000	0.863	0.633	0.375	0.712	0.000	0.886	0.750	0.873	0.583	0.000	0.875	0.956
Entering Leg	75	44	25	0	144	23	254	51	0	328	38	3	37	0	78	39	185	21	0	245	795
Exiting Leg					47					248					134					366	795
Total					191					576					212					611	1590

PDI File #: **186102 JJ**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Light Goods Vehicle

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	1	2	0	0	3	6
3:15 PM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	9
3:30 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	1	3	0	0	4	8
3:45 PM	0	0	0	0	0	0	2	0	0	2	2	0	0	0	2	0	1	0	0	1	5
Total	0	2	0	0	2	0	11	0	0	11	2	0	0	0	2	2	11	0	0	13	28
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	5	0	0	5	6
4:15 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	1	0	1	3
4:30 PM	0	0	0	0	0	0	2	2	0	4	0	0	0	0	0	0	1	0	0	1	5
4:45 PM	1	0	0	0	1	0	3	1	0	4	1	0	1	0	2	1	2	0	0	3	10
Total	1	0	0	0	1	0	5	5	0	10	2	0	1	0	3	1	8	1	0	10	24
5:00 PM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	2	0	0	2	5
5:15 PM	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	1	0	0	1	4
5:30 PM	0	1	0	0	1	1	2	1	0	4	0	0	0	0	0	0	3	1	0	4	9
5:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	1	0	0	1	1	4	4	0	9	2	0	0	0	2	0	7	1	0	8	20
Grand Total	1	3	0	0	4	1	20	9	0	30	6	0	1	0	7	3	26	2	0	31	72
Approach %	25.0	75.0	0.0	0.0		3.3	66.7	30.0	0.0		85.7	0.0	14.3	0.0		9.7	83.9	6.5	0.0		
Total %	1.4	4.2	0.0	0.0	5.6	1.4	27.8	12.5	0.0	41.7	8.3	0.0	1.4	0.0	9.7	4.2	36.1	2.8	0.0	43.1	
Exiting Leg Total					3					32					15					22	72

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	1	2	0	0	3	6
3:15 PM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	9
3:30 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	1	3	0	0	4	8
3:45 PM	0	0	0	0	0	0	2	0	0	2	2	0	0	0	2	0	1	0	0	1	5
Total Volume	0	2	0	0	2	0	11	0	0	11	2	0	0	0	2	2	11	0	0	13	28
% Approach Total	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		15.4	84.6	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.688	0.000	0.000	0.688	0.250	0.000	0.000	0.000	0.250	0.500	0.550	0.000	0.000	0.650	0.778
Entering Leg	0	2	0	0	2	0	11	0	0	11	2	0	0	0	2	2	11	0	0	13	28
Exiting Leg					0					13					4					11	28
Total					2					24					6					24	56

PDI File #: **186102 JJ**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Buses

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	1	0	0	0	1	0	2	4	0	6	0	0	0	0	0	0	2	0	0	2	9
3:15 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	1	0	0	0	1	3
3:30 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	1	0	0	1	3
3:45 PM	0	0	0	0	0	0	2	3	0	5	0	0	0	0	0	1	2	0	0	3	8
Total	1	0	0	0	1	0	5	10	0	15	0	0	0	0	0	2	5	0	0	7	23
4:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	2	0	0	3	4
4:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:45 PM	0	0	0	0	0	0	2	3	0	5	0	0	0	0	0	1	1	0	0	2	7
Total	0	0	0	0	0	0	2	5	0	7	0	0	0	0	0	3	4	0	0	7	14
5:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	2
5:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
Total	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	2	4	0	0	6	11
Grand Total	1	0	0	0	1	0	11	16	0	27	0	0	0	0	0	7	13	0	0	20	48
Approach %	100.0	0.0	0.0	0.0		0.0	40.7	59.3	0.0		0.0	0.0	0.0	0.0		35.0	65.0	0.0	0.0		
Total %	2.1	0.0	0.0	0.0	2.1	0.0	22.9	33.3	0.0	56.3	0.0	0.0	0.0	0.0	0.0	14.6	27.1	0.0	0.0	41.7	
Exiting Leg Total					0					13					23					12	48

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	1	0	0	0	1	0	2	4	0	6	0	0	0	0	0	0	2	0	0	2	9
3:15 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	1	0	0	0	1	3
3:30 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	1	0	0	1	3
3:45 PM	0	0	0	0	0	0	2	3	0	5	0	0	0	0	0	1	2	0	0	3	8
Total Volume	1	0	0	0	1	0	5	10	0	15	0	0	0	0	0	2	5	0	0	7	23
% Approach Total	100.0	0.0	0.0	0.0		0.0	33.3	66.7	0.0		0.0	0.0	0.0	0.0		28.6	71.4	0.0	0.0		
PHF	0.250	0.000	0.000	0.000	0.250	0.000	0.625	0.625	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.500	0.625	0.000	0.000	0.583	0.639
Entering Leg	1	0	0	0	1	0	5	10	0	15	0	0	0	0	0	2	5	0	0	7	23
Exiting Leg					0					5					12					6	23
Total					1					20					12					13	46

PDI File #: **186102 JJ**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Single-Unit Trucks

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	2
3:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	2	1	0	3	0	0	1	0	1	0	1	0	0	1	5
4:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	0	0	0	0	0	3	3	0	6	0	0	1	0	1	0	3	0	0	3	10
Approach %	0.0	0.0	0.0	0.0		0.0	50.0	50.0	0.0		0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	30.0	30.0	0.0	60.0	0.0	0.0	10.0	0.0	10.0	0.0	30.0	0.0	0.0	30.0	
Exiting Leg Total					0					3					3					4	10

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	2
3:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	2	1	0	3	0	0	1	0	1	0	1	0	0	1	5
% Approach Total	0.0	0.0	0.0	0.0		0.0	66.7	33.3	0.0		0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.750	0.000	0.000	0.250	0.000	0.250	0.000	0.250	0.000	0.000	0.250	0.625
Entering Leg	0	0	0	0	0	0	2	1	0	3	0	0	1	0	1	0	1	0	0	1	5
Exiting Leg					0					1					1					3	5
Total					0					4					2					4	10

PDI File #: **186102 JJ**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Articulated Trucks

	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Pilgrim Road from North					Longwood Avenue from East					Pilgrim Road from South					Longwood Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

PDI File #: **186102 JJ**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Pilgrim Road from North							Longwood Avenue from East							Pilgrim Road from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	5	0	0	0	0	5	0	0	0	0	0	3	3	0	3	0	0	0	0	3	11
3:15 PM	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	1	0	0	1	2	0	0	0	0	0	0	0	5
3:30 PM	0	0	0	0	0	0	0	0	5	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
3:45 PM	0	0	0	0	0	0	0	0	5	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Total	0	0	0	0	0	0	0	0	18	0	0	0	0	18	0	0	1	0	0	4	5	0	3	0	0	0	0	3	26
4:00 PM	0	0	0	0	0	0	0	0	9	0	0	0	0	9	0	0	0	0	0	0	0	0	1	0	0	0	0	1	10
4:15 PM	0	0	0	0	0	0	0	0	6	0	0	0	0	6	0	0	1	0	0	0	1	0	0	0	0	0	0	0	7
4:30 PM	0	0	0	0	0	0	0	0	7	0	0	0	0	7	0	0	4	0	0	0	4	0	1	0	0	0	0	1	12
4:45 PM	0	0	0	0	0	0	0	0	13	0	0	0	0	13	0	0	2	0	0	0	2	1	3	0	0	0	0	4	19
Total	0	0	0	0	0	0	0	0	35	0	0	0	0	35	0	0	7	0	0	0	7	1	5	0	0	0	0	6	48
5:00 PM	0	1	0	0	0	0	1	0	20	0	0	0	0	20	0	0	1	0	0	0	1	1	1	0	0	0	0	2	24
5:15 PM	0	0	0	0	0	0	0	0	21	0	0	0	0	21	1	0	2	0	0	0	3	0	4	0	0	0	0	4	28
5:30 PM	0	0	0	0	0	0	0	0	16	0	0	0	0	16	0	0	1	0	0	0	1	0	2	0	0	0	0	2	19
5:45 PM	0	0	0	0	0	0	0	0	14	0	0	0	0	14	0	0	0	0	1	0	1	0	3	0	0	0	0	3	18
Total	0	1	0	0	0	0	1	0	71	0	0	0	0	71	1	0	4	0	1	0	6	1	10	0	0	0	0	11	89
Grand Total	0	1	0	0	0	0	1	0	124	0	0	0	0	124	1	0	12	0	1	4	18	2	18	0	0	0	0	20	163
Approach %	0.0	100.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		5.6	0.0	66.7	0.0	5.6	22.2		10.0	90.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.6	0.0	0.0	0.0	0.0	0.6	0.0	76.1	0.0	0.0	0.0	0.0	76.1	0.6	0.0	7.4	0.0	0.6	2.5	11.0	1.2	11.0	0.0	0.0	0.0	0.0	12.3	
Exiting Leg Total							0							19							8							136	163

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:45 PM	Pilgrim Road from North							Longwood Avenue from East							Pilgrim Road from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:45 PM	0	0	0	0	0	0	0	0	13	0	0	0	0	13	0	0	2	0	0	0	2	1	3	0	0	0	0	4	19
5:00 PM	0	1	0	0	0	0	1	0	20	0	0	0	0	20	0	0	1	0	0	0	1	1	1	0	0	0	0	2	24
5:15 PM	0	0	0	0	0	0	0	0	21	0	0	0	0	21	1	0	2	0	0	0	3	0	4	0	0	0	0	4	28
5:30 PM	0	0	0	0	0	0	0	0	16	0	0	0	0	16	0	0	1	0	0	0	1	0	2	0	0	0	0	2	19
Total Volume	0	1	0	0	0	0	1	0	70	0	0	0	0	70	1	0	6	0	0	0	7	2	10	0	0	0	0	12	90
% Approach Total	0.0	100.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		14.3	0.0	85.7	0.0	0.0	0.0		16.7	83.3	0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.833	0.000	0.000	0.000	0.000	0.833	0.250	0.000	0.750	0.000	0.000	0.000	0.583	0.500	0.625	0.000	0.000	0.000	0.000	0.750	0.804
Entering Leg	0	1	0	0	0	0	1	0	70	0	0	0	0	70	1	0	6	0	0	0	7	2	10	0	0	0	0	12	90
Exiting Leg							0							11							3							76	90
Total							1							81							10							88	180

PDI File #: **186102 JJ**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Longwood Avenue W: Longwood Avenue**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Pedestrians

	Pilgrim Road from North							Longwood Avenue from East							Pilgrim Road from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	0	0	25	39	64	0	0	0	0	2	7	9	0	0	0	0	25	24	49	0	0	0	0	17	8	25	147
3:15 PM	0	0	0	0	21	25	46	0	0	0	0	5	6	11	0	0	0	0	19	25	44	0	0	0	0	15	3	18	119
3:30 PM	0	0	0	0	12	60	72	0	0	0	0	0	10	10	0	0	0	0	31	13	44	0	0	0	0	15	4	19	145
3:45 PM	0	0	0	0	12	30	42	0	0	0	0	8	8	16	0	0	0	0	29	20	49	0	0	0	0	12	9	21	128
Total	0	0	0	0	70	154	224	0	0	0	0	15	31	46	0	0	0	0	104	82	186	0	0	0	0	59	24	83	539
4:00 PM	0	0	0	0	8	77	85	0	0	0	0	2	6	8	0	0	0	0	46	14	60	0	0	0	0	11	2	13	166
4:15 PM	0	0	0	0	27	72	99	0	0	0	0	9	8	17	0	0	0	0	42	19	61	0	0	0	0	12	5	17	194
4:30 PM	0	0	0	0	18	108	126	0	0	0	0	2	9	11	0	0	0	0	60	15	75	0	0	0	0	20	3	23	235
4:45 PM	0	0	0	0	16	93	109	0	0	0	0	3	6	9	0	0	0	0	41	19	60	0	0	0	0	12	8	20	198
Total	0	0	0	0	69	350	419	0	0	0	0	16	29	45	0	0	0	0	189	67	256	0	0	0	0	55	18	73	793
5:00 PM	0	0	0	0	21	132	153	0	0	0	0	3	11	14	0	0	0	0	77	20	97	0	0	0	0	23	7	30	294
5:15 PM	0	0	0	0	14	138	152	0	0	0	0	3	20	23	0	0	0	0	47	9	56	0	0	0	0	21	2	23	254
5:30 PM	0	0	0	0	11	138	149	0	0	0	0	3	16	19	0	0	0	0	61	18	79	0	0	0	0	7	7	14	261
5:45 PM	0	0	0	0	16	114	130	0	0	0	0	3	14	17	0	0	0	0	45	6	51	0	0	0	0	16	3	19	217
Total	0	0	0	0	62	522	584	0	0	0	0	12	61	73	0	0	0	0	230	53	283	0	0	0	0	67	19	86	1026
Grand Total	0	0	0	0	201	1026	1227	0	0	0	0	43	121	164	0	0	0	0	523	202	725	0	0	0	0	181	61	242	2358
Approach %	0	0	0	0	16.4	83.6		0	0	0	0	26.2	73.8		0	0	0	0	72.1	27.9		0	0	0	0	74.8	25.2		
Total %	0	0	0	0	8.52	43.5	52	0	0	0	0	1.82	5.13	6.96	0	0	0	0	22.2	8.57	30.7	0	0	0	0	7.68	2.59	10.3	
Exiting Leg Total							1227							164							725							242	2358

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

5:00 PM	Pilgrim Road from North							Longwood Avenue from East							Pilgrim Road from South							Longwood Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	0	0	0	21	132	153	0	0	0	0	3	11	14	0	0	0	0	77	20	97	0	0	0	0	23	7	30	294
5:15 PM	0	0	0	0	14	138	152	0	0	0	0	3	20	23	0	0	0	0	47	9	56	0	0	0	0	21	2	23	254
5:30 PM	0	0	0	0	11	138	149	0	0	0	0	3	16	19	0	0	0	0	61	18	79	0	0	0	0	7	7	14	261
5:45 PM	0	0	0	0	16	114	130	0	0	0	0	3	14	17	0	0	0	0	45	6	51	0	0	0	0	16	3	19	217
Total Volume	0	0	0	0	62	522	584	0	0	0	0	12	61	73	0	0	0	0	230	53	283	0	0	0	0	67	19	86	1026
% Approach Total	0.0	0.0	0.0	0.0	10.6	89.4		0.0	0.0	0.0	0.0	16.4	83.6		0.0	0.0	0.0	0.0	81.3	18.7		0.0	0.0	0.0	0.0	77.9	22.1		
PHF	0.000	0.000	0.000	0.000	0.738	0.946	0.954	0.000	0.000	0.000	0.000	1.000	0.763	0.793	0.000	0.000	0.000	0.000	0.747	0.663	0.729	0.000	0.000	0.000	0.000	0.728	0.679	0.717	0.872
Entering Leg	0	0	0	0	62	522	584	0	0	0	0	12	61	73	0	0	0	0	230	53	283	0	0	0	0	67	19	86	1026
Exiting Leg							584							73							283							86	1026
Total							1168							146							566							172	2052

PDI File #: **186102 K**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class:

Cars and Heavy Vehicles (Combined)

	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	7	14	0	21	4	20	0	24	38	0	0	38	83
7:15 AM	10	20	0	30	1	20	0	21	37	1	1	39	90
7:30 AM	13	24	0	37	2	26	1	29	31	5	0	36	102
7:45 AM	11	12	0	23	6	20	0	26	36	1	0	37	86
Total	41	70	0	111	13	86	1	100	142	7	1	150	361
8:00 AM	9	21	0	30	4	39	0	43	43	3	0	46	119
8:15 AM	7	9	0	16	0	24	0	24	33	0	0	33	73
8:30 AM	12	14	0	26	2	21	0	23	31	0	0	31	80
8:45 AM	12	15	0	27	2	15	1	18	37	1	0	38	83
Total	40	59	0	99	8	99	1	108	144	4	0	148	355
Grand Total	81	129	0	210	21	185	2	208	286	11	1	298	716
Approach %	38.6	61.4	0.0		10.1	88.9	1.0		96.0	3.7	0.3		
Total %	11.3	18.0	0.0	29.3	2.9	25.8	0.3	29.1	39.9	1.5	0.1	41.6	
Exiting Leg Total				32				417				267	716
Cars	81	122	0	203	20	183	2	205	274	11	1	286	694
% Cars	100.0	94.6	0.0	96.7	95.2	98.9	100.0	98.6	95.8	100.0	100.0	96.0	96.9
Exiting Leg Total				31				398				265	694
Heavy Vehicles	0	7	0	7	1	2	0	3	12	0	0	12	22
% Heavy Vehicles	0.0	5.4	0.0	3.3	4.8	1.1	0.0	1.4	4.2	0.0	0.0	4.0	3.1
Exiting Leg Total				1				19				2	22

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:15 AM	10	20	0	30	1	20	0	21	37	1	1	39	90
7:30 AM	13	24	0	37	2	26	1	29	31	5	0	36	102
7:45 AM	11	12	0	23	6	20	0	26	36	1	0	37	86
8:00 AM	9	21	0	30	4	39	0	43	43	3	0	46	119
Total Volume	43	77	0	120	13	105	1	119	147	10	1	158	397
% Approach Total	35.8	64.2	0.0		10.9	88.2	0.8		93.0	6.3	0.6		
PHF	0.827	0.802	0.000	0.811	0.542	0.673	0.250	0.692	0.855	0.500	0.250	0.859	0.834
Cars	43	75	0	118	12	104	1	117	142	10	1	153	388
Cars %	100.0	97.4	0.0	98.3	92.3	99.0	100.0	98.3	96.6	100.0	100.0	96.8	97.7
Heavy Vehicles	0	2	0	2	1	1	0	2	5	0	0	5	9
Heavy Vehicles %	0.0	2.6	0.0	1.7	7.7	1.0	0.0	1.7	3.4	0.0	0.0	3.2	2.3
Cars Enter Leg	43	75	0	118	12	104	1	117	142	10	1	153	388
Heavy Enter Leg	0	2	0	2	1	1	0	2	5	0	0	5	9
Total Entering Leg	43	77	0	120	13	105	1	119	147	10	1	158	397
Cars Exiting Leg				22				218				148	388
Heavy Exiting Leg				1				7				1	9
Total Exiting Leg				23				225				149	397

PDI File #: **186102 K**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Pilgrim Road				Francis Street				Pilgrim Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	7	13	0	20	4	20	0	24	35	0	0	35	79
7:15 AM	10	20	0	30	1	20	0	21	35	1	1	37	88
7:30 AM	13	23	0	36	2	25	1	28	30	5	0	35	99
7:45 AM	11	12	0	23	6	20	0	26	34	1	0	35	84
Total	41	68	0	109	13	85	1	99	134	7	1	142	350
8:00 AM	9	20	0	29	3	39	0	42	43	3	0	46	117
8:15 AM	7	9	0	16	0	23	0	23	32	0	0	32	71
8:30 AM	12	12	0	24	2	21	0	23	30	0	0	30	77
8:45 AM	12	13	0	25	2	15	1	18	35	1	0	36	79
Total	40	54	0	94	7	98	1	106	140	4	0	144	344
Grand Total	81	122	0	203	20	183	2	205	274	11	1	286	694
Approach %	39.9	60.1	0.0		9.8	89.3	1.0		95.8	3.8	0.3		
Total %	11.7	17.6	0.0	29.3	2.9	26.4	0.3	29.5	39.5	1.6	0.1	41.2	
Exiting Leg Total				31				398				265	694

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Pilgrim Road				Francis Street				Pilgrim Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:15 AM	10	20	0	30	1	20	0	21	35	1	1	37	88
7:30 AM	13	23	0	36	2	25	1	28	30	5	0	35	99
7:45 AM	11	12	0	23	6	20	0	26	34	1	0	35	84
8:00 AM	9	20	0	29	3	39	0	42	43	3	0	46	117
Total Volume	43	75	0	118	12	104	1	117	142	10	1	153	388
% Approach Total	36.4	63.6	0.0		10.3	88.9	0.9		92.8	6.5	0.7		
PHF	0.827	0.815	0.000	0.819	0.500	0.667	0.250	0.696	0.826	0.500	0.250	0.832	0.829
Entering Leg	43	75	0	118	12	104	1	117	142	10	1	153	388
Exiting Leg				22				218				148	388
Total				140				335				301	776

PDI File #: **186102 K**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	1	0	1	0	0	0	0	3	0	0	3	4
7:15 AM	0	0	0	0	0	0	0	0	2	0	0	2	2
7:30 AM	0	1	0	1	0	1	0	1	1	0	0	1	3
7:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	2
Total	0	2	0	2	0	1	0	1	8	0	0	8	11
8:00 AM	0	1	0	1	1	0	0	1	0	0	0	0	2
8:15 AM	0	0	0	0	0	1	0	1	1	0	0	1	2
8:30 AM	0	2	0	2	0	0	0	0	1	0	0	1	3
8:45 AM	0	2	0	2	0	0	0	0	2	0	0	2	4
Total	0	5	0	5	1	1	0	2	4	0	0	4	11
Grand Total	0	7	0	7	1	2	0	3	12	0	0	12	22
Approach %	0.0	100.0	0.0		33.3	66.7	0.0		100.0	0.0	0.0		
Total %	0.0	31.8	0.0	31.8	4.5	9.1	0.0	13.6	54.5	0.0	0.0	54.5	
Exiting Leg Total				1				19				2	22
Buses	0	4	0	4	1	1	0	2	12	0	0	12	18
% Buses	0.0	57.1	0.0	57.1	100.0	50.0	0.0	66.7	100.0	0.0	0.0	100.0	81.8
Exiting Leg Total				1				16				1	18
Single-Unit Trucks	0	3	0	3	0	1	0	1	0	0	0	0	4
% Single-Unit	0.0	42.9	0.0	42.9	0.0	50.0	0.0	33.3	0.0	0.0	0.0	0.0	18.2
Exiting Leg Total				0				3				1	4
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	1	0	1	0	0	0	0	3	0	0	3	4
7:15 AM	0	0	0	0	0	0	0	0	2	0	0	2	2
7:30 AM	0	1	0	1	0	1	0	1	1	0	0	1	3
7:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	2
Total Volume	0	2	0	2	0	1	0	1	8	0	0	8	11
% Approach Total	0.0	100.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.500	0.000	0.250	0.000	0.250	0.667	0.000	0.000	0.667	0.688
Buses	0	0	0	0	0	0	0	0	8	0	0	8	8
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	72.7
Single-Unit Trucks	0	2	0	2	0	1	0	1	0	0	0	0	3
Single-Unit %	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0	27.3
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	0	0	0	0	0	0	0	8	0	0	8	8
Single-Unit Trucks	0	2	0	2	0	1	0	1	0	0	0	0	3
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	2	0	2	0	1	0	1	8	0	0	8	11
Buses				0				8				0	8
Single-Unit Trucks				0				2				1	3
Articulated Trucks				0				0				0	0
Total Exiting Leg				0				10				1	11

PDI File #: **186102 K**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Cars**

	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	7	13	0	20	4	20	0	24	35	0	0	35	79
7:15 AM	10	19	0	29	1	20	0	21	34	1	1	36	86
7:30 AM	13	21	0	34	2	25	1	28	30	3	0	33	95
7:45 AM	11	10	0	21	6	18	0	24	34	1	0	35	80
Total	41	63	0	104	13	83	1	97	133	5	1	139	340
8:00 AM	9	17	0	26	2	37	0	39	43	3	0	46	111
8:15 AM	7	9	0	16	0	22	0	22	32	0	0	32	70
8:30 AM	10	12	0	22	2	19	0	21	30	0	0	30	73
8:45 AM	11	13	0	24	2	15	1	18	35	1	0	36	78
Total	37	51	0	88	6	93	1	100	140	4	0	144	332
Grand Total	78	114	0	192	19	176	2	197	273	9	1	283	672
Approach %	40.6	59.4	0.0		9.6	89.3	1.0		96.5	3.2	0.4		
Total %	11.6	17.0	0.0	28.6	2.8	26.2	0.3	29.3	40.6	1.3	0.1	42.1	
Exiting Leg Total				28				389				255	672

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:15 AM	10	19	0	29	1	20	0	21	34	1	1	36	86
7:30 AM	13	21	0	34	2	25	1	28	30	3	0	33	95
7:45 AM	11	10	0	21	6	18	0	24	34	1	0	35	80
8:00 AM	9	17	0	26	2	37	0	39	43	3	0	46	111
Total Volume	43	67	0	110	11	100	1	112	141	8	1	150	372
% Approach Total	39.1	60.9	0.0		9.8	89.3	0.9		94.0	5.3	0.7		
PHF	0.827	0.798	0.000	0.809	0.458	0.676	0.250	0.718	0.820	0.667	0.250	0.815	0.838
Entering Leg	43	67	0	110	11	100	1	112	141	8	1	150	372
Exiting Leg				19				209				144	372
Total				129				321				294	744

PDI File #: **186102 K**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Light Goods Vehicle**

	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	1	0	0	0	0	1	0	0	1	2
7:30 AM	0	2	0	2	0	0	0	0	0	2	0	2	4
7:45 AM	0	2	0	2	0	2	0	2	0	0	0	0	4
Total	0	5	0	5	0	2	0	2	1	2	0	3	10
8:00 AM	0	3	0	3	1	2	0	3	0	0	0	0	6
8:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
8:30 AM	2	0	0	2	0	2	0	2	0	0	0	0	4
8:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	3	3	0	6	1	5	0	6	0	0	0	0	12
Grand Total	3	8	0	11	1	7	0	8	1	2	0	3	22
Approach %	27.3	72.7	0.0		12.5	87.5	0.0		33.3	66.7	0.0		
Total %	13.6	36.4	0.0	50.0	4.5	31.8	0.0	36.4	4.5	9.1	0.0	13.6	
Exiting Leg Total				3				9				10	22

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:15 AM	0	1	0	1	0	0	0	0	1	0	0	1	2
7:30 AM	0	2	0	2	0	0	0	0	0	2	0	2	4
7:45 AM	0	2	0	2	0	2	0	2	0	0	0	0	4
8:00 AM	0	3	0	3	1	2	0	3	0	0	0	0	6
Total Volume	0	8	0	8	1	4	0	5	1	2	0	3	16
% Approach Total	0.0	100.0	0.0		20.0	80.0	0.0		33.3	66.7	0.0		
PHF	0.000	0.667	0.000	0.667	0.250	0.500	0.000	0.417	0.250	0.250	0.000	0.375	0.667
Entering Leg	0	8	0	8	1	4	0	5	1	2	0	3	16
Exiting Leg				3				9				4	16
Total				11				14				7	32

PDI File #: **186102 K**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class: **Buses**

	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	3	0	0	3	3
7:15 AM	0	0	0	0	0	0	0	0	2	0	0	2	2
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
7:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	2
Total	0	0	0	0	0	0	0	0	8	0	0	8	8
8:00 AM	0	1	0	1	1	0	0	1	0	0	0	0	2
8:15 AM	0	0	0	0	0	1	0	1	1	0	0	1	2
8:30 AM	0	2	0	2	0	0	0	0	1	0	0	1	3
8:45 AM	0	1	0	1	0	0	0	0	2	0	0	2	3
Total	0	4	0	4	1	1	0	2	4	0	0	4	10
Grand Total	0	4	0	4	1	1	0	2	12	0	0	12	18
Approach %	0.0	100.0	0.0		50.0	50.0	0.0		100.0	0.0	0.0		
Total %	0.0	22.2	0.0	22.2	5.6	5.6	0.0	11.1	66.7	0.0	0.0	66.7	
Exiting Leg Total				1				16				1	18

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
8:00 AM	0	1	0	1	1	0	0	1	0	0	0	0	2
8:15 AM	0	0	0	0	0	1	0	1	1	0	0	1	2
8:30 AM	0	2	0	2	0	0	0	0	1	0	0	1	3
8:45 AM	0	1	0	1	0	0	0	0	2	0	0	2	3
Total Volume	0	4	0	4	1	1	0	2	4	0	0	4	10
% Approach Total	0.0	100.0	0.0		50.0	50.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.500	0.250	0.250	0.000	0.500	0.500	0.000	0.000	0.500	0.833
Entering Leg	0	4	0	4	1	1	0	2	4	0	0	4	10
Exiting Leg				1				8				1	10
Total				5				10				5	20

PDI File #: **186102 K**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class:

Single-Unit Trucks

	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	1	0	1	0	1	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	2	0	1	0	1	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	1	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	3	0	3	0	1	0	1	0	0	0	0	4
Approach %	0.0	100.0	0.0		0.0	100.0	0.0		0.0	0.0	0.0		
Total %	0.0	75.0	0.0	75.0	0.0	25.0	0.0	25.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				3				1	4

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	1	0	1	0	1	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	2	0	1	0	1	0	0	0	0	3
% Approach Total	0.0	100.0	0.0		0.0	100.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.500	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.375
Entering Leg	0	2	0	2	0	1	0	1	0	0	0	0	3
Exiting Leg				0				2				1	3
Total				2				3				1	6

PDI File #: **186102 K**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

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

Class:

Articulated Trucks

	Pilgrim Road				Francis Street				Pilgrim Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Pilgrim Road				Francis Street				Pilgrim Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **186102 K**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Pilgrim Road from North						Francis Street from East						Pilgrim Road from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
7:15 AM	0	2	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	2	4
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	1	2
7:45 AM	0	3	0	0	0	3	1	0	0	0	0	1	0	0	0	0	0	0	4
Total	0	5	0	0	0	5	2	0	0	0	0	2	4	1	0	0	0	5	12
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
8:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	2	1	0	0	0	3	4
8:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0	0	0	2	3
Total	0	2	0	0	0	2	0	1	0	0	0	1	2	4	0	0	0	6	9
Grand Total	0	7	0	0	0	7	2	1	0	0	0	3	6	5	0	0	0	11	21
Approach %	0.0	100.0	0.0	0.0	0.0		66.7	33.3	0.0	0.0	0.0		54.5	45.5	0.0	0.0	0.0		
Total %	0.0	33.3	0.0	0.0	0.0	33.3	9.5	4.8	0.0	0.0	0.0	14.3	28.6	23.8	0.0	0.0	0.0	52.4	
Exiting Leg Total						7						13						1	21

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Pilgrim Road from North						Francis Street from East						Pilgrim Road from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
7:15 AM	0	2	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	2	4
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	1	2
7:45 AM	0	3	0	0	0	3	1	0	0	0	0	1	0	0	0	0	0	0	4
Total Volume	0	5	0	0	0	5	2	0	0	0	0	2	4	1	0	0	0	5	12
% Approach Total	0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		80.0	20.0	0.0	0.0	0.0		
PHF	0.000	0.417	0.000	0.000	0.000	0.417	0.500	0.000	0.000	0.000	0.000	0.500	0.500	0.250	0.000	0.000	0.000	0.625	0.750
Entering Leg	0	5	0	0	0	5	2	0	0	0	0	2	4	1	0	0	0	5	12
Exiting Leg						3						9						0	12
Total						8						11						5	24

PDI File #: **186102 K**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

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

Pedestrians

	Pilgrim Road from North						Francis Street from East						Pilgrim Road from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
7:00 AM	0	0	0	0	2	2	0	0	0	3	4	7	0	0	0	3	0	3	12
7:15 AM	0	0	0	0	3	3	0	0	0	7	0	7	0	0	0	3	9	12	22
7:30 AM	0	0	0	4	7	11	0	0	0	8	2	10	0	0	0	2	3	5	26
7:45 AM	0	0	0	6	7	13	0	0	0	9	4	13	0	0	0	2	7	9	35
Total	0	0	0	10	19	29	0	0	0	27	10	37	0	0	0	10	19	29	95
8:00 AM	0	0	0	6	8	14	0	0	0	10	9	19	0	0	0	0	5	5	38
8:15 AM	0	0	0	6	5	11	0	0	0	6	2	8	0	0	0	3	8	11	30
8:30 AM	0	0	0	2	4	6	0	0	0	3	3	6	0	0	0	2	6	8	20
8:45 AM	0	0	0	6	2	8	0	0	0	3	1	4	0	0	0	6	9	15	27
Total	0	0	0	20	19	39	0	0	0	22	15	37	0	0	0	11	28	39	115
Grand Total	0	0	0	30	38	68	0	0	0	49	25	74	0	0	0	21	47	68	210
Approach %	0	0	0	44.118	55.882		0	0	0	66.216	33.784		0	0	0	30.882	69.118		
Total %	0	0	0	14.286	18.095	32.381	0	0	0	23.333	11.905	35.238	0	0	0	10	22.381	32.381	
Exiting Leg Total						68						74						68	210

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Pilgrim Road from North						Francis Street from East						Pilgrim Road from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
7:30 AM	0	0	0	4	7	11	0	0	0	8	2	10	0	0	0	2	3	5	26
7:45 AM	0	0	0	6	7	13	0	0	0	9	4	13	0	0	0	2	7	9	35
8:00 AM	0	0	0	6	8	14	0	0	0	10	9	19	0	0	0	0	5	5	38
8:15 AM	0	0	0	6	5	11	0	0	0	6	2	8	0	0	0	3	8	11	30
Total Volume	0	0	0	22	27	49	0	0	0	33	17	50	0	0	0	7	23	30	129
% Approach Total	0.0	0.0	0.0	44.9	55.1		0.0	0.0	0.0	66.0	34.0		0.0	0.0	0.0	23.3	76.7		
PHF	0.000	0.000	0.000	0.917	0.844	0.875	0.000	0.000	0.000	0.825	0.472	0.658	0.000	0.000	0.000	0.583	0.719	0.682	0.849
Entering Leg	0	0	0	22	27	49	0	0	0	33	17	50	0	0	0	7	23	30	129
Exiting Leg						49						50						30	129
Total						98						100						60	258

PDI File #: **186102 KK**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class:

Cars and Heavy Vehicles (Combined)

	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	14	26	0	40	3	27	0	30	10	1	0	11	81
3:15 PM	12	22	0	34	3	37	0	40	8	1	0	9	83
3:30 PM	14	15	0	29	2	36	1	39	19	1	0	20	88
3:45 PM	16	19	0	35	4	37	0	41	19	1	0	20	96
Total	56	82	0	138	12	137	1	150	56	4	0	60	348
4:00 PM	13	23	0	36	7	33	0	40	12	3	0	15	91
4:15 PM	16	19	0	35	5	21	0	26	14	1	0	15	76
4:30 PM	22	24	0	46	2	42	0	44	7	3	0	10	100
4:45 PM	9	26	0	35	4	32	0	36	1	0	0	1	72
Total	60	92	0	152	18	128	0	146	34	7	0	41	339
5:00 PM	17	17	0	34	1	32	1	34	8	0	0	8	76
5:15 PM	13	15	0	28	2	28	0	30	3	1	1	5	63
5:30 PM	21	22	0	43	6	31	0	37	5	0	0	5	85
5:45 PM	23	26	0	49	5	27	1	33	3	1	0	4	86
Total	74	80	0	154	14	118	2	134	19	2	1	22	310
Grand Total	190	254	0	444	44	383	3	430	109	13	1	123	997
Approach %	42.8	57.2	0.0		10.2	89.1	0.7		88.6	10.6	0.8		
Total %	19.1	25.5	0.0	44.5	4.4	38.4	0.3	43.1	10.9	1.3	0.1	12.3	
Exiting Leg Total				57				366				574	997
Cars	185	234	0	419	43	380	3	426	107	12	1	120	965
% Cars	97.4	92.1	0.0	94.4	97.7	99.2	100.0	99.1	98.2	92.3	100.0	97.6	96.8
Exiting Leg Total				55				344				566	965
Heavy Vehicles	5	20	0	25	1	3	0	4	2	1	0	3	32
% Heavy Vehicles	2.6	7.9	0.0	5.6	2.3	0.8	0.0	0.9	1.8	7.7	0.0	2.4	3.2
Exiting Leg Total				2				22				8	32

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:45 PM	16	19	0	35	4	37	0	41	19	1	0	20	96
4:00 PM	13	23	0	36	7	33	0	40	12	3	0	15	91
4:15 PM	16	19	0	35	5	21	0	26	14	1	0	15	76
4:30 PM	22	24	0	46	2	42	0	44	7	3	0	10	100
Total Volume	67	85	0	152	18	133	0	151	52	8	0	60	363
% Approach Total	44.1	55.9	0.0		11.9	88.1	0.0		86.7	13.3	0.0		
PHF	0.761	0.885	0.000	0.826	0.643	0.792	0.000	0.858	0.684	0.667	0.000	0.750	0.908
Cars	62	78	0	140	17	133	0	150	51	8	0	59	349
Cars %	92.5	91.8	0.0	92.1	94.4	100.0	0.0	99.3	98.1	100.0	0.0	98.3	96.1
Heavy Vehicles	5	7	0	12	1	0	0	1	1	0	0	1	14
Heavy Vehicles %	7.5	8.2	0.0	7.9	5.6	0.0	0.0	0.7	1.9	0.0	0.0	1.7	3.9
Cars Enter Leg	62	78	0	140	17	133	0	150	51	8	0	59	349
Heavy Enter Leg	5	7	0	12	1	0	0	1	1	0	0	1	14
Total Entering Leg	67	85	0	152	18	133	0	151	52	8	0	60	363
Cars Exiting Leg				25				129				195	349
Heavy Exiting Leg				1				8				5	14
Total Exiting Leg				26				137				200	363

PDI File #: **186102 KK**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Pilgrim Road				Francis Street				Pilgrim Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	14	22	0	36	3	27	0	30	9	1	0	10	76
3:15 PM	12	19	0	31	3	36	0	39	8	1	0	9	79
3:30 PM	14	15	0	29	2	36	1	39	19	0	0	19	87
3:45 PM	16	16	0	32	4	37	0	41	18	1	0	19	92
Total	56	72	0	128	12	136	1	149	54	3	0	57	334
4:00 PM	12	20	0	32	7	33	0	40	12	3	0	15	87
4:15 PM	14	19	0	33	5	21	0	26	14	1	0	15	74
4:30 PM	20	23	0	43	1	42	0	43	7	3	0	10	96
4:45 PM	9	25	0	34	4	31	0	35	1	0	0	1	70
Total	55	87	0	142	17	127	0	144	34	7	0	41	327
5:00 PM	17	15	0	32	1	32	1	34	8	0	0	8	74
5:15 PM	13	15	0	28	2	28	0	30	3	1	1	5	63
5:30 PM	21	20	0	41	6	30	0	36	5	0	0	5	82
5:45 PM	23	25	0	48	5	27	1	33	3	1	0	4	85
Total	74	75	0	149	14	117	2	133	19	2	1	22	304
Grand Total	185	234	0	419	43	380	3	426	107	12	1	120	965
Approach %	44.2	55.8	0.0		10.1	89.2	0.7		89.2	10.0	0.8		
Total %	19.2	24.2	0.0	43.4	4.5	39.4	0.3	44.1	11.1	1.2	0.1	12.4	
Exiting Leg Total				55				344				566	965

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Pilgrim Road				Francis Street				Pilgrim Road				
	from North				from East				from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	14	22	0	36	3	27	0	30	9	1	0	10	76
3:15 PM	12	19	0	31	3	36	0	39	8	1	0	9	79
3:30 PM	14	15	0	29	2	36	1	39	19	0	0	19	87
3:45 PM	16	16	0	32	4	37	0	41	18	1	0	19	92
Total Volume	56	72	0	128	12	136	1	149	54	3	0	57	334
% Approach Total	43.8	56.3	0.0		8.1	91.3	0.7		94.7	5.3	0.0		
PHF	0.875	0.818	0.000	0.889	0.750	0.919	0.250	0.909	0.711	0.750	0.000	0.750	0.908
Entering Leg	56	72	0	128	12	136	1	149	54	3	0	57	334
Exiting Leg				15				127				192	334
Total				143				276				249	668

PDI File #: **186102 KK**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	0	4	0	4	0	0	0	0	1	0	0	1	5
3:15 PM	0	3	0	3	0	1	0	1	0	0	0	0	4
3:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
3:45 PM	0	3	0	3	0	0	0	0	1	0	0	1	4
Total	0	10	0	10	0	1	0	1	2	1	0	3	14
4:00 PM	1	3	0	4	0	0	0	0	0	0	0	0	4
4:15 PM	2	0	0	2	0	0	0	0	0	0	0	0	2
4:30 PM	2	1	0	3	1	0	0	1	0	0	0	0	4
4:45 PM	0	1	0	1	0	1	0	1	0	0	0	0	2
Total	5	5	0	10	1	1	0	2	0	0	0	0	12
5:00 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	2	0	2	0	1	0	1	0	0	0	0	3
5:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	5	0	5	0	1	0	1	0	0	0	0	6
Grand Total	5	20	0	25	1	3	0	4	2	1	0	3	32
Approach %	20.0	80.0	0.0		25.0	75.0	0.0		66.7	33.3	0.0		
Total %	15.6	62.5	0.0	78.1	3.1	9.4	0.0	12.5	6.3	3.1	0.0	9.4	
Exiting Leg Total				2				22				8	32
Buses	0	8	0	8	1	1	0	2	0	0	0	0	10
% Buses	0.0	40.0	0.0	32.0	100.0	33.3	0.0	50.0	0.0	0.0	0.0	0.0	31.3
Exiting Leg Total				1				8				1	10
Single-Unit Trucks	5	12	0	17	0	2	0	2	2	1	0	3	22
% Single-Unit	100.0	60.0	0.0	68.0	0.0	66.7	0.0	50.0	100.0	100.0	0.0	100.0	68.8
Exiting Leg Total				1				14				7	22
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	0	4	0	4	0	0	0	0	1	0	0	1	5
3:15 PM	0	3	0	3	0	1	0	1	0	0	0	0	4
3:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
3:45 PM	0	3	0	3	0	0	0	0	1	0	0	1	4
Total Volume	0	10	0	10	0	1	0	1	2	1	0	3	14
% Approach Total	0.0	100.0	0.0		0.0	100.0	0.0		66.7	33.3	0.0		
PHF	0.000	0.625	0.000	0.625	0.000	0.250	0.000	0.250	0.500	0.250	0.000	0.750	0.700
Buses	0	5	0	5	0	1	0	1	0	0	0	0	6
Buses %	0.0	50.0	0.0	50.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0	42.9
Single-Unit Trucks	0	5	0	5	0	0	0	0	2	1	0	3	8
Single-Unit %	0.0	50.0	0.0	50.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	100.0	57.1
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	5	0	5	0	1	0	1	0	0	0	0	6
Single-Unit Trucks	0	5	0	5	0	0	0	0	2	1	0	3	8
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	10	0	10	0	1	0	1	2	1	0	3	14
Buses				0				5				1	6
Single-Unit Trucks				1				7				0	8
Articulated Trucks				0				0				0	0
Total Exiting Leg				1				12				1	14

PDI File #: **186102 KK**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Cars**

	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	14	20	0	34	3	26	0	29	9	1	0	10	73
3:15 PM	10	18	0	28	2	33	0	35	8	1	0	9	72
3:30 PM	13	14	0	27	2	35	1	38	19	0	0	19	84
3:45 PM	15	16	0	31	4	35	0	39	18	1	0	19	89
Total	52	68	0	120	11	129	1	141	54	3	0	57	318
4:00 PM	11	19	0	30	7	33	0	40	12	3	0	15	85
4:15 PM	14	18	0	32	5	21	0	26	13	1	0	14	72
4:30 PM	20	22	0	42	1	41	0	42	6	3	0	9	93
4:45 PM	7	21	0	28	2	30	0	32	1	0	0	1	61
Total	52	80	0	132	15	125	0	140	32	7	0	39	311
5:00 PM	16	15	0	31	1	32	1	34	8	0	0	8	73
5:15 PM	13	15	0	28	2	27	0	29	3	1	1	5	62
5:30 PM	20	19	0	39	5	29	0	34	5	0	0	5	78
5:45 PM	22	22	0	44	5	26	1	32	3	1	0	4	80
Total	71	71	0	142	13	114	2	129	19	2	1	22	293
Grand Total	175	219	0	394	39	368	3	410	105	12	1	118	922
Approach %	44.4	55.6	0.0		9.5	89.8	0.7		89.0	10.2	0.8		
Total %	19.0	23.8	0.0	42.7	4.2	39.9	0.3	44.5	11.4	1.3	0.1	12.8	
Exiting Leg Total				51				327				544	922

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:45 PM	15	16	0	31	4	35	0	39	18	1	0	19	89
4:00 PM	11	19	0	30	7	33	0	40	12	3	0	15	85
4:15 PM	14	18	0	32	5	21	0	26	13	1	0	14	72
4:30 PM	20	22	0	42	1	41	0	42	6	3	0	9	93
Total Volume	60	75	0	135	17	130	0	147	49	8	0	57	339
% Approach Total	44.4	55.6	0.0		11.6	88.4	0.0		86.0	14.0	0.0		
PHF	0.750	0.852	0.000	0.804	0.607	0.793	0.000	0.875	0.681	0.667	0.000	0.750	0.911
Entering Leg	60	75	0	135	17	130	0	147	49	8	0	57	339
Exiting Leg				25				124				190	339
Total				160				271				247	678

PDI File #: **186102 KK**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class: **Light Goods Vehicle**

	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	0	2	0	2	0	1	0	1	0	0	0	0	3
3:15 PM	2	1	0	3	1	3	0	4	0	0	0	0	7
3:30 PM	1	1	0	2	0	1	0	1	0	0	0	0	3
3:45 PM	1	0	0	1	0	2	0	2	0	0	0	0	3
Total	4	4	0	8	1	7	0	8	0	0	0	0	16
4:00 PM	1	1	0	2	0	0	0	0	0	0	0	0	2
4:15 PM	0	1	0	1	0	0	0	0	1	0	0	1	2
4:30 PM	0	1	0	1	0	1	0	1	1	0	0	1	3
4:45 PM	2	4	0	6	2	1	0	3	0	0	0	0	9
Total	3	7	0	10	2	2	0	4	2	0	0	2	16
5:00 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
5:30 PM	1	1	0	2	1	1	0	2	0	0	0	0	4
5:45 PM	1	3	0	4	0	1	0	1	0	0	0	0	5
Total	3	4	0	7	1	3	0	4	0	0	0	0	11
Grand Total	10	15	0	25	4	12	0	16	2	0	0	2	43
Approach %	40.0	60.0	0.0		25.0	75.0	0.0		100.0	0.0	0.0		
Total %	23.3	34.9	0.0	58.1	9.3	27.9	0.0	37.2	4.7	0.0	0.0	4.7	
Exiting Leg Total				4				17				22	43

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	0	2	0	2	0	1	0	1	0	0	0	0	3
3:15 PM	2	1	0	3	1	3	0	4	0	0	0	0	7
3:30 PM	1	1	0	2	0	1	0	1	0	0	0	0	3
3:45 PM	1	0	0	1	0	2	0	2	0	0	0	0	3
Total Volume	4	4	0	8	1	7	0	8	0	0	0	0	16
% Approach Total	50.0	50.0	0.0		12.5	87.5	0.0		0.0	0.0	0.0		
PHF	0.500	0.500	0.000	0.667	0.250	0.583	0.000	0.500	0.000	0.000	0.000	0.000	0.571
Entering Leg	4	4	0	8	1	7	0	8	0	0	0	0	16
Exiting Leg				1				4				11	16
Total				9				12				11	32

PDI File #: **186102 KK**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class:

Buses

	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
3:15 PM	0	1	0	1	0	1	0	1	0	0	0	0	2
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
Total	0	5	0	5	0	1	0	1	0	0	0	0	6
4:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	3	0	3	1	0	0	1	0	0	0	0	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	8	0	8	1	1	0	2	0	0	0	0	10
Approach %	0.0	100.0	0.0		50.0	50.0	0.0		0.0	0.0	0.0		
Total %	0.0	80.0	0.0	80.0	10.0	10.0	0.0	20.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				1				8				1	10

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
3:15 PM	0	1	0	1	0	1	0	1	0	0	0	0	2
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
Total Volume	0	5	0	5	0	1	0	1	0	0	0	0	6
% Approach Total	0.0	100.0	0.0		0.0	100.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.625	0.000	0.625	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.750
Entering Leg	0	5	0	5	0	1	0	1	0	0	0	0	6
Exiting Leg				0				5				1	6
Total				5				6				1	12

PDI File #: **186102 KK**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class:

Single-Unit Trucks

	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	0	2	0	2	0	0	0	0	1	0	0	1	3
3:15 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
3:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
3:45 PM	0	1	0	1	0	0	0	0	1	0	0	1	2
Total	0	5	0	5	0	0	0	0	2	1	0	3	8
4:00 PM	1	2	0	3	0	0	0	0	0	0	0	0	3
4:15 PM	2	0	0	2	0	0	0	0	0	0	0	0	2
4:30 PM	2	0	0	2	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	5	2	0	7	0	1	0	1	0	0	0	0	8
5:00 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	2	0	2	0	1	0	1	0	0	0	0	3
5:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	5	0	5	0	1	0	1	0	0	0	0	6
Grand Total	5	12	0	17	0	2	0	2	2	1	0	3	22
Approach %	29.4	70.6	0.0		0.0	100.0	0.0		66.7	33.3	0.0		
Total %	22.7	54.5	0.0	77.3	0.0	9.1	0.0	9.1	9.1	4.5	0.0	13.6	
Exiting Leg Total				1				14				7	22

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:45 PM	0	1	0	1	0	0	0	0	1	0	0	1	2
4:00 PM	1	2	0	3	0	0	0	0	0	0	0	0	3
4:15 PM	2	0	0	2	0	0	0	0	0	0	0	0	2
4:30 PM	2	0	0	2	0	0	0	0	0	0	0	0	2
Total Volume	5	3	0	8	0	0	0	0	1	0	0	1	9
% Approach Total	62.5	37.5	0.0		0.0	0.0	0.0		100.0	0.0	0.0		
PHF	0.625	0.375	0.000	0.667	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.750
Entering Leg	5	3	0	8	0	0	0	0	1	0	0	1	9
Exiting Leg				0				4				5	9
Total				8				4				6	18

PDI File #: **186102 KK**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**

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

Class:

Articulated Trucks

	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Pilgrim Road from North				Francis Street from East				Pilgrim Road from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **186102 KK**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Bicycles (on Roadway and Crosswalks)

	Pilgrim Road from North						Francis Street from East						Pilgrim Road from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
3:15 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	2
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	2
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	2
Total	0	0	0	0	0	0	0	2	0	0	0	2	3	0	0	2	0	5	7
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	1	2
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	1	2	3
4:45 PM	0	0	0	0	0	0	1	5	0	0	0	6	0	0	0	0	0	0	6
Total	0	0	0	0	0	0	1	8	0	0	0	9	0	0	0	2	1	3	12
5:00 PM	2	0	0	0	0	2	0	2	0	0	0	2	0	0	0	0	1	1	5
5:15 PM	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	3
5:30 PM	1	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	2
5:45 PM	1	0	0	0	0	1	0	3	0	0	0	3	0	0	0	0	0	0	4
Total	4	0	0	0	0	4	0	9	0	0	0	9	0	0	0	0	1	1	14
Grand Total	4	0	0	0	0	4	1	19	0	0	0	20	3	0	0	4	2	9	33
Approach %	100.0	0.0	0.0	0.0	0.0		5.0	95.0	0.0	0.0	0.0		33.3	0.0	0.0	44.4	22.2		
Total %	12.1	0.0	0.0	0.0	0.0	12.1	3.0	57.6	0.0	0.0	0.0	60.6	9.1	0.0	0.0	12.1	6.1	27.3	
Exiting Leg Total						1						3						29	33

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:30 PM	Pilgrim Road from North						Francis Street from East						Pilgrim Road from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	1	2	3
4:45 PM	0	0	0	0	0	0	1	5	0	0	0	6	0	0	0	0	0	0	6
5:00 PM	2	0	0	0	0	2	0	2	0	0	0	2	0	0	0	0	1	1	5
5:15 PM	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	3
Total Volume	2	0	0	0	0	2	1	11	0	0	0	12	0	0	0	1	2	3	17
% Approach Total	100.0	0.0	0.0	0.0	0.0		8.3	91.7	0.0	0.0	0.0		0.0	0.0	0.0	33.3	66.7		
PHF	0.250	0.000	0.000	0.000	0.000	0.250	0.250	0.550	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.250	0.500	0.375	0.708
Entering Leg	2	0	0	0	0	2	1	11	0	0	0	12	0	0	0	1	2	3	17
Exiting Leg						1						0						16	17
Total						3						12						19	34

PDI File #: **186102 KK**
Location: **N: Pilgrim Road S: Pilgrim Road**
Location: **E: Francis Street**
City, State: **Boston, MA**
Client: **VHB/ R. White**
Site Code: **13853.00**
Count Date: **Tuesday, February 13, 2018**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

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

Pedestrians

	Pilgrim Road from North						Francis Street from East						Pilgrim Road from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
3:00 PM	0	0	0	3	8	11	0	0	0	5	4	9	0	0	0	1	1	2	22
3:15 PM	0	0	0	3	3	6	0	0	0	2	0	2	0	0	0	1	1	2	10
3:30 PM	0	0	0	2	7	9	0	0	0	2	6	8	0	0	0	6	0	6	23
3:45 PM	0	0	0	5	6	11	0	0	0	5	3	8	0	0	0	1	4	5	24
Total	0	0	0	13	24	37	0	0	0	14	13	27	0	0	0	9	6	15	79
4:00 PM	0	0	0	11	0	11	0	0	0	14	0	14	0	0	0	6	3	9	34
4:15 PM	0	0	0	2	5	7	0	0	0	4	5	9	0	0	0	2	5	7	23
4:30 PM	0	0	0	1	6	7	0	0	0	4	7	11	0	0	0	7	3	10	28
4:45 PM	0	0	0	3	6	9	0	0	0	2	3	5	0	0	0	5	2	7	21
Total	0	0	0	17	17	34	0	0	0	24	15	39	0	0	0	20	13	33	106
5:00 PM	0	0	0	6	3	9	0	0	0	2	0	2	0	0	0	9	6	15	26
5:15 PM	0	0	0	3	4	7	0	0	0	5	5	10	0	0	0	8	3	11	28
5:30 PM	0	0	0	3	2	5	0	0	0	8	1	9	0	0	0	5	3	8	22
5:45 PM	0	0	0	4	4	8	0	0	0	9	2	11	0	0	0	5	2	7	26
Total	0	0	0	16	13	29	0	0	0	24	8	32	0	0	0	27	14	41	102
Grand Total	0	0	0	46	54	100	0	0	0	62	36	98	0	0	0	56	33	89	287
Approach %	0	0	0	46	54		0	0	0	63.265	36.735		0	0	0	62.921	37.079		
Total %	0	0	0	16.028	18.815	34.843	0	0	0	21.603	12.544	34.146	0	0	0	19.512	11.498	31.01	
Exiting Leg Total						100						98						89	287

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:45 PM	Pilgrim Road from North						Francis Street from East						Pilgrim Road from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
3:45 PM	0	0	0	5	6	11	0	0	0	5	3	8	0	0	0	1	4	5	24
4:00 PM	0	0	0	11	0	11	0	0	0	14	0	14	0	0	0	6	3	9	34
4:15 PM	0	0	0	2	5	7	0	0	0	4	5	9	0	0	0	2	5	7	23
4:30 PM	0	0	0	1	6	7	0	0	0	4	7	11	0	0	0	7	3	10	28
Total Volume	0	0	0	19	17	36	0	0	0	27	15	42	0	0	0	16	15	31	109
% Approach Total	0.0	0.0	0.0	52.8	47.2		0.0	0.0	0.0	64.3	35.7		0.0	0.0	0.0	51.6	48.4		
PHF	0.000	0.000	0.000	0.432	0.708	0.818	0.000	0.000	0.000	0.482	0.536	0.750	0.000	0.000	0.000	0.571	0.750	0.775	0.801
Entering Leg	0	0	0	19	17	36	0	0	0	27	15	42	0	0	0	16	15	31	109
Exiting Leg						36						42						31	109
Total						72						84						62	218

Crash Rate Reports

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DATE : Feb-18

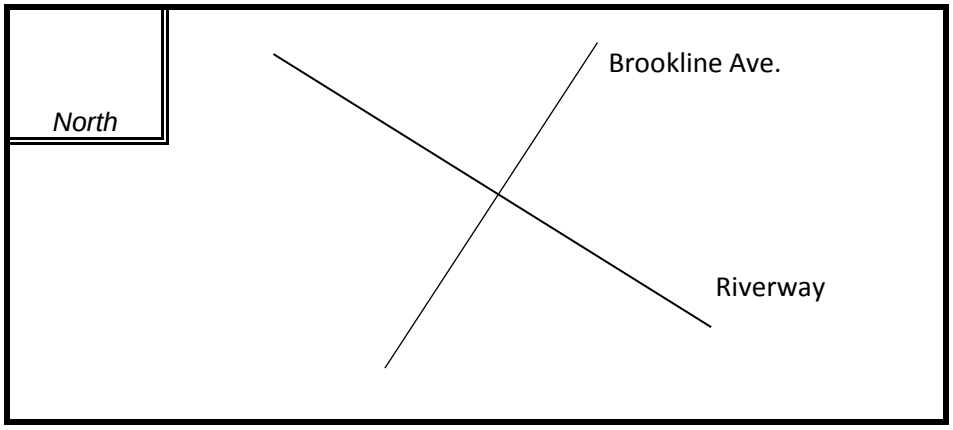
DISTRICT : 6 UNSIGNALIZED : ☐ SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Brookline Avenue

MINOR STREET(S) : Riverway

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	326	1,036	1,148	919		**3,429**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **38,100**

TOTAL # OF CRASHES : 37 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **7.40**

CRASH RATE CALCULATION : **0.53** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Used Existing PM Peak Hour Counts

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DATE : Feb-18

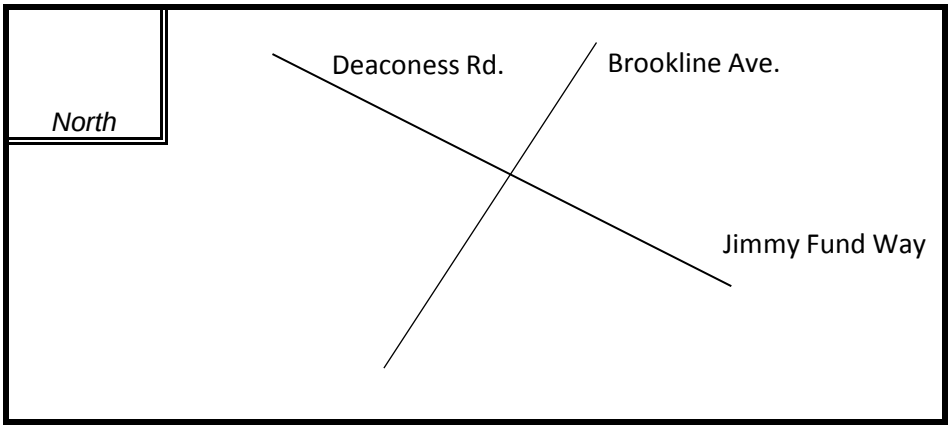
DISTRICT : 6 UNSIGNALIZED : ☒ SIGNALIZED : ☐

~ INTERSECTION DATA ~

MAJOR STREET : Brookline Avenue

MINOR STREET(S) : Deaconess Road / Jimmy Fund Way

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	534	715	167	380		**1,796**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **19,956**

TOTAL # OF CRASHES : 1 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.20**

CRASH RATE CALCULATION : **0.03** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Used Existing PM Peak Hour Counts

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DATE : Feb-18

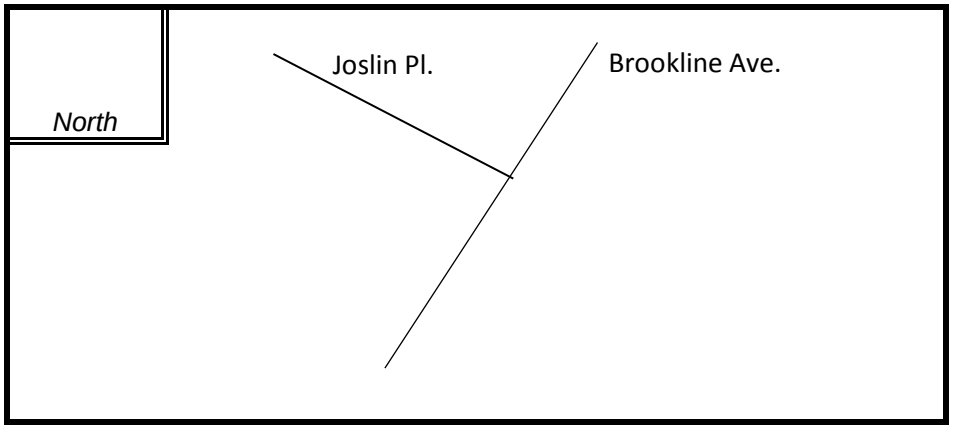
DISTRICT : 6 UNSIGNALIZED : ☒ SIGNALIZED : ☐

~ INTERSECTION DATA ~

MAJOR STREET : Brookline Avenue

MINOR STREET(S) : Joslin Place

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB				
PEAK HOURLY VOLUMES (AM/PM) :	729	776				**1,505**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **16,722**

TOTAL # OF CRASHES : 2 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.40**

CRASH RATE CALCULATION : **0.07** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Used Existing PM Peak Hour Counts

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DATE : Feb-18

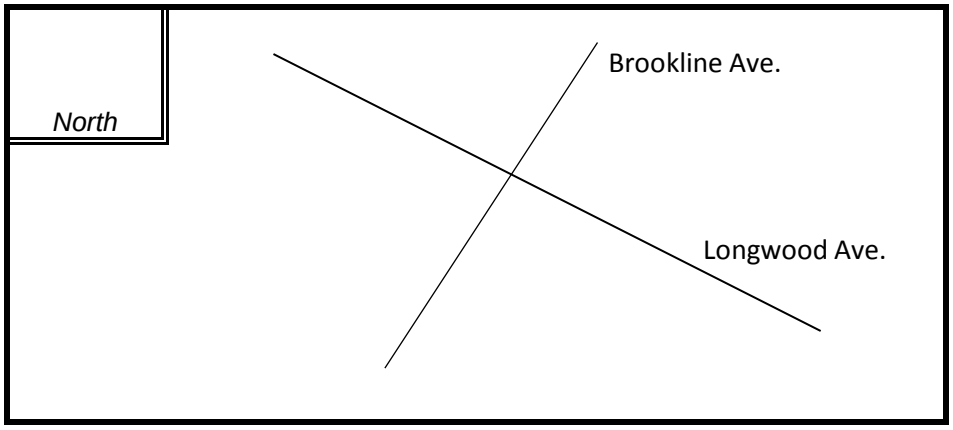
DISTRICT : 6 UNSIGNALIZED : ☐ SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Brookline Avenue

MINOR STREET(S) : Longwood Avenue

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	657	859	219	660		**2,395**

" K " FACTOR :	**0.090**	INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME :	**26,611**

TOTAL # OF CRASHES :	1	# OF YEARS :	5	AVERAGE # OF CRASHES PER YEAR (**A**) :	**0.20**

CRASH RATE CALCULATION : **0.02** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Used Existing PM Peak Hour Counts

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DATE : Feb-18

DISTRICT : 6 UNSIGNALIZED : ☒ SIGNALIZED : ☐

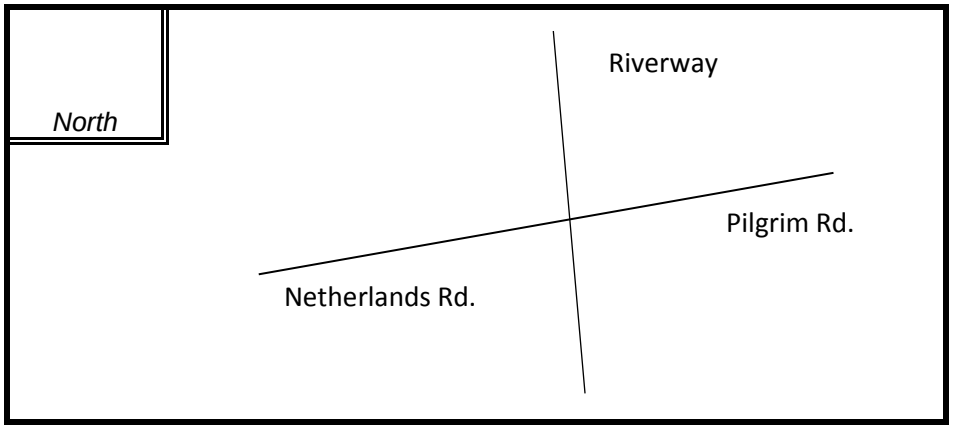
~ INTERSECTION DATA ~

MAJOR STREET : Riverway

MINOR STREET(S) : Pilgrim Road

Netherlands Road

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	827	1,368	59	200		**2,454**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **27,267**

TOTAL # OF CRASHES : 17 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **3.40**

CRASH RATE CALCULATION : **0.34** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Used Existing PM Peak Hour Counts

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DATE : Feb-18

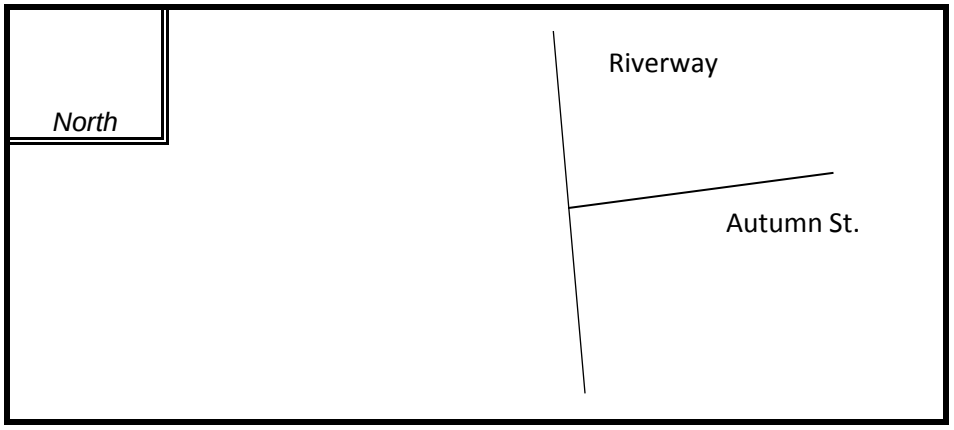
DISTRICT : 6 UNSIGNALIZED : ☒ SIGNALIZED : ☐

~ INTERSECTION DATA ~

MAJOR STREET : Riverway

MINOR STREET(S) : Autumn Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB				
PEAK HOURLY VOLUMES (AM/PM) :	1,022	1,393				**2,415**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **26,833**

TOTAL # OF CRASHES : 18 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **3.60**

CRASH RATE CALCULATION : **0.37** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Used Existing PM Peak Hour Counts

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DATE : Feb-18

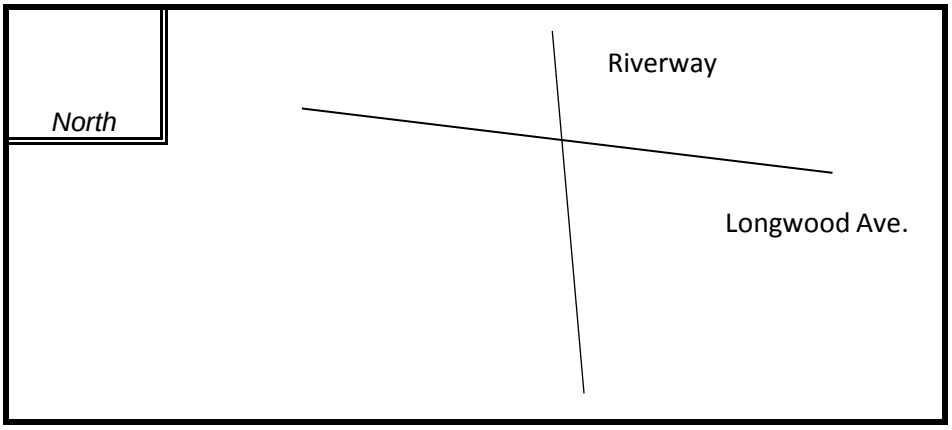
DISTRICT : 6 UNSIGNALIZED : ☐ SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Riverway

MINOR STREET(S) : Longwood Avenue

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	1,238	988	398	452		**3,076**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **34,178**

TOTAL # OF CRASHES : 37 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **7.40**

CRASH RATE CALCULATION : **0.59** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Used Existing PM Peak Hour Counts

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DATE : Feb-18

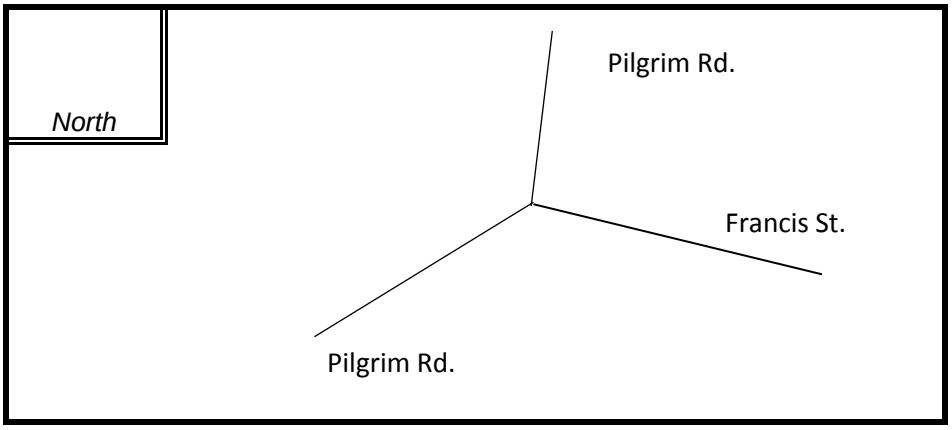
DISTRICT : 6 UNSIGNALIZED : ☒ SIGNALIZED : ☐

~ INTERSECTION DATA ~

MAJOR STREET : Pilgrim Road

MINOR STREET(S) : Francis Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	WB			
PEAK HOURLY VOLUMES (AM/PM) :	152	59	151			**362**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **4,022**

TOTAL # OF CRASHES : 1 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.20**

CRASH RATE CALCULATION : **0.14** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

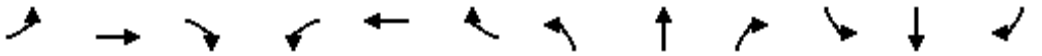
Comments : Used Existing PM Peak Hour Counts

Project Title & Date:

Synchro Results

2018 Existing Conditions
2023 No Build Condition
2023 Build Condition

2018 Existing Conditions



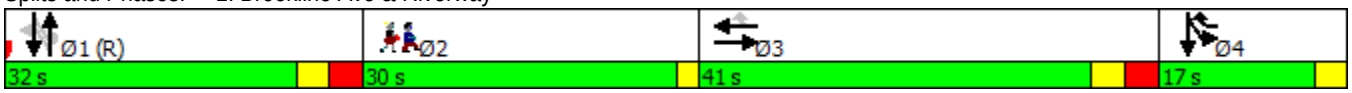
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	630	76	0	854	381	269	471	4	275	353	18
Future Volume (vph)	0	630	76	0	854	381	269	471	4	275	353	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	160		0	0		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00						1.00			1.00	
Frt		0.984				0.850		0.999			0.993	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	3032	0	0	1653	1391	1555	2988	0	1555	2782	0
Flt Permitted							0.421			0.271		
Satd. Flow (perm)	0	3032	0	0	1653	1391	689	2988	0	444	2782	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		11				272					5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		481			606			765			329	
Travel Time (s)		10.9			13.8			17.4			7.5	
Confl. Bikes (#/hr)			3						22			2
Peak Hour Factor	0.86	0.86	0.86	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	0%	0%	1%	1%	5%	0%	1%	11%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	7	7
Adj. Flow (vph)	0	733	88	0	918	410	292	512	4	299	384	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	821	0	0	918	410	292	516	0	299	404	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			20			24			22	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.22	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1			1	1	1	1		1	1	
Detector Template		Thru			Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)		50			50	50	50	50		50	50	
Trailing Detector (ft)		0			0	0	0	0		0	0	
Detector 1 Position(ft)		0			0	0	0	0		0	0	
Detector 1 Size(ft)		50			50	50	50	50		50	50	
Detector 1 Type		Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type		NA			NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		3			3	4		1		4	1 4	
Permitted Phases						3	1			1		
Detector Phase		3			3	4	1	1		4	1 4	

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		10.0			10.0	8.0	10.0	10.0		8.0		
Minimum Split (s)		16.0			16.0	11.0	16.0	16.0		11.0		
Total Split (s)		41.0			41.0	17.0	32.0	32.0		17.0		
Total Split (%)		34.2%			34.2%	14.2%	26.7%	26.7%		14.2%		
Maximum Green (s)		35.0			35.0	14.0	26.0	26.0		14.0		
Yellow Time (s)		3.0			3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)		3.0			3.0	0.0	3.0	3.0		0.0		
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)		6.0			6.0	3.0	6.0	6.0		3.0		
Lead/Lag		Lead			Lead	Lag	Lead	Lead		Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0		
Recall Mode		Max			Max	Max	C-Max	C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		35.0			35.0	55.0	26.0	26.0		43.0	43.0	
Actuated g/C Ratio		0.29			0.29	0.46	0.22	0.22		0.36	0.36	
v/c Ratio		0.92			1.90	0.52	1.96	0.80		1.04	0.40	
Control Delay		57.1			441.4	9.8	482.5	54.9		78.4	17.6	
Queue Delay		0.0			0.0	0.1	0.0	56.1		0.0	0.5	
Total Delay		57.1			441.4	9.9	482.5	111.0		78.4	18.2	
LOS		E			F	A	F	F		E	B	
Approach Delay		57.1			308.2			245.2			43.8	
Approach LOS		E			F			F			D	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 8 (7%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.96			
Intersection Signal Delay: 187.2		Intersection LOS: F	
Intersection Capacity Utilization 94.8%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Brookline Ave & Riverway



Lane Group	Ø2
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	25%
Maximum Green (s)	28.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	821	918	410	292	516	299	404
v/c Ratio	0.92	1.90	0.52	1.96	0.80	1.04	0.40
Control Delay	57.1	441.4	9.8	482.5	54.9	78.4	17.6
Queue Delay	0.0	0.0	0.1	0.0	56.1	0.0	0.5
Total Delay	57.1	441.4	9.9	482.5	111.0	78.4	18.2
Queue Length 50th (ft)	320	~1091	64	~350	201	~212	138
Queue Length 95th (ft)	#405	#1339	155	#526	#267	m#242	m148
Internal Link Dist (ft)	401	526			685		249
Turn Bay Length (ft)				160			
Base Capacity (vph)	892	482	784	149	647	288	1000
Starvation Cap Reductn	0	0	0	0	0	0	268
Spillback Cap Reductn	0	0	37	0	331	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	1.90	0.55	1.96	1.63	1.04	0.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	630	76	0	854	381	269	471	4	275	353	18
Future Volume (vph)	0	630	76	0	854	381	269	471	4	275	353	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	3.0	6.0	6.0		3.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3031			1653	1391	1555	2988		1555	2781	
Flt Permitted		1.00			1.00	1.00	0.42	1.00		0.27	1.00	
Satd. Flow (perm)		3031			1653	1391	689	2988		444	2781	
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	733	88	0	918	410	292	512	4	299	384	20
RTOR Reduction (vph)	0	8	0	0	0	161	0	0	0	0	3	0
Lane Group Flow (vph)	0	813	0	0	918	249	292	516	0	299	401	0
Confl. Bikes (#/hr)			3						22			2
Heavy Vehicles (%)	0%	2%	0%	0%	0%	1%	1%	5%	0%	1%	11%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	7	7
Turn Type		NA			NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		3			3	4		1		4	1 4	
Permitted Phases						3	1			1		
Actuated Green, G (s)		35.0			35.0	49.0	26.0	26.0		40.0	43.0	
Effective Green, g (s)		35.0			35.0	49.0	26.0	26.0		40.0	40.0	
Actuated g/C Ratio		0.29			0.29	0.41	0.22	0.22		0.33	0.33	
Clearance Time (s)		6.0			6.0	3.0	6.0	6.0		3.0		
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		884			482	567	149	647		277	927	
v/s Ratio Prot		0.27			c0.56	0.05		0.17		c0.13	0.14	
v/s Ratio Perm						0.13	c0.42			0.23		
v/c Ratio		0.92			1.90	0.44	1.96	0.80		1.08	0.43	
Uniform Delay, d1		41.1			42.5	25.6	47.0	44.5		35.7	31.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		0.64	0.58	
Incremental Delay, d2		16.2			414.8	2.5	455.3	9.9		68.6	1.1	
Delay (s)		57.3			457.3	28.1	502.3	54.4		91.5	19.2	
Level of Service		E			F	C	F	D		F	B	
Approach Delay (s)		57.3			324.8			216.3			50.0	
Approach LOS		E			F			F			D	

Intersection Summary			
HCM 2000 Control Delay	188.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

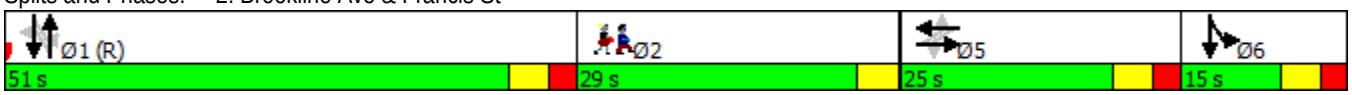
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	114	45	147	76	115	56	708	111	209	454	21
Future Volume (vph)	28	114	45	147	76	115	56	708	111	209	454	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	0		150	0		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			200			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.99									1.00	
Frt		0.967			0.910				0.850		0.993	
Flt Protected		0.993		0.950				0.996		0.950		
Satd. Flow (prot)	0	1517	0	1481	1398	0	0	2984	1254	1378	2879	0
Flt Permitted		0.694		0.393				0.504		0.203		
Satd. Flow (perm)	0	1060	0	613	1398	0	0	1510	1254	294	2879	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		335			547			329			443	
Travel Time (s)		7.6			12.4			7.5			10.1	
Confl. Bikes (#/hr)			8									4
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	4%	0%	6%	1%	12%	2%	3%	8%	14%	7%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	9	9	0	7	7
Parking (#/hr)												4
Adj. Flow (vph)	30	124	49	155	80	121	61	770	121	227	493	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	203	0	155	201	0	0	831	121	227	516	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			11			11	
Link Offset(ft)		0			0			0			-4	
Crosswalk Width(ft)		16			36			32			30	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.22	1.25	1.19	1.22	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	50		50	50		20	50	20	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	50		50	50		20	50	20	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	D.P+P	NA	
Protected Phases		5			5			1		6	1 6	
Permitted Phases	5			5			1		1	1		

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	5		5	5		1	1	1	6	1 6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0	10.0	6.0		
Minimum Split (s)	14.0	14.0		14.0	14.0		16.0	16.0	16.0	12.0		
Total Split (s)	25.0	25.0		25.0	25.0		51.0	51.0	51.0	15.0		
Total Split (%)	20.8%	20.8%		20.8%	20.8%		42.5%	42.5%	42.5%	12.5%		
Maximum Green (s)	19.0	19.0		19.0	19.0		45.0	45.0	45.0	9.0		
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5		
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5		
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0	0.0		
Total Lost Time (s)		6.0		6.0	6.0			6.0	6.0	6.0		
Lead/Lag	Lead	Lead		Lead	Lead		Lead	Lead	Lead	Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		19.0		19.0	19.0			45.0	45.0	54.0	60.0	
Actuated g/C Ratio		0.16		0.16	0.16			0.38	0.38	0.45	0.50	
v/c Ratio		1.22		1.60	0.91			1.47	0.26	1.07	0.36	
Control Delay		182.4		345.7	91.2			243.8	16.9	105.3	19.2	
Queue Delay		0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay		182.4		345.7	91.2			243.8	16.9	105.3	19.2	
LOS		F		F	F			F	B	F	B	
Approach Delay		182.4			202.1			215.0			45.5	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 111 (93%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.60			
Intersection Signal Delay: 154.1		Intersection LOS: F	
Intersection Capacity Utilization 81.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Brookline Ave & Francis St



Lane Group	Ø2
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	29.0
Total Split (s)	29.0
Total Split (%)	24%
Maximum Green (s)	25.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	18.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



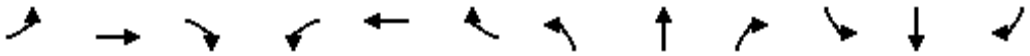
Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	203	155	201	831	121	227	516
v/c Ratio	1.22	1.60	0.91	1.47	0.26	1.07	0.36
Control Delay	182.4	345.7	91.2	243.8	16.9	105.3	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	182.4	345.7	91.2	243.8	16.9	105.3	19.2
Queue Length 50th (ft)	~192	~172	155	~447	34	~114	124
Queue Length 95th (ft)	#345	#309	#299	#575	m65	#272	165
Internal Link Dist (ft)	255		467	249			363
Turn Bay Length (ft)		250			150		
Base Capacity (vph)	167	97	221	566	470	213	1439
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	42
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	1.60	0.91	1.47	0.26	1.07	0.37

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

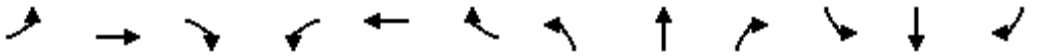
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	114	45	147	76	115	56	708	111	209	454	21
Future Volume (vph)	28	114	45	147	76	115	56	708	111	209	454	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00			0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00			1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Frt		0.97		1.00	0.91			1.00	0.85	1.00	0.99	
Flt Protected		0.99		0.95	1.00			1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1517		1481	1397			2986	1254	1378	2880	
Flt Permitted		0.69		0.39	1.00			0.50	1.00	0.20	1.00	
Satd. Flow (perm)		1061		612	1397			1509	1254	294	2880	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	124	49	155	80	121	61	770	121	227	493	23
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	203	0	155	201	0	0	831	121	227	516	0
Confl. Bikes (#/hr)			8									4
Heavy Vehicles (%)	11%	4%	0%	6%	1%	12%	2%	3%	8%	14%	7%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	9	9	0	7	7
Parking (#/hr)												4
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	D.P+P	NA	
Protected Phases		5			5			1		6	1 6	
Permitted Phases	5			5			1		1	1		
Actuated Green, G (s)		19.0		19.0	19.0			45.0	45.0	54.0	60.0	
Effective Green, g (s)		19.0		19.0	19.0			45.0	45.0	54.0	60.0	
Actuated g/C Ratio		0.16		0.16	0.16			0.38	0.38	0.45	0.50	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0	6.0		
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)		167		96	221			565	470	213	1440	
v/s Ratio Prot					0.14					c0.08	0.18	
v/s Ratio Perm		0.19		c0.25				c0.55	0.10	0.40		
v/c Ratio		1.22		1.61	0.91			1.47	0.26	1.07	0.36	
Uniform Delay, d1		50.5		50.5	49.7			37.5	25.9	29.0	18.3	
Progression Factor		1.00		1.00	1.00			0.74	0.60	1.00	1.00	
Incremental Delay, d2		139.3		319.2	36.3			219.1	1.0	80.1	0.7	
Delay (s)		189.8		369.7	86.0			246.8	16.5	109.2	19.0	
Level of Service		F		F	F			F	B	F	B	
Approach Delay (s)		189.8			209.5			217.5			46.5	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM 2000 Control Delay	157.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



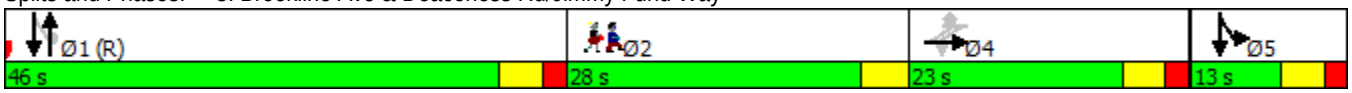
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	13	84	93	0	87	0	779	72	85	507	0
Future Volume (vph)	56	13	84	93	0	87	0	779	72	85	507	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor		0.98				0.99		1.00				
Frt		0.871				0.850		0.987				
Flt Protected	0.950			0.950							0.993	
Satd. Flow (prot)	1415	1291	0	1441	0	1098	0	2928	0	0	2880	0
Flt Permitted	0.950			0.629							0.600	
Satd. Flow (perm)	1415	1291	0	954	0	1083	0	2928	0	0	1740	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		101						10				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		327			400			443			84	
Travel Time (s)		7.4			9.1			10.1			1.9	
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.83	0.83	0.83	0.90	0.90	0.90	0.95	0.95	0.95	0.92	0.92	0.92
Heavy Vehicles (%)	11%	31%	6%	9%	0%	28%	0%	4%	1%	4%	9%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	9	9	0	0	0
Adj. Flow (vph)	67	16	101	103	0	97	0	820	76	92	551	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	117	0	103	0	97	0	896	0	0	643	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		-12			-8			4			0	
Crosswalk Width(ft)		16			16			16			12	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.22	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1		1		1		1	1	
Detector Template	Left	Thru		Left		Right		Thru		Left	Thru	
Leading Detector (ft)	50	50		50		50		50		20	50	
Trailing Detector (ft)	0	0		0		0		0		0	0	
Detector 1 Position(ft)	0	0		0		0		0		0	0	
Detector 1 Size(ft)	50	50		50		50		50		20	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Turn Type	Perm	NA		D.Pm		Perm		NA		D.P+P	NA	
Protected Phases		4						1		5	1 5	
Permitted Phases	4			4		4				1		
Detector Phase	4	4		4		4		1		5	1 5	

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0		8.0		10.0		6.0		
Minimum Split (s)	13.5	13.5		13.5		13.5		15.5		11.5		
Total Split (s)	23.0	23.0		23.0		23.0		46.0		13.0		
Total Split (%)	20.9%	20.9%		20.9%		20.9%		41.8%		11.8%		
Maximum Green (s)	17.5	17.5		17.5		17.5		40.5		7.5		
Yellow Time (s)	3.5	3.5		3.5		3.5		3.5		3.5		
All-Red Time (s)	2.0	2.0		2.0		2.0		2.0		2.0		
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0				
Total Lost Time (s)	5.5	5.5		5.5		5.5		5.5				
Lead/Lag								Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0		2.0		2.0		2.0		
Recall Mode	None	None		None		None		C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	14.6	14.6		14.6		14.6		43.4			50.9	
Actuated g/C Ratio	0.13	0.13		0.13		0.13		0.39			0.46	
v/c Ratio	0.36	0.45		0.82		0.68		0.77			0.73	
Control Delay	47.7	16.9		88.6		67.9		34.9			13.0	
Queue Delay	0.0	0.0		0.0		0.0		1.5			0.0	
Total Delay	47.7	16.9		88.6		67.9		36.4			13.0	
LOS	D	B		F		E		D			B	
Approach Delay		28.1			78.6			36.4			13.0	
Approach LOS		C			E			D			B	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 93 (85%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 32.2		Intersection LOS: C	
Intersection Capacity Utilization 69.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Brookline Ave & Deaconess Rd/Jimmy Fund Way



Lane Group	Ø2
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	28.0
Total Split (s)	28.0
Total Split (%)	25%
Maximum Green (s)	24.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	17.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

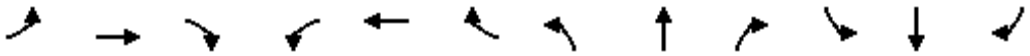
Intersection Summary



Lane Group	EBL	EBT	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	67	117	103	97	896	643
v/c Ratio	0.36	0.45	0.82	0.68	0.77	0.73
Control Delay	47.7	16.9	88.6	67.9	34.9	13.0
Queue Delay	0.0	0.0	0.0	0.0	1.5	0.0
Total Delay	47.7	16.9	88.6	67.9	36.4	13.0
Queue Length 50th (ft)	43	10	70	65	291	40
Queue Length 95th (ft)	79	52	#152	122	381	m60
Internal Link Dist (ft)		247			363	4
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	225	290	151	172	1161	883
Starvation Cap Reductn	0	0	0	0	120	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.40	0.68	0.56	0.86	0.73

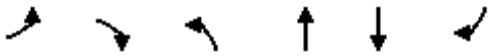
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



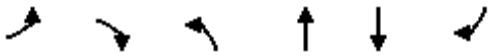
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	13	84	93	0	87	0	779	72	85	507	0
Future Volume (vph)	56	13	84	93	0	87	0	779	72	85	507	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5		5.5		5.5			5.5	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95			0.95	
Frpb, ped/bikes	1.00	0.98		1.00		0.99		1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00		1.00		1.00			1.00	
Frt	1.00	0.87		1.00		0.85		0.99			1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00			0.99	
Satd. Flow (prot)	1415	1288		1441		1083		2929			2880	
Flt Permitted	0.95	1.00		0.63		1.00		1.00			0.60	
Satd. Flow (perm)	1415	1288		954		1083		2929			1741	
Peak-hour factor, PHF	0.83	0.83	0.83	0.90	0.90	0.90	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	67	16	101	103	0	97	0	820	76	92	551	0
RTOR Reduction (vph)	0	88	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	67	29	0	103	0	97	0	890	0	0	643	0
Confl. Bikes (#/hr)			7			1			5			
Heavy Vehicles (%)	11%	31%	6%	9%	0%	28%	0%	4%	1%	4%	9%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	9	9	0	0	0
Turn Type	Perm	NA		D.Pm		Perm		NA		D.P+P	NA	
Protected Phases		4						1		5	1 5	
Permitted Phases	4			4		4				1		
Actuated Green, G (s)	14.6	14.6		14.6		14.6		43.4			50.9	
Effective Green, g (s)	14.6	14.6		14.6		14.6		43.4			50.9	
Actuated g/C Ratio	0.13	0.13		0.13		0.13		0.39			0.46	
Clearance Time (s)	5.5	5.5		5.5		5.5		5.5				
Vehicle Extension (s)	2.0	2.0		2.0		2.0		2.0				
Lane Grp Cap (vph)	187	170		126		143		1155			883	
v/s Ratio Prot		0.02						c0.30			c0.05	
v/s Ratio Perm	0.05			c0.11		0.09					0.29	
v/c Ratio	0.36	0.17		0.82		0.68		0.77			0.73	
Uniform Delay, d1	43.4	42.3		46.4		45.5		29.0			23.9	
Progression Factor	1.00	1.00		1.00		1.00		1.00			0.42	
Incremental Delay, d2	0.4	0.2		30.7		9.6		5.0			3.7	
Delay (s)	43.9	42.5		77.1		55.1		34.0			13.9	
Level of Service	D	D		E		E		C			B	
Approach Delay (s)		43.0			66.4			34.0			13.9	
Approach LOS		D			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	92	830	592	44
Future Volume (vph)	0	0	92	830	592	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt					0.990	
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1428	2882	2840	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1428	2882	2840	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	185			84	355	
Travel Time (s)	4.2			1.9	8.1	
Confl. Peds. (#/hr)			269			269
Confl. Bikes (#/hr)						6
Peak Hour Factor	0.92	0.92	0.96	0.96	0.92	0.92
Heavy Vehicles (%)	0%	0%	10%	7%	8%	7%
Bus Blockages (#/hr)	0	0	0	9	7	0
Adj. Flow (vph)	0	0	96	865	643	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	96	865	691	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			11	11	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.22	1.22	1.19
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

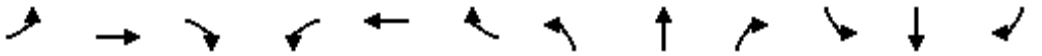
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	92	830	592	44
Future Volume (Veh/h)	0	0	92	830	592	44
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.96	0.96	0.92	0.92
Hourly flow rate (vph)	0	0	96	865	643	48
Pedestrians	269					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				84	355	
pX, platoon unblocked	0.80	0.88	0.88			
vC, conflicting volume	1560	614	960			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	563	302	693			
tC, single (s)	6.8	6.9	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	87			
cM capacity (veh/h)	324	619	749			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	96	432	432	429	262
Volume Left	96	0	0	0	0
Volume Right	0	0	0	0	48
cSH	749	1700	1700	1700	1700
Volume to Capacity	0.13	0.25	0.25	0.25	0.15
Queue Length 95th (ft)	11	0	0	0	0
Control Delay (s)	10.5	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	1.1			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	204	35	92	234	251	54	583	193	181	509	162
Future Volume (vph)	46	204	35	92	234	251	54	583	193	181	509	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	250		0	330		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50			100			30			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99						1.00			0.99	
Frt		0.978				0.850		0.963			0.964	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1570	1506	0	1378	1589	1232	1510	2720	0	1428	2797	0
Flt Permitted	0.332			0.319			0.119			0.139		
Satd. Flow (perm)	549	1506	0	463	1589	1232	189	2720	0	209	2797	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		366			390			355			587	
Travel Time (s)		8.3			8.9			8.1			13.3	
Confl. Bikes (#/hr)			44						5			5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	0%	4%	0%	14%	4%	14%	4%	7%	7%	10%	8%	1%
Bus Blockages (#/hr)	0	7	0	0	0	0	0	17	0	0	6	0
Adj. Flow (vph)	53	237	41	107	272	292	59	634	210	201	566	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	278	0	107	272	292	59	844	0	201	746	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			11			11	
Link Offset(ft)		-5			2			4			0	
Crosswalk Width(ft)		25			12			18			28	
Two way Left Turn Lane												
Headway Factor	1.19	1.24	1.19	1.19	1.19	1.19	1.19	1.25	1.19	1.19	1.21	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50		50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		4			4	5		1		5	1 5	
Permitted Phases	4			4		4	1			1		
Detector Phase	4	4		4	4	5	1	1		5	1 5	

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	6.0	10.0	10.0		6.0		
Minimum Split (s)	14.0	14.0		14.0	14.0	11.5	15.5	15.5		11.5		
Total Split (s)	28.0	28.0		28.0	28.0	16.0	39.0	39.0		16.0		
Total Split (%)	25.5%	25.5%		25.5%	25.5%	14.5%	35.5%	35.5%		14.5%		
Maximum Green (s)	22.0	22.0		22.0	22.0	10.5	33.5	33.5		10.5		
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5		
All-Red Time (s)	2.5	2.5		2.5	2.5	2.0	2.0	2.0		2.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5		
Lead/Lag							Lead	Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		
Recall Mode	Max	Max		Max	Max	Max	C-Max	C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	22.0	22.0		22.0	22.0	38.5	33.5	33.5		44.0	49.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20	0.35	0.30	0.30		0.40	0.45	
v/c Ratio	0.49	0.92		1.16	0.86	0.68	1.04	1.02		1.01	0.59	
Control Delay	55.8	79.9		185.5	68.3	39.8	137.8	51.5		93.9	25.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	55.8	79.9		185.5	68.3	39.8	137.8	51.5		93.9	25.1	
LOS	E	E		F	E	D	F	D		F	C	
Approach Delay		76.0			74.6			57.1			39.7	
Approach LOS		E			E			E			D	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 109 (99%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.16			
Intersection Signal Delay: 57.6		Intersection LOS: E	
Intersection Capacity Utilization 76.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Brookline Ave & Longwood Ave



Lane Group	Ø2
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	25%
Maximum Green (s)	23.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	16.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



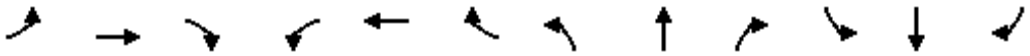
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	278	107	272	292	59	844	201	746
v/c Ratio	0.49	0.92	1.16	0.86	0.68	1.04	1.02	1.01	0.59
Control Delay	55.8	79.9	185.5	68.3	39.8	137.8	51.5	93.9	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	79.9	185.5	68.3	39.8	137.8	51.5	93.9	25.1
Queue Length 50th (ft)	33	194	~89	187	174	~45	~336	~96	202
Queue Length 95th (ft)	74	#329	#190	#307	260	m#80	#443	#250	265
Internal Link Dist (ft)		286		310			275		507
Turn Bay Length (ft)	150		150			250		330	
Base Capacity (vph)	109	301	92	317	431	57	828	199	1258
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.92	1.16	0.86	0.68	1.04	1.02	1.01	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

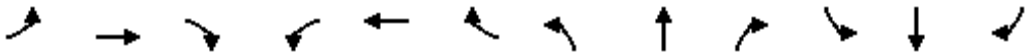
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



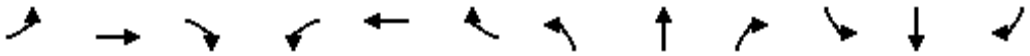
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	204	35	92	234	251	54	583	193	181	509	162
Future Volume (vph)	46	204	35	92	234	251	54	583	193	181	509	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1570	1506		1378	1589	1232	1510	2719		1428	2797	
Flt Permitted	0.33	1.00		0.32	1.00	1.00	0.12	1.00		0.14	1.00	
Satd. Flow (perm)	549	1506		463	1589	1232	190	2719		209	2797	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	53	237	41	107	272	292	59	634	210	201	566	180
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	53	278	0	107	272	292	59	844	0	201	746	0
Confl. Bikes (#/hr)			44						5			5
Heavy Vehicles (%)	0%	4%	0%	14%	4%	14%	4%	7%	7%	10%	8%	1%
Bus Blockages (#/hr)	0	7	0	0	0	0	0	17	0	0	6	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		4			4	5		1		5	1 5	
Permitted Phases	4			4		4	1			1		
Actuated Green, G (s)	22.0	22.0		22.0	22.0	32.5	33.5	33.5		44.0	49.5	
Effective Green, g (s)	22.0	22.0		22.0	22.0	32.5	33.5	33.5		44.0	49.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20	0.30	0.30	0.30		0.40	0.45	
Clearance Time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5		
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		
Lane Grp Cap (vph)	109	301		92	317	364	57	828		199	1258	
v/s Ratio Prot		0.18			0.17	0.08		0.31		c0.10	0.27	
v/s Ratio Perm	0.10			c0.23		0.16	c0.31			0.31		
v/c Ratio	0.49	0.92		1.16	0.86	0.80	1.04	1.02		1.01	0.59	
Uniform Delay, d1	39.0	43.2		44.0	42.5	35.8	38.2	38.2		26.2	22.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.41	0.45		1.00	1.00	
Incremental Delay, d2	14.7	35.5		144.3	24.7	16.9	110.7	31.4		66.4	2.1	
Delay (s)	53.7	78.7		188.3	67.2	52.6	126.4	48.7		92.7	24.8	
Level of Service	D	E		F	E	D	F	D		F	C	
Approach Delay (s)		74.7			80.2			53.8			39.2	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	57.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	49	1	0	12	137	0	1117	24	89	705	94
Future Volume (vph)	222	49	1	0	12	137	0	1117	24	89	705	94
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	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt					0.876			0.997			0.984	
Flt Protected		0.961									0.995	
Satd. Flow (prot)	0	1553	0	0	1435	0	0	3129	0	0	3027	0
Flt Permitted		0.961									0.995	
Satd. Flow (perm)	0	1553	0	0	1435	0	0	3129	0	0	3027	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		148			142			481			579	
Travel Time (s)		3.4			3.2			10.9			13.2	
Confl. Peds. (#/hr)	12		5	5		12	3		20	20		3
Confl. Bikes (#/hr)			3						3			4
Peak Hour Factor	0.88	0.88	0.88	0.74	0.74	0.74	0.97	0.97	0.97	0.92	0.92	0.92
Heavy Vehicles (%)	1%	8%	0%	0%	0%	1%	0%	0%	4%	0%	2%	0%
Adj. Flow (vph)	252	56	1	0	16	185	0	1152	25	97	766	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	309	0	0	201	0	0	1177	0	0	965	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 104.9%		ICU Level of Service G	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	49	1	0	12	137	0	1117	24	89	705	94
Future Volume (Veh/h)	222	49	1	0	12	137	0	1117	24	89	705	94
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.74	0.74	0.74	0.97	0.97	0.97	0.92	0.92	0.92
Hourly flow rate (vph)	252	56	1	0	16	185	0	1152	25	97	766	102
Pedestrians		3			20			5			12	
Lane Width (ft)		11.0			11.0			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			2			0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								481			1067	
pX, platoon unblocked	0.78	0.78	0.78	0.78	0.78		0.78					
vC, conflicting volume	1795	2211	442	1796	2250	620	871			1197		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1457	1990	0	1457	2039	620	273			1197		
tC, single (s)	7.5	6.7	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	100	0	56	56	100			83		
cM capacity (veh/h)	23	36	846	0	37	421	1014			580		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	309	201	576	601	480	485
Volume Left	252	0	0	0	97	0
Volume Right	1	185	0	25	0	102
cSH	24	229	1014	1700	580	1700
Volume to Capacity	12.71	0.88	0.00	0.35	0.17	0.29
Queue Length 95th (ft)	Err	178	0	0	15	0
Control Delay (s)	Err	76.6	0.0	0.0	4.7	0.0
Lane LOS	F	F			A	
Approach Delay (s)	Err	76.6	0.0		2.3	
Approach LOS	F	F				

Intersection Summary				
Average Delay	1171.7			
Intersection Capacity Utilization	104.9%	ICU Level of Service	G	
Analysis Period (min)	15			



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1352	124	65	888
Future Volume (vph)	0	0	1352	124	65	888
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt			0.987			
Flt Protected						0.997
Satd. Flow (prot)	0	0	3067	0	0	3090
Flt Permitted						0.997
Satd. Flow (perm)	0	0	3067	0	0	3090
Link Speed (mph)	30		30			30
Link Distance (ft)	520		579			488
Travel Time (s)	11.8		13.2			11.1
Confl. Peds. (#/hr)				41	41	
Confl. Bikes (#/hr)				3		
Peak Hour Factor	0.92	0.92	0.98	0.98	0.91	0.91
Heavy Vehicles (%)	2%	2%	1%	2%	6%	1%
Adj. Flow (vph)	0	0	1380	127	71	976
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1507	0	0	1047
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		11			11
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

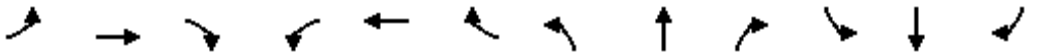
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 82.2%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	1352	124	65	888
Future Volume (Veh/h)	0	0	1352	124	65	888
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.98	0.98	0.91	0.91
Hourly flow rate (vph)	0	0	1380	127	71	976
Pedestrians	41					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1060			488
pX, platoon unblocked	0.74					
vC, conflicting volume	2114	794			1548	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1802	794			1548	
tC, single (s)	6.8	6.9			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	100	100			82	
cM capacity (veh/h)	43	331			406	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	920	587	396	651
Volume Left	0	0	71	0
Volume Right	0	127	0	0
cSH	1700	1700	406	1700
Volume to Capacity	0.54	0.35	0.18	0.38
Queue Length 95th (ft)	0	0	16	0
Control Delay (s)	0.0	0.0	5.6	0.0
Lane LOS			A	
Approach Delay (s)	0.0		2.1	
Approach LOS				

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		



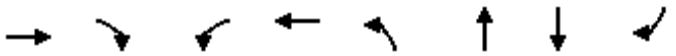
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	326	126	43	223	56	267	971	114	0	784	77
Future Volume (vph)	99	326	126	43	223	56	267	971	114	0	784	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	50		0	250		0	0		0
Storage Lanes	0		1	1		0	1		0	0		1
Taper Length (ft)	25			100			100			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor					1.00			1.00				
Frt			0.850		0.970			0.984				0.850
Flt Protected		0.988		0.950			0.950					
Satd. Flow (prot)	0	1597	1405	1570	1551	0	1555	3083	0	0	3110	1405
Flt Permitted		0.531		0.148			0.139					
Satd. Flow (perm)	0	859	1405	245	1551	0	227	3083	0	0	3110	1405
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			33		12			12				98
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		346			201			488			736	
Travel Time (s)		7.9			4.6			11.1			16.7	
Confl. Bikes (#/hr)						8			1			
Peak Hour Factor	0.91	0.91	0.91	0.88	0.88	0.88	0.97	0.97	0.97	0.86	0.86	0.86
Heavy Vehicles (%)	3%	2%	0%	0%	2%	7%	1%	0%	0%	0%	1%	0%
Adj. Flow (vph)	109	358	138	49	253	64	275	1001	118	0	912	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	467	138	49	317	0	275	1119	0	0	912	90
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			11			0	
Link Offset(ft)		8			12			0			4	
Crosswalk Width(ft)		20			24			24			12	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1			1	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	Right
Leading Detector (ft)	20	50	50	50	50		50	50			50	50
Trailing Detector (ft)	0	0	0	0	0		0	0			0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0			0	0
Detector 1 Size(ft)	20	50	50	50	50		50	50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA			NA	Perm
Protected Phases		2	3		2		3	1			1	
Permitted Phases	2		2	2			1					1
Detector Phase	2	2	3	2	2		3	1			1	1
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	18.0			18.0	18.0
Minimum Split (s)	14.0	14.0	27.0	14.0	14.0		27.0	24.0			24.0	24.0
Total Split (s)	33.0	33.0	35.0	33.0	33.0		35.0	32.0			32.0	32.0
Total Split (%)	33.0%	33.0%	35.0%	33.0%	33.0%		35.0%	32.0%			32.0%	32.0%
Maximum Green (s)	27.0	27.0	29.0	27.0	27.0		29.0	26.0			26.0	26.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		6.0	6.0			6.0	6.0
Lead/Lag	Lag	Lag		Lag	Lag			Lead			Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	2.0
Recall Mode	None	None	Ped	None	None		Ped	C-Max			C-Max	C-Max
Walk Time (s)			7.0				7.0					
Flash Dont Walk (s)			14.0				14.0					
Pedestrian Calls (#/hr)			0				0					
Act Effct Green (s)		27.0	55.0	27.0	27.0		55.0	33.0			33.0	33.0
Actuated g/C Ratio		0.27	0.55	0.27	0.27		0.55	0.33			0.33	0.33
v/c Ratio		2.02	0.18	0.74	0.74		0.66	1.09			0.89	0.17
Control Delay		498.6	8.7	92.8	44.1		27.2	89.3			44.4	5.6
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay		498.6	8.7	92.8	44.1		27.2	89.3			44.4	5.6
LOS		F	A	F	D		C	F			D	A
Approach Delay		386.9			50.6			77.1			40.9	
Approach LOS		F			D			E			D	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.02			
Intersection Signal Delay: 119.1		Intersection LOS: F	
Intersection Capacity Utilization 102.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 8: Riverway & Longwood Ave



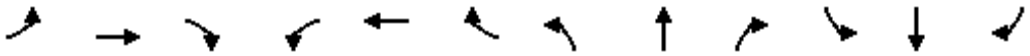


Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	467	138	49	317	275	1119	912	90
v/c Ratio	2.02	0.18	0.74	0.74	0.66	1.09	0.89	0.17
Control Delay	498.6	8.7	92.8	44.1	27.2	89.3	44.4	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	498.6	8.7	92.8	44.1	27.2	89.3	44.4	5.6
Queue Length 50th (ft)	~468	32	29	178	104	~413	282	0
Queue Length 95th (ft)	#662	56	#95	#278	189	#601	#414	28
Internal Link Dist (ft)	266			121		408	656	
Turn Bay Length (ft)		100	50		250			
Base Capacity (vph)	231	883	66	427	522	1025	1026	529
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.02	0.16	0.74	0.74	0.53	1.09	0.89	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	326	126	43	223	56	267	971	114	0	784	77
Future Volume (vph)	99	326	126	43	223	56	267	971	114	0	784	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0		6.0	6.0			6.0	6.0
Lane Util. Factor		1.00	1.00	1.00	1.00		1.00	0.95			0.95	1.00
Frpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt		1.00	0.85	1.00	0.97		1.00	0.98			1.00	0.85
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1598	1405	1570	1550		1555	3084			3110	1405
Flt Permitted		0.53	1.00	0.15	1.00		0.14	1.00			1.00	1.00
Satd. Flow (perm)		859	1405	245	1550		227	3084			3110	1405
Peak-hour factor, PHF	0.91	0.91	0.91	0.88	0.88	0.88	0.97	0.97	0.97	0.86	0.86	0.86
Adj. Flow (vph)	109	358	138	49	253	64	275	1001	118	0	912	90
RTOR Reduction (vph)	0	0	17	0	9	0	0	8	0	0	0	60
Lane Group Flow (vph)	0	467	121	49	308	0	275	1111	0	0	912	30
Confl. Bikes (#/hr)						8			1			
Heavy Vehicles (%)	3%	2%	0%	0%	2%	7%	1%	0%	0%	0%	1%	0%
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA			NA	Perm
Protected Phases		2	3		2		3	1			1	
Permitted Phases	2		2	2			1					1
Actuated Green, G (s)		27.0	49.0	27.0	27.0		55.0	33.0			33.0	33.0
Effective Green, g (s)		27.0	49.0	27.0	27.0		55.0	33.0			33.0	33.0
Actuated g/C Ratio		0.27	0.49	0.27	0.27		0.55	0.33			0.33	0.33
Clearance Time (s)		6.0	6.0	6.0	6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)		231	772	66	418		417	1017			1026	463
v/s Ratio Prot			0.03		0.20		c0.15	c0.36			0.29	
v/s Ratio Perm		c0.54	0.05	0.20			0.22					0.02
v/c Ratio		2.02	0.16	0.74	0.74		0.66	1.09			0.89	0.06
Uniform Delay, d1		36.5	14.1	33.3	33.3		18.9	33.5			31.8	22.9
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		474.7	0.0	32.0	5.8		2.9	56.9			11.4	0.3
Delay (s)		511.2	14.1	65.4	39.0		21.8	90.4			43.2	23.2
Level of Service		F	B	E	D		C	F			D	C
Approach Delay (s)		397.8			42.6			76.8			41.4	
Approach LOS		F			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	120.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	440	0	0	251	71	75
Future Volume (vph)	440	0	0	251	71	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.930	
Flt Protected					0.976	
Satd. Flow (prot)	1637	0	0	1621	1409	0
Flt Permitted					0.976	
Satd. Flow (perm)	1637	0	0	1621	1409	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	201			69	520	
Travel Time (s)	4.6			1.6	11.8	
Peak Hour Factor	0.86	0.86	0.91	0.91	0.76	0.76
Heavy Vehicles (%)	1%	0%	0%	2%	6%	7%
Adj. Flow (vph)	512	0	0	276	93	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	512	0	0	276	192	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	11	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

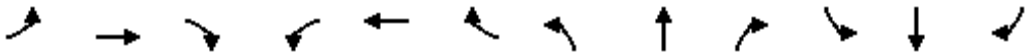
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	440	0	0	251	71	75
Future Volume (Veh/h)	440	0	0	251	71	75
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.91	0.91	0.76	0.76
Hourly flow rate (vph)	512	0	0	276	93	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	201			686		
pX, platoon unblocked			0.75		0.75	0.75
vC, conflicting volume			512		788	512
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			182		550	182
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		75	84
cM capacity (veh/h)			1053		367	635

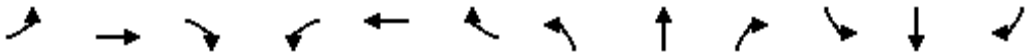
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	512	276	192
Volume Left	0	0	93
Volume Right	0	0	99
cSH	1700	1700	469
Volume to Capacity	0.30	0.16	0.41
Queue Length 95th (ft)	0	0	49
Control Delay (s)	0.0	0.0	17.9
Lane LOS			C
Approach Delay (s)	0.0	0.0	17.9
Approach LOS			C

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	271	65	107	235	108	21	5	7	7	2	3
Future Volume (vph)	174	271	65	107	235	108	21	5	7	7	2	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	75		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.971			0.953			0.971			0.966	
Flt Protected	0.950			0.950				0.969			0.973	
Satd. Flow (prot)	1570	1562	0	1481	1549	0	0	1529	0	0	1421	0
Flt Permitted	0.950			0.950				0.969			0.973	
Satd. Flow (perm)	1570	1562	0	1481	1549	0	0	1529	0	0	1421	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		251			366			200			129	
Travel Time (s)		5.7			8.3			4.5			2.9	
Confl. Peds. (#/hr)	336		440	440		336	111		52	52		111
Confl. Bikes (#/hr)			63			7						
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.71	0.71	0.71	0.75	0.75	0.75
Heavy Vehicles (%)	0%	2%	6%	6%	2%	1%	0%	0%	8%	0%	50%	0%
Adj. Flow (vph)	210	327	78	114	250	115	30	7	10	9	3	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	210	405	0	114	365	0	0	47	0	0	16	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

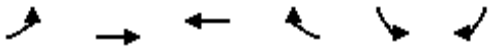
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.7%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	271	65	107	235	108	21	5	7	7	2	3
Future Volume (Veh/h)	174	271	65	107	235	108	21	5	7	7	2	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.71	0.71	0.71	0.75	0.75	0.75
Hourly flow rate (vph)	210	327	78	114	250	115	30	7	10	9	3	4
Pedestrians		111			52			440			336	
Lane Width (ft)		11.0			11.0			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		10			5			38			29	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		521			366							
pX, platoon unblocked	0.89						0.89	0.89		0.89	0.89	0.89
vC, conflicting volume	701			845			1820	2155	858	1684	2136	754
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	598			845			1862	2239	858	1708	2219	658
tC, single (s)	4.1			4.2			7.1	6.5	6.3	7.1	7.0	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.4	3.5	4.5	3.3
p0 queue free %	66			76			0	16	95	0	51	98
cM capacity (veh/h)	619			477			7	8	204	5	6	264

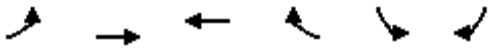
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	210	405	114	365	47	16
Volume Left	210	0	114	0	30	9
Volume Right	0	78	0	115	10	4
cSH	619	1700	477	1700	9	7
Volume to Capacity	0.34	0.24	0.24	0.21	5.49	2.29
Queue Length 95th (ft)	37	0	23	0	Err	77
Control Delay (s)	13.8	0.0	14.9	0.0	Err	1592.0
Lane LOS	B		B		F	F
Approach Delay (s)	4.7		3.5		Err	1592.0
Approach LOS					F	F

Intersection Summary				
Average Delay	432.2			
Intersection Capacity Utilization	57.7%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	152	106	13	77	43
Future Volume (vph)	10	152	106	13	77	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.985		0.952	
Flt Protected		0.997			0.969	
Satd. Flow (prot)	0	1603	1600	0	1496	0
Flt Permitted		0.997			0.969	
Satd. Flow (perm)	0	1603	1600	0	1496	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		142	335		150	
Travel Time (s)		3.2	7.6		3.4	
Confl. Peds. (#/hr)	41			41	49	31
Confl. Bikes (#/hr)						5
Peak Hour Factor	0.86	0.86	0.69	0.69	0.81	0.81
Heavy Vehicles (%)	0%	3%	1%	8%	3%	0%
Adj. Flow (vph)	12	177	154	19	95	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	189	173	0	148	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15			9	15	9
Sign Control		Stop	Stop		Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	10	152	106	13	77	43
Future Volume (vph)	10	152	106	13	77	43
Peak Hour Factor	0.86	0.86	0.69	0.69	0.81	0.81
Hourly flow rate (vph)	12	177	154	19	95	53

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	189	173	148
Volume Left (vph)	12	0	95
Volume Right (vph)	0	19	53
Hadj (s)	0.06	-0.04	-0.05
Departure Headway (s)	4.5	4.5	4.7
Degree Utilization, x	0.24	0.21	0.19
Capacity (veh/h)	765	769	719
Control Delay (s)	8.9	8.7	8.8
Approach Delay (s)	8.9	8.7	8.8
Approach LOS	A	A	A

Intersection Summary			
Delay	8.8		
Level of Service	A		
Intersection Capacity Utilization	34.5%	ICU Level of Service	A
Analysis Period (min)	15		

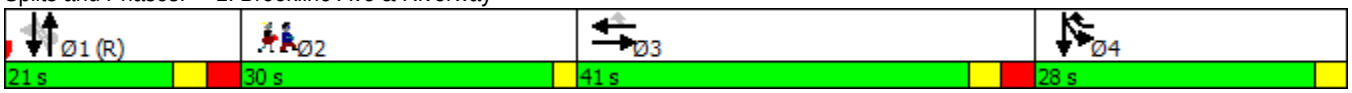
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1092	56	0	703	216	103	215	8	469	546	21
Future Volume (vph)	0	1092	56	0	703	216	103	215	8	469	546	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	160		0	0		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00						1.00			1.00	
Frt		0.993				0.850		0.995			0.994	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	3114	0	0	1653	1364	1555	2788	0	1555	2908	0
Flt Permitted							0.267			0.510		
Satd. Flow (perm)	0	3114	0	0	1653	1364	437	2788	0	835	2908	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		4				225					4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		481			606			765			329	
Travel Time (s)		10.9			13.8			17.4			7.5	
Confl. Bikes (#/hr)			2						1			9
Peak Hour Factor	0.93	0.93	0.93	0.86	0.86	0.86	0.90	0.90	0.90	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	2%	0%	0%	3%	1%	12%	13%	1%	6%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	7	7
Adj. Flow (vph)	0	1174	60	0	817	251	114	239	9	533	620	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1234	0	0	817	251	114	248	0	533	644	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			20			24			22	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.22	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1			1	1	1	1		1	1	
Detector Template		Thru			Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)		50			50	50	50	50		50	50	
Trailing Detector (ft)		0			0	0	0	0		0	0	
Detector 1 Position(ft)		0			0	0	0	0		0	0	
Detector 1 Size(ft)		50			50	50	50	50		50	50	
Detector 1 Type		Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type		NA			NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		3			3	4		1		4	1 4	
Permitted Phases						3	1			1		
Detector Phase		3			3	4	1	1		4	1 4	

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		10.0			10.0	8.0	10.0	10.0		8.0		
Minimum Split (s)		16.0			16.0	11.0	16.0	16.0		11.0		
Total Split (s)		41.0			41.0	28.0	21.0	21.0		28.0		
Total Split (%)		34.2%			34.2%	23.3%	17.5%	17.5%		23.3%		
Maximum Green (s)		35.0			35.0	25.0	15.0	15.0		25.0		
Yellow Time (s)		3.0			3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)		3.0			3.0	0.0	3.0	3.0		0.0		
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)		6.0			6.0	3.0	6.0	6.0		3.0		
Lead/Lag		Lead			Lead	Lag	Lead	Lead		Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0		
Recall Mode		Max			Max	Max	C-Max	C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		35.0			35.0	66.0	15.0	15.0		43.0	43.0	
Actuated g/C Ratio		0.29			0.29	0.55	0.12	0.12		0.36	0.36	
v/c Ratio		1.35			1.70	0.29	2.11	0.71		1.19	0.62	
Control Delay		201.4			350.9	3.4	583.6	62.7		118.8	18.5	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.1	1.5	
Total Delay		201.4			350.9	3.4	583.6	62.7		118.9	20.0	
LOS		F			F	A	F	E		F	B	
Approach Delay		201.4			269.2			226.7			64.8	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 18 (15%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.11			
Intersection Signal Delay: 180.8		Intersection LOS: F	
Intersection Capacity Utilization 91.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Brookline Ave & Riverway



Lane Group	Ø2
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	25%
Maximum Green (s)	28.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	1234	817	251	114	248	533	644
v/c Ratio	1.35	1.70	0.29	2.11	0.71	1.19	0.62
Control Delay	201.4	350.9	3.4	583.6	62.7	118.8	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	1.5
Total Delay	201.4	350.9	3.4	583.6	62.7	118.9	20.0
Queue Length 50th (ft)	~663	~928	9	~140	98	~377	117
Queue Length 95th (ft)	#803	#1102	42	#261	#146	m#541	m139
Internal Link Dist (ft)	401	526			685		249
Turn Bay Length (ft)				160			
Base Capacity (vph)	911	482	851	54	348	449	1044
Starvation Cap Reductn	0	0	0	0	0	7	221
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.35	1.70	0.29	2.11	0.71	1.21	0.78

Intersection Summary

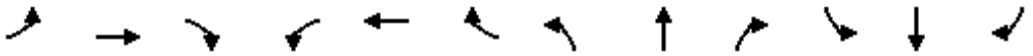
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1092	56	0	703	216	103	215	8	469	546	21
Future Volume (vph)	0	1092	56	0	703	216	103	215	8	469	546	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	3.0	6.0	6.0		3.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.99			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3113			1653	1364	1555	2787		1555	2909	
Flt Permitted		1.00			1.00	1.00	0.27	1.00		0.51	1.00	
Satd. Flow (perm)		3113			1653	1364	436	2787		834	2909	
Peak-hour factor, PHF	0.93	0.93	0.93	0.86	0.86	0.86	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	0	1174	60	0	817	251	114	239	9	533	620	24
RTOR Reduction (vph)	0	3	0	0	0	113	0	0	0	0	3	0
Lane Group Flow (vph)	0	1231	0	0	817	139	114	248	0	533	641	0
Confl. Bikes (#/hr)			2						1			9
Heavy Vehicles (%)	0%	0%	2%	0%	0%	3%	1%	12%	13%	1%	6%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	7	7
Turn Type		NA			NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		3			3	4		1		4	1 4	
Permitted Phases						3	1			1		
Actuated Green, G (s)		35.0			35.0	60.0	15.0	15.0		40.0	43.0	
Effective Green, g (s)		35.0			35.0	60.0	15.0	15.0		40.0	40.0	
Actuated g/C Ratio		0.29			0.29	0.50	0.12	0.12		0.33	0.33	
Clearance Time (s)		6.0			6.0	3.0	6.0	6.0		3.0		
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		907			482	682	54	348		428	969	
v/s Ratio Prot		0.40			c0.49	0.04		0.09		c0.26	0.22	
v/s Ratio Perm						0.06	c0.26			0.16		
v/c Ratio		1.36			1.70	0.20	2.11	0.71		1.25	0.66	
Uniform Delay, d1		42.5			42.5	16.7	52.5	50.4		37.6	34.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		0.49	0.52	
Incremental Delay, d2		168.0			321.6	0.7	556.9	11.8		122.8	2.3	
Delay (s)		210.5			364.1	17.4	609.4	62.2		141.3	20.2	
Level of Service		F			F	B	F	E		F	C	
Approach Delay (s)		210.5			282.6			234.5			75.1	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	191.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	56	70	176	64	111	56	385	84	129	790	23
Future Volume (vph)	38	56	70	176	64	111	56	385	84	129	790	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	0		150	0		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			200			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.99			0.99						1.00	
Frt		0.943			0.905				0.850		0.996	
Flt Protected		0.988		0.950				0.994		0.950		
Satd. Flow (prot)	0	1469	0	1510	1462	0	0	2938	1203	1331	2995	0
Flt Permitted		0.815		0.546				0.504		0.385		
Satd. Flow (perm)	0	1212	0	868	1462	0	0	1489	1203	539	2995	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		335			547			329			443	
Travel Time (s)		7.6			12.4			7.5			10.1	
Confl. Bikes (#/hr)			1			3						5
Peak Hour Factor	0.87	0.87	0.87	0.85	0.85	0.85	0.93	0.93	0.93	0.91	0.91	0.91
Heavy Vehicles (%)	8%	2%	4%	4%	2%	1%	5%	5%	14%	18%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	6	6	0	7	7
Parking (#/hr)												4
Adj. Flow (vph)	44	64	80	207	75	131	60	414	90	142	868	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	188	0	207	206	0	0	474	90	142	893	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			11			11	
Link Offset(ft)		0			0			0			-4	
Crosswalk Width(ft)		16			36			32			30	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.21	1.23	1.19	1.22	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	50		50	50		20	50	20	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	50		50	50		20	50	20	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	D.P+P	NA	
Protected Phases		5			5			1		6	1 6	
Permitted Phases	5			5			1		1	1		

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	5		5	5		1	1	1	6	1 6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0	10.0	6.0		
Minimum Split (s)	14.0	14.0		14.0	14.0		16.0	16.0	16.0	12.0		
Total Split (s)	35.0	35.0		35.0	35.0		43.0	43.0	43.0	13.0		
Total Split (%)	29.2%	29.2%		29.2%	29.2%		35.8%	35.8%	35.8%	10.8%		
Maximum Green (s)	29.0	29.0		29.0	29.0		37.0	37.0	37.0	7.0		
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5		
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5		
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0	0.0		
Total Lost Time (s)		6.0		6.0	6.0			6.0	6.0	6.0		
Lead/Lag	Lead	Lead		Lead	Lead		Lead	Lead	Lead	Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		29.0		29.0	29.0			37.0	37.0	44.0	50.0	
Actuated g/C Ratio		0.24		0.24	0.24			0.31	0.31	0.37	0.42	
v/c Ratio		0.64		0.99	0.58			1.18dl	0.24	0.58	0.72	
Control Delay		52.4		106.1	47.9			83.2	21.7	20.0	17.2	
Queue Delay		0.6		12.4	0.0			0.0	0.0	0.0	1.0	
Total Delay		53.0		118.5	47.9			83.2	21.7	20.0	18.2	
LOS		D		F	D			F	C	B	B	
Approach Delay		53.0			83.3			73.4			18.5	
Approach LOS		D			F			E			B	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 1 (1%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 47.7		Intersection LOS: D	
Intersection Capacity Utilization 80.4%		ICU Level of Service D	
Analysis Period (min) 15			
dl Defacto Left Lane. Recode with 1 though lane as a left lane.			

Splits and Phases: 2: Brookline Ave & Francis St



Lane Group	Ø2
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	29.0
Total Split (s)	29.0
Total Split (%)	24%
Maximum Green (s)	25.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	18.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	188	207	206	474	90	142	893
v/c Ratio	0.64	0.99	0.58	1.18dl	0.24	0.58	0.72
Control Delay	52.4	106.1	47.9	83.2	21.7	20.0	17.2
Queue Delay	0.6	12.4	0.0	0.0	0.0	0.0	1.0
Total Delay	53.0	118.5	47.9	83.2	21.7	20.0	18.2
Queue Length 50th (ft)	131	160	142	~143	30	40	144
Queue Length 95th (ft)	206	#292	209	#294	m60	m59	m272
Internal Link Dist (ft)	255		467	249			363
Turn Bay Length (ft)		250			150		
Base Capacity (vph)	292	209	353	459	370	243	1247
Starvation Cap Reductn	0	0	0	0	0	0	152
Spillback Cap Reductn	13	9	0	0	0	0	95
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	1.03	0.58	1.03	0.24	0.58	0.82

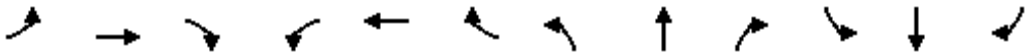
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

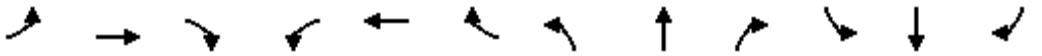
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	56	70	176	64	111	56	385	84	129	790	23
Future Volume (vph)	38	56	70	176	64	111	56	385	84	129	790	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00			0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99		1.00	0.99			1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Frt		0.94		1.00	0.90			1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)		1469		1510	1461			2937	1203	1331	2994	
Flt Permitted		0.82		0.55	1.00			0.50	1.00	0.39	1.00	
Satd. Flow (perm)		1212		868	1461			1489	1203	539	2994	
Peak-hour factor, PHF	0.87	0.87	0.87	0.85	0.85	0.85	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	44	64	80	207	75	131	60	414	90	142	868	25
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	188	0	207	206	0	0	474	90	142	893	0
Confl. Bikes (#/hr)			1			3						5
Heavy Vehicles (%)	8%	2%	4%	4%	2%	1%	5%	5%	14%	18%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	6	6	0	7	7
Parking (#/hr)												4
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	D.P+P	NA	
Protected Phases		5			5			1		6	1 6	
Permitted Phases	5			5			1		1	1		
Actuated Green, G (s)		29.0		29.0	29.0			37.0	37.0	44.0	50.0	
Effective Green, g (s)		29.0		29.0	29.0			37.0	37.0	44.0	50.0	
Actuated g/C Ratio		0.24		0.24	0.24			0.31	0.31	0.37	0.42	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0	6.0		
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)		292		209	353			459	370	243	1247	
v/s Ratio Prot					0.14					0.03	c0.30	
v/s Ratio Perm		0.16		c0.24				c0.32	0.07	0.18		
v/c Ratio		0.64		0.99	0.58			1.18dl	0.24	0.58	0.72	
Uniform Delay, d1		40.9		45.4	40.2			41.5	31.0	28.8	29.1	
Progression Factor		1.00		1.00	1.00			0.80	0.64	0.54	0.51	
Incremental Delay, d2		4.8		59.3	2.5			48.9	1.4	5.9	2.1	
Delay (s)		45.7		104.7	42.6			82.1	21.2	21.3	17.0	
Level of Service		D		F	D			F	C	C	B	
Approach Delay (s)		45.7			73.7			72.4			17.6	
Approach LOS		D			E			E			B	

Intersection Summary			
HCM 2000 Control Delay	44.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



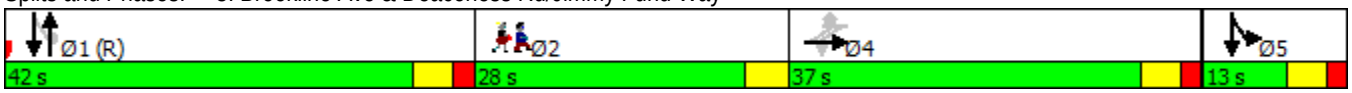
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	27	86	194	0	186	0	489	45	53	662	0
Future Volume (vph)	54	27	86	194	0	186	0	489	45	53	662	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor						0.99						
Frt		0.886				0.850		0.987				
Flt Protected	0.950			0.950							0.996	
Satd. Flow (prot)	1287	1354	0	1481	0	1266	0	2950	0	0	3016	0
Flt Permitted	0.950			0.631							0.792	
Satd. Flow (perm)	1287	1354	0	984	0	1250	0	2950	0	0	2399	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		101						8				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		327			400			443			84	
Travel Time (s)		7.4			9.1			10.1			1.9	
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.85	0.85	0.85	0.87	0.87	0.87	0.92	0.92	0.92	0.88	0.88	0.88
Heavy Vehicles (%)	22%	15%	6%	6%	0%	11%	0%	4%	2%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	6	6	0	0	0
Adj. Flow (vph)	64	32	101	223	0	214	0	532	49	60	752	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	133	0	223	0	214	0	581	0	0	812	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		-12			-8			4			0	
Crosswalk Width(ft)		16			16			16			12	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.21	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1		1		1		1	1	
Detector Template	Left	Thru		Left		Right		Thru		Left	Thru	
Leading Detector (ft)	50	50		50		50		50		20	50	
Trailing Detector (ft)	0	0		0		0		0		0	0	
Detector 1 Position(ft)	0	0		0		0		0		0	0	
Detector 1 Size(ft)	50	50		50		50		50		20	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Turn Type	Perm	NA		D.Pm		Perm		NA		D.P+P	NA	
Protected Phases		4						1		5	1 5	
Permitted Phases	4			4		4				1		
Detector Phase	4	4		4		4		1		5	1 5	

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0		8.0		10.0		6.0		
Minimum Split (s)	13.5	13.5		13.5		13.5		15.5		11.5		
Total Split (s)	37.0	37.0		37.0		37.0		42.0		13.0		
Total Split (%)	30.8%	30.8%		30.8%		30.8%		35.0%		10.8%		
Maximum Green (s)	31.5	31.5		31.5		31.5		36.5		7.5		
Yellow Time (s)	3.5	3.5		3.5		3.5		3.5		3.5		
All-Red Time (s)	2.0	2.0		2.0		2.0		2.0		2.0		
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0				
Total Lost Time (s)	5.5	5.5		5.5		5.5		5.5				
Lead/Lag								Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0		2.0		2.0		2.0		
Recall Mode	None	None		None		None		C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	29.0	29.0		29.0		29.0		39.0			46.5	
Actuated g/C Ratio	0.24	0.24		0.24		0.24		0.32			0.39	
v/c Ratio	0.21	0.33		0.94		0.71		0.60			0.84	
Control Delay	37.0	13.3		89.6		55.0		26.9			24.5	
Queue Delay	0.0	0.0		0.0		0.0		0.0			0.0	
Total Delay	37.0	13.3		89.6		55.0		26.9			24.5	
LOS	D	B		F		D		C			C	
Approach Delay		21.0			72.6			26.9			24.5	
Approach LOS		C			E			C			C	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 2 (2%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 35.2		Intersection LOS: D	
Intersection Capacity Utilization 69.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Brookline Ave & Deaconess Rd/Jimmy Fund Way



Lane Group	Ø2
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	28.0
Total Split (s)	28.0
Total Split (%)	23%
Maximum Green (s)	24.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	17.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

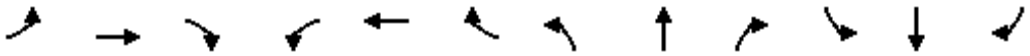
Intersection Summary



Lane Group	EBL	EBT	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	64	133	223	214	581	812
v/c Ratio	0.21	0.33	0.94	0.71	0.60	0.84
Control Delay	37.0	13.3	89.6	55.0	26.9	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.0	13.3	89.6	55.0	26.9	24.5
Queue Length 50th (ft)	39	19	165	148	120	279
Queue Length 95th (ft)	73	62	#293	227	m126	#321
Internal Link Dist (ft)		247			363	4
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	337	429	258	328	965	969
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.31	0.86	0.65	0.60	0.84

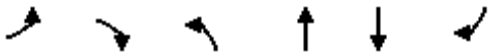
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



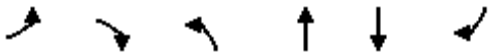
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	27	86	194	0	186	0	489	45	53	662	0
Future Volume (vph)	54	27	86	194	0	186	0	489	45	53	662	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5		5.5		5.5			5.5	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00		0.99		1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00		1.00		1.00			1.00	
Frt	1.00	0.89		1.00		0.85		0.99			1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00			1.00	
Satd. Flow (prot)	1287	1354		1481		1249		2951			3017	
Flt Permitted	0.95	1.00		0.63		1.00		1.00			0.79	
Satd. Flow (perm)	1287	1354		984		1249		2951			2400	
Peak-hour factor, PHF	0.85	0.85	0.85	0.87	0.87	0.87	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	64	32	101	223	0	214	0	532	49	60	752	0
RTOR Reduction (vph)	0	77	0	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	64	56	0	223	0	214	0	576	0	0	812	0
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	22%	15%	6%	6%	0%	11%	0%	4%	2%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	6	6	0	0	0
Turn Type	Perm	NA		D.Pm		Perm		NA		D.P+P	NA	
Protected Phases		4						1		5	1 5	
Permitted Phases	4			4		4				1		
Actuated Green, G (s)	29.0	29.0		29.0		29.0		39.0			46.5	
Effective Green, g (s)	29.0	29.0		29.0		29.0		39.0			46.5	
Actuated g/C Ratio	0.24	0.24		0.24		0.24		0.32			0.39	
Clearance Time (s)	5.5	5.5		5.5		5.5		5.5				
Vehicle Extension (s)	2.0	2.0		2.0		2.0		2.0				
Lane Grp Cap (vph)	311	327		237		301		959			968	
v/s Ratio Prot		0.04						0.20			c0.05	
v/s Ratio Perm	0.05			c0.23		0.17					c0.27	
v/c Ratio	0.21	0.17		0.94		0.71		0.60			0.84	
Uniform Delay, d1	36.3	36.0		44.7		41.7		34.0			33.3	
Progression Factor	1.00	1.00		1.00		1.00		0.75			0.51	
Incremental Delay, d2	0.1	0.1		41.9		6.4		1.1			7.1	
Delay (s)	36.4	36.1		86.6		48.1		26.5			24.2	
Level of Service	D	D		F		D		C			C	
Approach Delay (s)		36.2			67.7			26.5			24.2	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	72	657	715	61
Future Volume (vph)	0	0	72	657	715	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt					0.988	
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1454	2882	2900	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1454	2882	2900	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	185			84	355	
Travel Time (s)	4.2			1.9	8.1	
Confl. Peds. (#/hr)			232			232
Confl. Bikes (#/hr)						6
Peak Hour Factor	0.91	0.91	0.97	0.97	0.91	0.91
Heavy Vehicles (%)	0%	0%	8%	7%	4%	23%
Bus Blockages (#/hr)	0	0	0	9	7	0
Adj. Flow (vph)	0	0	74	677	786	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	74	677	853	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			11	11	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.22	1.22	1.19
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

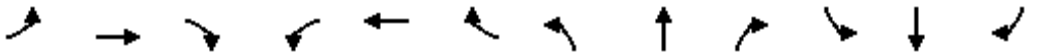
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	72	657	715	61
Future Volume (Veh/h)	0	0	72	657	715	61
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.97	0.97	0.91	0.91
Hourly flow rate (vph)	0	0	74	677	786	67
Pedestrians	232					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				84	355	
pX, platoon unblocked	0.91	0.84	0.84			
vC, conflicting volume	1538	658	1085			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	655	202	712			
tC, single (s)	6.8	6.9	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	90			
cM capacity (veh/h)	330	679	707			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	74	338	338	524	329
Volume Left	74	0	0	0	0
Volume Right	0	0	0	0	67
cSH	707	1700	1700	1700	1700
Volume to Capacity	0.10	0.20	0.20	0.31	0.19
Queue Length 95th (ft)	9	0	0	0	0
Control Delay (s)	10.7	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	1.1			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	159	28	149	227	283	47	506	104	185	599	75
Future Volume (vph)	31	159	28	149	227	283	47	506	104	185	599	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	250		0	330		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50			100			30			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00						1.00			1.00	
Frt		0.978				0.850		0.974			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1570	1529	0	1496	1605	1313	1510	2737	0	1481	2897	0
Flt Permitted	0.438			0.482			0.104			0.258		
Satd. Flow (perm)	724	1529	0	759	1605	1313	165	2737	0	402	2897	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		366			390			355			587	
Travel Time (s)		8.3			8.9			8.1			13.3	
Confl. Bikes (#/hr)			2						3			4
Peak Hour Factor	0.84	0.84	0.84	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Heavy Vehicles (%)	0%	3%	0%	5%	3%	7%	4%	6%	16%	6%	5%	5%
Bus Blockages (#/hr)	0	7	0	0	0	0	0	17	0	0	6	0
Adj. Flow (vph)	37	189	33	162	247	308	51	544	112	197	637	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	222	0	162	247	308	51	656	0	197	717	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			11			11	
Link Offset(ft)		-5			2			4			0	
Crosswalk Width(ft)		25			12			18			28	
Two way Left Turn Lane												
Headway Factor	1.19	1.24	1.19	1.19	1.19	1.19	1.19	1.25	1.19	1.19	1.21	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50		50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		4			4	5		1		5	1 5	
Permitted Phases	4			4		4	1			1		
Detector Phase	4	4		4	4	5	1	1		5	1 5	

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	6.0	10.0	10.0		6.0		
Minimum Split (s)	14.0	14.0		14.0	14.0	11.5	15.5	15.5		11.5		
Total Split (s)	36.0	36.0		36.0	36.0	13.0	44.0	44.0		13.0		
Total Split (%)	30.0%	30.0%		30.0%	30.0%	10.8%	36.7%	36.7%		10.8%		
Maximum Green (s)	30.0	30.0		30.0	30.0	7.5	38.5	38.5		7.5		
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5		
All-Red Time (s)	2.5	2.5		2.5	2.5	2.0	2.0	2.0		2.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5		
Lead/Lag							Lead	Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		
Recall Mode	Max	Max		Max	Max	Max	C-Max	C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	30.0	30.0		30.0	30.0	43.5	38.5	38.5		46.0	51.5	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.36	0.32	0.32		0.38	0.43	
v/c Ratio	0.20	0.58		0.86	0.62	0.65	0.98	0.75		0.89	0.58	
Control Delay	39.2	46.6		80.9	47.6	39.5	148.6	34.6		67.0	28.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.1		0.0	0.1	
Total Delay	39.2	46.6		80.9	47.6	39.5	148.6	34.7		67.0	28.4	
LOS	D	D		F	D	D	F	C		E	C	
Approach Delay		45.6			51.7			42.9			36.7	
Approach LOS		D			D			D			D	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 110 (92%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 43.4		Intersection LOS: D	
Intersection Capacity Utilization 70.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 5: Brookline Ave & Longwood Ave



Lane Group	Ø2
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	23%
Maximum Green (s)	23.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	16.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

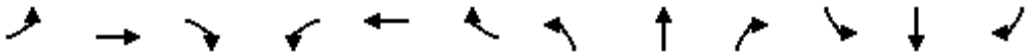
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	37	222	162	247	308	51	656	197	717
v/c Ratio	0.20	0.58	0.86	0.62	0.65	0.98	0.75	0.89	0.58
Control Delay	39.2	46.6	80.9	47.6	39.5	148.6	34.6	67.0	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Total Delay	39.2	46.6	80.9	47.6	39.5	148.6	34.7	67.0	28.4
Queue Length 50th (ft)	23	151	120	170	197	26	174	99	217
Queue Length 95th (ft)	50	217	#248	261	301	m#93	228	#223	280
Internal Link Dist (ft)		286		310			275		507
Turn Bay Length (ft)	150		150			250		330	
Base Capacity (vph)	181	382	189	401	475	52	878	221	1243
Starvation Cap Reductn	0	0	0	0	0	0	8	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	49
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.58	0.86	0.62	0.65	0.98	0.75	0.89	0.60

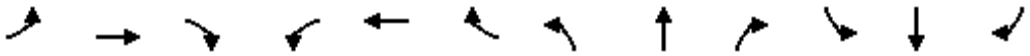
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



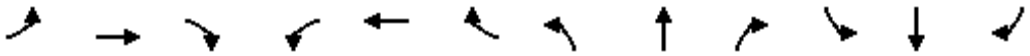
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	159	28	149	227	283	47	506	104	185	599	75
Future Volume (vph)	31	159	28	149	227	283	47	506	104	185	599	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1570	1529		1496	1605	1313	1510	2738		1481	2898	
Flt Permitted	0.44	1.00		0.48	1.00	1.00	0.10	1.00		0.26	1.00	
Satd. Flow (perm)	724	1529		759	1605	1313	165	2738		402	2898	
Peak-hour factor, PHF	0.84	0.84	0.84	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	37	189	33	162	247	308	51	544	112	197	637	80
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	37	222	0	162	247	308	51	656	0	197	717	0
Confl. Bikes (#/hr)			2						3			4
Heavy Vehicles (%)	0%	3%	0%	5%	3%	7%	4%	6%	16%	6%	5%	5%
Bus Blockages (#/hr)	0	7	0	0	0	0	0	17	0	0	6	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		4			4	5		1		5	1 5	
Permitted Phases	4			4		4	1			1		
Actuated Green, G (s)	30.0	30.0		30.0	30.0	37.5	38.5	38.5		46.0	51.5	
Effective Green, g (s)	30.0	30.0		30.0	30.0	37.5	38.5	38.5		46.0	51.5	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.31	0.32	0.32		0.38	0.43	
Clearance Time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5		
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		
Lane Grp Cap (vph)	181	382		189	401	410	52	878		221	1243	
v/s Ratio Prot		0.15			0.15	0.05		0.24		c0.06	0.25	
v/s Ratio Perm	0.05			c0.21		0.19	c0.31			0.29		
v/c Ratio	0.20	0.58		0.86	0.62	0.75	0.98	0.75		0.89	0.58	
Uniform Delay, d1	35.6	39.5		43.0	39.9	37.1	40.4	36.4		32.5	26.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.82	0.81		1.00	1.00	
Incremental Delay, d2	2.5	6.3		36.5	6.9	12.0	108.9	4.9		37.7	2.0	
Delay (s)	38.1	45.8		79.4	46.8	49.0	142.0	34.2		70.2	27.9	
Level of Service	D	D		E	D	D	F	C		E	C	
Approach Delay (s)		44.7			55.1			42.0			37.1	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	4	0	9	28	163	3	804	20	35	1139	194
Future Volume (vph)	55	4	0	9	28	163	3	804	20	35	1139	194
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	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt					0.890			0.996			0.979	
Flt Protected		0.955			0.998						0.999	
Satd. Flow (prot)	0	1550	0	0	1427	0	0	3124	0	0	3069	0
Flt Permitted		0.955			0.998						0.999	
Satd. Flow (perm)	0	1550	0	0	1427	0	0	3124	0	0	3069	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		148			142			481			579	
Travel Time (s)		3.4			3.2			10.9			13.2	
Confl. Peds. (#/hr)	15		9	9		15	3		17	17		3
Confl. Bikes (#/hr)						1			3			2
Peak Hour Factor	0.74	0.74	0.74	0.75	0.75	0.75	0.86	0.86	0.86	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	10%	0%	3%	0%	0%	5%	3%	0%	0%
Adj. Flow (vph)	74	5	0	12	37	217	3	935	23	36	1174	200
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	79	0	0	266	0	0	961	0	0	1410	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 101.1%		ICU Level of Service G	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	4	0	9	28	163	3	804	20	35	1139	194
Future Volume (Veh/h)	55	4	0	9	28	163	3	804	20	35	1139	194
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.74	0.74	0.74	0.75	0.75	0.75	0.86	0.86	0.86	0.97	0.97	0.97
Hourly flow rate (vph)	74	5	0	12	37	217	3	935	23	36	1174	200
Pedestrians		3			17			9			15	
Lane Width (ft)		11.0			11.0			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								481			1067	
pX, platoon unblocked	0.70	0.70	0.70	0.70	0.70		0.70					
vC, conflicting volume	2073	2330	699	1640	2418	511	1377			975		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1673	2041	0	1053	2167	511	676			975		
tC, single (s)	7.5	6.5	6.9	7.7	6.5	7.0	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	0	86	100	88	0	56	100			95		
cM capacity (veh/h)	0	37	754	98	31	491	644			687		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	79	266	470	490	623	787
Volume Left	74	12	3	0	36	0
Volume Right	0	217	0	23	0	200
cSH	0	151	644	1700	687	1700
Volume to Capacity	Err	1.77	0.00	0.29	0.05	0.46
Queue Length 95th (ft)	Err	488	0	0	4	0
Control Delay (s)	Err	421.7	0.1	0.0	1.4	0.0
Lane LOS	F	F	A		A	
Approach Delay (s)	Err	421.7	0.1		0.6	
Approach LOS	F	F				

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	101.1%	ICU Level of Service	G	
Analysis Period (min)	15			



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	988	34	25	1368
Future Volume (vph)	0	0	988	34	25	1368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt			0.995			
Flt Protected						0.999
Satd. Flow (prot)	0	0	3092	0	0	3098
Flt Permitted						0.999
Satd. Flow (perm)	0	0	3092	0	0	3098
Link Speed (mph)	30		30			30
Link Distance (ft)	520		579			488
Travel Time (s)	11.8		13.2			11.1
Confl. Peds. (#/hr)				6	6	
Confl. Bikes (#/hr)				4		
Peak Hour Factor	0.25	0.25	0.88	0.88	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	3%	16%	1%
Adj. Flow (vph)	0	0	1123	39	27	1487
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1162	0	0	1514
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		11			11
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

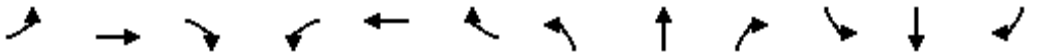
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.1%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	988	34	25	1368
Future Volume (Veh/h)	0	0	988	34	25	1368
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.25	0.25	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	0	0	1123	39	27	1487
Pedestrians	6					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1060			488
pX, platoon unblocked	0.68					
vC, conflicting volume	1946	587			1168	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1445	587			1168	
tC, single (s)	6.8	6.9			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.4	
p0 queue free %	100	100			95	
cM capacity (veh/h)	80	458			520	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	749	413	523	991
Volume Left	0	0	27	0
Volume Right	0	39	0	0
cSH	1700	1700	520	1700
Volume to Capacity	0.44	0.24	0.05	0.58
Queue Length 95th (ft)	0	0	4	0
Control Delay (s)	0.0	0.0	1.5	0.0
Lane LOS			A	
Approach Delay (s)	0.0		0.5	
Approach LOS				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		



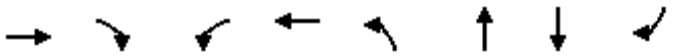
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	194	177	79	262	46	281	665	42	0	1137	100
Future Volume (vph)	81	194	177	79	262	46	281	665	42	0	1137	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	50		0	250		0	0		0
Storage Lanes	0		1	1		0	1		0	0		1
Taper Length (ft)	25			100			100			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor					0.99							
Frt			0.850		0.978			0.991				0.850
Flt Protected		0.985		0.950			0.950					
Satd. Flow (prot)	0	1606	1405	1570	1572	0	1555	3083	0	0	3110	1405
Flt Permitted		0.418		0.342			0.117					
Satd. Flow (perm)	0	681	1405	565	1572	0	191	3083	0	0	3110	1405
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			33		8			6				98
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		346			201			488			736	
Travel Time (s)		7.9			4.6			11.1			16.7	
Confl. Bikes (#/hr)						34						
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	0%	0%	1%	9%	1%	1%	0%	0%	1%	0%
Adj. Flow (vph)	93	223	203	88	291	51	302	715	45	0	1249	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	316	203	88	342	0	302	760	0	0	1249	110
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			11			0	
Link Offset(ft)		8			12			0			4	
Crosswalk Width(ft)		20			24			24			12	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1			1	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	Right
Leading Detector (ft)	20	50	50	50	50		50	50			50	50
Trailing Detector (ft)	0	0	0	0	0		0	0			0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0			0	0
Detector 1 Size(ft)	20	50	50	50	50		50	50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA			NA	Perm
Protected Phases		2	3		2		3	1			1	
Permitted Phases	2		2	2			1					1
Detector Phase	2	2	3	2	2		3	1			1	1
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	18.0			18.0	18.0
Minimum Split (s)	14.0	14.0	27.0	14.0	14.0		27.0	24.0			24.0	24.0
Total Split (s)	31.0	31.0	35.0	31.0	31.0		35.0	34.0			34.0	34.0
Total Split (%)	31.0%	31.0%	35.0%	31.0%	31.0%		35.0%	34.0%			34.0%	34.0%
Maximum Green (s)	25.0	25.0	29.0	25.0	25.0		29.0	28.0			28.0	28.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	3.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0		6.0	6.0			6.0	6.0
Lead/Lag	Lag	Lag		Lag	Lag			Lead			Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	2.0
Recall Mode	None	None	Ped	None	None		Ped	C-Max			C-Max	C-Max
Walk Time (s)			7.0				7.0					
Flash Dont Walk (s)			14.0				14.0					
Pedestrian Calls (#/hr)			0				0					
Act Effct Green (s)		25.0	53.8	25.0	25.0		57.0	34.2			34.2	34.2
Actuated g/C Ratio		0.25	0.54	0.25	0.25		0.57	0.34			0.34	0.34
v/c Ratio		1.86	0.26	0.62	0.86		0.72	0.72			1.18	0.20
Control Delay		433.9	10.8	55.0	56.8		32.2	33.9			120.9	7.7
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay		433.9	10.8	55.0	56.8		32.2	33.9			120.9	7.7
LOS		F	B	E	E		C	C			F	A
Approach Delay		268.4			56.4			33.4			111.7	
Approach LOS		F			E			C			F	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.86			
Intersection Signal Delay: 104.1		Intersection LOS: F	
Intersection Capacity Utilization 107.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 8: Riverway & Longwood Ave



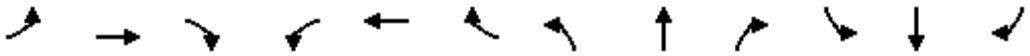


Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	316	203	88	342	302	760	1249	110
v/c Ratio	1.86	0.26	0.62	0.86	0.72	0.72	1.18	0.20
Control Delay	433.9	10.8	55.0	56.8	32.2	33.9	120.9	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	433.9	10.8	55.0	56.8	32.2	33.9	120.9	7.7
Queue Length 50th (ft)	~308	56	50	204	131	212	~483	5
Queue Length 95th (ft)	#456	81	#123	#363	217	#334	#692	46
Internal Link Dist (ft)	266			121		408	656	
Turn Bay Length (ft)		100	50		250			
Base Capacity (vph)	170	856	141	399	513	1056	1062	544
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.86	0.24	0.62	0.86	0.59	0.72	1.18	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	194	177	79	262	46	281	665	42	0	1137	100
Future Volume (vph)	81	194	177	79	262	46	281	665	42	0	1137	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0		6.0	6.0			6.0	6.0
Lane Util. Factor		1.00	1.00	1.00	1.00		1.00	0.95			0.95	1.00
Frpb, ped/bikes		1.00	1.00	1.00	0.99		1.00	1.00			1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt		1.00	0.85	1.00	0.98		1.00	0.99			1.00	0.85
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1606	1405	1570	1571		1555	3084			3110	1405
Flt Permitted		0.42	1.00	0.34	1.00		0.12	1.00			1.00	1.00
Satd. Flow (perm)		681	1405	565	1571		191	3084			3110	1405
Peak-hour factor, PHF	0.87	0.87	0.87	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	93	223	203	88	291	51	302	715	45	0	1249	110
RTOR Reduction (vph)	0	0	17	0	6	0	0	4	0	0	0	64
Lane Group Flow (vph)	0	316	186	88	336	0	302	756	0	0	1249	46
Confl. Bikes (#/hr)						34						
Heavy Vehicles (%)	0%	2%	0%	0%	1%	9%	1%	1%	0%	0%	1%	0%
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA			NA	Perm
Protected Phases		2	3		2		3	1			1	
Permitted Phases	2		2	2			1					1
Actuated Green, G (s)		25.0	47.8	25.0	25.0		57.0	34.2			34.2	34.2
Effective Green, g (s)		25.0	47.8	25.0	25.0		57.0	34.2			34.2	34.2
Actuated g/C Ratio		0.25	0.48	0.25	0.25		0.57	0.34			0.34	0.34
Clearance Time (s)		6.0	6.0	6.0	6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)		170	755	141	392		419	1054			1063	480
v/s Ratio Prot			0.06		0.21		c0.16	0.25			c0.40	
v/s Ratio Perm		c0.46	0.08	0.16			0.25					0.03
v/c Ratio		1.86	0.25	0.62	0.86		0.72	0.72			1.17	0.09
Uniform Delay, d1		37.5	15.4	33.3	35.8		23.8	28.7			32.9	22.4
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		408.2	0.1	6.1	16.1		5.1	4.2			88.8	0.4
Delay (s)		445.7	15.5	39.4	51.9		28.9	32.9			121.7	22.8
Level of Service		F	B	D	D		C	C			F	C
Approach Delay (s)		277.4			49.3			31.7			113.7	
Approach LOS		F			D			C			F	

Intersection Summary			
HCM 2000 Control Delay	104.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	236	0	0	353	34	22
Future Volume (vph)	236	0	0	353	34	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.947	
Flt Protected					0.970	
Satd. Flow (prot)	1621	0	0	1637	1518	0
Flt Permitted					0.970	
Satd. Flow (perm)	1621	0	0	1637	1518	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	201			69	520	
Travel Time (s)	4.6			1.6	11.8	
Peak Hour Factor	0.87	0.87	0.88	0.88	0.68	0.68
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Adj. Flow (vph)	271	0	0	401	50	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	271	0	0	401	82	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	11	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

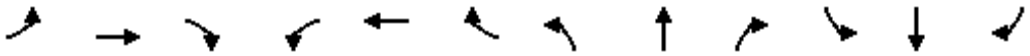
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	236	0	0	353	34	22
Future Volume (Veh/h)	236	0	0	353	34	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.88	0.88	0.68	0.68
Hourly flow rate (vph)	271	0	0	401	50	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	201			686		
pX, platoon unblocked			0.85		0.88	0.85
vC, conflicting volume			271		672	271
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			56		411	56
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		91	96
cM capacity (veh/h)			1329		529	865

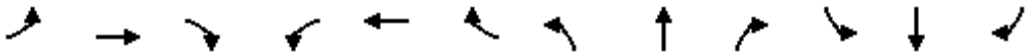
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	271	401	82
Volume Left	0	0	50
Volume Right	0	0	32
cSH	1700	1700	624
Volume to Capacity	0.16	0.24	0.13
Queue Length 95th (ft)	0	0	11
Control Delay (s)	0.0	0.0	11.6
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.6
Approach LOS			B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	175	40	61	266	22	24	4	29	14	27	67
Future Volume (vph)	24	175	40	61	266	22	24	4	29	14	27	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	75		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.972			0.989			0.931			0.916	
Flt Protected	0.950			0.950				0.979			0.994	
Satd. Flow (prot)	1570	1546	0	1428	1620	0	0	1507	0	0	1505	0
Flt Permitted	0.950			0.950				0.979			0.994	
Satd. Flow (perm)	1570	1546	0	1428	1620	0	0	1507	0	0	1505	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		251			366			200			129	
Travel Time (s)		5.7			8.3			4.5			2.9	
Confl. Peds. (#/hr)	352		245	245		352	74		52	52		74
Confl. Bikes (#/hr)			2			27						
Peak Hour Factor	0.87	0.87	0.87	0.88	0.88	0.88	0.75	0.75	0.75	0.73	0.73	0.73
Heavy Vehicles (%)	0%	3%	8%	10%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	28	201	46	69	302	25	32	5	39	19	37	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	247	0	69	327	0	0	76	0	0	148	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

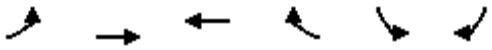
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	175	40	61	266	22	24	4	29	14	27	67
Future Volume (Veh/h)	24	175	40	61	266	22	24	4	29	14	27	67
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.88	0.88	0.88	0.75	0.75	0.75	0.73	0.73	0.73
Hourly flow rate (vph)	28	201	46	69	302	25	32	5	39	19	37	92
Pedestrians		74			52			245			352	
Lane Width (ft)		11.0			11.0			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		6			5			21			31	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		521			366							
pX, platoon unblocked	0.89						0.89	0.89		0.89	0.89	0.89
vC, conflicting volume	679			492			1150	1342	521	1155	1352	740
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	576			492			1106	1322	521	1112	1334	646
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			91			0	93	91	66	44	66
cM capacity (veh/h)	620			811			28	67	420	56	66	274

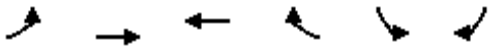
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	28	247	69	327	76	148
Volume Left	28	0	69	0	32	19
Volume Right	0	46	0	25	39	92
cSH	620	1700	811	1700	58	119
Volume to Capacity	0.05	0.15	0.09	0.19	1.30	1.24
Queue Length 95th (ft)	4	0	7	0	164	236
Control Delay (s)	11.1	0.0	9.9	0.0	335.4	230.1
Lane LOS	B		A		F	F
Approach Delay (s)	1.1		1.7		335.4	230.1
Approach LOS					F	F

Intersection Summary				
Average Delay	67.6			
Intersection Capacity Utilization	44.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	51	133	18	85	67
Future Volume (vph)	8	51	133	18	85	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.984		0.940	
Flt Protected		0.993			0.973	
Satd. Flow (prot)	0	1614	1615	0	1406	0
Flt Permitted		0.993			0.973	
Satd. Flow (perm)	0	1614	1615	0	1406	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		142	335		150	
Travel Time (s)		3.2	7.6		3.4	
Confl. Peds. (#/hr)	36			36	42	31
Peak Hour Factor	0.75	0.75	0.86	0.86	0.83	0.83
Heavy Vehicles (%)	0%	2%	0%	6%	8%	7%
Adj. Flow (vph)	11	68	155	21	102	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	79	176	0	183	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15			9	15	9
Sign Control		Stop	Stop		Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.3%		ICU Level of Service A	
Analysis Period (min) 15			

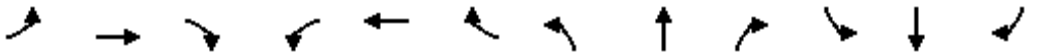


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	8	51	133	18	85	67
Future Volume (vph)	8	51	133	18	85	67
Peak Hour Factor	0.75	0.75	0.86	0.86	0.83	0.83
Hourly flow rate (vph)	11	68	155	21	102	81

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	79	176	183
Volume Left (vph)	11	0	102
Volume Right (vph)	0	21	81
Hadj (s)	0.06	-0.06	-0.03
Departure Headway (s)	4.6	4.4	4.5
Degree Utilization, x	0.10	0.21	0.23
Capacity (veh/h)	744	781	766
Control Delay (s)	8.1	8.6	8.8
Approach Delay (s)	8.1	8.6	8.8
Approach LOS	A	A	A

Intersection Summary			
Delay	8.6		
Level of Service	A		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

2023 No Build Conditions



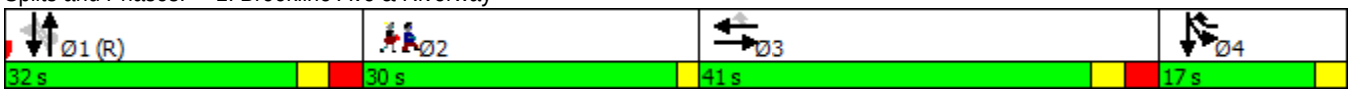
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	649	79	0	904	392	306	511	4	290	374	18
Future Volume (vph)	0	649	79	0	904	392	306	511	4	290	374	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	160		0	0		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00						1.00			1.00	
Frt		0.984				0.850		0.999			0.993	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	3032	0	0	1653	1391	1555	2988	0	1555	2781	0
Flt Permitted							0.398			0.232		
Satd. Flow (perm)	0	3032	0	0	1653	1391	651	2988	0	380	2781	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		11				265					5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		481			606			765			329	
Travel Time (s)		10.9			13.8			17.4			7.5	
Confl. Bikes (#/hr)			3						22			2
Peak Hour Factor	0.86	0.86	0.86	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	0%	0%	1%	1%	5%	0%	1%	11%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	7	7
Adj. Flow (vph)	0	755	92	0	972	422	333	555	4	315	407	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	847	0	0	972	422	333	559	0	315	427	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			20			24			22	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.22	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1			1	1	1	1		1	1	
Detector Template		Thru			Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)		50			50	50	50	50		50	50	
Trailing Detector (ft)		0			0	0	0	0		0	0	
Detector 1 Position(ft)		0			0	0	0	0		0	0	
Detector 1 Size(ft)		50			50	50	50	50		50	50	
Detector 1 Type		Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type		NA			NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		3			3	4		1		4	1 4	
Permitted Phases						3	1			1		
Detector Phase		3			3	4	1	1		4	1 4	

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		10.0			10.0	8.0	10.0	10.0		8.0		
Minimum Split (s)		16.0			16.0	11.0	16.0	16.0		11.0		
Total Split (s)		41.0			41.0	17.0	32.0	32.0		17.0		
Total Split (%)		34.2%			34.2%	14.2%	26.7%	26.7%		14.2%		
Maximum Green (s)		35.0			35.0	14.0	26.0	26.0		14.0		
Yellow Time (s)		3.0			3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)		3.0			3.0	0.0	3.0	3.0		0.0		
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)		6.0			6.0	3.0	6.0	6.0		3.0		
Lead/Lag		Lead			Lead	Lag	Lead	Lead		Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0		
Recall Mode		Max			Max	Max	C-Max	C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		35.0			35.0	55.0	26.0	26.0		43.0	43.0	
Actuated g/C Ratio		0.29			0.29	0.46	0.22	0.22		0.36	0.36	
v/c Ratio		0.95			2.02	0.54	2.36	0.86		1.15	0.43	
Control Delay		61.6			490.2	10.9	657.2	60.1		116.4	17.6	
Queue Delay		0.0			0.0	0.2	0.0	55.5		0.0	0.6	
Total Delay		61.6			490.2	11.1	657.2	115.5		116.4	18.2	
LOS		E			F	B	F	F		F	B	
Approach Delay		61.6			345.2			317.8			59.9	
Approach LOS		E			F			F			E	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 8 (7%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.36			
Intersection Signal Delay: 222.2		Intersection LOS: F	
Intersection Capacity Utilization 99.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Brookline Ave & Riverway



Lane Group	Ø2
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	25%
Maximum Green (s)	28.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



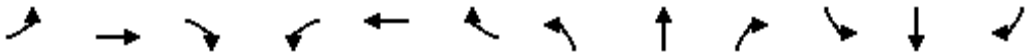
Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	847	972	422	333	559	315	427
v/c Ratio	0.95	2.02	0.54	2.36	0.86	1.15	0.43
Control Delay	61.6	490.2	10.9	657.2	60.1	116.4	17.6
Queue Delay	0.0	0.0	0.2	0.0	55.5	0.0	0.6
Total Delay	61.6	490.2	11.1	657.2	115.5	116.4	18.2
Queue Length 50th (ft)	334	~1178	77	~423	221	~217	147
Queue Length 95th (ft)	#428	#1430	172	#607	#314	m#284	m151
Internal Link Dist (ft)	401	526			685		249
Turn Bay Length (ft)				160			
Base Capacity (vph)	892	482	781	141	647	273	999
Starvation Cap Reductn	0	0	0	0	0	0	254
Spillback Cap Reductn	0	0	58	0	359	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	2.02	0.58	2.36	1.94	1.15	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	649	79	0	904	392	306	511	4	290	374	18
Future Volume (vph)	0	649	79	0	904	392	306	511	4	290	374	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	3.0	6.0	6.0		3.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3031			1653	1391	1555	2988		1555	2781	
Flt Permitted		1.00			1.00	1.00	0.40	1.00		0.23	1.00	
Satd. Flow (perm)		3031			1653	1391	652	2988		380	2781	
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	755	92	0	972	422	333	555	4	315	407	20
RTOR Reduction (vph)	0	8	0	0	0	157	0	0	0	0	3	0
Lane Group Flow (vph)	0	839	0	0	972	265	333	559	0	315	424	0
Confl. Bikes (#/hr)			3						22			2
Heavy Vehicles (%)	0%	2%	0%	0%	0%	1%	1%	5%	0%	1%	11%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	7	7
Turn Type		NA			NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		3			3	4		1		4	1 4	
Permitted Phases						3	1			1		
Actuated Green, G (s)		35.0			35.0	49.0	26.0	26.0		40.0	43.0	
Effective Green, g (s)		35.0			35.0	49.0	26.0	26.0		40.0	40.0	
Actuated g/C Ratio		0.29			0.29	0.41	0.22	0.22		0.33	0.33	
Clearance Time (s)		6.0			6.0	3.0	6.0	6.0		3.0		
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		884			482	567	141	647		263	927	
v/s Ratio Prot		0.28			c0.59	0.05		0.19		c0.14	0.15	
v/s Ratio Perm						0.14	c0.51			0.26		
v/c Ratio		0.95			2.02	0.47	2.36	0.86		1.20	0.46	
Uniform Delay, d1		41.6			42.5	26.0	47.0	45.3		35.1	31.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00		0.62	0.57	
Incremental Delay, d2		20.2			464.8	2.8	634.2	14.3		111.3	1.1	
Delay (s)		61.9			507.3	28.7	681.2	59.6		133.3	19.2	
Level of Service		E			F	C	F	E		F	B	
Approach Delay (s)		61.9			362.4			291.7			67.6	
Approach LOS		E			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	224.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	99.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

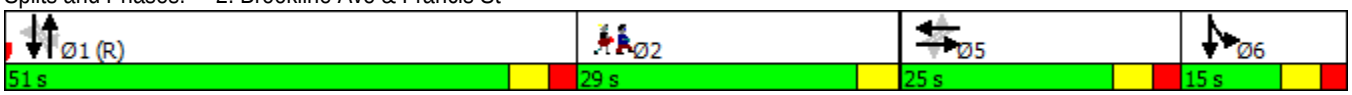
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	117	46	151	78	118	57	752	117	214	485	22
Future Volume (vph)	29	117	46	151	78	118	57	752	117	214	485	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	0		150	0		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			200			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.99									1.00	
Frt		0.968			0.910				0.850		0.993	
Flt Protected		0.992		0.950				0.996		0.950		
Satd. Flow (prot)	0	1516	0	1481	1398	0	0	2984	1254	1378	2879	0
Flt Permitted		0.660		0.382				0.502		0.180		
Satd. Flow (perm)	0	1009	0	596	1398	0	0	1504	1254	261	2879	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		335			547			329			443	
Travel Time (s)		7.6			12.4			7.5			10.1	
Confl. Bikes (#/hr)			8									4
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	4%	0%	6%	1%	12%	2%	3%	8%	14%	7%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	9	9	0	7	7
Parking (#/hr)												4
Adj. Flow (vph)	32	127	50	159	82	124	62	817	127	233	527	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	209	0	159	206	0	0	879	127	233	551	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			11			11	
Link Offset(ft)		0			0			0			-4	
Crosswalk Width(ft)		16			36			32			30	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.22	1.25	1.19	1.22	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	50		50	50		20	50	20	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	50		50	50		20	50	20	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	D.P+P	NA	
Protected Phases		5			5			1		6	1 6	
Permitted Phases	5			5			1		1	1		

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	5		5	5		1	1	1	6	1 6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0	10.0	6.0		
Minimum Split (s)	14.0	14.0		14.0	14.0		16.0	16.0	16.0	12.0		
Total Split (s)	25.0	25.0		25.0	25.0		51.0	51.0	51.0	15.0		
Total Split (%)	20.8%	20.8%		20.8%	20.8%		42.5%	42.5%	42.5%	12.5%		
Maximum Green (s)	19.0	19.0		19.0	19.0		45.0	45.0	45.0	9.0		
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5		
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5		
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0	0.0		
Total Lost Time (s)		6.0		6.0	6.0			6.0	6.0	6.0		
Lead/Lag	Lead	Lead		Lead	Lead		Lead	Lead	Lead	Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		19.0		19.0	19.0			45.0	45.0	54.0	60.0	
Actuated g/C Ratio		0.16		0.16	0.16			0.38	0.38	0.45	0.50	
v/c Ratio		1.31		1.69	0.93			1.56	0.27	1.16	0.38	
Control Delay		219.2		384.7	95.7			282.6	17.6	137.3	19.5	
Queue Delay		0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay		219.2		384.7	95.7			282.6	17.6	137.3	19.6	
LOS		F		F	F			F	B	F	B	
Approach Delay		219.2			221.6			249.2			54.5	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 111 (93%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.69			
Intersection Signal Delay: 177.7		Intersection LOS: F	
Intersection Capacity Utilization 84.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 2: Brookline Ave & Francis St



Lane Group	Ø2
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	29.0
Total Split (s)	29.0
Total Split (%)	24%
Maximum Green (s)	25.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	18.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



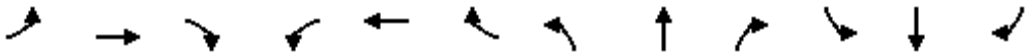
Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	209	159	206	879	127	233	551
v/c Ratio	1.31	1.69	0.93	1.56	0.27	1.16	0.38
Control Delay	219.2	384.7	95.7	282.6	17.6	137.3	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	219.2	384.7	95.7	282.6	17.6	137.3	19.6
Queue Length 50th (ft)	~208	~180	159	~483	38	~131	134
Queue Length 95th (ft)	#363	#320	#308	m#610	m64	#298	177
Internal Link Dist (ft)	255		467	249			363
Turn Bay Length (ft)		250			150		
Base Capacity (vph)	159	94	221	564	470	201	1439
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	43
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.31	1.69	0.93	1.56	0.27	1.16	0.39

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

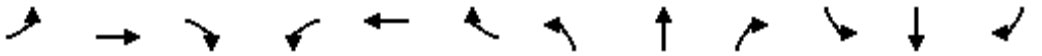
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	117	46	151	78	118	57	752	117	214	485	22
Future Volume (vph)	29	117	46	151	78	118	57	752	117	214	485	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00			0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00			1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Frt		0.97		1.00	0.91			1.00	0.85	1.00	0.99	
Flt Protected		0.99		0.95	1.00			1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1516		1481	1397			2986	1254	1378	2881	
Flt Permitted		0.66		0.38	1.00			0.50	1.00	0.18	1.00	
Satd. Flow (perm)		1008		596	1397			1503	1254	261	2881	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	127	50	159	82	124	62	817	127	233	527	24
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	209	0	159	206	0	0	879	127	233	551	0
Confl. Bikes (#/hr)			8									4
Heavy Vehicles (%)	11%	4%	0%	6%	1%	12%	2%	3%	8%	14%	7%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	9	9	0	7	7
Parking (#/hr)												4
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	D.P+P	NA	
Protected Phases		5			5			1		6	1 6	
Permitted Phases	5			5			1		1	1		
Actuated Green, G (s)		19.0		19.0	19.0			45.0	45.0	54.0	60.0	
Effective Green, g (s)		19.0		19.0	19.0			45.0	45.0	54.0	60.0	
Actuated g/C Ratio		0.16		0.16	0.16			0.38	0.38	0.45	0.50	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0	6.0		
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)		159		94	221			563	470	201	1440	
v/s Ratio Prot					0.15					c0.09	0.19	
v/s Ratio Perm		0.21		c0.27				c0.58	0.10	0.43		
v/c Ratio		1.31		1.69	0.93			1.56	0.27	1.16	0.38	
Uniform Delay, d1		50.5		50.5	49.9			37.5	26.1	28.5	18.5	
Progression Factor		1.00		1.00	1.00			0.74	0.62	1.00	1.00	
Incremental Delay, d2		178.9		352.5	41.9			258.6	1.0	113.0	0.8	
Delay (s)		229.4		403.0	91.7			286.4	17.3	141.4	19.3	
Level of Service		F		F	F			F	B	F	B	
Approach Delay (s)		229.4			227.3			252.4			55.6	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	181.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



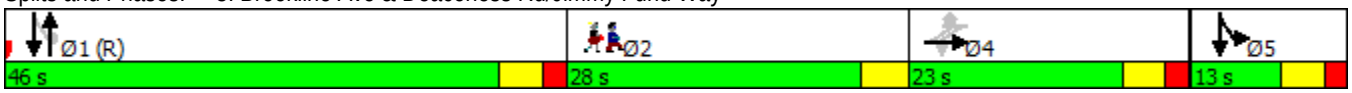
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	13	91	95	0	89	0	825	74	87	535	0
Future Volume (vph)	57	13	91	95	0	89	0	825	74	87	535	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor		0.98				0.99		1.00				
Frt		0.869				0.850		0.988				
Flt Protected	0.950			0.950							0.993	
Satd. Flow (prot)	1415	1291	0	1441	0	1098	0	2931	0	0	2880	0
Flt Permitted	0.950			0.603							0.578	
Satd. Flow (perm)	1415	1291	0	914	0	1083	0	2931	0	0	1676	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		110						10				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		327			400			443			84	
Travel Time (s)		7.4			9.1			10.1			1.9	
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.83	0.83	0.83	0.90	0.90	0.90	0.95	0.95	0.95	0.92	0.92	0.92
Heavy Vehicles (%)	11%	31%	6%	9%	0%	28%	0%	4%	1%	4%	9%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	9	9	0	0	0
Adj. Flow (vph)	69	16	110	106	0	99	0	868	78	95	582	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	69	126	0	106	0	99	0	946	0	0	677	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		-12			-8			4			0	
Crosswalk Width(ft)		16			16			16			12	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.22	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1		1		1		1	1	
Detector Template	Left	Thru		Left		Right		Thru		Left	Thru	
Leading Detector (ft)	50	50		50		50		50		20	50	
Trailing Detector (ft)	0	0		0		0		0		0	0	
Detector 1 Position(ft)	0	0		0		0		0		0	0	
Detector 1 Size(ft)	50	50		50		50		50		20	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Turn Type	Perm	NA		D.Pm		Perm		NA		D.P+P	NA	
Protected Phases		4						1		5	1 5	
Permitted Phases	4			4		4				1		
Detector Phase	4	4		4		4		1		5	1 5	

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0		8.0		10.0		6.0		
Minimum Split (s)	13.5	13.5		13.5		13.5		15.5		11.5		
Total Split (s)	23.0	23.0		23.0		23.0		46.0		13.0		
Total Split (%)	20.9%	20.9%		20.9%		20.9%		41.8%		11.8%		
Maximum Green (s)	17.5	17.5		17.5		17.5		40.5		7.5		
Yellow Time (s)	3.5	3.5		3.5		3.5		3.5		3.5		
All-Red Time (s)	2.0	2.0		2.0		2.0		2.0		2.0		
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0				
Total Lost Time (s)	5.5	5.5		5.5		5.5		5.5				
Lead/Lag								Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0		2.0		2.0		2.0		
Recall Mode	None	None		None		None		C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	15.1	15.1		15.1		15.1		42.9			50.4	
Actuated g/C Ratio	0.14	0.14		0.14		0.14		0.39			0.46	
v/c Ratio	0.36	0.46		0.85		0.67		0.82			0.80	
Control Delay	47.3	16.4		94.0		66.2		37.8			14.5	
Queue Delay	0.0	0.0		0.0		0.0		2.4			0.0	
Total Delay	47.3	16.4		94.0		66.2		40.2			14.5	
LOS	D	B		F		E		D			B	
Approach Delay		27.3			80.6			40.2			14.5	
Approach LOS		C			F			D			B	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 93 (85%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 34.5		Intersection LOS: C	
Intersection Capacity Utilization 72.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Brookline Ave & Deaconess Rd/Jimmy Fund Way



Lane Group	Ø2
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	28.0
Total Split (s)	28.0
Total Split (%)	25%
Maximum Green (s)	24.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	17.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

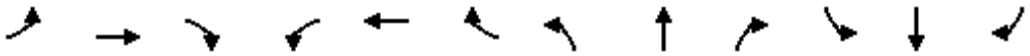
Intersection Summary



Lane Group	EBL	EBT	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	69	126	106	99	946	677
v/c Ratio	0.36	0.46	0.85	0.67	0.82	0.80
Control Delay	47.3	16.4	94.0	66.2	37.8	14.5
Queue Delay	0.0	0.0	0.0	0.0	2.4	0.0
Total Delay	47.3	16.4	94.0	66.2	40.2	14.5
Queue Length 50th (ft)	44	10	72	66	320	46
Queue Length 95th (ft)	80	53	#162	#126	#438	m72
Internal Link Dist (ft)		247			363	4
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	225	297	145	172	1149	850
Starvation Cap Reductn	0	0	0	0	105	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.42	0.73	0.58	0.91	0.80

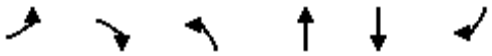
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



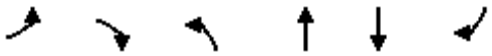
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	13	91	95	0	89	0	825	74	87	535	0
Future Volume (vph)	57	13	91	95	0	89	0	825	74	87	535	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5		5.5		5.5			5.5	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95			0.95	
Frpb, ped/bikes	1.00	0.98		1.00		0.99		1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00		1.00		1.00			1.00	
Frt	1.00	0.87		1.00		0.85		0.99			1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00			0.99	
Satd. Flow (prot)	1415	1289		1441		1083		2930			2880	
Flt Permitted	0.95	1.00		0.60		1.00		1.00			0.58	
Satd. Flow (perm)	1415	1289		914		1083		2930			1675	
Peak-hour factor, PHF	0.83	0.83	0.83	0.90	0.90	0.90	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	69	16	110	106	0	99	0	868	78	95	582	0
RTOR Reduction (vph)	0	95	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	69	31	0	106	0	99	0	940	0	0	677	0
Confl. Bikes (#/hr)			7			1			5			
Heavy Vehicles (%)	11%	31%	6%	9%	0%	28%	0%	4%	1%	4%	9%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	9	9	0	0	0
Turn Type	Perm	NA		D.Pm		Perm		NA		D.P+P	NA	
Protected Phases		4						1		5	1 5	
Permitted Phases	4			4		4				1		
Actuated Green, G (s)	15.1	15.1		15.1		15.1		42.9			50.4	
Effective Green, g (s)	15.1	15.1		15.1		15.1		42.9			50.4	
Actuated g/C Ratio	0.14	0.14		0.14		0.14		0.39			0.46	
Clearance Time (s)	5.5	5.5		5.5		5.5		5.5				
Vehicle Extension (s)	2.0	2.0		2.0		2.0		2.0				
Lane Grp Cap (vph)	194	176		125		148		1142			849	
v/s Ratio Prot		0.02						c0.32			c0.05	
v/s Ratio Perm	0.05			c0.12		0.09					0.31	
v/c Ratio	0.36	0.18		0.85		0.67		0.82			0.80	
Uniform Delay, d1	43.0	42.0		46.3		45.1		30.1			25.4	
Progression Factor	1.00	1.00		1.00		1.00		1.00			0.41	
Incremental Delay, d2	0.4	0.2		37.1		8.6		6.8			4.3	
Delay (s)	43.4	42.1		83.4		53.6		36.9			14.8	
Level of Service	D	D		F		D		D			B	
Approach Delay (s)		42.6			69.0			36.9			14.8	
Approach LOS		D			E			D			B	

Intersection Summary			
HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	115	856	622	45
Future Volume (vph)	0	0	115	856	622	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt					0.990	
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1428	2882	2840	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1428	2882	2840	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	185			84	355	
Travel Time (s)	4.2			1.9	8.1	
Confl. Peds. (#/hr)			269			269
Confl. Bikes (#/hr)						6
Peak Hour Factor	0.92	0.92	0.96	0.96	0.92	0.92
Heavy Vehicles (%)	0%	0%	10%	7%	8%	7%
Bus Blockages (#/hr)	0	0	0	9	7	0
Adj. Flow (vph)	0	0	120	892	676	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	120	892	725	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			11	11	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.22	1.22	1.19
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

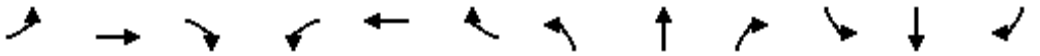
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	115	856	622	45
Future Volume (Veh/h)	0	0	115	856	622	45
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.96	0.96	0.92	0.92
Hourly flow rate (vph)	0	0	120	892	676	49
Pedestrians	269					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				84	355	
pX, platoon unblocked	0.72					
vC, conflicting volume	1656	632	994			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1142	632	994			
tC, single (s)	6.8	6.9	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	81			
cM capacity (veh/h)	116	428	645			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	120	446	446	451	274
Volume Left	120	0	0	0	0
Volume Right	0	0	0	0	49
cSH	645	1700	1700	1700	1700
Volume to Capacity	0.19	0.26	0.26	0.27	0.16
Queue Length 95th (ft)	17	0	0	0	0
Control Delay (s)	11.9	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	1.4			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	219	42	103	275	280	51	598	207	209	522	194
Future Volume (vph)	49	219	42	103	275	280	51	598	207	209	522	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	10	11	11	11	11	11	11
Storage Length (ft)	150		0	150		0	250		0	330		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50			100			30			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99						1.00			0.99	
Frt		0.976				0.850		0.961			0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1516	1451	0	1330	1589	1190	1510	2714	0	1428	2786	0
Flt Permitted	0.231			0.264			0.119			0.123		
Satd. Flow (perm)	369	1451	0	370	1589	1190	189	2714	0	185	2786	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		366			390			355			587	
Travel Time (s)		8.3			8.9			8.1			13.3	
Confl. Bikes (#/hr)			44						5			5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	0%	4%	0%	14%	4%	14%	4%	7%	7%	10%	8%	1%
Bus Blockages (#/hr)	0	7	0	0	0	0	0	17	0	0	6	0
Adj. Flow (vph)	57	255	49	120	320	326	55	650	225	232	580	216
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	304	0	120	320	326	55	875	0	232	796	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		-5			2			4			0	
Crosswalk Width(ft)		25			12			18			28	
Two way Left Turn Lane												
Headway Factor	1.25	1.29	1.25	1.25	1.19	1.25	1.19	1.25	1.19	1.19	1.21	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50		50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		4			4	5		1		5	1 5	
Permitted Phases	4			4		4	1			1		

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4	5	1	1		5	1 5	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	6.0	10.0	10.0		6.0		
Minimum Split (s)	14.0	14.0		14.0	14.0	11.5	15.5	15.5		11.5		
Total Split (s)	28.0	28.0		28.0	28.0	16.0	39.0	39.0		16.0		
Total Split (%)	25.5%	25.5%		25.5%	25.5%	14.5%	35.5%	35.5%		14.5%		
Maximum Green (s)	22.0	22.0		22.0	22.0	10.5	33.5	33.5		10.5		
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5		
All-Red Time (s)	2.5	2.5		2.5	2.5	2.0	2.0	2.0		2.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5		
Lead/Lag							Lead	Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		
Recall Mode	Max	Max		Max	Max	Max	C-Max	C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	22.0	22.0		22.0	22.0	38.5	33.5	33.5		44.0	49.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20	0.35	0.30	0.30		0.40	0.45	
v/c Ratio	0.78	1.05		1.62	1.01	0.78	0.96	1.06		1.21	0.64	
Control Delay	101.4	109.6		364.3	97.7	47.1	113.5	62.2		159.5	26.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	101.4	109.6		364.3	97.7	47.1	113.5	62.2		159.5	26.2	
LOS	F	F		F	F	D	F	E		F	C	
Approach Delay		108.3			117.9			65.2			56.3	
Approach LOS		F			F			E			E	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 109 (99%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.62			
Intersection Signal Delay: 80.4		Intersection LOS: F	
Intersection Capacity Utilization 80.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Brookline Ave & Longwood Ave



Lane Group	Ø2
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	25%
Maximum Green (s)	23.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	16.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



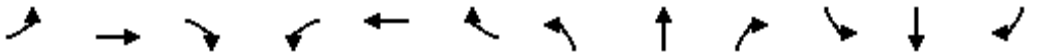
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	57	304	120	320	326	55	875	232	796
v/c Ratio	0.78	1.05	1.62	1.01	0.78	0.96	1.06	1.21	0.64
Control Delay	101.4	109.6	364.3	97.7	47.1	113.5	62.2	159.5	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.4	109.6	364.3	97.7	47.1	113.5	62.2	159.5	26.2
Queue Length 50th (ft)	38	~234	~122	~230	204	30	~362	~158	222
Queue Length 95th (ft)	#108	#378	#228	#385	#322	m#67	#468	#317	290
Internal Link Dist (ft)		286		310			275		507
Turn Bay Length (ft)	150		150			250		330	
Base Capacity (vph)	73	290	74	317	416	57	826	192	1253
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	1.05	1.62	1.01	0.78	0.96	1.06	1.21	0.64

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

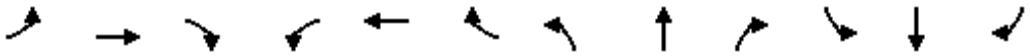
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	219	42	103	275	280	51	598	207	209	522	194
Future Volume (vph)	49	219	42	103	275	280	51	598	207	209	522	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	11	10	11	11	11	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1516	1450		1330	1589	1190	1510	2715		1428	2787	
Flt Permitted	0.23	1.00		0.26	1.00	1.00	0.12	1.00		0.12	1.00	
Satd. Flow (perm)	369	1450		370	1589	1190	190	2715		185	2787	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	57	255	49	120	320	326	55	650	225	232	580	216
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	57	304	0	120	320	326	55	875	0	232	796	0
Confl. Bikes (#/hr)			44						5			5
Heavy Vehicles (%)	0%	4%	0%	14%	4%	14%	4%	7%	7%	10%	8%	1%
Bus Blockages (#/hr)	0	7	0	0	0	0	0	17	0	0	6	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		4			4	5		1		5	1 5	
Permitted Phases	4			4		4	1			1		
Actuated Green, G (s)	22.0	22.0		22.0	22.0	32.5	33.5	33.5		44.0	49.5	
Effective Green, g (s)	22.0	22.0		22.0	22.0	32.5	33.5	33.5		44.0	49.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20	0.30	0.30	0.30		0.40	0.45	
Clearance Time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5		
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		
Lane Grp Cap (vph)	73	290		74	317	351	57	826		192	1254	
v/s Ratio Prot		0.21			0.20	0.09		0.32		c0.11	0.29	
v/s Ratio Perm	0.15			c0.32		0.19	0.29			c0.37		
v/c Ratio	0.78	1.05		1.62	1.01	0.93	0.96	1.06		1.21	0.63	
Uniform Delay, d1	41.7	44.0		44.0	44.0	37.6	37.7	38.2		27.0	23.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.37	0.43		1.00	1.00	
Incremental Delay, d2	56.0	66.1		333.0	53.0	33.0	87.6	42.8		132.3	2.5	
Delay (s)	97.7	110.1		377.0	97.0	70.6	101.7	59.1		159.3	25.7	
Level of Service	F	F		F	F	E	F	E		F	C	
Approach Delay (s)		108.1			129.6			61.6			55.9	
Approach LOS		F			F			E			E	

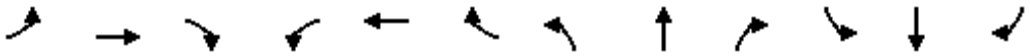
Intersection Summary			
HCM 2000 Control Delay	82.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	50	1	0	12	140	0	1203	25	91	727	96
Future Volume (vph)	228	50	1	0	12	140	0	1203	25	91	727	96
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	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt					0.876			0.997			0.984	
Flt Protected		0.961									0.995	
Satd. Flow (prot)	0	1553	0	0	1435	0	0	3129	0	0	3027	0
Flt Permitted		0.961									0.995	
Satd. Flow (perm)	0	1553	0	0	1435	0	0	3129	0	0	3027	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		148			142			481			579	
Travel Time (s)		3.4			3.2			10.9			13.2	
Confl. Peds. (#/hr)	12		5	5		12	3		20	20		3
Confl. Bikes (#/hr)			3						3			4
Peak Hour Factor	0.88	0.88	0.88	0.74	0.74	0.74	0.97	0.97	0.97	0.92	0.92	0.92
Heavy Vehicles (%)	1%	8%	0%	0%	0%	1%	0%	0%	4%	0%	2%	0%
Adj. Flow (vph)	259	57	1	0	16	189	0	1240	26	99	790	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	317	0	0	205	0	0	1266	0	0	993	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 109.0%		ICU Level of Service G	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	228	50	1	0	12	140	0	1203	25	91	727	96
Future Volume (Veh/h)	228	50	1	0	12	140	0	1203	25	91	727	96
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.74	0.74	0.74	0.97	0.97	0.97	0.92	0.92	0.92
Hourly flow rate (vph)	259	57	1	0	16	189	0	1240	26	99	790	104
Pedestrians		3			20			5			12	
Lane Width (ft)		11.0			11.0			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			2			0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								481			1067	
pX, platoon unblocked	0.77	0.77	0.77	0.77	0.77		0.77					
vC, conflicting volume	1872	2329	455	1900	2368	665	897			1286		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1532	2127	0	1569	2178	665	263			1286		
tC, single (s)	7.5	6.7	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	100	0	44	52	100			82		
cM capacity (veh/h)	15	28	832	0	29	394	1006			537		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	317	205	620	646	494	499
Volume Left	259	0	0	0	99	0
Volume Right	1	189	0	26	0	104
cSH	17	198	1006	1700	537	1700
Volume to Capacity	18.95	1.04	0.00	0.38	0.18	0.29
Queue Length 95th (ft)	Err	231	0	0	17	0
Control Delay (s)	Err	123.7	0.0	0.0	5.2	0.0
Lane LOS	F	F			A	
Approach Delay (s)	Err	123.7	0.0		2.6	
Approach LOS	F	F				

Intersection Summary				
Average Delay	1149.8			
Intersection Capacity Utilization	109.0%	ICU Level of Service	G	
Analysis Period (min)	15			



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1438	133	64	914
Future Volume (vph)	0	0	1438	133	64	914
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt			0.987			
Flt Protected						0.997
Satd. Flow (prot)	0	0	3067	0	0	3090
Flt Permitted						0.997
Satd. Flow (perm)	0	0	3067	0	0	3090
Link Speed (mph)	30		30			30
Link Distance (ft)	520		579			488
Travel Time (s)	11.8		13.2			11.1
Confl. Peds. (#/hr)				41	41	
Confl. Bikes (#/hr)				3		
Peak Hour Factor	0.92	0.92	0.98	0.98	0.91	0.91
Heavy Vehicles (%)	2%	2%	1%	2%	6%	1%
Adj. Flow (vph)	0	0	1467	136	70	1004
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1603	0	0	1074
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		11			11
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

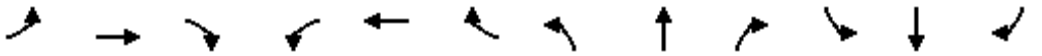
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.2%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	1438	133	64	914
Future Volume (Veh/h)	0	0	1438	133	64	914
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.98	0.98	0.91	0.91
Hourly flow rate (vph)	0	0	1467	136	70	1004
Pedestrians	41					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1060			488
pX, platoon unblocked	0.73					
vC, conflicting volume	2218	842			1644	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1926	842			1644	
tC, single (s)	6.8	6.9			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	100	100			81	
cM capacity (veh/h)	35	307			372	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	978	625	405	669
Volume Left	0	0	70	0
Volume Right	0	136	0	0
cSH	1700	1700	372	1700
Volume to Capacity	0.58	0.37	0.19	0.39
Queue Length 95th (ft)	0	0	17	0
Control Delay (s)	0.0	0.0	6.2	0.0
Lane LOS			A	
Approach Delay (s)	0.0		2.3	
Approach LOS				

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		



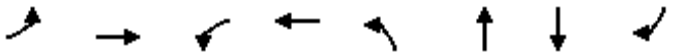
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	336	129	45	232	65	274	1023	139	0	804	79
Future Volume (vph)	107	336	129	45	232	65	274	1023	139	0	804	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12	11	11	11	11	11	11
Storage Length (ft)	0		100	50		0	250		0	0		0
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	25			100			100			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor					1.00			1.00				
Frt		0.958			0.967			0.982				0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1472	1507	0	1516	1597	0	1555	3076	0	0	3110	1405
Flt Permitted	0.333			0.148			0.126					
Satd. Flow (perm)	516	1507	0	236	1597	0	206	3076	0	0	3110	1405
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			14			14				98
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		346			201			488			736	
Travel Time (s)		7.9			4.6			11.1			16.7	
Confl. Bikes (#/hr)						8			1			
Peak Hour Factor	0.91	0.91	0.91	0.88	0.88	0.88	0.97	0.97	0.97	0.86	0.86	0.86
Heavy Vehicles (%)	3%	2%	0%	0%	2%	7%	1%	0%	0%	0%	1%	0%
Adj. Flow (vph)	118	369	142	51	264	74	282	1055	143	0	935	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	511	0	51	338	0	282	1198	0	0	935	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			10			11			0	
Link Offset(ft)		8			12			0			4	
Crosswalk Width(ft)		20			24			24			12	
Two way Left Turn Lane												
Headway Factor	1.25	1.25	1.25	1.25	1.14	1.14	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1			1	1
Detector Template	Left	Thru		Left	Thru		Left	Thru			Thru	Right
Leading Detector (ft)	20	50		50	50		50	50			50	50
Trailing Detector (ft)	0	0		0	0		0	0			0	0
Detector 1 Position(ft)	0	0		0	0		0	0			0	0
Detector 1 Size(ft)	20	50		50	50		50	50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA			NA	Perm
Protected Phases		2			2		3	1			1	
Permitted Phases	2			2			1					1
Detector Phase	2	2		2	2		3	1			1	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	18.0			18.0	18.0
Minimum Split (s)	14.0	14.0		14.0	14.0		27.0	24.0			24.0	24.0
Total Split (s)	33.0	33.0		33.0	33.0		35.0	32.0			32.0	32.0
Total Split (%)	33.0%	33.0%		33.0%	33.0%		35.0%	32.0%			32.0%	32.0%
Maximum Green (s)	27.0	27.0		27.0	27.0		29.0	26.0			26.0	26.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Lead/Lag	Lag	Lag		Lag	Lag			Lead			Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Recall Mode	None	None		None	None		Ped	C-Max			C-Max	C-Max
Walk Time (s)							7.0					
Flash Dont Walk (s)							14.0					
Pedestrian Calls (#/hr)							0					
Act Effct Green (s)	27.0	27.0		27.0	27.0		55.0	32.8			32.8	32.8
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.55	0.33			0.33	0.33
v/c Ratio	0.85	1.22		0.81	0.77		0.68	1.18			0.92	0.17
Control Delay	82.1	150.1		107.8	45.2		29.8	121.7			47.6	5.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	82.1	150.1		107.8	45.2		29.8	121.7			47.6	5.9
LOS	F	F		F	D		C	F			D	A
Approach Delay		137.4			53.4			104.2			43.9	
Approach LOS		F			D			F			D	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.22			
Intersection Signal Delay: 86.9		Intersection LOS: F	
Intersection Capacity Utilization 96.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 8: Riverway & Longwood Ave



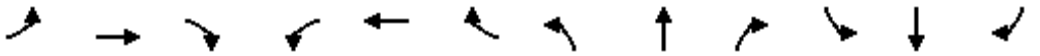


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	118	511	51	338	282	1198	935	92
v/c Ratio	0.85	1.22	0.81	0.77	0.68	1.18	0.92	0.17
Control Delay	82.1	150.1	107.8	45.2	29.8	121.7	47.6	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.1	150.1	107.8	45.2	29.8	121.7	47.6	5.9
Queue Length 50th (ft)	71	~394	30	190	115	~469	293	0
Queue Length 95th (ft)	#178	#598	#99	#309	200	#665	#435	30
Internal Link Dist (ft)		266		121		408	656	
Turn Bay Length (ft)			50		250			
Base Capacity (vph)	139	420	63	441	515	1018	1020	526
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	1.22	0.81	0.77	0.55	1.18	0.92	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	336	129	45	232	65	274	1023	139	0	804	79
Future Volume (vph)	107	336	129	45	232	65	274	1023	139	0	804	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	12	12	11	11	11	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	0.97		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1472	1508		1516	1598		1555	3077			3110	1405
Flt Permitted	0.33	1.00		0.15	1.00		0.13	1.00			1.00	1.00
Satd. Flow (perm)	516	1508		236	1598		206	3077			3110	1405
Peak-hour factor, PHF	0.91	0.91	0.91	0.88	0.88	0.88	0.97	0.97	0.97	0.86	0.86	0.86
Adj. Flow (vph)	118	369	142	51	264	74	282	1055	143	0	935	92
RTOR Reduction (vph)	0	14	0	0	10	0	0	9	0	0	0	62
Lane Group Flow (vph)	118	497	0	51	328	0	282	1189	0	0	935	30
Confl. Bikes (#/hr)						8			1			
Heavy Vehicles (%)	3%	2%	0%	0%	2%	7%	1%	0%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA			NA	Perm
Protected Phases		2			2		3	1			1	
Permitted Phases	2			2			1					1
Actuated Green, G (s)	27.0	27.0		27.0	27.0		55.0	32.8			32.8	32.8
Effective Green, g (s)	27.0	27.0		27.0	27.0		55.0	32.8			32.8	32.8
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.55	0.33			0.33	0.33
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	139	407		63	431		412	1009			1020	460
v/s Ratio Prot		c0.33			0.21		c0.15	c0.39			0.30	
v/s Ratio Perm	0.23			0.22			0.22					0.02
v/c Ratio	0.85	1.22		0.81	0.76		0.68	1.18			0.92	0.07
Uniform Delay, d1	34.6	36.5		34.1	33.5		21.1	33.6			32.3	23.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	34.4	119.9		49.3	7.0		3.7	90.5			14.1	0.3
Delay (s)	69.0	156.4		83.4	40.5		24.8	124.1			46.4	23.4
Level of Service	E	F		F	D		C	F			D	C
Approach Delay (s)		140.0			46.1			105.2			44.3	
Approach LOS		F			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	87.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	475	0	0	269	73	77
Future Volume (vph)	475	0	0	269	73	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.931	
Flt Protected					0.976	
Satd. Flow (prot)	1637	0	0	1621	1410	0
Flt Permitted					0.976	
Satd. Flow (perm)	1637	0	0	1621	1410	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	201			69	520	
Travel Time (s)	4.6			1.6	11.8	
Peak Hour Factor	0.86	0.86	0.91	0.91	0.76	0.76
Heavy Vehicles (%)	1%	0%	0%	2%	6%	7%
Adj. Flow (vph)	552	0	0	296	96	101
Shared Lane Traffic (%)						
Lane Group Flow (vph)	552	0	0	296	197	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	11	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

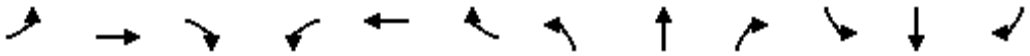
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	475	0	0	269	73	77
Future Volume (Veh/h)	475	0	0	269	73	77
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.91	0.91	0.76	0.76
Hourly flow rate (vph)	552	0	0	296	96	101
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	201			686		
pX, platoon unblocked			0.75		0.75	0.75
vC, conflicting volume			552		848	552
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			232		628	232
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		71	83
cM capacity (veh/h)			1007		329	594

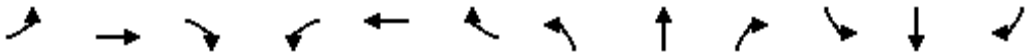
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	552	296	197
Volume Left	0	0	96
Volume Right	0	0	101
cSH	1700	1700	427
Volume to Capacity	0.32	0.17	0.46
Queue Length 95th (ft)	0	0	59
Control Delay (s)	0.0	0.0	20.5
Lane LOS			C
Approach Delay (s)	0.0	0.0	20.5
Approach LOS			C

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	281	67	110	243	168	22	29	7	22	7	13
Future Volume (vph)	199	281	67	110	243	168	22	29	7	22	7	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	10	12	12	11	11	11	11	11	11
Storage Length (ft)	100		0	75		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.971			0.939			0.984			0.958	
Flt Protected	0.950			0.950				0.981			0.974	
Satd. Flow (prot)	1516	1616	0	1430	1581	0	0	1580	0	0	1426	0
Flt Permitted	0.950			0.950				0.981			0.974	
Satd. Flow (perm)	1516	1616	0	1430	1581	0	0	1580	0	0	1426	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		251			366			200			129	
Travel Time (s)		5.7			8.3			4.5			2.9	
Confl. Peds. (#/hr)	336		440	440		336	111		52	52		111
Confl. Bikes (#/hr)			63			7						
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.71	0.71	0.71	0.75	0.75	0.75
Heavy Vehicles (%)	0%	2%	6%	6%	2%	1%	0%	0%	8%	0%	50%	0%
Adj. Flow (vph)	240	339	81	117	259	179	31	41	10	29	9	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	240	420	0	117	438	0	0	82	0	0	55	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.25	1.14	1.14	1.25	1.14	1.14	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

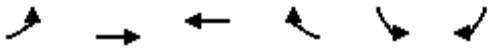
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.6%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	281	67	110	243	168	22	29	7	22	7	13
Future Volume (Veh/h)	199	281	67	110	243	168	22	29	7	22	7	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.71	0.71	0.71	0.75	0.75	0.75
Hourly flow rate (vph)	240	339	81	117	259	179	31	41	10	29	9	17
Pedestrians		111			52			440			336	
Lane Width (ft)		11.0			11.0			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		10			5			38			29	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		521			366							
pX, platoon unblocked	0.84						0.84	0.84		0.84	0.84	0.84
vC, conflicting volume	774			860			1925	2308	872	1820	2258	796
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	639			860			2004	2457	872	1879	2399	665
tC, single (s)	4.1			4.2			7.1	6.5	6.3	7.1	7.0	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.4	3.5	4.5	3.3
p0 queue free %	58			75			0	0	95	0	0	93
cM capacity (veh/h)	569			471			0	5	201	0	4	250

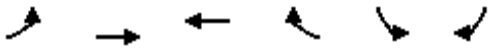
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	240	420	117	438	82	55
Volume Left	240	0	117	0	31	29
Volume Right	0	81	0	179	10	17
cSH	569	1700	471	1700	0	0
Volume to Capacity	0.42	0.25	0.25	0.26	Err	Err
Queue Length 95th (ft)	52	0	24	0	Err	Err
Control Delay (s)	15.9	0.0	15.2	0.0	Err	Err
Lane LOS	C		C		F	F
Approach Delay (s)	5.8		3.2		Err	Err
Approach LOS					F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	64.6%	ICU Level of Service	C	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	156	109	13	79	44
Future Volume (vph)	10	156	109	13	79	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.986		0.952	
Flt Protected		0.997			0.969	
Satd. Flow (prot)	0	1603	1602	0	1496	0
Flt Permitted		0.997			0.969	
Satd. Flow (perm)	0	1603	1602	0	1496	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		142	335		150	
Travel Time (s)		3.2	7.6		3.4	
Confl. Peds. (#/hr)	41			41	49	31
Confl. Bikes (#/hr)						5
Peak Hour Factor	0.86	0.86	0.69	0.69	0.81	0.81
Heavy Vehicles (%)	0%	3%	1%	8%	3%	0%
Adj. Flow (vph)	12	181	158	19	98	54
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	193	177	0	152	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15			9	15	9
Sign Control		Stop	Stop		Stop	

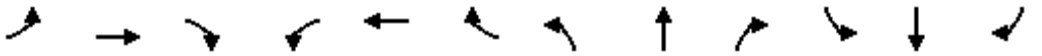
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	10	156	109	13	79	44
Future Volume (vph)	10	156	109	13	79	44
Peak Hour Factor	0.86	0.86	0.69	0.69	0.81	0.81
Hourly flow rate (vph)	12	181	158	19	98	54

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	193	177	152
Volume Left (vph)	12	0	98
Volume Right (vph)	0	19	54
Hadj (s)	0.06	-0.03	-0.05
Departure Headway (s)	4.5	4.5	4.7
Degree Utilization, x	0.24	0.22	0.20
Capacity (veh/h)	762	766	715
Control Delay (s)	9.0	8.7	8.9
Approach Delay (s)	9.0	8.7	8.9
Approach LOS	A	A	A

Intersection Summary			
Delay	8.9		
Level of Service	A		
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		



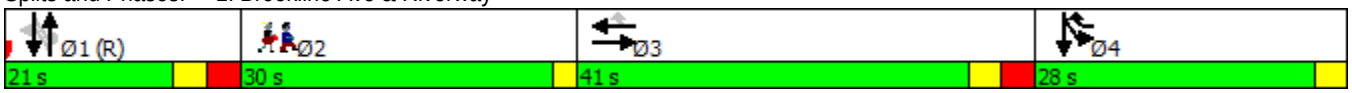
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1138	67	0	728	223	114	230	8	496	608	22
Future Volume (vph)	0	1138	67	0	728	223	114	230	8	496	608	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	160		0	0		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00						1.00			1.00	
Frt		0.992				0.850		0.995			0.995	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	3110	0	0	1653	1364	1555	2788	0	1555	2911	0
Flt Permitted							0.267			0.478		
Satd. Flow (perm)	0	3110	0	0	1653	1364	437	2788	0	782	2911	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		5				224					3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		481			606			765			329	
Travel Time (s)		10.9			13.8			17.4			7.5	
Confl. Bikes (#/hr)			2						1			9
Peak Hour Factor	0.93	0.93	0.93	0.86	0.86	0.86	0.90	0.90	0.90	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	2%	0%	0%	3%	1%	12%	13%	1%	6%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	7	7
Adj. Flow (vph)	0	1224	72	0	847	259	127	256	9	564	691	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1296	0	0	847	259	127	265	0	564	716	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			20			24			22	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.22	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1			1	1	1	1		1	1	
Detector Template		Thru			Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)		50			50	50	50	50		50	50	
Trailing Detector (ft)		0			0	0	0	0		0	0	
Detector 1 Position(ft)		0			0	0	0	0		0	0	
Detector 1 Size(ft)		50			50	50	50	50		50	50	
Detector 1 Type		Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type		NA			NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		3			3	4		1		4	1 4	
Permitted Phases						3	1			1		
Detector Phase		3			3	4	1	1		4	1 4	

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		10.0			10.0	8.0	10.0	10.0		8.0		
Minimum Split (s)		16.0			16.0	11.0	16.0	16.0		11.0		
Total Split (s)		41.0			41.0	28.0	21.0	21.0		28.0		
Total Split (%)		34.2%			34.2%	23.3%	17.5%	17.5%		23.3%		
Maximum Green (s)		35.0			35.0	25.0	15.0	15.0		25.0		
Yellow Time (s)		3.0			3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)		3.0			3.0	0.0	3.0	3.0		0.0		
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)		6.0			6.0	3.0	6.0	6.0		3.0		
Lead/Lag		Lead			Lead	Lag	Lead	Lead		Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0		
Recall Mode		Max			Max	Max	C-Max	C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		35.0			35.0	66.0	15.0	15.0		43.0	43.0	
Actuated g/C Ratio		0.29			0.29	0.55	0.12	0.12		0.36	0.36	
v/c Ratio		1.42			1.76	0.30	2.35	0.76		1.28	0.69	
Control Delay		230.7			377.7	3.7	685.8	65.8		157.2	20.8	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.2	2.7	
Total Delay		230.7			377.7	3.7	685.8	65.8		157.4	23.5	
LOS		F			F	A	F	E		F	C	
Approach Delay		230.7			290.1			266.7			82.5	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 18 (15%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.35			
Intersection Signal Delay: 203.7		Intersection LOS: F	
Intersection Capacity Utilization 94.8%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Brookline Ave & Riverway



Lane Group	Ø2
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	25%
Maximum Green (s)	28.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



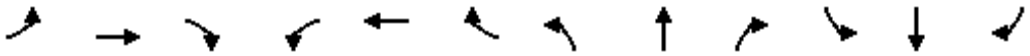
Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	1296	847	259	127	265	564	716
v/c Ratio	1.42	1.76	0.30	2.35	0.76	1.28	0.69
Control Delay	230.7	377.7	3.7	685.8	65.8	157.2	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	2.7
Total Delay	230.7	377.7	3.7	685.8	65.8	157.4	23.5
Queue Length 50th (ft)	~717	~977	12	~161	105	~439	124
Queue Length 95th (ft)	#856	#1149	45	#288	#166	m#604	m175
Internal Link Dist (ft)	401	526			685		249
Turn Bay Length (ft)				160			
Base Capacity (vph)	910	482	851	54	348	441	1045
Starvation Cap Reductn	0	0	0	0	0	8	215
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.42	1.76	0.30	2.35	0.76	1.30	0.86

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1138	67	0	728	223	114	230	8	496	608	22
Future Volume (vph)	0	1138	67	0	728	223	114	230	8	496	608	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	3.0	6.0	6.0		3.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.99			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3109			1653	1364	1555	2788		1555	2910	
Flt Permitted		1.00			1.00	1.00	0.27	1.00		0.48	1.00	
Satd. Flow (perm)		3109			1653	1364	436	2788		782	2910	
Peak-hour factor, PHF	0.93	0.93	0.93	0.86	0.86	0.86	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	0	1224	72	0	847	259	127	256	9	564	691	25
RTOR Reduction (vph)	0	4	0	0	0	112	0	0	0	0	2	0
Lane Group Flow (vph)	0	1292	0	0	847	147	127	265	0	564	714	0
Confl. Bikes (#/hr)			2						1			9
Heavy Vehicles (%)	0%	0%	2%	0%	0%	3%	1%	12%	13%	1%	6%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	7	7
Turn Type		NA			NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		3			3	4		1		4	1 4	
Permitted Phases						3	1			1		
Actuated Green, G (s)		35.0			35.0	60.0	15.0	15.0		40.0	43.0	
Effective Green, g (s)		35.0			35.0	60.0	15.0	15.0		40.0	40.0	
Actuated g/C Ratio		0.29			0.29	0.50	0.12	0.12		0.33	0.33	
Clearance Time (s)		6.0			6.0	3.0	6.0	6.0		3.0		
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		906			482	682	54	348		421	970	
v/s Ratio Prot		0.42			c0.51	0.04		0.10		c0.28	0.25	
v/s Ratio Perm						0.06	c0.29			0.17		
v/c Ratio		1.43			1.76	0.22	2.35	0.76		1.34	0.74	
Uniform Delay, d1		42.5			42.5	16.8	52.5	50.8		37.4	35.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		0.56	0.57	
Incremental Delay, d2		198.4			349.2	0.7	661.7	14.5		161.8	2.9	
Delay (s)		240.9			391.7	17.5	714.2	65.3		182.8	22.8	
Level of Service		F			F	B	F	E		F	C	
Approach Delay (s)		240.9			304.1			275.5			93.3	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	215.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	57	72	180	66	114	57	405	88	132	873	24
Future Volume (vph)	39	57	72	180	66	114	57	405	88	132	873	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	0		150	0		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			200			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.99			0.99						1.00	
Frt		0.942			0.905				0.850		0.996	
Flt Protected		0.989		0.950				0.994		0.950		
Satd. Flow (prot)	0	1469	0	1510	1462	0	0	2938	1203	1331	2995	0
Flt Permitted		0.798		0.537				0.504		0.368		
Satd. Flow (perm)	0	1185	0	854	1462	0	0	1489	1203	516	2995	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		335			547			329			443	
Travel Time (s)		7.6			12.4			7.5			10.1	
Confl. Bikes (#/hr)			1			3						5
Peak Hour Factor	0.87	0.87	0.87	0.85	0.85	0.85	0.93	0.93	0.93	0.91	0.91	0.91
Heavy Vehicles (%)	8%	2%	4%	4%	2%	1%	5%	5%	14%	18%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	6	6	0	7	7
Parking (#/hr)												4
Adj. Flow (vph)	45	66	83	212	78	134	61	435	95	145	959	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	194	0	212	212	0	0	496	95	145	985	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			11			11	
Link Offset(ft)		0			0			0			-4	
Crosswalk Width(ft)		16			36			32			30	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.21	1.23	1.19	1.22	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	50		50	50		20	50	20	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	50		50	50		20	50	20	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	D.P+P	NA	
Protected Phases		5			5			1		6	1 6	
Permitted Phases	5			5			1		1	1		

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	5		5	5		1	1	1	6	1 6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0	10.0	6.0		
Minimum Split (s)	14.0	14.0		14.0	14.0		16.0	16.0	16.0	12.0		
Total Split (s)	35.0	35.0		35.0	35.0		43.0	43.0	43.0	13.0		
Total Split (%)	29.2%	29.2%		29.2%	29.2%		35.8%	35.8%	35.8%	10.8%		
Maximum Green (s)	29.0	29.0		29.0	29.0		37.0	37.0	37.0	7.0		
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5		
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5		
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0	0.0		
Total Lost Time (s)		6.0		6.0	6.0			6.0	6.0	6.0		
Lead/Lag	Lead	Lead		Lead	Lead		Lead	Lead	Lead	Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		29.0		29.0	29.0			37.0	37.0	44.0	50.0	
Actuated g/C Ratio		0.24		0.24	0.24			0.31	0.31	0.37	0.42	
v/c Ratio		0.68		1.03	0.60			1.20dl	0.26	0.61	0.79	
Control Delay		54.6		115.9	48.6			97.6	21.9	20.5	19.4	
Queue Delay		1.5		24.1	0.0			0.0	0.0	0.0	2.5	
Total Delay		56.2		140.0	48.6			97.6	21.9	20.5	22.0	
LOS		E		F	D			F	C	C	C	
Approach Delay		56.2			94.3			85.4			21.8	
Approach LOS		E			F			F			C	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 1 (1%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 53.9		Intersection LOS: D	
Intersection Capacity Utilization 84.2%		ICU Level of Service E	
Analysis Period (min) 15			
dl Defacto Left Lane. Recode with 1 though lane as a left lane.			

Splits and Phases: 2: Brookline Ave & Francis St



Lane Group	Ø2
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	29.0
Total Split (s)	29.0
Total Split (%)	24%
Maximum Green (s)	25.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	18.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	194	212	212	496	95	145	985
v/c Ratio	0.68	1.03	0.60	1.20dl	0.26	0.61	0.79
Control Delay	54.6	115.9	48.6	97.6	21.9	20.5	19.4
Queue Delay	1.5	24.1	0.0	0.0	0.0	0.0	2.5
Total Delay	56.2	140.0	48.6	97.6	21.9	20.5	22.0
Queue Length 50th (ft)	137	~175	146	~163	32	46	185
Queue Length 95th (ft)	214	#304	215	#315	m61	m53	m268
Internal Link Dist (ft)	255		467	249			363
Turn Bay Length (ft)		250			150		
Base Capacity (vph)	286	206	353	459	370	236	1247
Starvation Cap Reductn	0	0	0	0	0	0	154
Spillback Cap Reductn	22	15	0	0	0	0	109
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	1.11	0.60	1.08	0.26	0.61	0.90

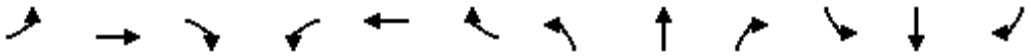
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

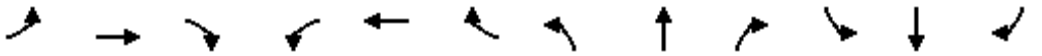


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	57	72	180	66	114	57	405	88	132	873	24
Future Volume (vph)	39	57	72	180	66	114	57	405	88	132	873	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00			0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99		1.00	0.99			1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Frt		0.94		1.00	0.91			1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)		1469		1510	1462			2937	1203	1331	2995	
Flt Permitted		0.80		0.54	1.00			0.50	1.00	0.37	1.00	
Satd. Flow (perm)		1186		854	1462			1488	1203	515	2995	
Peak-hour factor, PHF	0.87	0.87	0.87	0.85	0.85	0.85	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	45	66	83	212	78	134	61	435	95	145	959	26
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	194	0	212	212	0	0	496	95	145	985	0
Confl. Bikes (#/hr)			1			3						5
Heavy Vehicles (%)	8%	2%	4%	4%	2%	1%	5%	5%	14%	18%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	6	6	0	7	7
Parking (#/hr)												4
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	D.P+P	NA	
Protected Phases		5			5			1		6	1 6	
Permitted Phases	5			5			1		1	1		
Actuated Green, G (s)		29.0		29.0	29.0			37.0	37.0	44.0	50.0	
Effective Green, g (s)		29.0		29.0	29.0			37.0	37.0	44.0	50.0	
Actuated g/C Ratio		0.24		0.24	0.24			0.31	0.31	0.37	0.42	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0	6.0		
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)		286		206	353			458	370	236	1247	
v/s Ratio Prot					0.14					0.04	c0.33	
v/s Ratio Perm		0.16		c0.25				c0.33	0.08	0.19		
v/c Ratio		0.68		1.03	0.60			1.20dl	0.26	0.61	0.79	
Uniform Delay, d1		41.3		45.5	40.4			41.5	31.2	29.2	30.4	
Progression Factor		1.00		1.00	1.00			0.82	0.64	0.59	0.56	
Incremental Delay, d2		6.3		70.5	2.9			64.2	1.5	4.8	2.1	
Delay (s)		47.5		116.0	43.2			98.4	21.4	22.0	19.1	
Level of Service		D		F	D			F	C	C	B	
Approach Delay (s)		47.5			79.6			86.0			19.5	
Approach LOS		D			E			F			B	

Intersection Summary			
HCM 2000 Control Delay	49.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group



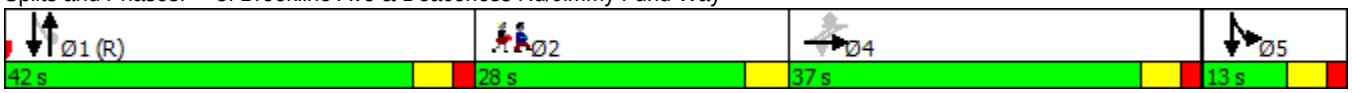
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	28	113	199	0	191	0	511	46	54	717	0
Future Volume (vph)	55	28	113	199	0	191	0	511	46	54	717	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor						0.99						
Frt		0.880				0.850		0.988				
Flt Protected	0.950			0.950							0.997	
Satd. Flow (prot)	1287	1350	0	1481	0	1266	0	2953	0	0	3019	0
Flt Permitted	0.950			0.579							0.765	
Satd. Flow (perm)	1287	1350	0	903	0	1250	0	2953	0	0	2316	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		133						8				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		327			400			443			84	
Travel Time (s)		7.4			9.1			10.1			1.9	
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.85	0.85	0.85	0.87	0.87	0.87	0.92	0.92	0.92	0.88	0.88	0.88
Heavy Vehicles (%)	22%	15%	6%	6%	0%	11%	0%	4%	2%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	6	6	0	0	0
Adj. Flow (vph)	65	33	133	229	0	220	0	555	50	61	815	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	166	0	229	0	220	0	605	0	0	876	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		-12			-8			4			0	
Crosswalk Width(ft)		16			16			16			12	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.21	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1		1		1		1	1	
Detector Template	Left	Thru		Left		Right		Thru		Left	Thru	
Leading Detector (ft)	50	50		50		50		50		20	50	
Trailing Detector (ft)	0	0		0		0		0		0	0	
Detector 1 Position(ft)	0	0		0		0		0		0	0	
Detector 1 Size(ft)	50	50		50		50		50		20	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Turn Type	Perm	NA		D.Pm		Perm		NA		D.P+P	NA	
Protected Phases		4						1		5	1 5	
Permitted Phases	4			4		4				1		
Detector Phase	4	4		4		4		1		5	1 5	

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0		8.0		10.0		6.0		
Minimum Split (s)	13.5	13.5		13.5		13.5		15.5		11.5		
Total Split (s)	37.0	37.0		37.0		37.0		42.0		13.0		
Total Split (%)	30.8%	30.8%		30.8%		30.8%		35.0%		10.8%		
Maximum Green (s)	31.5	31.5		31.5		31.5		36.5		7.5		
Yellow Time (s)	3.5	3.5		3.5		3.5		3.5		3.5		
All-Red Time (s)	2.0	2.0		2.0		2.0		2.0		2.0		
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0				
Total Lost Time (s)	5.5	5.5		5.5		5.5		5.5				
Lead/Lag								Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0		2.0		2.0		2.0		
Recall Mode	None	None		None		None		C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	31.3	31.3		31.3		31.3		36.7			44.2	
Actuated g/C Ratio	0.26	0.26		0.26		0.26		0.31			0.37	
v/c Ratio	0.19	0.37		0.97		0.67		0.67			0.98	
Control Delay	36.3	12.0		97.1		51.5		27.8			41.6	
Queue Delay	0.0	0.0		0.0		0.0		0.0			3.0	
Total Delay	36.3	12.0		97.1		51.5		27.8			44.6	
LOS	D	B		F		D		C			D	
Approach Delay		18.8			74.8			27.8			44.6	
Approach LOS		B			E			C			D	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 2 (2%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 43.4		Intersection LOS: D	
Intersection Capacity Utilization 79.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Brookline Ave & Deaconess Rd/Jimmy Fund Way



Lane Group	Ø2
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	28.0
Total Split (s)	28.0
Total Split (%)	23%
Maximum Green (s)	24.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	17.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

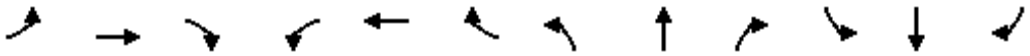


Lane Group	EBL	EBT	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	65	166	229	220	605	876
v/c Ratio	0.19	0.37	0.97	0.67	0.67	0.98
Control Delay	36.3	12.0	97.1	51.5	27.8	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	3.0
Total Delay	36.3	12.0	97.1	51.5	27.8	44.6
Queue Length 50th (ft)	39	19	176	153	124	322
Queue Length 95th (ft)	74	68	#322	234	m125	m#341
Internal Link Dist (ft)		247			363	4
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	337	452	237	328	908	897
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	14
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.37	0.97	0.67	0.67	0.99

Intersection Summary

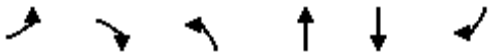
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



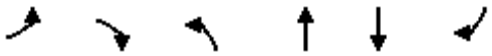
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	28	113	199	0	191	0	511	46	54	717	0
Future Volume (vph)	55	28	113	199	0	191	0	511	46	54	717	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5		5.5		5.5			5.5	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00		0.99		1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00		1.00		1.00			1.00	
Frt	1.00	0.88		1.00		0.85		0.99			1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00			1.00	
Satd. Flow (prot)	1287	1349		1481		1250		2951			3018	
Flt Permitted	0.95	1.00		0.58		1.00		1.00			0.77	
Satd. Flow (perm)	1287	1349		903		1250		2951			2318	
Peak-hour factor, PHF	0.85	0.85	0.85	0.87	0.87	0.87	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	65	33	133	229	0	220	0	555	50	61	815	0
RTOR Reduction (vph)	0	98	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	65	68	0	229	0	220	0	599	0	0	876	0
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	22%	15%	6%	6%	0%	11%	0%	4%	2%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	6	6	0	0	0
Turn Type	Perm	NA		D.Pm		Perm		NA		D.P+P	NA	
Protected Phases		4						1		5	1 5	
Permitted Phases	4			4		4				1		
Actuated Green, G (s)	31.3	31.3		31.3		31.3		36.7			44.2	
Effective Green, g (s)	31.3	31.3		31.3		31.3		36.7			44.2	
Actuated g/C Ratio	0.26	0.26		0.26		0.26		0.31			0.37	
Clearance Time (s)	5.5	5.5		5.5		5.5		5.5				
Vehicle Extension (s)	2.0	2.0		2.0		2.0		2.0				
Lane Grp Cap (vph)	335	351		235		326		902			897	
v/s Ratio Prot		0.05						0.20			c0.06	
v/s Ratio Perm	0.05			c0.25		0.18					c0.30	
v/c Ratio	0.19	0.19		0.97		0.67		0.66			0.98	
Uniform Delay, d1	34.5	34.5		44.0		39.8		36.3			37.4	
Progression Factor	1.00	1.00		1.00		1.00		0.73			0.57	
Incremental Delay, d2	0.1	0.1		50.9		4.3		1.3			19.6	
Delay (s)	34.6	34.6		94.9		44.1		27.8			41.0	
Level of Service	C	C		F		D		C			D	
Approach Delay (s)		34.6			70.0			27.8			41.0	
Approach LOS		C			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	80	678	771	63
Future Volume (vph)	0	0	80	678	771	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt					0.989	
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1454	2882	2905	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1454	2882	2905	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	185			84	355	
Travel Time (s)	4.2			1.9	8.1	
Confl. Peds. (#/hr)			232			232
Confl. Bikes (#/hr)						6
Peak Hour Factor	0.91	0.91	0.97	0.97	0.91	0.91
Heavy Vehicles (%)	0%	0%	8%	7%	4%	23%
Bus Blockages (#/hr)	0	0	0	9	7	0
Adj. Flow (vph)	0	0	82	699	847	69
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	82	699	916	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			11	11	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.22	1.22	1.19
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	80	678	771	63
Future Volume (Veh/h)	0	0	80	678	771	63
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.97	0.97	0.91	0.91
Hourly flow rate (vph)	0	0	82	699	847	69
Pedestrians	232					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				84	355	
pX, platoon unblocked	0.91	0.83	0.83			
vC, conflicting volume	1627	690	1148			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	684	214	766			
tC, single (s)	6.8	6.9	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	88			
cM capacity (veh/h)	309	661	667			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	82	350	350	565	351
Volume Left	82	0	0	0	0
Volume Right	0	0	0	0	69
cSH	667	1700	1700	1700	1700
Volume to Capacity	0.12	0.21	0.21	0.33	0.21
Queue Length 95th (ft)	10	0	0	0	0
Control Delay (s)	11.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	1.2			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	197	56	164	243	315	46	519	113	206	614	83
Future Volume (vph)	30	197	56	164	243	315	46	519	113	206	614	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	10	11	11	11	11	11	11
Storage Length (ft)	150		0	150		0	250		0	330		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50			100			30			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00						1.00			1.00	
Frt		0.967				0.850		0.973			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1516	1461	0	1444	1605	1268	1510	2732	0	1481	2894	0
Flt Permitted	0.408			0.343			0.104			0.243		
Satd. Flow (perm)	651	1461	0	521	1605	1268	165	2732	0	379	2894	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		366			390			355			587	
Travel Time (s)		8.3			8.9			8.1			13.3	
Confl. Bikes (#/hr)			2						3			4
Peak Hour Factor	0.84	0.84	0.84	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Heavy Vehicles (%)	0%	3%	0%	5%	3%	7%	4%	6%	16%	6%	5%	5%
Bus Blockages (#/hr)	0	7	0	0	0	0	0	17	0	0	6	0
Adj. Flow (vph)	36	235	67	178	264	342	49	558	122	219	653	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	302	0	178	264	342	49	680	0	219	741	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		-5			2			4			0	
Crosswalk Width(ft)		25			12			18			28	
Two way Left Turn Lane												
Headway Factor	1.25	1.29	1.25	1.25	1.19	1.25	1.19	1.25	1.19	1.19	1.21	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50		50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		4			4	5		1		5	1 5	
Permitted Phases	4			4		4	1			1		

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4	5	1	1		5	1 5	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	6.0	10.0	10.0		6.0		
Minimum Split (s)	14.0	14.0		14.0	14.0	11.5	15.5	15.5		11.5		
Total Split (s)	36.0	36.0		36.0	36.0	13.0	44.0	44.0		13.0		
Total Split (%)	30.0%	30.0%		30.0%	30.0%	10.8%	36.7%	36.7%		10.8%		
Maximum Green (s)	30.0	30.0		30.0	30.0	7.5	38.5	38.5		7.5		
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5		
All-Red Time (s)	2.5	2.5		2.5	2.5	2.0	2.0	2.0		2.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5		
Lead/Lag							Lead	Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		
Recall Mode	Max	Max		Max	Max	Max	C-Max	C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	30.0	30.0		30.0	30.0	43.5	38.5	38.5		46.0	51.5	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.36	0.32	0.32		0.38	0.43	
v/c Ratio	0.22	0.83		1.37	0.66	0.75	0.94	0.78		1.02	0.60	
Control Delay	40.1	62.5		243.3	49.4	45.0	135.8	36.0		98.6	28.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.1		0.0	0.3	
Total Delay	40.1	62.5		243.3	49.4	45.0	135.8	36.1		98.6	29.0	
LOS	D	E		F	D	D	F	D		F	C	
Approach Delay		60.1			91.5			42.8			44.9	
Approach LOS		E			F			D			D	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 110 (92%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.37			
Intersection Signal Delay: 59.2		Intersection LOS: E	
Intersection Capacity Utilization 77.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Brookline Ave & Longwood Ave



Lane Group	Ø2
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	23%
Maximum Green (s)	23.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	16.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



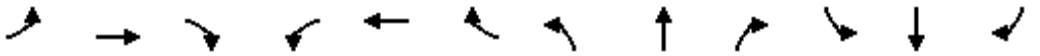
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	302	178	264	342	49	680	219	741
v/c Ratio	0.22	0.83	1.37	0.66	0.75	0.94	0.78	1.02	0.60
Control Delay	40.1	62.5	243.3	49.4	45.0	135.8	36.0	98.6	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3
Total Delay	40.1	62.5	243.3	49.4	45.0	135.8	36.1	98.6	29.0
Queue Length 50th (ft)	22	222	~182	184	229	25	181	~116	227
Queue Length 95th (ft)	50	#328	#327	280	351	m#77	239	#275	292
Internal Link Dist (ft)		286		310			275		507
Turn Bay Length (ft)	150		150			250		330	
Base Capacity (vph)	162	365	130	401	459	52	876	214	1242
Starvation Cap Reductn	0	0	0	0	0	0	8	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	114
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.83	1.37	0.66	0.75	0.94	0.78	1.02	0.66

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

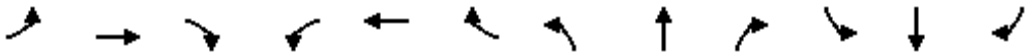
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	197	56	164	243	315	46	519	113	206	614	83
Future Volume (vph)	30	197	56	164	243	315	46	519	113	206	614	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	11	10	11	11	11	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1516	1461		1444	1605	1268	1510	2732		1481	2895	
Flt Permitted	0.41	1.00		0.34	1.00	1.00	0.10	1.00		0.24	1.00	
Satd. Flow (perm)	651	1461		521	1605	1268	165	2732		379	2895	
Peak-hour factor, PHF	0.84	0.84	0.84	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	36	235	67	178	264	342	49	558	122	219	653	88
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	36	302	0	178	264	342	49	680	0	219	741	0
Confl. Bikes (#/hr)			2						3			4
Heavy Vehicles (%)	0%	3%	0%	5%	3%	7%	4%	6%	16%	6%	5%	5%
Bus Blockages (#/hr)	0	7	0	0	0	0	0	17	0	0	6	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		4			4	5		1		5	1 5	
Permitted Phases	4			4		4	1			1		
Actuated Green, G (s)	30.0	30.0		30.0	30.0	37.5	38.5	38.5		46.0	51.5	
Effective Green, g (s)	30.0	30.0		30.0	30.0	37.5	38.5	38.5		46.0	51.5	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.31	0.32	0.32		0.38	0.43	
Clearance Time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5		
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		
Lane Grp Cap (vph)	162	365		130	401	396	52	876		214	1242	
v/s Ratio Prot		0.21			0.16	0.05		0.25		c0.06	0.26	
v/s Ratio Perm	0.06			c0.34		0.22	0.30			c0.33		
v/c Ratio	0.22	0.83		1.37	0.66	0.86	0.94	0.78		1.02	0.60	
Uniform Delay, d1	35.7	42.6		45.0	40.4	38.8	39.7	36.9		35.0	26.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.84	0.82		1.00	1.00	
Incremental Delay, d2	3.1	19.0		207.3	8.2	21.4	96.1	5.4		67.7	2.1	
Delay (s)	38.9	61.5		252.3	48.6	60.2	129.2	35.6		102.7	28.4	
Level of Service	D	E		F	D	E	F	D		F	C	
Approach Delay (s)		59.1			99.9			41.9			45.3	
Approach LOS		E			F			D			D	

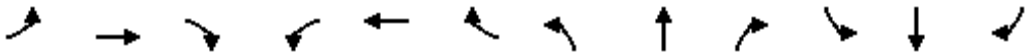
Intersection Summary			
HCM 2000 Control Delay	61.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	4	0	9	29	167	3	839	21	36	1196	199
Future Volume (vph)	56	4	0	9	29	167	3	839	21	36	1196	199
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	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt					0.890			0.996			0.979	
Flt Protected		0.955			0.998						0.999	
Satd. Flow (prot)	0	1550	0	0	1427	0	0	3124	0	0	3069	0
Flt Permitted		0.955			0.998						0.999	
Satd. Flow (perm)	0	1550	0	0	1427	0	0	3124	0	0	3069	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		148			142			481			579	
Travel Time (s)		3.4			3.2			10.9			13.2	
Confl. Peds. (#/hr)	15		9	9		15	3		17	17		3
Confl. Bikes (#/hr)						1			3			2
Peak Hour Factor	0.74	0.74	0.74	0.75	0.75	0.75	0.86	0.86	0.86	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	10%	0%	3%	0%	0%	5%	3%	0%	0%
Adj. Flow (vph)	76	5	0	12	39	223	3	976	24	37	1233	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	0	0	274	0	0	1003	0	0	1475	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 104.2%		ICU Level of Service G	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	4	0	9	29	167	3	839	21	36	1196	199
Future Volume (Veh/h)	56	4	0	9	29	167	3	839	21	36	1196	199
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.74	0.74	0.74	0.75	0.75	0.75	0.86	0.86	0.86	0.97	0.97	0.97
Hourly flow rate (vph)	76	5	0	12	39	223	3	976	24	37	1233	205
Pedestrians		3			17			9			15	
Lane Width (ft)		11.0			11.0			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								481			1067	
pX, platoon unblocked	0.70	0.70	0.70	0.70	0.70		0.70					
vC, conflicting volume	2164	2436	731	1713	2526	532	1441			1017		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1806	2194	0	1163	2323	532	774			1017		
tC, single (s)	7.5	6.5	6.9	7.7	6.5	7.0	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	0	83	100	85	0	53	99			94		
cM capacity (veh/h)	0	30	756	79	24	476	594			662		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	81	274	491	512	654	822
Volume Left	76	12	3	0	37	0
Volume Right	0	223	0	24	0	205
cSH	0	124	594	1700	662	1700
Volume to Capacity	Err	2.21	0.01	0.30	0.06	0.48
Queue Length 95th (ft)	Err	580	0	0	4	0
Control Delay (s)	Err	628.5	0.1	0.0	1.5	0.0
Lane LOS	F	F	A		A	
Approach Delay (s)	Err	628.5	0.1		0.7	
Approach LOS	F	F				

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	104.2%	ICU Level of Service	G	
Analysis Period (min)	15			



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1028	35	25	1431
Future Volume (vph)	0	0	1028	35	25	1431
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt			0.995			
Flt Protected						0.999
Satd. Flow (prot)	0	0	3092	0	0	3099
Flt Permitted						0.999
Satd. Flow (perm)	0	0	3092	0	0	3099
Link Speed (mph)	30		30			30
Link Distance (ft)	520		579			488
Travel Time (s)	11.8		13.2			11.1
Confl. Peds. (#/hr)				6	6	
Confl. Bikes (#/hr)				4		
Peak Hour Factor	0.25	0.25	0.88	0.88	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	3%	16%	1%
Adj. Flow (vph)	0	0	1168	40	27	1555
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1208	0	0	1582
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		11			11
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

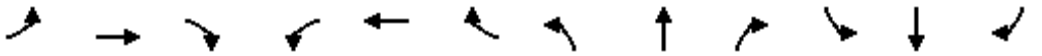
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.0%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	1028	35	25	1431
Future Volume (Veh/h)	0	0	1028	35	25	1431
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.25	0.25	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	0	0	1168	40	27	1555
Pedestrians	6					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1060			488
pX, platoon unblocked	0.68					
vC, conflicting volume	2026	610			1214	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1566	610			1214	
tC, single (s)	6.8	6.9			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.4	
p0 queue free %	100	100			95	
cM capacity (veh/h)	67	442			498	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	779	429	545	1037
Volume Left	0	0	27	0
Volume Right	0	40	0	0
cSH	1700	1700	498	1700
Volume to Capacity	0.46	0.25	0.05	0.61
Queue Length 95th (ft)	0	0	4	0
Control Delay (s)	0.0	0.0	1.6	0.0
Lane LOS			A	
Approach Delay (s)	0.0		0.5	
Approach LOS				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		



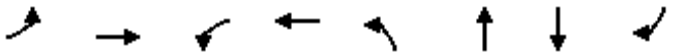
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	200	181	78	271	79	288	691	49	0	1196	108
Future Volume (vph)	85	200	181	78	271	79	288	691	49	0	1196	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12	11	11	11	11	11	11
Storage Length (ft)	0		100	50		0	250		0	0		0
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	25			100			100			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor					0.99							
Frt		0.929			0.966			0.990				0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1516	1467	0	1516	1591	0	1555	3081	0	0	3110	1405
Flt Permitted	0.220			0.160			0.118					
Satd. Flow (perm)	351	1467	0	255	1591	0	193	3081	0	0	3110	1405
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		43			14			7				98
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		346			201			488			736	
Travel Time (s)		7.9			4.6			11.1			16.7	
Confl. Bikes (#/hr)						34						
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	0%	0%	1%	9%	1%	1%	0%	0%	1%	0%
Adj. Flow (vph)	98	230	208	87	301	88	310	743	53	0	1314	119
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	438	0	87	389	0	310	796	0	0	1314	119
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			10			11			0	
Link Offset(ft)		8			12			0			4	
Crosswalk Width(ft)		20			24			24			12	
Two way Left Turn Lane												
Headway Factor	1.25	1.25	1.25	1.25	1.14	1.14	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1			1	1
Detector Template	Left	Thru		Left	Thru		Left	Thru			Thru	Right
Leading Detector (ft)	20	50		50	50		50	50			50	50
Trailing Detector (ft)	0	0		0	0		0	0			0	0
Detector 1 Position(ft)	0	0		0	0		0	0			0	0
Detector 1 Size(ft)	20	50		50	50		50	50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA			NA	Perm
Protected Phases		2			2		3	1			1	
Permitted Phases	2			2			1					1
Detector Phase	2	2		2	2		3	1			1	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	18.0			18.0	18.0
Minimum Split (s)	14.0	14.0		14.0	14.0		27.0	24.0			24.0	24.0
Total Split (s)	31.0	31.0		31.0	31.0		35.0	34.0			34.0	34.0
Total Split (%)	31.0%	31.0%		31.0%	31.0%		35.0%	34.0%			34.0%	34.0%
Maximum Green (s)	25.0	25.0		25.0	25.0		29.0	28.0			28.0	28.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Lead/Lag	Lag	Lag		Lag	Lag			Lead			Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Recall Mode	None	None		None	None		Ped	C-Max			C-Max	C-Max
Walk Time (s)							7.0					
Flash Dont Walk (s)							14.0					
Pedestrian Calls (#/hr)							0					
Act Effct Green (s)	25.0	25.0		25.0	25.0		57.0	34.0			34.0	34.0
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.57	0.34			0.34	0.34
v/c Ratio	1.13	1.10		1.38	0.95		0.73	0.76			1.24	0.22
Control Delay	173.0	107.6		277.4	71.4		32.9	35.5			149.0	8.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	173.0	107.6		277.4	71.4		32.9	35.5			149.0	8.7
LOS	F	F		F	E		C	D			F	A
Approach Delay		119.6			109.0			34.8			137.4	
Approach LOS		F			F			C			F	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.38			
Intersection Signal Delay: 98.9		Intersection LOS: F	
Intersection Capacity Utilization 105.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 8: Riverway & Longwood Ave



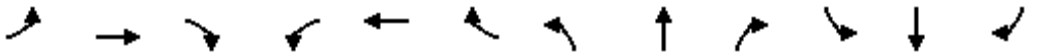


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	98	438	87	389	310	796	1314	119
v/c Ratio	1.13	1.10	1.38	0.95	0.73	0.76	1.24	0.22
Control Delay	173.0	107.6	277.4	71.4	32.9	35.5	149.0	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	173.0	107.6	277.4	71.4	32.9	35.5	149.0	8.7
Queue Length 50th (ft)	~72	~297	~74	237	136	225	~529	9
Queue Length 95th (ft)	#170	#464	#172	#425	223	#367	#744	52
Internal Link Dist (ft)		266		121		408	656	
Turn Bay Length (ft)			50		250			
Base Capacity (vph)	87	399	63	408	514	1050	1056	541
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	1.10	1.38	0.95	0.60	0.76	1.24	0.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	200	181	78	271	79	288	691	49	0	1196	108
Future Volume (vph)	85	200	181	78	271	79	288	691	49	0	1196	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	12	12	11	11	11	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.93		1.00	0.97		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1516	1467		1516	1591		1555	3081			3110	1405
Flt Permitted	0.22	1.00		0.16	1.00		0.12	1.00			1.00	1.00
Satd. Flow (perm)	350	1467		255	1591		193	3081			3110	1405
Peak-hour factor, PHF	0.87	0.87	0.87	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	98	230	208	87	301	88	310	743	53	0	1314	119
RTOR Reduction (vph)	0	32	0	0	11	0	0	5	0	0	0	65
Lane Group Flow (vph)	98	406	0	87	379	0	310	791	0	0	1314	54
Confl. Bikes (#/hr)						34						
Heavy Vehicles (%)	0%	2%	0%	0%	1%	9%	1%	1%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA			NA	Perm
Protected Phases		2			2		3	1			1	
Permitted Phases	2			2			1					1
Actuated Green, G (s)	25.0	25.0		25.0	25.0		57.0	34.0			34.0	34.0
Effective Green, g (s)	25.0	25.0		25.0	25.0		57.0	34.0			34.0	34.0
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.57	0.34			0.34	0.34
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	87	366		63	397		423	1047			1057	477
v/s Ratio Prot		0.28			0.24		c0.17	0.26			c0.42	
v/s Ratio Perm	0.28			c0.34			0.25					0.04
v/c Ratio	1.13	1.11		1.38	0.95		0.73	0.76			1.24	0.11
Uniform Delay, d1	37.5	37.5		37.5	36.9		24.0	29.3			33.0	22.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	134.7	79.7		244.2	32.9		5.6	5.1			117.5	0.5
Delay (s)	172.2	117.2		281.7	69.8		29.6	34.4			150.5	23.1
Level of Service	F	F		F	E		C	C			F	C
Approach Delay (s)		127.2			108.5			33.1			139.9	
Approach LOS		F			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	100.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	249	0	0	393	35	18
Future Volume (vph)	249	0	0	393	35	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.954	
Flt Protected					0.968	
Satd. Flow (prot)	1621	0	0	1637	1526	0
Flt Permitted					0.968	
Satd. Flow (perm)	1621	0	0	1637	1526	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	201			69	520	
Travel Time (s)	4.6			1.6	11.8	
Peak Hour Factor	0.87	0.87	0.88	0.88	0.68	0.68
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Adj. Flow (vph)	286	0	0	447	51	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	286	0	0	447	77	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	11	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

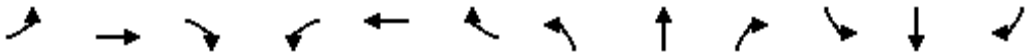
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	249	0	0	393	35	18
Future Volume (Veh/h)	249	0	0	393	35	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.88	0.88	0.68	0.68
Hourly flow rate (vph)	286	0	0	447	51	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	201			686		
pX, platoon unblocked					0.95	
vC, conflicting volume			286		733	286
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			286		690	286
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		87	97
cM capacity (veh/h)			1288		392	758

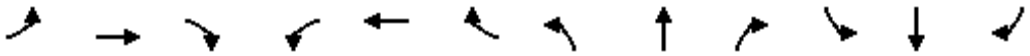
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	286	447	77
Volume Left	0	0	51
Volume Right	0	0	26
cSH	1700	1700	468
Volume to Capacity	0.17	0.26	0.16
Queue Length 95th (ft)	0	0	15
Control Delay (s)	0.0	0.0	14.2
Lane LOS			B
Approach Delay (s)	0.0	0.0	14.2
Approach LOS			B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	33.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	181	41	63	275	35	25	9	30	71	53	98
Future Volume (vph)	30	181	41	63	275	35	25	9	30	71	53	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	10	11	11	11	11	11	11	11	11
Storage Length (ft)	100		0	75		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.972			0.983			0.936			0.940	
Flt Protected	0.950			0.950				0.981			0.984	
Satd. Flow (prot)	1516	1599	0	1378	1611	0	0	1518	0	0	1529	0
Flt Permitted	0.950			0.950				0.981			0.984	
Satd. Flow (perm)	1516	1599	0	1378	1611	0	0	1518	0	0	1529	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		251			366			200			129	
Travel Time (s)		5.7			8.3			4.5			2.9	
Confl. Peds. (#/hr)	352		245	245		352	74		52	52		74
Confl. Bikes (#/hr)			2			27						
Peak Hour Factor	0.87	0.87	0.87	0.88	0.88	0.88	0.75	0.75	0.75	0.73	0.73	0.73
Heavy Vehicles (%)	0%	3%	8%	10%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	34	208	47	72	313	40	33	12	40	97	73	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	255	0	72	353	0	0	85	0	0	304	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.25	1.14	1.14	1.25	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

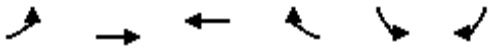
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	181	41	63	275	35	25	9	30	71	53	98
Future Volume (Veh/h)	30	181	41	63	275	35	25	9	30	71	53	98
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.88	0.88	0.88	0.75	0.75	0.75	0.73	0.73	0.73
Hourly flow rate (vph)	34	208	47	72	313	40	33	12	40	97	73	134
Pedestrians		74			52			245			352	
Lane Width (ft)		11.0			10.5			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		6			4			21			31	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		521			366							
pX, platoon unblocked	0.88						0.88	0.88		0.88	0.88	0.88
vC, conflicting volume	705			500			1246	1394	528	1203	1397	759
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	593			500			1210	1379	528	1161	1383	655
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			91			0	80	90	0	0	50
cM capacity (veh/h)	603			805			0	60	417	46	60	267

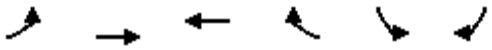
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	34	255	72	353	85	304
Volume Left	34	0	72	0	33	97
Volume Right	0	47	0	40	40	134
cSH	603	1700	805	1700	0	79
Volume to Capacity	0.06	0.15	0.09	0.21	Err	3.86
Queue Length 95th (ft)	4	0	7	0	Err	Err
Control Delay (s)	11.3	0.0	9.9	0.0	Err	Err
Lane LOS	B		A		F	F
Approach Delay (s)	1.3		1.7		Err	Err
Approach LOS					F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	52.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	52	136	18	87	69
Future Volume (vph)	8	52	136	18	87	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.984		0.940	
Flt Protected		0.993			0.973	
Satd. Flow (prot)	0	1614	1615	0	1406	0
Flt Permitted		0.993			0.973	
Satd. Flow (perm)	0	1614	1615	0	1406	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		142	335		150	
Travel Time (s)		3.2	7.6		3.4	
Confl. Peds. (#/hr)	36			36	42	31
Peak Hour Factor	0.75	0.75	0.86	0.86	0.83	0.83
Heavy Vehicles (%)	0%	2%	0%	6%	8%	7%
Adj. Flow (vph)	11	69	158	21	105	83
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	80	179	0	188	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15			9	15	9
Sign Control		Stop	Stop		Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.5%		ICU Level of Service A	
Analysis Period (min) 15			

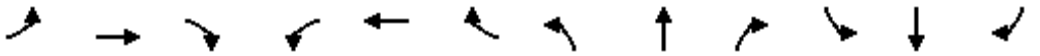


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	8	52	136	18	87	69
Future Volume (vph)	8	52	136	18	87	69
Peak Hour Factor	0.75	0.75	0.86	0.86	0.83	0.83
Hourly flow rate (vph)	11	69	158	21	105	83

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	80	179	188
Volume Left (vph)	11	0	105
Volume Right (vph)	0	21	83
Hadj (s)	0.06	-0.06	-0.02
Departure Headway (s)	4.6	4.4	4.5
Degree Utilization, x	0.10	0.22	0.23
Capacity (veh/h)	731	778	764
Control Delay (s)	8.1	8.6	8.8
Approach Delay (s)	8.1	8.6	8.8
Approach LOS	A	A	A

Intersection Summary			
Delay	8.6		
Level of Service	A		
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		

2023 Build Conditions



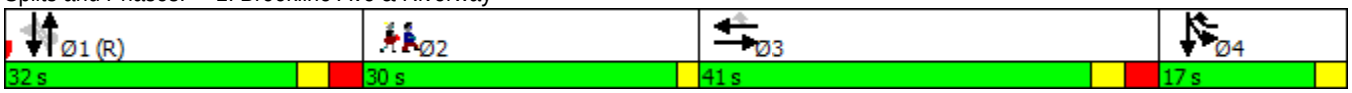
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	649	79	0	904	400	306	517	4	294	377	18
Future Volume (vph)	0	649	79	0	904	400	306	517	4	294	377	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	160		0	0		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00						1.00			1.00	
Frt		0.984				0.850		0.999			0.993	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	3032	0	0	1653	1391	1555	2988	0	1555	2781	0
Flt Permitted							0.395			0.226		
Satd. Flow (perm)	0	3032	0	0	1653	1391	646	2988	0	370	2781	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		11				270					5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		481			606			765			329	
Travel Time (s)		10.9			13.8			17.4			7.5	
Confl. Bikes (#/hr)			3						22			2
Peak Hour Factor	0.86	0.86	0.86	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	0%	0%	1%	1%	5%	0%	1%	11%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	7	7
Adj. Flow (vph)	0	755	92	0	972	430	333	562	4	320	410	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	847	0	0	972	430	333	566	0	320	430	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			20			24			22	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.22	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1			1	1	1	1		1	1	
Detector Template		Thru			Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)		50			50	50	50	50		50	50	
Trailing Detector (ft)		0			0	0	0	0		0	0	
Detector 1 Position(ft)		0			0	0	0	0		0	0	
Detector 1 Size(ft)		50			50	50	50	50		50	50	
Detector 1 Type		Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type		NA			NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		3			3	4		1		4	1 4	
Permitted Phases						3	1			1		
Detector Phase		3			3	4	1	1		4	1 4	

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		10.0			10.0	8.0	10.0	10.0		8.0		
Minimum Split (s)		16.0			16.0	11.0	16.0	16.0		11.0		
Total Split (s)		41.0			41.0	17.0	32.0	32.0		17.0		
Total Split (%)		34.2%			34.2%	14.2%	26.7%	26.7%		14.2%		
Maximum Green (s)		35.0			35.0	14.0	26.0	26.0		14.0		
Yellow Time (s)		3.0			3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)		3.0			3.0	0.0	3.0	3.0		0.0		
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)		6.0			6.0	3.0	6.0	6.0		3.0		
Lead/Lag		Lead			Lead	Lag	Lead	Lead		Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0		
Recall Mode		Max			Max	Max	C-Max	C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		35.0			35.0	55.0	26.0	26.0		43.0	43.0	
Actuated g/C Ratio		0.29			0.29	0.46	0.22	0.22		0.36	0.36	
v/c Ratio		0.95			2.02	0.55	2.40	0.87		1.19	0.43	
Control Delay		61.6			490.2	11.0	672.3	61.2		127.9	17.5	
Queue Delay		0.0			0.0	0.3	0.0	56.7		0.0	0.6	
Total Delay		61.6			490.2	11.3	672.3	117.8		127.9	18.1	
LOS		E			F	B	F	F		F	B	
Approach Delay		61.6			343.3			323.2			64.9	
Approach LOS		E			F			F			E	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 8 (7%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.40			
Intersection Signal Delay: 223.9		Intersection LOS: F	
Intersection Capacity Utilization 100.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1: Brookline Ave & Riverway



Lane Group	Ø2
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	25%
Maximum Green (s)	28.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	847	972	430	333	566	320	430
v/c Ratio	0.95	2.02	0.55	2.40	0.87	1.19	0.43
Control Delay	61.6	490.2	11.0	672.3	61.2	127.9	17.5
Queue Delay	0.0	0.0	0.3	0.0	56.7	0.0	0.6
Total Delay	61.6	490.2	11.3	672.3	117.8	127.9	18.1
Queue Length 50th (ft)	334	~1178	79	~424	224	~229	148
Queue Length 95th (ft)	#428	#1430	176	#608	#321	m#290	m147
Internal Link Dist (ft)	401	526			685		249
Turn Bay Length (ft)				160			
Base Capacity (vph)	892	482	783	139	647	270	999
Starvation Cap Reductn	0	0	0	0	0	0	252
Spillback Cap Reductn	0	0	69	0	393	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	2.02	0.60	2.40	2.23	1.19	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	649	79	0	904	400	306	517	4	294	377	18
Future Volume (vph)	0	649	79	0	904	400	306	517	4	294	377	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	3.0	6.0	6.0		3.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3031			1653	1391	1555	2988		1555	2781	
Flt Permitted		1.00			1.00	1.00	0.40	1.00		0.23	1.00	
Satd. Flow (perm)		3031			1653	1391	647	2988		370	2781	
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	755	92	0	972	430	333	562	4	320	410	20
RTOR Reduction (vph)	0	8	0	0	0	160	0	0	0	0	3	0
Lane Group Flow (vph)	0	839	0	0	972	270	333	566	0	320	427	0
Confl. Bikes (#/hr)			3						22			2
Heavy Vehicles (%)	0%	2%	0%	0%	0%	1%	1%	5%	0%	1%	11%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	7	7
Turn Type		NA			NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		3			3	4		1		4	1 4	
Permitted Phases						3	1			1		
Actuated Green, G (s)		35.0			35.0	49.0	26.0	26.0		40.0	43.0	
Effective Green, g (s)		35.0			35.0	49.0	26.0	26.0		40.0	40.0	
Actuated g/C Ratio		0.29			0.29	0.41	0.22	0.22		0.33	0.33	
Clearance Time (s)		6.0			6.0	3.0	6.0	6.0		3.0		
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		884			482	567	140	647		261	927	
v/s Ratio Prot		0.28			c0.59	0.06		0.19		c0.14	0.15	
v/s Ratio Perm						0.14	c0.51			0.27		
v/c Ratio		0.95			2.02	0.48	2.38	0.87		1.23	0.46	
Uniform Delay, d1		41.6			42.5	26.1	47.0	45.4		35.0	31.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00		0.62	0.57	
Incremental Delay, d2		20.2			464.8	2.9	641.8	15.3		122.3	1.1	
Delay (s)		61.9			507.3	28.9	688.8	60.7		144.0	19.0	
Level of Service		E			F	C	F	E		F	B	
Approach Delay (s)		61.9			360.6			293.4			72.4	
Approach LOS		E			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	224.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	100.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

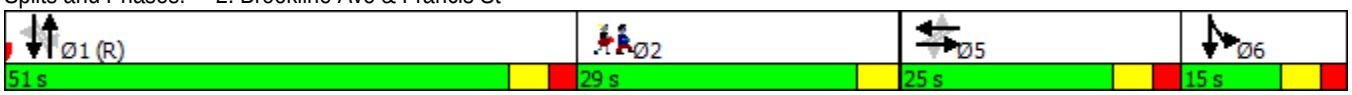
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	117	47	151	79	119	63	759	117	215	491	32
Future Volume (vph)	30	117	47	151	79	119	63	759	117	215	491	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	0		150	0		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			200			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.99									1.00	
Frt		0.967			0.910				0.850		0.991	
Flt Protected		0.992		0.950				0.996		0.950		
Satd. Flow (prot)	0	1514	0	1481	1398	0	0	2985	1254	1378	2876	0
Flt Permitted		0.644		0.380				0.491		0.173		
Satd. Flow (perm)	0	983	0	593	1398	0	0	1471	1254	251	2876	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		335			547			329			443	
Travel Time (s)		7.6			12.4			7.5			10.1	
Confl. Bikes (#/hr)			8									4
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	4%	0%	6%	1%	12%	2%	3%	8%	14%	7%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	9	9	0	7	7
Parking (#/hr)												4
Adj. Flow (vph)	33	127	51	159	83	125	68	825	127	234	534	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	211	0	159	208	0	0	893	127	234	569	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			11			11	
Link Offset(ft)		0			0			0			-4	
Crosswalk Width(ft)		16			36			32			30	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.22	1.25	1.19	1.22	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	50		50	50		20	50	20	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	50		50	50		20	50	20	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	D.P+P	NA	
Protected Phases		5			5			1		6	1 6	
Permitted Phases	5			5			1		1	1		

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	5		5	5		1	1	1	6	1 6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0	10.0	6.0		
Minimum Split (s)	14.0	14.0		14.0	14.0		16.0	16.0	16.0	12.0		
Total Split (s)	25.0	25.0		25.0	25.0		51.0	51.0	51.0	15.0		
Total Split (%)	20.8%	20.8%		20.8%	20.8%		42.5%	42.5%	42.5%	12.5%		
Maximum Green (s)	19.0	19.0		19.0	19.0		45.0	45.0	45.0	9.0		
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5		
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5		
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0	0.0		
Total Lost Time (s)		6.0		6.0	6.0			6.0	6.0	6.0		
Lead/Lag	Lead	Lead		Lead	Lead		Lead	Lead	Lead	Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		19.0		19.0	19.0			45.0	45.0	54.0	60.0	
Actuated g/C Ratio		0.16		0.16	0.16			0.38	0.38	0.45	0.50	
v/c Ratio		1.36		1.71	0.94			1.62	0.27	1.19	0.40	
Control Delay		237.5		392.5	97.6			309.7	17.8	147.9	19.7	
Queue Delay		0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay		237.5		392.5	97.6			309.7	17.8	147.9	19.8	
LOS		F		F	F			F	B	F	B	
Approach Delay		237.5			225.3			273.4			57.1	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 111 (93%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.71			
Intersection Signal Delay: 190.5		Intersection LOS: F	
Intersection Capacity Utilization 86.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 2: Brookline Ave & Francis St



Lane Group	Ø2
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	29.0
Total Split (s)	29.0
Total Split (%)	24%
Maximum Green (s)	25.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	18.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



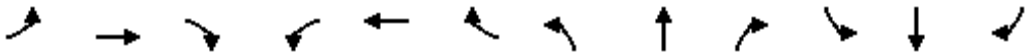
Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	211	159	208	893	127	234	569
v/c Ratio	1.36	1.71	0.94	1.62	0.27	1.19	0.40
Control Delay	237.5	392.5	97.6	309.7	17.8	147.9	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	237.5	392.5	97.6	309.7	17.8	147.9	19.8
Queue Length 50th (ft)	~215	~181	161	~501	38	~139	140
Queue Length 95th (ft)	#371	#321	#312	m#622	m64	#306	184
Internal Link Dist (ft)	255		467	249			363
Turn Bay Length (ft)		250			150		
Base Capacity (vph)	155	93	221	551	470	197	1438
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	50
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.36	1.71	0.94	1.62	0.27	1.19	0.41

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

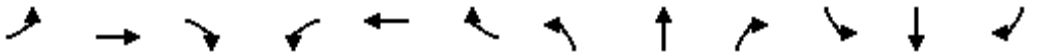
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	117	47	151	79	119	63	759	117	215	491	32
Future Volume (vph)	30	117	47	151	79	119	63	759	117	215	491	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00			0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00			1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Frt		0.97		1.00	0.91			1.00	0.85	1.00	0.99	
Flt Protected		0.99		0.95	1.00			1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1515		1481	1398			2985	1254	1378	2875	
Flt Permitted		0.64		0.38	1.00			0.49	1.00	0.17	1.00	
Satd. Flow (perm)		984		592	1398			1470	1254	252	2875	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	127	51	159	83	125	68	825	127	234	534	35
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	211	0	159	208	0	0	893	127	234	569	0
Confl. Bikes (#/hr)			8									4
Heavy Vehicles (%)	11%	4%	0%	6%	1%	12%	2%	3%	8%	14%	7%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	9	9	0	7	7
Parking (#/hr)												4
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	D.P+P	NA	
Protected Phases		5			5			1		6	1 6	
Permitted Phases	5			5			1		1	1		
Actuated Green, G (s)		19.0		19.0	19.0			45.0	45.0	54.0	60.0	
Effective Green, g (s)		19.0		19.0	19.0			45.0	45.0	54.0	60.0	
Actuated g/C Ratio		0.16		0.16	0.16			0.38	0.38	0.45	0.50	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0	6.0		
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)		155		93	221			551	470	197	1437	
v/s Ratio Prot					0.15					c0.09	0.20	
v/s Ratio Perm		0.21		c0.27				c0.61	0.10	0.44		
v/c Ratio		1.36		1.71	0.94			1.62	0.27	1.19	0.40	
Uniform Delay, d1		50.5		50.5	49.9			37.5	26.1	28.2	18.7	
Progression Factor		1.00		1.00	1.00			0.74	0.63	1.00	1.00	
Incremental Delay, d2		198.4		360.6	44.2			285.0	1.0	123.9	0.8	
Delay (s)		248.9		411.1	94.1			312.6	17.4	152.1	19.5	
Level of Service		F		F	F			F	B	F	B	
Approach Delay (s)		248.9			231.5			275.9			58.2	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	193.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



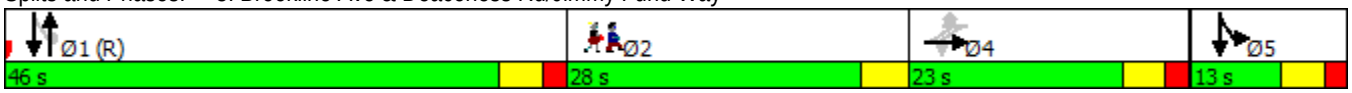
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	13	99	95	0	89	0	834	74	87	545	0
Future Volume (vph)	61	13	99	95	0	89	0	834	74	87	545	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor		0.98				0.99		1.00				
Frt		0.868				0.850		0.988				
Flt Protected	0.950			0.950							0.993	
Satd. Flow (prot)	1415	1292	0	1441	0	1098	0	2931	0	0	2879	0
Flt Permitted	0.950			0.575							0.574	
Satd. Flow (perm)	1415	1292	0	872	0	1083	0	2931	0	0	1664	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		119						10				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		327			400			443			84	
Travel Time (s)		7.4			9.1			10.1			1.9	
Confl. Bikes (#/hr)			7			1			5			
Peak Hour Factor	0.83	0.83	0.83	0.90	0.90	0.90	0.95	0.95	0.95	0.92	0.92	0.92
Heavy Vehicles (%)	11%	31%	6%	9%	0%	28%	0%	4%	1%	4%	9%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	9	9	0	0	0
Adj. Flow (vph)	73	16	119	106	0	99	0	878	78	95	592	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	73	135	0	106	0	99	0	956	0	0	687	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		-12			-8			4			0	
Crosswalk Width(ft)		16			16			16			12	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.22	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1		1		1		1	1	
Detector Template	Left	Thru		Left		Right		Thru		Left	Thru	
Leading Detector (ft)	50	50		50		50		50		20	50	
Trailing Detector (ft)	0	0		0		0		0		0	0	
Detector 1 Position(ft)	0	0		0		0		0		0	0	
Detector 1 Size(ft)	50	50		50		50		50		20	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Turn Type	Perm	NA		D.Pm		Perm		NA		D.P+P	NA	
Protected Phases		4						1		5	1 5	
Permitted Phases	4			4		4				1		
Detector Phase	4	4		4		4		1		5	1 5	

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0		8.0		10.0		6.0		
Minimum Split (s)	13.5	13.5		13.5		13.5		15.5		11.5		
Total Split (s)	23.0	23.0		23.0		23.0		46.0		13.0		
Total Split (%)	20.9%	20.9%		20.9%		20.9%		41.8%		11.8%		
Maximum Green (s)	17.5	17.5		17.5		17.5		40.5		7.5		
Yellow Time (s)	3.5	3.5		3.5		3.5		3.5		3.5		
All-Red Time (s)	2.0	2.0		2.0		2.0		2.0		2.0		
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0				
Total Lost Time (s)	5.5	5.5		5.5		5.5		5.5				
Lead/Lag								Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0		2.0		2.0		2.0		
Recall Mode	None	None		None		None		C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	15.3	15.3		15.3		15.3		42.7			50.2	
Actuated g/C Ratio	0.14	0.14		0.14		0.14		0.39			0.46	
v/c Ratio	0.37	0.48		0.88		0.66		0.84			0.82	
Control Delay	47.6	16.1		100.5		65.0		38.7			15.2	
Queue Delay	0.0	0.0		0.0		0.0		3.0			0.0	
Total Delay	47.6	16.1		100.5		65.0		41.7			15.2	
LOS	D	B		F		E		D			B	
Approach Delay		27.2			83.3			41.7			15.2	
Approach LOS		C			F			D			B	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 93 (85%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 35.5		Intersection LOS: D	
Intersection Capacity Utilization 72.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Brookline Ave & Deaconess Rd/Jimmy Fund Way



Lane Group	Ø2
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	28.0
Total Split (s)	28.0
Total Split (%)	25%
Maximum Green (s)	24.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	17.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

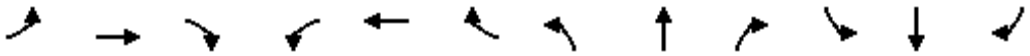
Intersection Summary



Lane Group	EBL	EBT	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	73	135	106	99	956	687
v/c Ratio	0.37	0.48	0.88	0.66	0.84	0.82
Control Delay	47.6	16.1	100.5	65.0	38.7	15.2
Queue Delay	0.0	0.0	0.0	0.0	3.0	0.0
Total Delay	47.6	16.1	100.5	65.0	41.7	15.2
Queue Length 50th (ft)	46	10	73	66	325	47
Queue Length 95th (ft)	84	54	#167	#126	#446	m75
Internal Link Dist (ft)		247			363	4
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	225	305	138	172	1142	841
Starvation Cap Reductn	0	0	0	0	105	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.44	0.77	0.58	0.92	0.82

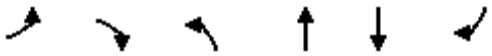
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



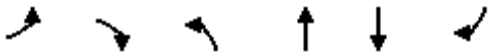
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	13	99	95	0	89	0	834	74	87	545	0
Future Volume (vph)	61	13	99	95	0	89	0	834	74	87	545	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5		5.5		5.5			5.5	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95			0.95	
Frpb, ped/bikes	1.00	0.98		1.00		0.99		1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00		1.00		1.00			1.00	
Frt	1.00	0.87		1.00		0.85		0.99			1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00			0.99	
Satd. Flow (prot)	1415	1290		1441		1083		2930			2880	
Flt Permitted	0.95	1.00		0.58		1.00		1.00			0.57	
Satd. Flow (perm)	1415	1290		872		1083		2930			1665	
Peak-hour factor, PHF	0.83	0.83	0.83	0.90	0.90	0.90	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	73	16	119	106	0	99	0	878	78	95	592	0
RTOR Reduction (vph)	0	102	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	73	33	0	106	0	99	0	950	0	0	687	0
Confl. Bikes (#/hr)			7			1			5			
Heavy Vehicles (%)	11%	31%	6%	9%	0%	28%	0%	4%	1%	4%	9%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	9	9	0	0	0
Turn Type	Perm	NA		D.Pm		Perm		NA		D.P+P	NA	
Protected Phases		4						1		5	1 5	
Permitted Phases	4			4		4				1		
Actuated Green, G (s)	15.3	15.3		15.3		15.3		42.7			50.2	
Effective Green, g (s)	15.3	15.3		15.3		15.3		42.7			50.2	
Actuated g/C Ratio	0.14	0.14		0.14		0.14		0.39			0.46	
Clearance Time (s)	5.5	5.5		5.5		5.5		5.5				
Vehicle Extension (s)	2.0	2.0		2.0		2.0		2.0				
Lane Grp Cap (vph)	196	179		121		150		1137			842	
v/s Ratio Prot		0.03						c0.32			c0.06	
v/s Ratio Perm	0.05			c0.12		0.09					0.32	
v/c Ratio	0.37	0.18		0.88		0.66		0.84			0.82	
Uniform Delay, d1	43.0	41.8		46.4		44.9		30.5			25.9	
Progression Factor	1.00	1.00		1.00		1.00		1.00			0.41	
Incremental Delay, d2	0.4	0.2		44.7		8.1		7.3			4.6	
Delay (s)	43.4	42.0		91.1		53.0		37.8			15.3	
Level of Service	D	D		F		D		D			B	
Approach Delay (s)		42.5			72.7			37.8			15.3	
Approach LOS		D			E			D			B	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	123	861	632	45
Future Volume (vph)	0	0	123	861	632	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt					0.990	
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1428	2882	2840	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1428	2882	2840	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	185			84	355	
Travel Time (s)	4.2			1.9	8.1	
Confl. Peds. (#/hr)			269			269
Confl. Bikes (#/hr)						6
Peak Hour Factor	0.92	0.92	0.96	0.96	0.92	0.92
Heavy Vehicles (%)	0%	0%	10%	7%	8%	7%
Bus Blockages (#/hr)	0	0	0	9	7	0
Adj. Flow (vph)	0	0	128	897	687	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	128	897	736	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			11	11	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.22	1.22	1.19
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

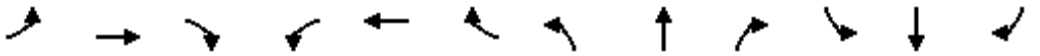
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	123	861	632	45
Future Volume (Veh/h)	0	0	123	861	632	45
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.96	0.96	0.92	0.92
Hourly flow rate (vph)	0	0	128	897	687	49
Pedestrians	269					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				84	355	
pX, platoon unblocked	0.72					
vC, conflicting volume	1685	637	1005			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1171	637	1005			
tC, single (s)	6.8	6.9	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	80			
cM capacity (veh/h)	108	425	639			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	128	448	448	458	278
Volume Left	128	0	0	0	0
Volume Right	0	0	0	0	49
cSH	639	1700	1700	1700	1700
Volume to Capacity	0.20	0.26	0.26	0.27	0.16
Queue Length 95th (ft)	19	0	0	0	0
Control Delay (s)	12.0	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	1.5			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	35.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	221	44	106	279	280	51	601	209	209	527	199
Future Volume (vph)	51	221	44	106	279	280	51	601	209	209	527	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	10	11	11	11	11	11	11
Storage Length (ft)	150		0	150		0	250		0	330		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50			100			30			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99						1.00			0.99	
Frt		0.975				0.850		0.961			0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1516	1449	0	1330	1589	1190	1510	2714	0	1428	2787	0
Flt Permitted	0.223			0.256			0.119			0.120		
Satd. Flow (perm)	356	1449	0	358	1589	1190	189	2714	0	180	2787	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		366			390			355			587	
Travel Time (s)		8.3			8.9			8.1			13.3	
Confl. Bikes (#/hr)			44						5			5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	0%	4%	0%	14%	4%	14%	4%	7%	7%	10%	8%	1%
Bus Blockages (#/hr)	0	7	0	0	0	0	0	17	0	0	6	0
Adj. Flow (vph)	59	257	51	123	324	326	55	653	227	232	586	221
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	308	0	123	324	326	55	880	0	232	807	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		-5			2			4			0	
Crosswalk Width(ft)		25			12			18			28	
Two way Left Turn Lane												
Headway Factor	1.25	1.29	1.25	1.25	1.19	1.25	1.19	1.25	1.19	1.19	1.21	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50		50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		4			4	5		1		5	1 5	
Permitted Phases	4			4		4	1			1		

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4	5	1	1		5	1 5	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	6.0	10.0	10.0		6.0		
Minimum Split (s)	14.0	14.0		14.0	14.0	11.5	15.5	15.5		11.5		
Total Split (s)	28.0	28.0		28.0	28.0	16.0	39.0	39.0		16.0		
Total Split (%)	25.5%	25.5%		25.5%	25.5%	14.5%	35.5%	35.5%		14.5%		
Maximum Green (s)	22.0	22.0		22.0	22.0	10.5	33.5	33.5		10.5		
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5		
All-Red Time (s)	2.5	2.5		2.5	2.5	2.0	2.0	2.0		2.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5		
Lead/Lag							Lead	Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		
Recall Mode	Max	Max		Max	Max	Max	C-Max	C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	22.0	22.0		22.0	22.0	38.5	33.5	33.5		44.0	49.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20	0.35	0.30	0.30		0.40	0.45	
v/c Ratio	0.83	1.07		1.73	1.02	0.78	0.96	1.07		1.21	0.64	
Control Delay	112.4	114.4		410.9	100.6	47.1	112.4	64.0		162.3	26.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	112.4	114.4		410.9	100.6	47.1	112.4	64.0		162.3	26.4	
LOS	F	F		F	F	D	F	E		F	C	
Approach Delay		114.1			127.4			66.8			56.7	
Approach LOS		F			F			E			E	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 109 (99%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.73			
Intersection Signal Delay: 84.1		Intersection LOS: F	
Intersection Capacity Utilization 80.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Brookline Ave & Longwood Ave



Lane Group	Ø2
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	25%
Maximum Green (s)	23.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	16.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



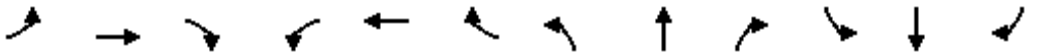
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	59	308	123	324	326	55	880	232	807
v/c Ratio	0.83	1.07	1.73	1.02	0.78	0.96	1.07	1.21	0.64
Control Delay	112.4	114.4	410.9	100.6	47.1	112.4	64.0	162.3	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.4	114.4	410.9	100.6	47.1	112.4	64.0	162.3	26.4
Queue Length 50th (ft)	40	~240	~128	~238	204	30	~365	~160	226
Queue Length 95th (ft)	#114	#386	#235	#390	#322	m#67	#473	#319	294
Internal Link Dist (ft)		286		310			275		507
Turn Bay Length (ft)	150		150			250		330	
Base Capacity (vph)	71	289	71	317	416	57	826	191	1254
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	1.07	1.73	1.02	0.78	0.96	1.07	1.21	0.64

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

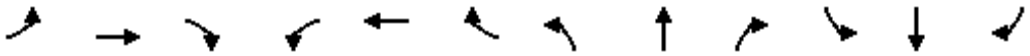
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	221	44	106	279	280	51	601	209	209	527	199
Future Volume (vph)	51	221	44	106	279	280	51	601	209	209	527	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	11	10	11	11	11	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1516	1449		1330	1589	1190	1510	2715		1428	2786	
Flt Permitted	0.22	1.00		0.26	1.00	1.00	0.12	1.00		0.12	1.00	
Satd. Flow (perm)	356	1449		358	1589	1190	190	2715		181	2786	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	59	257	51	123	324	326	55	653	227	232	586	221
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	59	308	0	123	324	326	55	880	0	232	807	0
Confl. Bikes (#/hr)			44						5			5
Heavy Vehicles (%)	0%	4%	0%	14%	4%	14%	4%	7%	7%	10%	8%	1%
Bus Blockages (#/hr)	0	7	0	0	0	0	0	17	0	0	6	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		4			4	5		1		5	1 5	
Permitted Phases	4			4		4	1			1		
Actuated Green, G (s)	22.0	22.0		22.0	22.0	32.5	33.5	33.5		44.0	49.5	
Effective Green, g (s)	22.0	22.0		22.0	22.0	32.5	33.5	33.5		44.0	49.5	
Actuated g/C Ratio	0.20	0.20		0.20	0.20	0.30	0.30	0.30		0.40	0.45	
Clearance Time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5		
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		
Lane Grp Cap (vph)	71	289		71	317	351	57	826		191	1253	
v/s Ratio Prot		0.21			0.20	0.09		0.32		c0.12	0.29	
v/s Ratio Perm	0.17			c0.34		0.19	0.29			c0.37		
v/c Ratio	0.83	1.07		1.73	1.02	0.93	0.96	1.07		1.21	0.64	
Uniform Delay, d1	42.2	44.0		44.0	44.0	37.6	37.7	38.2		27.4	23.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.37	0.42		1.00	1.00	
Incremental Delay, d2	66.5	71.4		381.4	56.3	33.0	86.7	44.6		134.8	2.6	
Delay (s)	108.7	115.4		425.4	100.3	70.6	100.6	60.8		162.2	26.0	
Level of Service	F	F		F	F	E	F	E		F	C	
Approach Delay (s)		114.3			139.5			63.2			56.4	
Approach LOS		F			F			E			E	

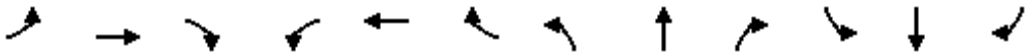
Intersection Summary			
HCM 2000 Control Delay	85.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	50	1	0	12	141	0	1203	25	91	727	96
Future Volume (vph)	228	50	1	0	12	141	0	1203	25	91	727	96
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	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt					0.875			0.997			0.984	
Flt Protected		0.961									0.995	
Satd. Flow (prot)	0	1553	0	0	1433	0	0	3129	0	0	3027	0
Flt Permitted		0.961									0.995	
Satd. Flow (perm)	0	1553	0	0	1433	0	0	3129	0	0	3027	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		148			142			481			579	
Travel Time (s)		3.4			3.2			10.9			13.2	
Confl. Peds. (#/hr)	12		5	5		12	3		20	20		3
Confl. Bikes (#/hr)			3						3			4
Peak Hour Factor	0.88	0.88	0.88	0.74	0.74	0.74	0.97	0.97	0.97	0.92	0.92	0.92
Heavy Vehicles (%)	1%	8%	0%	0%	0%	1%	0%	0%	4%	0%	2%	0%
Adj. Flow (vph)	259	57	1	0	16	191	0	1240	26	99	790	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	317	0	0	207	0	0	1266	0	0	993	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 109.0%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	228	50	1	0	12	141	0	1203	25	91	727	96
Future Volume (Veh/h)	228	50	1	0	12	141	0	1203	25	91	727	96
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.74	0.74	0.74	0.97	0.97	0.97	0.92	0.92	0.92
Hourly flow rate (vph)	259	57	1	0	16	191	0	1240	26	99	790	104
Pedestrians		3			20			5			12	
Lane Width (ft)		11.0			11.0			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			2			0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								481			1067	
pX, platoon unblocked	0.77	0.77	0.77	0.77	0.77		0.77					
vC, conflicting volume	1874	2329	455	1900	2368	665	897			1286		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1534	2126	0	1568	2177	665	262			1286		
tC, single (s)	7.5	6.7	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	100	0	44	51	100			82		
cM capacity (veh/h)	15	28	832	0	29	394	1007			537		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	317	207	620	646	494	499
Volume Left	259	0	0	0	99	0
Volume Right	1	191	0	26	0	104
cSH	17	199	1007	1700	537	1700
Volume to Capacity	19.18	1.04	0.00	0.38	0.18	0.29
Queue Length 95th (ft)	Err	233	0	0	17	0
Control Delay (s)	Err	124.9	0.0	0.0	5.2	0.0
Lane LOS	F	F			A	
Approach Delay (s)	Err	124.9	0.0		2.6	
Approach LOS	F	F				

Intersection Summary				
Average Delay	1149.2			
Intersection Capacity Utilization	109.0%	ICU Level of Service	H	
Analysis Period (min)	15			



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1440	133	64	914
Future Volume (vph)	0	0	1440	133	64	914
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt			0.987			
Flt Protected						0.997
Satd. Flow (prot)	0	0	3067	0	0	3090
Flt Permitted						0.997
Satd. Flow (perm)	0	0	3067	0	0	3090
Link Speed (mph)	30		30			30
Link Distance (ft)	520		579			488
Travel Time (s)	11.8		13.2			11.1
Confl. Peds. (#/hr)				41	41	
Confl. Bikes (#/hr)				3		
Peak Hour Factor	0.92	0.92	0.98	0.98	0.91	0.91
Heavy Vehicles (%)	2%	2%	1%	2%	6%	1%
Adj. Flow (vph)	0	0	1469	136	70	1004
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1605	0	0	1074
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		11			11
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

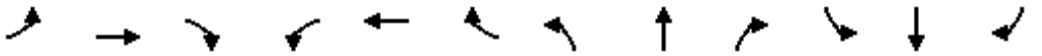
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.2%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	1440	133	64	914
Future Volume (Veh/h)	0	0	1440	133	64	914
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.98	0.98	0.91	0.91
Hourly flow rate (vph)	0	0	1469	136	70	1004
Pedestrians	41					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1060			488
pX, platoon unblocked	0.73					
vC, conflicting volume	2220	844			1646	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1928	844			1646	
tC, single (s)	6.8	6.9			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	100	100			81	
cM capacity (veh/h)	34	307			371	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	979	626	405	669
Volume Left	0	0	70	0
Volume Right	0	136	0	0
cSH	1700	1700	371	1700
Volume to Capacity	0.58	0.37	0.19	0.39
Queue Length 95th (ft)	0	0	17	0
Control Delay (s)	0.0	0.0	6.2	0.0
Lane LOS			A	
Approach Delay (s)	0.0		2.3	
Approach LOS				

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		



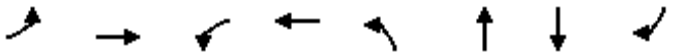
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	340	129	45	233	65	275	1023	139	0	804	79
Future Volume (vph)	107	340	129	45	233	65	275	1023	139	0	804	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12	11	11	11	11	11	11
Storage Length (ft)	0		100	50		0	250		0	0		0
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	25			100			100			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor					1.00			1.00				
Frt		0.959			0.967			0.982				0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1472	1509	0	1516	1597	0	1555	3076	0	0	3110	1405
Flt Permitted	0.331			0.148			0.125					
Satd. Flow (perm)	513	1509	0	236	1597	0	205	3076	0	0	3110	1405
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			14			14				98
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		346			201			488			736	
Travel Time (s)		7.9			4.6			11.1			16.7	
Confl. Bikes (#/hr)						8			1			
Peak Hour Factor	0.91	0.91	0.91	0.88	0.88	0.88	0.97	0.97	0.97	0.86	0.86	0.86
Heavy Vehicles (%)	3%	2%	0%	0%	2%	7%	1%	0%	0%	0%	1%	0%
Adj. Flow (vph)	118	374	142	51	265	74	284	1055	143	0	935	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	516	0	51	339	0	284	1198	0	0	935	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			10			11			0	
Link Offset(ft)		8			12			0			4	
Crosswalk Width(ft)		20			24			24			12	
Two way Left Turn Lane												
Headway Factor	1.25	1.25	1.25	1.25	1.14	1.14	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1			1	1
Detector Template	Left	Thru		Left	Thru		Left	Thru			Thru	Right
Leading Detector (ft)	20	50		50	50		50	50			50	50
Trailing Detector (ft)	0	0		0	0		0	0			0	0
Detector 1 Position(ft)	0	0		0	0		0	0			0	0
Detector 1 Size(ft)	20	50		50	50		50	50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA			NA	Perm
Protected Phases		2			2		3	1			1	
Permitted Phases	2			2			1					1
Detector Phase	2	2		2	2		3	1			1	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	18.0			18.0	18.0
Minimum Split (s)	14.0	14.0		14.0	14.0		27.0	24.0			24.0	24.0
Total Split (s)	33.0	33.0		33.0	33.0		35.0	32.0			32.0	32.0
Total Split (%)	33.0%	33.0%		33.0%	33.0%		35.0%	32.0%			32.0%	32.0%
Maximum Green (s)	27.0	27.0		27.0	27.0		29.0	26.0			26.0	26.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Lead/Lag	Lag	Lag		Lag	Lag			Lead			Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Recall Mode	None	None		None	None		Ped	C-Max			C-Max	C-Max
Walk Time (s)							7.0					
Flash Dont Walk (s)							14.0					
Pedestrian Calls (#/hr)							0					
Act Effct Green (s)	27.0	27.0		27.0	27.0		55.0	32.7			32.7	32.7
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.55	0.33			0.33	0.33
v/c Ratio	0.86	1.23		0.81	0.77		0.69	1.18			0.92	0.18
Control Delay	83.4	153.6		107.8	45.4		30.1	122.6			47.9	5.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	83.4	153.6		107.8	45.4		30.1	122.6			47.9	5.9
LOS	F	F		F	D		C	F			D	A
Approach Delay		140.5			53.6			104.9			44.1	
Approach LOS		F			D			F			D	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 87.9		Intersection LOS: F	
Intersection Capacity Utilization 96.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 8: Riverway & Longwood Ave



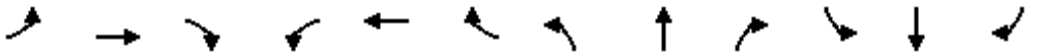


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	118	516	51	339	284	1198	935	92
v/c Ratio	0.86	1.23	0.81	0.77	0.69	1.18	0.92	0.18
Control Delay	83.4	153.6	107.8	45.4	30.1	122.6	47.9	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.4	153.6	107.8	45.4	30.1	122.6	47.9	5.9
Queue Length 50th (ft)	71	~400	30	191	117	~469	293	0
Queue Length 95th (ft)	#178	#605	#99	#310	201	#667	#437	30
Internal Link Dist (ft)		266		121		408	656	
Turn Bay Length (ft)			50		250			
Base Capacity (vph)	138	421	63	441	514	1016	1018	525
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	1.23	0.81	0.77	0.55	1.18	0.92	0.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	340	129	45	233	65	275	1023	139	0	804	79
Future Volume (vph)	107	340	129	45	233	65	275	1023	139	0	804	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	12	12	11	11	11	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	0.97		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1472	1508		1516	1598		1555	3077			3110	1405
Flt Permitted	0.33	1.00		0.15	1.00		0.13	1.00			1.00	1.00
Satd. Flow (perm)	513	1508		236	1598		205	3077			3110	1405
Peak-hour factor, PHF	0.91	0.91	0.91	0.88	0.88	0.88	0.97	0.97	0.97	0.86	0.86	0.86
Adj. Flow (vph)	118	374	142	51	265	74	284	1055	143	0	935	92
RTOR Reduction (vph)	0	14	0	0	10	0	0	9	0	0	0	62
Lane Group Flow (vph)	118	502	0	51	329	0	284	1189	0	0	935	30
Confl. Bikes (#/hr)						8			1			
Heavy Vehicles (%)	3%	2%	0%	0%	2%	7%	1%	0%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA			NA	Perm
Protected Phases		2			2		3	1			1	
Permitted Phases	2			2			1					1
Actuated Green, G (s)	27.0	27.0		27.0	27.0		55.0	32.7			32.7	32.7
Effective Green, g (s)	27.0	27.0		27.0	27.0		55.0	32.7			32.7	32.7
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.55	0.33			0.33	0.33
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	138	407		63	431		413	1006			1016	459
v/s Ratio Prot		c0.33			0.21		c0.15	c0.39			0.30	
v/s Ratio Perm	0.23			0.22			0.22					0.02
v/c Ratio	0.86	1.23		0.81	0.76		0.69	1.18			0.92	0.07
Uniform Delay, d1	34.6	36.5		34.1	33.6		21.3	33.6			32.4	23.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	36.1	124.8		49.3	7.1		3.8	92.0			14.5	0.3
Delay (s)	70.8	161.3		83.4	40.6		25.1	125.7			46.9	23.4
Level of Service	E	F		F	D		C	F			D	C
Approach Delay (s)		144.5			46.2			106.4			44.8	
Approach LOS		F			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	88.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	479	0	0	269	74	77
Future Volume (vph)	479	0	0	269	74	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.931	
Flt Protected					0.976	
Satd. Flow (prot)	1637	0	0	1621	1410	0
Flt Permitted					0.976	
Satd. Flow (perm)	1637	0	0	1621	1410	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	201			69	520	
Travel Time (s)	4.6			1.6	11.8	
Peak Hour Factor	0.86	0.86	0.91	0.91	0.76	0.76
Heavy Vehicles (%)	1%	0%	0%	2%	6%	7%
Adj. Flow (vph)	557	0	0	296	97	101
Shared Lane Traffic (%)						
Lane Group Flow (vph)	557	0	0	296	198	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	11	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

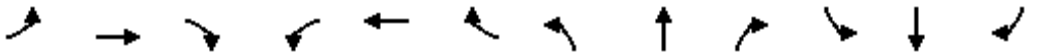
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	479	0	0	269	74	77
Future Volume (Veh/h)	479	0	0	269	74	77
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.91	0.91	0.76	0.76
Hourly flow rate (vph)	557	0	0	296	97	101
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	201			686		
pX, platoon unblocked			0.75		0.75	0.75
vC, conflicting volume			557		853	557
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			237		634	237
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			100		70	83
cM capacity (veh/h)			1002		326	590

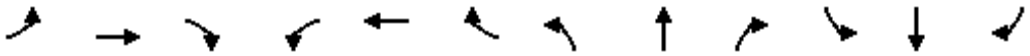
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	557	296	198
Volume Left	0	0	97
Volume Right	0	0	101
cSH	1700	1700	423
Volume to Capacity	0.33	0.17	0.47
Queue Length 95th (ft)	0	0	61
Control Delay (s)	0.0	0.0	20.8
Lane LOS			C
Approach Delay (s)	0.0	0.0	20.8
Approach LOS			C

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	283	69	118	243	168	22	29	11	22	7	13
Future Volume (vph)	199	283	69	118	243	168	22	29	11	22	7	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	10	12	12	11	11	11	11	11	11
Storage Length (ft)	100		0	75		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.971			0.939			0.977			0.958	
Flt Protected	0.950			0.950				0.982			0.974	
Satd. Flow (prot)	1516	1615	0	1430	1581	0	0	1564	0	0	1426	0
Flt Permitted	0.950			0.950				0.982			0.974	
Satd. Flow (perm)	1516	1615	0	1430	1581	0	0	1564	0	0	1426	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		251			366			200			129	
Travel Time (s)		5.7			8.3			4.5			2.9	
Confl. Peds. (#/hr)	336		440	440		336	111		52	52		111
Confl. Bikes (#/hr)			63			7						
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.71	0.71	0.71	0.75	0.75	0.75
Heavy Vehicles (%)	0%	2%	6%	6%	2%	1%	0%	0%	8%	0%	50%	0%
Adj. Flow (vph)	240	341	83	126	259	179	31	41	15	29	9	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	240	424	0	126	438	0	0	87	0	0	55	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.25	1.14	1.14	1.25	1.14	1.14	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

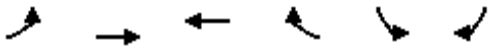
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.6%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	283	69	118	243	168	22	29	11	22	7	13
Future Volume (Veh/h)	199	283	69	118	243	168	22	29	11	22	7	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.71	0.71	0.71	0.75	0.75	0.75
Hourly flow rate (vph)	240	341	83	126	259	179	31	41	15	29	9	17
Pedestrians		111			52			440			336	
Lane Width (ft)		11.0			11.0			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		10			5			38			29	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		521			366							
pX, platoon unblocked	0.84						0.84	0.84		0.84	0.84	0.84
vC, conflicting volume	774			864			1946	2328	874	1845	2280	796
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	640			864			2028	2482	874	1909	2425	665
tC, single (s)	4.1			4.2			7.1	6.5	6.3	7.1	7.0	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.4	3.5	4.5	3.3
p0 queue free %	58			73			0	0	92	0	0	93
cM capacity (veh/h)	569			469			0	5	200	0	4	250

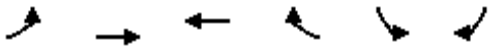
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	240	424	126	438	87	55
Volume Left	240	0	126	0	31	29
Volume Right	0	83	0	179	15	17
cSH	569	1700	469	1700	0	0
Volume to Capacity	0.42	0.25	0.27	0.26	Err	Err
Queue Length 95th (ft)	52	0	27	0	Err	Err
Control Delay (s)	15.9	0.0	15.5	0.0	Err	Err
Lane LOS	C		C		F	F
Approach Delay (s)	5.7		3.5		Err	Err
Approach LOS					F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	64.6%	ICU Level of Service	C	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	156	110	30	82	44
Future Volume (vph)	10	156	110	30	82	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.971		0.953	
Flt Protected		0.997			0.968	
Satd. Flow (prot)	0	1603	1566	0	1496	0
Flt Permitted		0.997			0.968	
Satd. Flow (perm)	0	1603	1566	0	1496	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		142	335		150	
Travel Time (s)		3.2	7.6		3.4	
Confl. Peds. (#/hr)	41			41	49	31
Confl. Bikes (#/hr)						5
Peak Hour Factor	0.86	0.86	0.69	0.69	0.81	0.81
Heavy Vehicles (%)	0%	3%	1%	8%	3%	0%
Adj. Flow (vph)	12	181	159	43	101	54
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	193	202	0	155	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15			9	15	9
Sign Control		Stop	Stop		Stop	

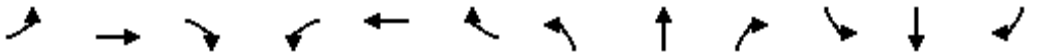
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	10	156	110	30	82	44
Future Volume (vph)	10	156	110	30	82	44
Peak Hour Factor	0.86	0.86	0.69	0.69	0.81	0.81
Hourly flow rate (vph)	12	181	159	43	101	54

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	193	202	155
Volume Left (vph)	12	0	101
Volume Right (vph)	0	43	54
Hadj (s)	0.06	-0.09	-0.05
Departure Headway (s)	4.6	4.4	4.8
Degree Utilization, x	0.25	0.25	0.20
Capacity (veh/h)	744	772	704
Control Delay (s)	9.1	8.9	9.0
Approach Delay (s)	9.1	8.9	9.0
Approach LOS	A	A	A

Intersection Summary			
Delay	9.0		
Level of Service	A		
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		



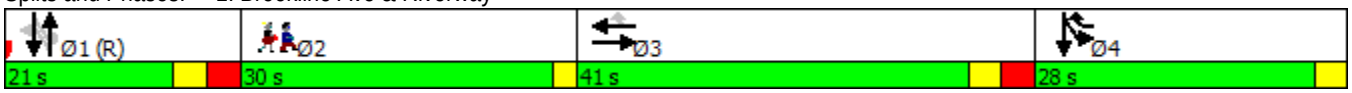
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1138	67	0	728	227	114	233	8	503	613	23
Future Volume (vph)	0	1138	67	0	728	227	114	233	8	503	613	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	160		0	0		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00						1.00			1.00	
Frt		0.992				0.850		0.995			0.995	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	3110	0	0	1653	1364	1555	2788	0	1555	2911	0
Flt Permitted							0.267			0.472		
Satd. Flow (perm)	0	3110	0	0	1653	1364	437	2788	0	772	2911	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		5				229					3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		481			606			765			329	
Travel Time (s)		10.9			13.8			17.4			7.5	
Confl. Bikes (#/hr)			2						1			9
Peak Hour Factor	0.93	0.93	0.93	0.86	0.86	0.86	0.90	0.90	0.90	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	2%	0%	0%	3%	1%	12%	13%	1%	6%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	7	7
Adj. Flow (vph)	0	1224	72	0	847	264	127	259	9	572	697	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1296	0	0	847	264	127	268	0	572	723	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		12			20			24			22	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.22	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1			1	1	1	1		1	1	
Detector Template		Thru			Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)		50			50	50	50	50		50	50	
Trailing Detector (ft)		0			0	0	0	0		0	0	
Detector 1 Position(ft)		0			0	0	0	0		0	0	
Detector 1 Size(ft)		50			50	50	50	50		50	50	
Detector 1 Type		Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type		NA			NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		3			3	4		1		4	1 4	
Permitted Phases						3	1			1		
Detector Phase		3			3	4	1	1		4	1 4	

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		10.0			10.0	8.0	10.0	10.0		8.0		
Minimum Split (s)		16.0			16.0	11.0	16.0	16.0		11.0		
Total Split (s)		41.0			41.0	28.0	21.0	21.0		28.0		
Total Split (%)		34.2%			34.2%	23.3%	17.5%	17.5%		23.3%		
Maximum Green (s)		35.0			35.0	25.0	15.0	15.0		25.0		
Yellow Time (s)		3.0			3.0	3.0	3.0	3.0		3.0		
All-Red Time (s)		3.0			3.0	0.0	3.0	3.0		0.0		
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)		6.0			6.0	3.0	6.0	6.0		3.0		
Lead/Lag		Lead			Lead	Lag	Lead	Lead		Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0		
Recall Mode		Max			Max	Max	C-Max	C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		35.0			35.0	66.0	15.0	15.0		43.0	43.0	
Actuated g/C Ratio		0.29			0.29	0.55	0.12	0.12		0.36	0.36	
v/c Ratio		1.42			1.76	0.31	2.35	0.77		1.30	0.69	
Control Delay		230.7			377.7	3.7	685.8	66.4		167.5	21.1	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.2	3.1	
Total Delay		230.7			377.7	3.7	685.8	66.4		167.7	24.2	
LOS		F			F	A	F	E		F	C	
Approach Delay		230.7			288.8			265.5			87.6	
Approach LOS		F			F			F			F	

Intersection Summary	
Area Type:	CBD
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 18 (15%), Referenced to phase 1:NBSB, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.35	
Intersection Signal Delay: 204.6	Intersection LOS: F
Intersection Capacity Utilization 95.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 1: Brookline Ave & Riverway



Lane Group	Ø2
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	25%
Maximum Green (s)	28.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	21.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	1296	847	264	127	268	572	723
v/c Ratio	1.42	1.76	0.31	2.35	0.77	1.30	0.69
Control Delay	230.7	377.7	3.7	685.8	66.4	167.5	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	3.1
Total Delay	230.7	377.7	3.7	685.8	66.4	167.7	24.2
Queue Length 50th (ft)	~717	~977	12	~161	107	~456	126
Queue Length 95th (ft)	#856	#1149	46	#288	#169	m#621	m184
Internal Link Dist (ft)	401	526			685		249
Turn Bay Length (ft)				160			
Base Capacity (vph)	910	482	853	54	348	439	1045
Starvation Cap Reductn	0	0	0	0	0	8	218
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.42	1.76	0.31	2.35	0.77	1.33	0.87

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1138	67	0	728	227	114	233	8	503	613	23
Future Volume (vph)	0	1138	67	0	728	227	114	233	8	503	613	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	3.0	6.0	6.0		3.0	6.0	
Lane Util. Factor		0.95			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.99			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3109			1653	1364	1555	2788		1555	2910	
Flt Permitted		1.00			1.00	1.00	0.27	1.00		0.47	1.00	
Satd. Flow (perm)		3109			1653	1364	436	2788		773	2910	
Peak-hour factor, PHF	0.93	0.93	0.93	0.86	0.86	0.86	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	0	1224	72	0	847	264	127	259	9	572	697	26
RTOR Reduction (vph)	0	4	0	0	0	115	0	0	0	0	2	0
Lane Group Flow (vph)	0	1292	0	0	847	150	127	268	0	572	721	0
Confl. Bikes (#/hr)			2						1			9
Heavy Vehicles (%)	0%	0%	2%	0%	0%	3%	1%	12%	13%	1%	6%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	7	7
Turn Type		NA			NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		3			3	4		1		4	1 4	
Permitted Phases						3	1			1		
Actuated Green, G (s)		35.0			35.0	60.0	15.0	15.0		40.0	43.0	
Effective Green, g (s)		35.0			35.0	60.0	15.0	15.0		40.0	40.0	
Actuated g/C Ratio		0.29			0.29	0.50	0.12	0.12		0.33	0.33	
Clearance Time (s)		6.0			6.0	3.0	6.0	6.0		3.0		
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		906			482	682	54	348		420	970	
v/s Ratio Prot		0.42			c0.51	0.05		0.10		c0.28	0.25	
v/s Ratio Perm						0.06	c0.29			0.17		
v/c Ratio		1.43			1.76	0.22	2.35	0.77		1.36	0.74	
Uniform Delay, d1		42.5			42.5	16.8	52.5	50.8		37.4	35.4	
Progression Factor		1.00			1.00	1.00	1.00	1.00		0.58	0.57	
Incremental Delay, d2		198.4			349.2	0.7	661.7	15.1		171.2	2.8	
Delay (s)		240.9			391.7	17.6	714.2	65.9		192.8	23.2	
Level of Service		F			F	B	F	E		F	C	
Approach Delay (s)		240.9			302.8			274.4			98.1	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	215.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	58	76	180	67	115	61	409	88	134	882	30
Future Volume (vph)	43	58	76	180	67	115	61	409	88	134	882	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	0		150	0		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			200			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.99			0.99						1.00	
Frt		0.942			0.905				0.850		0.995	
Flt Protected		0.988		0.950				0.994		0.950		
Satd. Flow (prot)	0	1467	0	1510	1462	0	0	2938	1203	1331	2992	0
Flt Permitted		0.770		0.527				0.507		0.360		
Satd. Flow (perm)	0	1143	0	838	1462	0	0	1498	1203	504	2992	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		335			547			329			443	
Travel Time (s)		7.6			12.4			7.5			10.1	
Confl. Bikes (#/hr)			1			3						5
Peak Hour Factor	0.87	0.87	0.87	0.85	0.85	0.85	0.93	0.93	0.93	0.91	0.91	0.91
Heavy Vehicles (%)	8%	2%	4%	4%	2%	1%	5%	5%	14%	18%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	6	6	0	7	7
Parking (#/hr)												4
Adj. Flow (vph)	49	67	87	212	79	135	66	440	95	147	969	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	203	0	212	214	0	0	506	95	147	1002	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			11			11			11	
Link Offset(ft)		0			0			0			-4	
Crosswalk Width(ft)		16			36			32			30	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.21	1.23	1.19	1.22	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	50		50	50		20	50	20	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	50		50	50		20	50	20	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	D.P+P	NA	
Protected Phases		5			5			1		6	1 6	
Permitted Phases	5			5			1		1	1		

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	5		5	5		1	1	1	6	1 6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0	10.0	6.0		
Minimum Split (s)	14.0	14.0		14.0	14.0		16.0	16.0	16.0	12.0		
Total Split (s)	35.0	35.0		35.0	35.0		43.0	43.0	43.0	13.0		
Total Split (%)	29.2%	29.2%		29.2%	29.2%		35.8%	35.8%	35.8%	10.8%		
Maximum Green (s)	29.0	29.0		29.0	29.0		37.0	37.0	37.0	7.0		
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5		
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5		
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0	0.0		
Total Lost Time (s)		6.0		6.0	6.0			6.0	6.0	6.0		
Lead/Lag	Lead	Lead		Lead	Lead		Lead	Lead	Lead	Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		29.0		29.0	29.0			37.0	37.0	44.0	50.0	
Actuated g/C Ratio		0.24		0.24	0.24			0.31	0.31	0.37	0.42	
v/c Ratio		0.74		1.05	0.61			1.29dl	0.26	0.63	0.80	
Control Delay		59.1		121.6	48.8			102.9	22.1	20.9	19.9	
Queue Delay		2.7		18.2	0.0			0.0	0.0	0.0	3.1	
Total Delay		61.9		139.8	48.8			102.9	22.1	20.9	23.0	
LOS		E		F	D			F	C	C	C	
Approach Delay		61.9			94.1			90.2			22.8	
Approach LOS		E			F			F			C	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 1 (1%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.10			
Intersection Signal Delay: 55.9		Intersection LOS: E	
Intersection Capacity Utilization 85.6%		ICU Level of Service E	
Analysis Period (min) 15			
dl Defacto Left Lane. Recode with 1 though lane as a left lane.			

Splits and Phases: 2: Brookline Ave & Francis St



Lane Group	Ø2
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	29.0
Total Split (s)	29.0
Total Split (%)	24%
Maximum Green (s)	25.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	18.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	203	212	214	506	95	147	1002
v/c Ratio	0.74	1.05	0.61	1.29dl	0.26	0.63	0.80
Control Delay	59.1	121.6	48.8	102.9	22.1	20.9	19.9
Queue Delay	2.7	18.2	0.0	0.0	0.0	0.0	3.1
Total Delay	61.9	139.8	48.8	102.9	22.1	20.9	23.0
Queue Length 50th (ft)	146	~179	148	~216	31	47	213
Queue Length 95th (ft)	#242	#307	217	#322	m60	m53	m269
Internal Link Dist (ft)	255		467	249			363
Turn Bay Length (ft)		250			150		
Base Capacity (vph)	276	202	353	461	370	233	1246
Starvation Cap Reductn	0	0	0	0	0	0	154
Spillback Cap Reductn	23	16	0	0	0	0	115
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	1.14	0.61	1.10	0.26	0.63	0.92

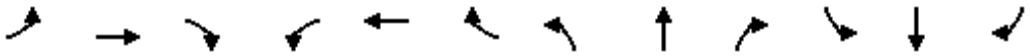
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

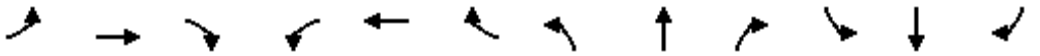


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	58	76	180	67	115	61	409	88	134	882	30
Future Volume (vph)	43	58	76	180	67	115	61	409	88	134	882	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00			0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99		1.00	0.99			1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Frt		0.94		1.00	0.91			1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)		1467		1510	1463			2936	1203	1331	2992	
Flt Permitted		0.77		0.53	1.00			0.51	1.00	0.36	1.00	
Satd. Flow (perm)		1144		838	1463			1498	1203	504	2992	
Peak-hour factor, PHF	0.87	0.87	0.87	0.85	0.85	0.85	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	49	67	87	212	79	135	66	440	95	147	969	33
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	203	0	212	214	0	0	506	95	147	1002	0
Confl. Bikes (#/hr)			1			3						5
Heavy Vehicles (%)	8%	2%	4%	4%	2%	1%	5%	5%	14%	18%	3%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	6	6	0	7	7
Parking (#/hr)												4
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	D.P+P	NA	
Protected Phases		5			5			1		6	1 6	
Permitted Phases	5			5			1		1	1		
Actuated Green, G (s)		29.0		29.0	29.0			37.0	37.0	44.0	50.0	
Effective Green, g (s)		29.0		29.0	29.0			37.0	37.0	44.0	50.0	
Actuated g/C Ratio		0.24		0.24	0.24			0.31	0.31	0.37	0.42	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0	6.0		
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)		276		202	353			461	370	233	1246	
v/s Ratio Prot					0.15					0.04	c0.33	
v/s Ratio Perm		0.18		c0.25				c0.34	0.08	0.19		
v/c Ratio		0.74		1.05	0.61			1.29dl	0.26	0.63	0.80	
Uniform Delay, d1		42.0		45.5	40.4			41.5	31.2	29.5	30.7	
Progression Factor		1.00		1.00	1.00			0.82	0.65	0.60	0.57	
Incremental Delay, d2		9.8		77.0	2.9			69.0	1.5	4.8	2.2	
Delay (s)		51.7		122.5	43.4			103.2	21.6	22.4	19.6	
Level of Service		D		F	D			F	C	C	B	
Approach Delay (s)		51.7			82.7			90.3			20.0	
Approach LOS		D			F			F			B	

Intersection Summary			
HCM 2000 Control Delay	51.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group



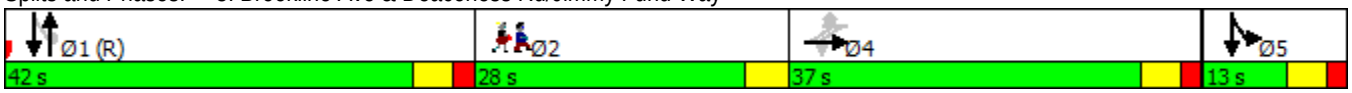
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	28	124	199	0	191	0	519	46	54	723	0
Future Volume (vph)	59	28	124	199	0	191	0	519	46	54	723	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Ped Bike Factor						0.99						
Frt		0.878				0.850		0.988				
Flt Protected	0.950			0.950							0.997	
Satd. Flow (prot)	1287	1348	0	1481	0	1266	0	2952	0	0	3019	0
Flt Permitted	0.950			0.557							0.760	
Satd. Flow (perm)	1287	1348	0	869	0	1250	0	2952	0	0	2301	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		146						8				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		327			400			443			84	
Travel Time (s)		7.4			9.1			10.1			1.9	
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.85	0.85	0.85	0.87	0.87	0.87	0.92	0.92	0.92	0.88	0.88	0.88
Heavy Vehicles (%)	22%	15%	6%	6%	0%	11%	0%	4%	2%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	6	6	0	0	0
Adj. Flow (vph)	69	33	146	229	0	220	0	564	50	61	822	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	69	179	0	229	0	220	0	614	0	0	883	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		-12			-8			4			0	
Crosswalk Width(ft)		16			16			16			12	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.21	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1		1		1		1	1	
Detector Template	Left	Thru		Left		Right		Thru		Left	Thru	
Leading Detector (ft)	50	50		50		50		50		20	50	
Trailing Detector (ft)	0	0		0		0		0		0	0	
Detector 1 Position(ft)	0	0		0		0		0		0	0	
Detector 1 Size(ft)	50	50		50		50		50		20	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0		0.0	0.0	
Turn Type	Perm	NA		D.Pm		Perm		NA		D.P+P	NA	
Protected Phases		4						1		5	1 5	
Permitted Phases	4			4		4				1		
Detector Phase	4	4		4		4		1		5	1 5	

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0		8.0		10.0		6.0		
Minimum Split (s)	13.5	13.5		13.5		13.5		15.5		11.5		
Total Split (s)	37.0	37.0		37.0		37.0		42.0		13.0		
Total Split (%)	30.8%	30.8%		30.8%		30.8%		35.0%		10.8%		
Maximum Green (s)	31.5	31.5		31.5		31.5		36.5		7.5		
Yellow Time (s)	3.5	3.5		3.5		3.5		3.5		3.5		
All-Red Time (s)	2.0	2.0		2.0		2.0		2.0		2.0		
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0				
Total Lost Time (s)	5.5	5.5		5.5		5.5		5.5				
Lead/Lag								Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0		2.0		2.0		2.0		
Recall Mode	None	None		None		None		C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	31.5	31.5		31.5		31.5		36.5			44.0	
Actuated g/C Ratio	0.26	0.26		0.26		0.26		0.30			0.37	
v/c Ratio	0.20	0.39		1.00		0.67		0.68			0.99	
Control Delay	36.5	11.6		105.7		51.1		27.8			45.6	
Queue Delay	0.0	0.0		0.0		0.0		0.2			4.9	
Total Delay	36.5	11.6		105.7		51.1		28.0			50.6	
LOS	D	B		F		D		C			D	
Approach Delay		18.5			79.0			28.0			50.6	
Approach LOS		B			E			C			D	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 2 (2%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 46.5		Intersection LOS: D	
Intersection Capacity Utilization 81.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Brookline Ave & Deaconess Rd/Jimmy Fund Way



Lane Group	Ø2
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	28.0
Total Split (s)	28.0
Total Split (%)	23%
Maximum Green (s)	24.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	17.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



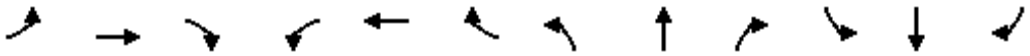
Lane Group	EBL	EBT	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	69	179	229	220	614	883
v/c Ratio	0.20	0.39	1.00	0.67	0.68	0.99
Control Delay	36.5	11.6	105.7	51.1	27.8	45.6
Queue Delay	0.0	0.0	0.0	0.0	0.2	4.9
Total Delay	36.5	11.6	105.7	51.1	28.0	50.6
Queue Length 50th (ft)	42	19	~179	153	126	326
Queue Length 95th (ft)	77	70	#329	234	m127	m#348
Internal Link Dist (ft)		247			363	4
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	337	461	228	328	903	888
Starvation Cap Reductn	0	0	0	0	36	0
Spillback Cap Reductn	0	1	0	0	2	17
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.39	1.00	0.67	0.71	1.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

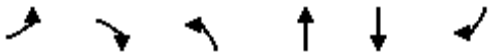
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



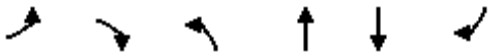
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	28	124	199	0	191	0	519	46	54	723	0
Future Volume (vph)	59	28	124	199	0	191	0	519	46	54	723	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5		5.5		5.5			5.5	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00		0.99		1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00		1.00		1.00			1.00	
Frt	1.00	0.88		1.00		0.85		0.99			1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00			1.00	
Satd. Flow (prot)	1287	1348		1481		1250		2952			3018	
Flt Permitted	0.95	1.00		0.56		1.00		1.00			0.76	
Satd. Flow (perm)	1287	1348		869		1250		2952			2300	
Peak-hour factor, PHF	0.85	0.85	0.85	0.87	0.87	0.87	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	69	33	146	229	0	220	0	564	50	61	822	0
RTOR Reduction (vph)	0	108	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	69	71	0	229	0	220	0	608	0	0	883	0
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	22%	15%	6%	6%	0%	11%	0%	4%	2%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	6	6	0	0	0
Turn Type	Perm	NA		D.Pm		Perm		NA		D.P+P	NA	
Protected Phases		4						1		5	1 5	
Permitted Phases	4			4		4				1		
Actuated Green, G (s)	31.5	31.5		31.5		31.5		36.5			44.0	
Effective Green, g (s)	31.5	31.5		31.5		31.5		36.5			44.0	
Actuated g/C Ratio	0.26	0.26		0.26		0.26		0.30			0.37	
Clearance Time (s)	5.5	5.5		5.5		5.5		5.5				
Vehicle Extension (s)	2.0	2.0		2.0		2.0		2.0				
Lane Grp Cap (vph)	337	353		228		328		897			888	
v/s Ratio Prot		0.05						0.21			c0.06	
v/s Ratio Perm	0.05			c0.26		0.18					c0.30	
v/c Ratio	0.20	0.20		1.00		0.67		0.68			0.99	
Uniform Delay, d1	34.5	34.5		44.2		39.6		36.6			37.9	
Progression Factor	1.00	1.00		1.00		1.00		0.73			0.58	
Incremental Delay, d2	0.1	0.1		60.7		4.2		1.3			23.1	
Delay (s)	34.6	34.6		105.0		43.8		27.9			44.9	
Level of Service	C	C		F		D		C			D	
Approach Delay (s)		34.6			75.0			27.9			44.9	
Approach LOS		C			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	45.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	84	685	777	63
Future Volume (vph)	0	0	84	685	777	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt					0.989	
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1454	2882	2905	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1454	2882	2905	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	185			84	355	
Travel Time (s)	4.2			1.9	8.1	
Confl. Peds. (#/hr)			232			232
Confl. Bikes (#/hr)						6
Peak Hour Factor	0.91	0.91	0.97	0.97	0.91	0.91
Heavy Vehicles (%)	0%	0%	8%	7%	4%	23%
Bus Blockages (#/hr)	0	0	0	9	7	0
Adj. Flow (vph)	0	0	87	706	854	69
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	87	706	923	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			11	11	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.22	1.22	1.19
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	84	685	777	63
Future Volume (Veh/h)	0	0	84	685	777	63
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.97	0.97	0.91	0.91
Hourly flow rate (vph)	0	0	87	706	854	69
Pedestrians	232					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				84	355	
pX, platoon unblocked	0.91	0.83	0.83			
vC, conflicting volume	1648	694	1155			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	689	212	770			
tC, single (s)	6.8	6.9	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	100	87			
cM capacity (veh/h)	304	662	664			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	87	353	353	569	354
Volume Left	87	0	0	0	0
Volume Right	0	0	0	0	69
cSH	664	1700	1700	1700	1700
Volume to Capacity	0.13	0.21	0.21	0.33	0.21
Queue Length 95th (ft)	11	0	0	0	0
Control Delay (s)	11.2	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	1.2			0.0	
Approach LOS					

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	200	57	166	245	315	46	523	116	206	617	86
Future Volume (vph)	34	200	57	166	245	315	46	523	116	206	617	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	10	11	11	11	11	11	11
Storage Length (ft)	150		0	150		0	250		0	330		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	50			100			30			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00						1.00			1.00	
Frt		0.967				0.850		0.973			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1516	1461	0	1444	1605	1268	1510	2731	0	1481	2894	0
Flt Permitted	0.405			0.336			0.104			0.238		
Satd. Flow (perm)	646	1461	0	511	1605	1268	165	2731	0	371	2894	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		366			390			355			587	
Travel Time (s)		8.3			8.9			8.1			13.3	
Confl. Bikes (#/hr)			2						3			4
Peak Hour Factor	0.84	0.84	0.84	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Heavy Vehicles (%)	0%	3%	0%	5%	3%	7%	4%	6%	16%	6%	5%	5%
Bus Blockages (#/hr)	0	7	0	0	0	0	0	17	0	0	6	0
Adj. Flow (vph)	40	238	68	180	266	342	49	562	125	219	656	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	306	0	180	266	342	49	687	0	219	747	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		-5			2			4			0	
Crosswalk Width(ft)		25			12			18			28	
Two way Left Turn Lane												
Headway Factor	1.25	1.29	1.25	1.25	1.19	1.25	1.19	1.25	1.19	1.19	1.21	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	50	50		50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50		50	50	50	50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		4			4	5		1		5	1 5	
Permitted Phases	4			4		4	1			1		

Lane Group	Ø2
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	2
Permitted Phases	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		4	4	5	1	1		5	1 5	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	6.0	10.0	10.0		6.0		
Minimum Split (s)	14.0	14.0		14.0	14.0	11.5	15.5	15.5		11.5		
Total Split (s)	36.0	36.0		36.0	36.0	13.0	44.0	44.0		13.0		
Total Split (%)	30.0%	30.0%		30.0%	30.0%	10.8%	36.7%	36.7%		10.8%		
Maximum Green (s)	30.0	30.0		30.0	30.0	7.5	38.5	38.5		7.5		
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5		
All-Red Time (s)	2.5	2.5		2.5	2.5	2.0	2.0	2.0		2.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5		
Lead/Lag							Lead	Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		
Recall Mode	Max	Max		Max	Max	Max	C-Max	C-Max		Max		
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	30.0	30.0		30.0	30.0	43.5	38.5	38.5		46.0	51.5	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.36	0.32	0.32		0.38	0.43	
v/c Ratio	0.25	0.84		1.42	0.66	0.75	0.94	0.78		1.04	0.60	
Control Delay	41.0	63.7		262.5	49.7	45.0	135.5	36.6		102.8	28.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.1		0.0	0.3	
Total Delay	41.0	63.7		262.5	49.7	45.0	135.5	36.7		102.8	29.2	
LOS	D	E		F	D	D	F	D		F	C	
Approach Delay		61.0			96.3			43.3			45.9	
Approach LOS		E			F			D			D	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 110 (92%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.42			
Intersection Signal Delay: 61.1		Intersection LOS: E	
Intersection Capacity Utilization 77.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Brookline Ave & Longwood Ave



Lane Group	Ø2
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	27.0
Total Split (s)	27.0
Total Split (%)	23%
Maximum Green (s)	23.0
Yellow Time (s)	4.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	2.0
Recall Mode	Ped
Walk Time (s)	7.0
Flash Dont Walk (s)	16.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary



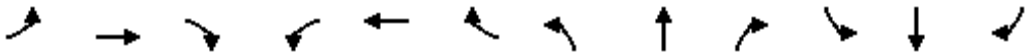
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	306	180	266	342	49	687	219	747
v/c Ratio	0.25	0.84	1.42	0.66	0.75	0.94	0.78	1.04	0.60
Control Delay	41.0	63.7	262.5	49.7	45.0	135.5	36.6	102.8	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3
Total Delay	41.0	63.7	262.5	49.7	45.0	135.5	36.7	102.8	29.2
Queue Length 50th (ft)	25	226	~187	186	229	25	182	~118	230
Queue Length 95th (ft)	54	#334	#334	283	351	m#77	243	#277	295
Internal Link Dist (ft)		286		310			275		507
Turn Bay Length (ft)	150		150			250		330	
Base Capacity (vph)	161	365	127	401	459	52	876	211	1242
Starvation Cap Reductn	0	0	0	0	0	0	8	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	126
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.84	1.42	0.66	0.75	0.94	0.79	1.04	0.67

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

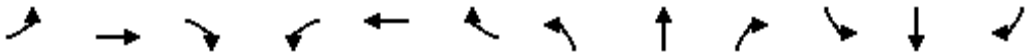
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	200	57	166	245	315	46	523	116	206	617	86
Future Volume (vph)	34	200	57	166	245	315	46	523	116	206	617	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	11	10	11	11	11	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1516	1461		1444	1605	1268	1510	2730		1481	2893	
Flt Permitted	0.40	1.00		0.34	1.00	1.00	0.10	1.00		0.24	1.00	
Satd. Flow (perm)	646	1461		511	1605	1268	165	2730		372	2893	
Peak-hour factor, PHF	0.84	0.84	0.84	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	40	238	68	180	266	342	49	562	125	219	656	91
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	40	306	0	180	266	342	49	687	0	219	747	0
Confl. Bikes (#/hr)			2						3			4
Heavy Vehicles (%)	0%	3%	0%	5%	3%	7%	4%	6%	16%	6%	5%	5%
Bus Blockages (#/hr)	0	7	0	0	0	0	0	17	0	0	6	0
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		D.P+P	NA	
Protected Phases		4			4	5		1		5	1 5	
Permitted Phases	4			4		4	1			1		
Actuated Green, G (s)	30.0	30.0		30.0	30.0	37.5	38.5	38.5		46.0	51.5	
Effective Green, g (s)	30.0	30.0		30.0	30.0	37.5	38.5	38.5		46.0	51.5	
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.31	0.32	0.32		0.38	0.43	
Clearance Time (s)	6.0	6.0		6.0	6.0	5.5	5.5	5.5		5.5		
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0		
Lane Grp Cap (vph)	161	365		127	401	396	52	875		211	1241	
v/s Ratio Prot		0.21			0.17	0.05		0.25		c0.06	0.26	
v/s Ratio Perm	0.06			c0.35		0.22	0.30			c0.33		
v/c Ratio	0.25	0.84		1.42	0.66	0.86	0.94	0.79		1.04	0.60	
Uniform Delay, d1	36.0	42.7		45.0	40.5	38.8	39.7	37.0		34.8	26.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.84	0.83		1.00	1.00	
Incremental Delay, d2	3.7	20.1		227.5	8.4	21.4	95.5	5.6		72.2	2.2	
Delay (s)	39.6	62.7		272.5	48.8	60.2	129.0	36.2		107.0	28.5	
Level of Service	D	E		F	D	E	F	D		F	C	
Approach Delay (s)		60.1			104.9			42.4			46.3	
Approach LOS		E			F			D			D	

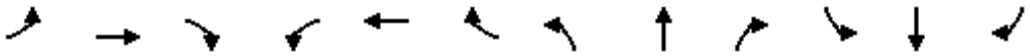
Intersection Summary			
HCM 2000 Control Delay	63.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	4	0	9	30	168	3	840	21	36	1196	199
Future Volume (vph)	56	4	0	9	30	168	3	840	21	36	1196	199
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	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt					0.890			0.996			0.979	
Flt Protected		0.955			0.998						0.999	
Satd. Flow (prot)	0	1550	0	0	1427	0	0	3124	0	0	3069	0
Flt Permitted		0.955			0.998						0.999	
Satd. Flow (perm)	0	1550	0	0	1427	0	0	3124	0	0	3069	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		148			142			481			579	
Travel Time (s)		3.4			3.2			10.9			13.2	
Confl. Peds. (#/hr)	15		9	9		15	3		17	17		3
Confl. Bikes (#/hr)						1			3			2
Peak Hour Factor	0.74	0.74	0.74	0.75	0.75	0.75	0.86	0.86	0.86	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	10%	0%	3%	0%	0%	5%	3%	0%	0%
Adj. Flow (vph)	76	5	0	12	40	224	3	977	24	37	1233	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	0	0	276	0	0	1004	0	0	1475	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization	104.4%	ICU Level of Service	G
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	4	0	9	30	168	3	840	21	36	1196	199
Future Volume (Veh/h)	56	4	0	9	30	168	3	840	21	36	1196	199
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.74	0.74	0.74	0.75	0.75	0.75	0.86	0.86	0.86	0.97	0.97	0.97
Hourly flow rate (vph)	76	5	0	12	40	224	3	977	24	37	1233	205
Pedestrians		3			17			9			15	
Lane Width (ft)		11.0			11.0			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								481			1067	
pX, platoon unblocked	0.70	0.70	0.70	0.70	0.70		0.70					
vC, conflicting volume	2166	2436	731	1714	2527	532	1441			1018		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1811	2197	0	1167	2326	532	777			1018		
tC, single (s)	7.5	6.5	6.9	7.7	6.5	7.0	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	0	83	100	85	0	53	99			94		
cM capacity (veh/h)	0	30	757	79	24	475	593			661		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	81	276	492	512	654	822
Volume Left	76	12	3	0	37	0
Volume Right	0	224	0	24	0	205
cSH	0	122	593	1700	661	1700
Volume to Capacity	Err	2.26	0.01	0.30	0.06	0.48
Queue Length 95th (ft)	Err	590	0	0	4	0
Control Delay (s)	Err	650.4	0.1	0.0	1.5	0.0
Lane LOS	F	F	A		A	
Approach Delay (s)	Err	650.4	0.1		0.7	
Approach LOS	F	F				

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	104.4%	ICU Level of Service	G	
Analysis Period (min)	15			



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1030	35	25	1431
Future Volume (vph)	0	0	1030	35	25	1431
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt			0.995			
Flt Protected						0.999
Satd. Flow (prot)	0	0	3092	0	0	3099
Flt Permitted						0.999
Satd. Flow (perm)	0	0	3092	0	0	3099
Link Speed (mph)	30		30			30
Link Distance (ft)	520		579			488
Travel Time (s)	11.8		13.2			11.1
Confl. Peds. (#/hr)				6	6	
Confl. Bikes (#/hr)				4		
Peak Hour Factor	0.25	0.25	0.88	0.88	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	3%	16%	1%
Adj. Flow (vph)	0	0	1170	40	27	1555
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1210	0	0	1582
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		11			11
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

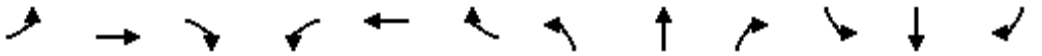
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.0%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	1030	35	25	1431
Future Volume (Veh/h)	0	0	1030	35	25	1431
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.25	0.25	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	0	0	1170	40	27	1555
Pedestrians	6					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1060			488
pX, platoon unblocked	0.68					
vC, conflicting volume	2028	611			1216	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1571	611			1216	
tC, single (s)	6.8	6.9			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.4	
p0 queue free %	100	100			95	
cM capacity (veh/h)	66	442			497	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	780	430	545	1037
Volume Left	0	0	27	0
Volume Right	0	40	0	0
cSH	1700	1700	497	1700
Volume to Capacity	0.46	0.25	0.05	0.61
Queue Length 95th (ft)	0	0	4	0
Control Delay (s)	0.0	0.0	1.6	0.0
Lane LOS			A	
Approach Delay (s)	0.0		0.5	
Approach LOS				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		



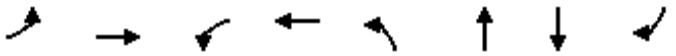
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	202	181	78	273	79	290	691	49	0	1196	108
Future Volume (vph)	85	202	181	78	273	79	290	691	49	0	1196	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12	11	11	11	11	11	11
Storage Length (ft)	0		100	50		0	250		0	0		0
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	25			100			100			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor					0.99							
Frt		0.929			0.966			0.990				0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1516	1467	0	1516	1592	0	1555	3081	0	0	3110	1405
Flt Permitted	0.216			0.160			0.118					
Satd. Flow (perm)	345	1467	0	255	1592	0	193	3081	0	0	3110	1405
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		43			14			7				98
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		346			201			488			736	
Travel Time (s)		7.9			4.6			11.1			16.7	
Confl. Bikes (#/hr)						34						
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	0%	0%	1%	9%	1%	1%	0%	0%	1%	0%
Adj. Flow (vph)	98	232	208	87	303	88	312	743	53	0	1314	119
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	440	0	87	391	0	312	796	0	0	1314	119
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			10			11			0	
Link Offset(ft)		8			12			0			4	
Crosswalk Width(ft)		20			24			24			12	
Two way Left Turn Lane												
Headway Factor	1.25	1.25	1.25	1.25	1.14	1.14	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1			1	1
Detector Template	Left	Thru		Left	Thru		Left	Thru			Thru	Right
Leading Detector (ft)	20	50		50	50		50	50			50	50
Trailing Detector (ft)	0	0		0	0		0	0			0	0
Detector 1 Position(ft)	0	0		0	0		0	0			0	0
Detector 1 Size(ft)	20	50		50	50		50	50			50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA			NA	Perm
Protected Phases		2			2		3	1			1	
Permitted Phases	2			2			1					1
Detector Phase	2	2		2	2		3	1			1	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	18.0			18.0	18.0
Minimum Split (s)	14.0	14.0		14.0	14.0		27.0	24.0			24.0	24.0
Total Split (s)	31.0	31.0		31.0	31.0		35.0	34.0			34.0	34.0
Total Split (%)	31.0%	31.0%		31.0%	31.0%		35.0%	34.0%			34.0%	34.0%
Maximum Green (s)	25.0	25.0		25.0	25.0		29.0	28.0			28.0	28.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Lead/Lag	Lag	Lag		Lag	Lag			Lead			Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Recall Mode	None	None		None	None		Ped	C-Max			C-Max	C-Max
Walk Time (s)							7.0					
Flash Dont Walk (s)							14.0					
Pedestrian Calls (#/hr)							0					
Act Effct Green (s)	25.0	25.0		25.0	25.0		57.0	33.9			33.9	33.9
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.57	0.34			0.34	0.34
v/c Ratio	1.14	1.10		1.38	0.96		0.73	0.76			1.25	0.22
Control Delay	177.7	109.2		277.4	72.4		33.1	35.7			150.3	8.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	177.7	109.2		277.4	72.4		33.1	35.7			150.3	8.8
LOS	F	F		F	E		C	D			F	A
Approach Delay		121.7			109.7			35.0			138.5	
Approach LOS		F			F			C			F	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.38			
Intersection Signal Delay: 99.8		Intersection LOS: F	
Intersection Capacity Utilization 105.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 8: Riverway & Longwood Ave



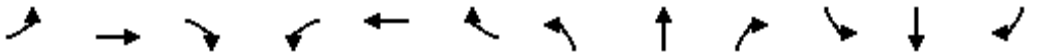


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	98	440	87	391	312	796	1314	119
v/c Ratio	1.14	1.10	1.38	0.96	0.73	0.76	1.25	0.22
Control Delay	177.7	109.2	277.4	72.4	33.1	35.7	150.3	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	177.7	109.2	277.4	72.4	33.1	35.7	150.3	8.8
Queue Length 50th (ft)	~73	~300	~74	239	138	225	~529	9
Queue Length 95th (ft)	#171	#467	#172	#427	223	#369	#746	52
Internal Link Dist (ft)		266		121		408	656	
Turn Bay Length (ft)			50		250			
Base Capacity (vph)	86	399	63	408	513	1048	1053	540
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	1.10	1.38	0.96	0.61	0.76	1.25	0.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	202	181	78	273	79	290	691	49	0	1196	108
Future Volume (vph)	85	202	181	78	273	79	290	691	49	0	1196	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	12	12	11	11	11	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.93		1.00	0.97		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1516	1467		1516	1592		1555	3081			3110	1405
Flt Permitted	0.22	1.00		0.16	1.00		0.12	1.00			1.00	1.00
Satd. Flow (perm)	345	1467		255	1592		193	3081			3110	1405
Peak-hour factor, PHF	0.87	0.87	0.87	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	98	232	208	87	303	88	312	743	53	0	1314	119
RTOR Reduction (vph)	0	32	0	0	11	0	0	5	0	0	0	65
Lane Group Flow (vph)	98	408	0	87	381	0	312	791	0	0	1314	54
Confl. Bikes (#/hr)						34						
Heavy Vehicles (%)	0%	2%	0%	0%	1%	9%	1%	1%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA			NA	Perm
Protected Phases		2			2		3	1			1	
Permitted Phases	2			2			1					1
Actuated Green, G (s)	25.0	25.0		25.0	25.0		57.0	33.9			33.9	33.9
Effective Green, g (s)	25.0	25.0		25.0	25.0		57.0	33.9			33.9	33.9
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.57	0.34			0.34	0.34
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	86	366		63	398		424	1044			1054	476
v/s Ratio Prot		0.28			0.24		c0.17	0.26			c0.42	
v/s Ratio Perm	0.28			c0.34			0.25					0.04
v/c Ratio	1.14	1.11		1.38	0.96		0.74	0.76			1.25	0.11
Uniform Delay, d1	37.5	37.5		37.5	37.0		24.1	29.4			33.0	22.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	139.6	81.6		244.2	33.3		5.6	5.2			119.1	0.5
Delay (s)	177.1	119.1		281.7	70.3		29.7	34.6			152.1	23.2
Level of Service	F	F		F	E		C	C			F	C
Approach Delay (s)		129.6			108.8			33.2			141.4	
Approach LOS		F			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	101.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	105.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	252	0	0	393	37	18
Future Volume (vph)	252	0	0	393	37	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.956	
Flt Protected					0.967	
Satd. Flow (prot)	1621	0	0	1637	1528	0
Flt Permitted					0.967	
Satd. Flow (perm)	1621	0	0	1637	1528	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	201			69	520	
Travel Time (s)	4.6			1.6	11.8	
Peak Hour Factor	0.87	0.87	0.88	0.88	0.68	0.68
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Adj. Flow (vph)	290	0	0	447	54	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	290	0	0	447	80	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			10	11	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

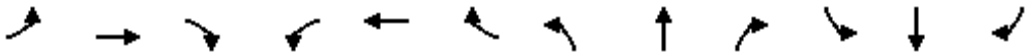
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	252	0	0	393	37	18
Future Volume (Veh/h)	252	0	0	393	37	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.88	0.88	0.68	0.68
Hourly flow rate (vph)	290	0	0	447	54	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	201			686		
pX, platoon unblocked					0.95	
vC, conflicting volume			290		737	290
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			290		697	290
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		86	97
cM capacity (veh/h)			1283		390	754

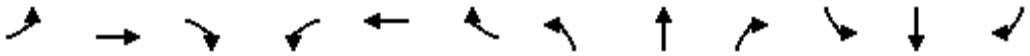
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	290	447	80
Volume Left	0	0	54
Volume Right	0	0	26
cSH	1700	1700	462
Volume to Capacity	0.17	0.26	0.17
Queue Length 95th (ft)	0	0	15
Control Delay (s)	0.0	0.0	14.4
Lane LOS			B
Approach Delay (s)	0.0	0.0	14.4
Approach LOS			B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	33.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	182	42	67	275	35	25	9	37	71	53	98
Future Volume (vph)	30	182	42	67	275	35	25	9	37	71	53	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	12	10	11	11	11	11	11	11	11	11
Storage Length (ft)	100		0	75		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	50			50			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.972			0.983			0.930			0.940	
Flt Protected	0.950			0.950				0.983			0.984	
Satd. Flow (prot)	1516	1599	0	1378	1611	0	0	1511	0	0	1529	0
Flt Permitted	0.950			0.950				0.983			0.984	
Satd. Flow (perm)	1516	1599	0	1378	1611	0	0	1511	0	0	1529	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		251			366			200			129	
Travel Time (s)		5.7			8.3			4.5			2.9	
Confl. Peds. (#/hr)	352		245	245		352	74		52	52		74
Confl. Bikes (#/hr)			2			27						
Peak Hour Factor	0.87	0.87	0.87	0.88	0.88	0.88	0.75	0.75	0.75	0.73	0.73	0.73
Heavy Vehicles (%)	0%	3%	8%	10%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	34	209	48	76	313	40	33	12	49	97	73	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	257	0	76	353	0	0	94	0	0	304	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.25	1.14	1.14	1.25	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

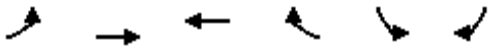
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	182	42	67	275	35	25	9	37	71	53	98
Future Volume (Veh/h)	30	182	42	67	275	35	25	9	37	71	53	98
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.88	0.88	0.88	0.75	0.75	0.75	0.73	0.73	0.73
Hourly flow rate (vph)	34	209	48	76	313	40	33	12	49	97	73	134
Pedestrians		74			52			245			352	
Lane Width (ft)		11.0			10.5			11.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		6			4			21			31	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		521			366							
pX, platoon unblocked	0.88						0.88	0.88		0.88	0.88	0.88
vC, conflicting volume	705			502			1256	1403	530	1221	1407	759
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	593			502			1221	1389	530	1182	1394	655
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			91			0	80	88	0	0	50
cM capacity (veh/h)	603			804			0	59	416	43	58	267

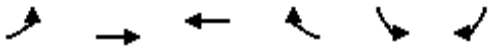
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	34	257	76	353	94	304
Volume Left	34	0	76	0	33	97
Volume Right	0	48	0	40	49	134
cSH	603	1700	804	1700	0	76
Volume to Capacity	0.06	0.15	0.09	0.21	Err	4.03
Queue Length 95th (ft)	4	0	8	0	Err	Err
Control Delay (s)	11.3	0.0	9.9	0.0	Err	Err
Lane LOS	B		A		F	F
Approach Delay (s)	1.3		1.8		Err	Err
Approach LOS					F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	52.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	52	137	28	95	69
Future Volume (vph)	8	52	137	28	95	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.977		0.943	
Flt Protected		0.993			0.972	
Satd. Flow (prot)	0	1614	1598	0	1408	0
Flt Permitted		0.993			0.972	
Satd. Flow (perm)	0	1614	1598	0	1408	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		142	335		150	
Travel Time (s)		3.2	7.6		3.4	
Confl. Peds. (#/hr)	36			36	42	31
Peak Hour Factor	0.75	0.75	0.86	0.86	0.83	0.83
Heavy Vehicles (%)	0%	2%	0%	6%	8%	7%
Adj. Flow (vph)	11	69	159	33	114	83
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	80	192	0	197	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.19	1.19	1.19	1.19	1.19	1.19
Turning Speed (mph)	15			9	15	9
Sign Control		Stop	Stop		Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	8	52	137	28	95	69
Future Volume (vph)	8	52	137	28	95	69
Peak Hour Factor	0.75	0.75	0.86	0.86	0.83	0.83
Hourly flow rate (vph)	11	69	159	33	114	83

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	80	192	197
Volume Left (vph)	11	0	114
Volume Right (vph)	0	33	83
Hadj (s)	0.06	-0.09	-0.01
Departure Headway (s)	4.7	4.4	4.5
Degree Utilization, x	0.10	0.23	0.25
Capacity (veh/h)	723	777	755
Control Delay (s)	8.2	8.7	9.0
Approach Delay (s)	8.2	8.7	9.0
Approach LOS	A	A	A

Intersection Summary			
Delay	8.8		
Level of Service	A		
Intersection Capacity Utilization	31.9%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix C

Wind

Table 1: Mean Speed and Effective Gust Categories - Annual

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
1	No Build	Annual	10		Sitting	17		Acceptable
	Build	Annual	19	90%	Walking	25	47%	Acceptable
2	No Build	Annual	10		Sitting	17		Acceptable
	Build	Annual	12	20%	Sitting	19	12%	Acceptable
3	No Build	Annual	12		Sitting	20		Acceptable
	Build	Annual	13		Standing	20		Acceptable
4	No Build	Annual	15		Standing	23		Acceptable
	Build	Annual	8	-47%	Sitting	12	-48%	Acceptable
5	No Build	Annual	21		Uncomfortable	28		Acceptable
	Build	Annual	12	-43%	Sitting	18	-36%	Acceptable
6	No Build	Annual	19		Walking	26		Acceptable
	Build	Annual	21	11%	Uncomfortable	29	12%	Acceptable
7	No Build	Annual	15		Standing	23		Acceptable
	Build	Annual	18	20%	Walking	26	13%	Acceptable
8	No Build	Annual	13		Standing	22		Acceptable
	Build	Annual	14		Standing	21		Acceptable
9	No Build	Annual	9		Sitting	15		Acceptable
	Build	Annual	18	100%	Walking	24	60%	Acceptable
10	No Build	Annual	8		Sitting	13		Acceptable
	Build	Annual	16	100%	Walking	23	77%	Acceptable
11	No Build	Annual	8		Sitting	13		Acceptable
	Build	Annual	19	138%	Walking	26	100%	Acceptable
12	No Build	Annual	9		Sitting	15		Acceptable
	Build	Annual	21	133%	Uncomfortable	26	73%	Acceptable
13	No Build	Annual	9		Sitting	14		Acceptable
	Build	Annual	23	156%	Uncomfortable	34	143%	Unacceptable
14	No Build	Annual	13		Standing	19		Acceptable
	Build	Annual	16	23%	Walking	22	16%	Acceptable
15	No Build	Annual	13		Standing	20		Acceptable
	Build	Annual	20	54%	Uncomfortable	27	35%	Acceptable
16	No Build	Annual	9		Sitting	14		Acceptable
	Build	Annual	9		Sitting	15		Acceptable

Table 1: Mean Speed and Effective Gust Categories - Annual

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
17	No Build	Annual	13		Standing	19		Acceptable
	Build	Annual	13		Standing	19		Acceptable
18	No Build	Annual	16		Walking	23		Acceptable
	Build	Annual	16		Walking	22		Acceptable
19	No Build	Annual	14		Standing	19		Acceptable
	Build	Annual	11	-21%	Sitting	16	-16%	Acceptable
20	No Build	Annual	12		Sitting	18		Acceptable
	Build	Annual	11		Sitting	16	-11%	Acceptable
21	No Build	Annual	10		Sitting	16		Acceptable
	Build	Annual	9		Sitting	14	-12%	Acceptable
22	No Build	Annual	12		Sitting	20		Acceptable
	Build	Annual	10	-17%	Sitting	16	-20%	Acceptable
23	No Build	Annual	13		Standing	20		Acceptable
	Build	Annual	9	-31%	Sitting	14	-30%	Acceptable
24	No Build	Annual	10		Sitting	17		Acceptable
	Build	Annual	10		Sitting	15	-12%	Acceptable
25	No Build	Annual	13		Standing	20		Acceptable
	Build	Annual	11	-15%	Sitting	16	-20%	Acceptable
26	No Build	Annual	10		Sitting	16		Acceptable
	Build	Annual	9		Sitting	14	-12%	Acceptable
27	No Build	Annual	10		Sitting	17		Acceptable
	Build	Annual	12	20%	Sitting	19	12%	Acceptable
28	No Build	Annual	21		Uncomfortable	29		Acceptable
	Build	Annual	19		Walking	26	-10%	Acceptable
29	No Build	Annual	13		Standing	20		Acceptable
	Build	Annual	12		Sitting	19		Acceptable
30	No Build	Annual	17		Walking	24		Acceptable
	Build	Annual	18		Walking	25		Acceptable
31	No Build	Annual	15		Standing	23		Acceptable
	Build	Annual	16		Walking	23		Acceptable
32	No Build	Annual	14		Standing	20		Acceptable
	Build	Annual	14		Standing	20		Acceptable

Table 1: Mean Speed and Effective Gust Categories - Annual

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
33	No Build	Annual	14		Standing	20		Acceptable
	Build	Annual	13		Standing	20		Acceptable
34	No Build	Annual	13		Standing	20		Acceptable
	Build	Annual	13		Standing	20		Acceptable
35	No Build	Annual	14		Standing	21		Acceptable
	Build	Annual	14		Standing	21		Acceptable
36	No Build	Annual	15		Standing	21		Acceptable
	Build	Annual	15		Standing	21		Acceptable
37	No Build	Annual	16		Walking	21		Acceptable
	Build	Annual	16		Walking	22		Acceptable
38	No Build	Annual	15		Standing	21		Acceptable
	Build	Annual	16		Walking	22		Acceptable
39	No Build	Annual	16		Walking	22		Acceptable
	Build	Annual	16		Walking	22		Acceptable
40	No Build	Annual	15		Standing	20		Acceptable
	Build	Annual	15		Standing	21		Acceptable
41	No Build	Annual	16		Walking	22		Acceptable
	Build	Annual	15		Standing	22		Acceptable
42	No Build	Annual	17		Walking	25		Acceptable
	Build	Annual	15	-12%	Standing	23		Acceptable
43	No Build	Annual	16		Walking	22		Acceptable
	Build	Annual	16		Walking	22		Acceptable
44	No Build	Annual	17		Walking	25		Acceptable
	Build	Annual	18		Walking	26		Acceptable
45	No Build	Annual	15		Standing	24		Acceptable
	Build	Annual	15		Standing	23		Acceptable
46	No Build	Annual	15		Standing	20		Acceptable
	Build	Annual	15		Standing	21		Acceptable
47	No Build	Annual	17		Walking	25		Acceptable
	Build	Annual	17		Walking	26		Acceptable
48	No Build	Annual	15		Standing	20		Acceptable
	Build	Annual	15		Standing	21		Acceptable

Table 1: Mean Speed and Effective Gust Categories - Annual

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
49	No Build	Annual	13		Standing	20		Acceptable
	Build	Annual	13		Standing	20		Acceptable
50	No Build	Annual	10		Sitting	17		Acceptable
	Build	Annual	11		Sitting	18		Acceptable
51	No Build	Annual	10		Sitting	16		Acceptable
	Build	Annual	10		Sitting	16		Acceptable
52	No Build	Annual	16		Walking	23		Acceptable
	Build	Annual	16		Walking	23		Acceptable
53	No Build	Annual	21		Uncomfortable	28		Acceptable
	Build	Annual	21		Uncomfortable	28		Acceptable
54	No Build	Annual	16		Walking	23		Acceptable
	Build	Annual	17		Walking	24		Acceptable
55	No Build	Annual	14		Standing	21		Acceptable
	Build	Annual	14		Standing	21		Acceptable
56	No Build	Annual	19		Walking	25		Acceptable
	Build	Annual	19		Walking	26		Acceptable
57	No Build	Annual	14		Standing	21		Acceptable
	Build	Annual	13		Standing	20		Acceptable
58	No Build	Annual	17		Walking	26		Acceptable
	Build	Annual	18		Walking	27		Acceptable
59	No Build	Annual	16		Walking	23		Acceptable
	Build	Annual	16		Walking	24		Acceptable
60	No Build	Annual	15		Standing	23		Acceptable
	Build	Annual	16		Walking	23		Acceptable
61	No Build	Annual	18		Walking	26		Acceptable
	Build	Annual	18		Walking	27		Acceptable
62	No Build	Annual	15		Standing	23		Acceptable
	Build	Annual	15		Standing	22		Acceptable
63	No Build	Annual	15		Standing	22		Acceptable
	Build	Annual	14		Standing	21		Acceptable
64	No Build	Annual	15		Standing	21		Acceptable
	Build	Annual	15		Standing	21		Acceptable

Table 1: Mean Speed and Effective Gust Categories - Annual

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
65	No Build	Annual	12		Sitting	17		Acceptable
	Build	Annual	11		Sitting	17		Acceptable
66	No Build	Annual	14		Standing	21		Acceptable
	Build	Annual	14		Standing	21		Acceptable
67	No Build	Annual	16		Walking	22		Acceptable
	Build	Annual	14	-12%	Standing	19	-14%	Acceptable
68	No Build	Annual	16		Walking	23		Acceptable
	Build	Annual	15		Standing	21		Acceptable
69	No Build	Annual	15		Standing	23		Acceptable
	Build	Annual	13	-13%	Standing	20	-13%	Acceptable
70	No Build	Annual	19		Walking	26		Acceptable
	Build	Annual	11	-42%	Sitting	16	-38%	Acceptable
71	No Build	Annual	10		Sitting	16		Acceptable
	Build	Annual	11		Sitting	17		Acceptable
72	No Build	Annual	12		Sitting	17		Acceptable
	Build	Annual	13		Standing	18		Acceptable
73	No Build	Annual	12		Sitting	19		Acceptable
	Build	Annual	11		Sitting	17	-11%	Acceptable
74	No Build	Annual	12		Sitting	19		Acceptable
	Build	Annual	11		Sitting	18		Acceptable
75	No Build	Annual	14		Standing	21		Acceptable
	Build	Annual	11	-21%	Sitting	17	-19%	Acceptable
76	No Build	Annual	14		Standing	21		Acceptable
	Build	Annual	14		Standing	21		Acceptable
77	No Build	Annual	15		Standing	22		Acceptable
	Build	Annual	15		Standing	21		Acceptable
78	No Build	Annual	6		Sitting	10		Acceptable
	Build	Annual	4	-33%	Sitting	7	-30%	Acceptable
79	No Build	Annual	11		Sitting	16		Acceptable
	Build	Annual	10		Sitting	16		Acceptable
80	No Build	Annual	11		Sitting	18		Acceptable
	Build	Annual	16	45%	Walking	22	22%	Acceptable

Table 1: Mean Speed and Effective Gust Categories - Annual

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
81	No Build	Annual	12		Sitting	20		Acceptable
	Build	Annual	14	17%	Standing	21		Acceptable
82	No Build	Annual	13		Standing	19		Acceptable
	Build	Annual	12		Sitting	19		Acceptable
83	No Build	Annual	14		Standing	21		Acceptable
	Build	Annual	14		Standing	20		Acceptable
84	No Build	Annual	14		Standing	19		Acceptable
	Build	Annual	13		Standing	18		Acceptable
85	No Build	Annual	17		Walking	24		Acceptable
	Build	Annual	16		Walking	23		Acceptable
86	No Build	Annual	16		Walking	22		Acceptable
	Build	Annual	15		Standing	21		Acceptable
87	No Build	Annual	15		Standing	22		Acceptable
	Build	Annual	14		Standing	22		Acceptable
88	No Build	Annual	17		Walking	26		Acceptable
	Build	Annual	17		Walking	26		Acceptable
89	No Build	Annual	10		Sitting	15		Acceptable
	Build	Annual	9		Sitting	14		Acceptable
90	No Build	Annual	11		Sitting	16		Acceptable
	Build	Annual	9	-18%	Sitting	15		Acceptable
91	No Build	Annual	15		Standing	23		Acceptable
	Build	Annual	17	13%	Walking	25		Acceptable
92	No Build	Annual	11		Sitting	17		Acceptable
	Build	Annual	10		Sitting	16		Acceptable
93	No Build	Annual	17		Walking	24		Acceptable
	Build	Annual	16		Walking	22		Acceptable
94	No Build	Annual	12		Sitting	19		Acceptable
	Build	Annual	12		Sitting	19		Acceptable
95	No Build	Annual	18		Walking	26		Acceptable
	Build	Annual	17		Walking	25		Acceptable
96	No Build	Annual	17		Walking	25		Acceptable
	Build	Annual	17		Walking	25		Acceptable

Table 1: Mean Speed and Effective Gust Categories - Annual

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
97	No Build	Annual	14		Standing	21		Acceptable
	Build	Annual	15		Standing	21		Acceptable
98	No Build	Annual	17		Walking	26		Acceptable
	Build	Annual	17		Walking	26		Acceptable
99	No Build	Annual	17		Walking	24		Acceptable
	Build	Annual	17		Walking	24		Acceptable
100	No Build	Annual	19		Walking	30		Acceptable
	Build	Annual	20		Uncomfortable	30		Acceptable
101	No Build	Annual	21		Uncomfortable	28		Acceptable
	Build	Annual	21		Uncomfortable	28		Acceptable
102	No Build	Annual	18		Walking	27		Acceptable
	Build	Annual	19		Walking	27		Acceptable
103	No Build	Annual	-		-	-		-
	Build	Annual	6		Sitting	11		Acceptable
104	No Build	Annual	-		-	-		-
	Build	Annual	7		Sitting	13		Acceptable
105	No Build	Annual	-		-	-		-
	Build	Annual	10		Sitting	16		Acceptable
106	No Build	Annual	-		-	-		-
	Build	Annual	15		Standing	21		Acceptable
107	No Build	Annual	-		-	-		-
	Build	Annual	12		Sitting	19		Acceptable
108	No Build	Annual	-		-	-		-
	Build	Annual	16		Walking	25		Acceptable
109	No Build	Annual	-		-	-		-
	Build	Annual	15		Standing	23		Acceptable
110	No Build	Annual	-		-	-		-
	Build	Annual	21		Uncomfortable	29		Acceptable
111	No Build	Annual	-		-	-		-
	Build	Annual	27		Uncomfortable	35		Unacceptable
112	No Build	Annual	-		-	-		-
	Build	Annual	20		Uncomfortable	29		Acceptable

Table 1: Mean Speed and Effective Gust Categories - Annual

Location	Configuration	Season	Mean Wind Speed			Effective Gust Wind Speed		
			Speed (mph)	% Change	Rating	Speed (mph)	% Change	Rating
113	No Build	Annual	-		-	-		-
	Build	Annual	22		Uncomfortable	31		Acceptable
114	No Build	Annual	-		-	-		-
	Build	Annual	16		Walking	26		Acceptable

Configurations	Mean Wind Criteria Speed (mph)		Effective Gust Criteria (mph)	
No Build Existing site with existing surroundings **Build** Proposed BIDMC NIB development with existing surroundings	≤ 12	Comfortable for Sitting	≤ 31	Acceptable
	13 - 15	Comfortable for Standing	> 31	Unacceptable
	16 - 19	Comfortable for Walking		
	20 - 27	Uncomfortable for Walking		
	> 27	Dangerous Conditions		

Notes

1) Wind Speeds are for a 1% probability of exceedance

2) % Change is based on comparison with No Build configuration

3) % changes less than 10% are excluded

Table 2: Mean Speed and Effective Gust Categories - Seasonal

Location	Configuration	Mean Wind Speed (mph)				Effective Gust Wind Speed (mph)			
		Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter
1	No Build	10	8	10	11	17	14	16	18
	Build	20	17	19	20	26	23	25	27
2	No Build	11	9	10	11	18	14	17	18
	Build	13	11	12	13	19	17	18	20
3	No Build	13	11	12	13	21	17	19	21
	Build	14	11	13	14	20	17	19	21
4	No Build	15	12	14	16	23	19	22	25
	Build	8	7	8	9	12	10	11	12
5	No Build	21	17	20	23	28	23	27	31
	Build	12	10	12	13	18	15	18	20
6	No Build	19	16	18	20	26	22	25	28
	Build	22	18	20	23	30	24	28	32
7	No Build	16	13	15	17	23	19	22	25
	Build	18	15	17	19	26	21	24	28
8	No Build	13	12	13	14	22	19	21	23
	Build	14	13	14	15	21	18	20	22
9	No Build	10	8	9	10	16	13	15	16
	Build	18	14	17	19	25	20	23	27
10	No Build	8	6	7	8	13	11	12	14
	Build	17	14	15	16	24	21	22	24
11	No Build	8	6	7	8	13	11	13	14
	Build	20	15	18	21	26	20	24	29
12	No Build	10	7	9	10	17	12	15	17
	Build	21	16	19	23	26	20	25	29
13	No Build	9	7	9	9	15	11	14	15
	Build	23	19	22	25	34	30	33	37
14	No Build	14	10	13	14	20	15	19	21
	Build	16	12	15	17	22	17	21	24
15	No Build	14	11	13	14	21	16	20	22
	Build	20	16	19	22	27	21	26	30
16	No Build	9	7	8	9	15	11	14	15
	Build	9	7	9	10	16	11	15	16

Table 2: Mean Speed and Effective Gust Categories - Seasonal

Location	Configuration	Mean Wind Speed (mph)				Effective Gust Wind Speed (mph)			
		Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter
17	No Build	14	10	13	15	20	15	19	21
	Build	14	10	13	14	20	15	18	21
18	No Build	17	13	16	17	24	19	23	25
	Build	16	12	16	17	23	18	22	24
19	No Build	14	12	14	14	19	17	19	20
	Build	12	10	11	11	17	14	16	17
20	No Build	13	11	12	13	18	16	18	19
	Build	12	10	11	12	17	14	16	17
21	No Build	10	8	10	11	16	14	16	17
	Build	10	8	9	10	14	12	14	15
22	No Build	13	11	12	13	21	18	20	21
	Build	10	8	10	11	16	13	15	17
23	No Build	14	11	13	15	20	17	19	22
	Build	9	8	9	10	14	12	14	15
24	No Build	10	8	10	11	17	14	16	18
	Build	10	8	9	10	16	13	15	16
25	No Build	14	12	13	13	21	18	20	21
	Build	11	9	10	11	17	14	16	17
26	No Build	10	8	9	10	17	13	16	17
	Build	9	8	9	10	15	12	14	15
27	No Build	11	8	10	11	17	13	16	18
	Build	12	10	12	13	19	15	18	20
28	No Build	21	17	20	24	29	23	27	32
	Build	19	15	18	21	26	21	25	29
29	No Build	13	11	13	14	21	18	20	21
	Build	13	11	12	13	20	17	19	21
30	No Build	17	14	16	18	25	20	23	27
	Build	18	14	17	19	26	21	24	28
31	No Build	16	12	15	17	23	18	22	25
	Build	16	12	15	17	23	18	22	25
32	No Build	14	11	13	15	20	16	19	22
	Build	14	11	13	15	20	16	19	22

Table 2: Mean Speed and Effective Gust Categories - Seasonal

Location	Configuration	Mean Wind Speed (mph)				Effective Gust Wind Speed (mph)			
		Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter
33	No Build	14	12	13	15	21	18	20	22
	Build	13	11	13	14	20	17	19	21
34	No Build	14	12	13	14	20	17	19	21
	Build	13	11	13	14	20	17	19	21
35	No Build	15	13	14	15	22	19	21	22
	Build	14	12	14	14	21	19	21	22
36	No Build	15	12	14	16	21	17	20	22
	Build	15	12	14	16	21	17	20	23
37	No Build	16	12	15	17	22	17	20	23
	Build	16	13	15	17	22	17	21	24
38	No Build	16	13	15	17	22	17	21	23
	Build	17	13	16	17	23	18	21	24
39	No Build	17	14	16	17	23	18	21	23
	Build	16	13	15	17	23	18	21	23
40	No Build	16	13	15	15	21	17	20	22
	Build	16	13	15	16	22	18	20	22
41	No Build	17	14	16	17	23	18	21	23
	Build	16	13	15	16	22	18	21	23
42	No Build	18	14	16	19	26	21	24	27
	Build	16	13	15	16	24	19	22	25
43	No Build	17	14	16	16	23	18	21	23
	Build	17	14	16	16	23	19	21	23
44	No Build	17	14	16	18	25	20	24	27
	Build	19	17	18	19	27	23	25	27
45	No Build	16	12	15	16	24	19	23	26
	Build	15	11	14	16	24	18	22	25
46	No Build	16	12	14	15	22	17	20	21
	Build	16	13	15	16	22	18	21	22
47	No Build	18	14	17	18	26	21	25	28
	Build	18	14	17	18	26	21	25	28
48	No Build	16	14	15	16	21	18	20	21
	Build	15	13	15	16	21	18	20	22

Table 2: Mean Speed and Effective Gust Categories - Seasonal

Location	Configuration	Mean Wind Speed (mph)				Effective Gust Wind Speed (mph)			
		Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter
49	No Build	14	12	13	14	21	18	20	22
	Build	14	11	13	14	21	17	20	22
50	No Build	11	9	10	11	18	14	17	18
	Build	11	9	11	11	18	15	17	19
51	No Build	11	8	10	11	17	13	16	17
	Build	11	8	10	11	17	13	16	16
52	No Build	17	13	15	17	23	18	22	25
	Build	17	13	15	17	24	19	22	25
53	No Build	21	17	20	23	28	22	27	31
	Build	21	16	20	23	28	22	27	31
54	No Build	17	13	16	18	24	19	22	25
	Build	17	13	16	18	24	19	23	26
55	No Build	15	12	14	15	21	18	20	22
	Build	14	12	14	15	22	19	21	22
56	No Build	20	15	18	21	26	20	24	28
	Build	20	15	18	21	26	20	24	28
57	No Build	14	11	13	15	21	16	20	22
	Build	14	11	13	15	21	16	19	22
58	No Build	17	13	16	19	26	20	25	29
	Build	18	14	17	20	27	20	25	29
59	No Build	17	14	16	17	24	19	23	26
	Build	16	13	15	17	24	19	23	26
60	No Build	16	12	15	17	23	18	22	24
	Build	16	13	16	17	24	19	22	25
61	No Build	18	14	17	20	27	21	25	29
	Build	19	14	17	20	27	21	25	29
62	No Build	15	13	14	16	23	19	22	24
	Build	15	11	14	16	22	17	21	24
63	No Build	15	12	14	17	22	17	20	24
	Build	14	11	13	15	21	16	20	23
64	No Build	16	12	15	16	23	17	21	23
	Build	16	12	15	16	23	17	21	22

Table 2: Mean Speed and Effective Gust Categories - Seasonal

Location	Configuration	Mean Wind Speed (mph)				Effective Gust Wind Speed (mph)			
		Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter
65	No Build	13	10	12	13	18	14	17	18
	Build	12	9	11	12	18	13	17	18
66	No Build	14	11	13	15	21	16	20	23
	Build	14	11	13	15	21	16	19	23
67	No Build	16	15	16	17	22	20	22	23
	Build	14	13	13	14	19	18	19	20
68	No Build	16	13	16	18	23	18	22	26
	Build	15	12	14	17	22	17	20	23
69	No Build	15	11	14	16	23	18	22	25
	Build	14	10	13	15	20	16	19	22
70	No Build	19	16	18	21	26	22	25	29
	Build	11	10	11	11	17	15	16	17
71	No Build	11	8	10	12	17	13	15	18
	Build	11	8	11	13	17	13	16	19
72	No Build	12	10	12	13	18	15	17	18
	Build	13	11	12	14	19	15	17	19
73	No Build	13	10	12	13	19	15	18	20
	Build	12	9	11	12	17	13	16	18
74	No Build	12	10	12	13	19	16	18	21
	Build	11	9	10	12	18	14	17	20
75	No Build	14	11	14	16	21	17	20	24
	Build	11	9	11	12	17	13	16	18
76	No Build	14	12	14	15	21	18	20	22
	Build	14	11	13	15	21	17	20	22
77	No Build	15	14	15	16	22	19	21	23
	Build	15	13	15	16	22	18	21	22
78	No Build	6	5	6	6	10	8	10	11
	Build	5	4	4	4	8	7	7	7
79	No Build	11	10	10	11	18	15	16	17
	Build	11	10	10	10	17	15	16	16
80	No Build	12	10	11	12	18	15	17	19
	Build	16	14	16	17	22	19	22	24

Table 2: Mean Speed and Effective Gust Categories - Seasonal

Location	Configuration	Mean Wind Speed (mph)				Effective Gust Wind Speed (mph)			
		Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter
81	No Build	13	10	12	13	20	16	19	21
	Build	14	11	13	15	21	16	20	22
82	No Build	12	10	12	14	19	16	18	21
	Build	12	10	12	13	19	16	18	20
83	No Build	14	13	14	15	20	18	20	22
	Build	14	13	13	15	20	19	20	21
84	No Build	14	12	13	15	19	16	19	21
	Build	13	12	13	14	18	16	18	20
85	No Build	17	14	17	19	24	19	23	27
	Build	16	13	15	18	23	18	22	25
86	No Build	17	15	16	16	23	20	22	23
	Build	16	14	16	16	23	19	22	22
87	No Build	15	13	14	15	24	20	22	23
	Build	15	12	14	14	23	19	22	22
88	No Build	17	14	16	19	26	20	25	28
	Build	17	14	17	19	26	21	25	28
89	No Build	10	9	10	11	15	12	14	16
	Build	9	8	9	10	14	12	14	15
90	No Build	11	9	11	12	17	14	16	18
	Build	9	8	9	10	15	13	15	16
91	No Build	15	12	14	17	23	18	22	26
	Build	17	13	16	19	25	19	23	27
92	No Build	11	10	11	11	18	16	17	18
	Build	10	8	10	11	16	13	15	17
93	No Build	17	15	17	18	24	21	23	25
	Build	16	14	15	17	23	20	22	23
94	No Build	12	10	11	13	19	15	18	21
	Build	12	9	11	13	19	15	18	21
95	No Build	18	17	18	19	27	24	26	28
	Build	17	16	17	18	26	23	25	27
96	No Build	17	15	17	18	26	22	25	27
	Build	17	15	16	18	25	22	24	26

Table 2: Mean Speed and Effective Gust Categories - Seasonal

Location	Configuration	Mean Wind Speed (mph)				Effective Gust Wind Speed (mph)			
		Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter
97	No Build	14	11	14	16	21	17	20	23
	Build	15	12	14	16	21	18	21	23
98	No Build	17	15	17	18	26	22	25	28
	Build	17	15	17	18	26	22	25	28
99	No Build	17	14	17	19	24	19	23	26
	Build	17	14	17	19	24	19	23	26
100	No Build	19	15	18	22	30	23	28	34
	Build	20	15	18	22	30	23	28	34
101	No Build	21	18	20	22	29	24	28	30
	Build	21	18	21	23	29	24	28	31
102	No Build	18	14	17	20	27	21	25	29
	Build	19	14	17	21	27	21	26	30
103	No Build	-	-	-	-	-	-	-	-
	Build	6	5	6	7	11	9	10	11
104	No Build	-	-	-	-	-	-	-	-
	Build	7	6	7	8	13	10	12	13
105	No Build	-	-	-	-	-	-	-	-
	Build	11	8	10	11	16	13	15	17
106	No Build	-	-	-	-	-	-	-	-
	Build	15	11	14	16	21	16	20	23
107	No Build	-	-	-	-	-	-	-	-
	Build	13	9	12	13	20	14	19	20
108	No Build	-	-	-	-	-	-	-	-
	Build	17	13	16	18	26	20	24	27
109	No Build	-	-	-	-	-	-	-	-
	Build	15	11	14	16	24	17	22	24
110	No Build	-	-	-	-	-	-	-	-
	Build	21	16	19	23	30	23	27	32
111	No Build	-	-	-	-	-	-	-	-
	Build	27	21	25	30	35	28	33	39
112	No Build	-	-	-	-	-	-	-	-
	Build	20	15	19	22	29	23	27	32

Table 2: Mean Speed and Effective Gust Categories - Seasonal

Location	Configuration	Mean Wind Speed (mph)				Effective Gust Wind Speed (mph)			
		Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter
113	No Build	-	-	-	-	-	-	-	-
	Build	22	17	20	25	31	24	29	35
114	No Build	-	-	-	-	-	-	-	-
	Build	17	15	16	17	27	23	25	27

Configurations	Mean Wind Criteria Speed (mph)		Effective Gust Criteria (mph)
No Build	≤ 12	Comfortable for Sitting	≤ 31 Acceptable
Existing site with existing surroundings	13 - 15	Comfortable for Standing	> 31 Unacceptable
Build	16 - 19	Comfortable for Walking	
Proposed BIDMC NIB development with existing surroundings	20 - 27	Uncomfortable for Walking	
	> 27	Dangerous Conditions	

Notes

1) Wind Speeds are for a 1% probability of exceedance.

Appendix D

Air Quality

AIR QUALITY APPENDIX

Introduction

This Air Quality Appendix provides modeling assumptions and backup for results presented in Section 3.5 of the report. Included within this documentation is a brief description of the methodology employed along with pertinent calculations and data used in the emissions and dispersion calculations supporting the microscale air quality analysis.

Motor Vehicle Emissions

The EPA MOVES computer program generated motor vehicle emissions used in the garage stationary source analysis along with the mobile source CAL3QHC modeling and mesoscale analysis. The model input parameters were provided by MassDEP. Emission rates were derived for 2018 and 2025 for speed limits of idle, 10, 15, and 25 mph for use in the microscale analyses.

MOVES CO Emission Factor Summary

Carbon Monoxide Only

		2018	2025
Free Flow	25 mph	2.488	1.658
Right Turns	10 mph	3.788	2.541
Left Turns	15 mph	3.288	2.237
Queues	Idle	6.673	3.039

Notes: Winter CO emission factors are higher than Summer and are conservatively used
Urban Unrestricted Roadway type used

CAL3QHC

For the intersection studied, the CAL3QHC model was applied to calculate CO concentrations at sensitive receptor locations using emission rates derived in MOVES. The intersection's queue links and free flow links were input to the model along with sensitive receptors at all locations nearby each intersection. The meteorological assumptions input into the model were a 1.0 meter per second wind speed, Pasquill-Gifford Class D stability combined with a mixing height of 1000 meters. For each direction, the full range of wind directions at 10 degree intervals was examined. In addition, a surface roughness (z_0) of 321 cm was used for the intersection. Idle emission rates for queue links were based on 0 mph emission rates derived in MOVES. Emission rates for speeds of 10, 15, and 25 mph were used for right turn, left turn, and free flow links, respectively.

Raw Background Concentrations

POLLUTANT	AVERAGING TIME	Form	2014	2015	2016	Units	ppm/ppb to $\mu g/m^3$ Conversion Factor	2014-2016 Background Concentration ($\mu g/m^3$)	Location
SO_2 [1][6]	1-Hour [5]	99th %	9.7	5.5	4.1	ppb	2.62	16.9	Kenmore Sq., Boston
	3-Hour [6]	H2H	9.4	4.4	3.8	ppb	2.62	24.6	Kenmore Sq., Boston
	24-Hour	H2H	5	2.9	2	ppb	2.62	13.1	Kenmore Sq., Boston
	Annual	H	0.942418	0.531508	0.425324	ppb	2.62	2.5	Kenmore Sq., Boston
PM-10	24-Hour	H2H	53	30	30	$\mu g/m^3$	1	53	Kenmore Sq., Boston
	Annual	H	15.034483	14.20339	14.125	$\mu g/m^3$	1	15.0	Kenmore Sq., Boston
PM-2.5	24-Hour [5]	98th %	14.6	14.5	13	$\mu g/m^3$	1	14.0	Kenmore Sq., Boston
	Annual [5]	H	6.053782	6.50087	6.215596	$\mu g/m^3$	1	6.3	Kenmore Sq., Boston
NO_2 [3]	1-Hour [5]	98th %	49	56	47	ppb	1.88	95.3	Kenmore Sq., Boston
	Annual	H	17.16805	17.300328	15.035096	ppb	1.88	32.5	Kenmore Sq., Boston
CO [2][7]	1-Hour	H2H	1.3	1.362	2.409	ppm	1146	2760.7	Harrison Ave., Boston
	8-Hour	H2H	1.1	0.9	1.8	ppm	1146	2062.8	Harrison Ave., Boston
Ozone [4]	8-Hour	H4H	0.054	0.056	0.058	ppm	1963	113.9	Harrison Ave., Boston
Lead	Rolling 3-Month	H	0.0142	0.0157	0.0174	$\mu g/m^3$	1	0.017	Harrison Ave., Boston

Notes:

From 2014-2016 EPA's AirData Website

[1] SO_2 reported ppb. Converted to $\mu g/m^3$ using factor of 1 ppm = 2.62 $\mu g/m^3$.

[2] CO reported in ppm. Converted to $\mu g/m^3$ using factor of 1 ppm = 1146 $\mu g/m^3$.

[3] NO_2 reported in ppb. Converted to $\mu g/m^3$ using factor of 1 ppm = 1.88 $\mu g/m^3$.

[4] O_3 reported in ppm. Converted to $\mu g/m^3$ using factor of 1 ppm = 1963 $\mu g/m^3$.

[5] Background level is the average concentration of the three years.

[6] The 24-hour and Annual standards were revoked by EPA on June 22, 2010, Federal Register 75-119, p. 35520.

[7] CO monitor at Kenmore Square was deactivated in January 2015. Harrison Avenue monitor used for 2015 and 2016.

Due to excessive size CAL3QHC, and MOVES input and output files are available on digital media upon request.

Appendix E

Climate Change Checklist

Boston Planning & Development Agency
Climate Resiliency Report Summary

boston planning & development agency

Submitted: 07/19/2018 08:30:22

A.1 - Project Information

Project Name:	Beth Israel Deaconess Medical Center - New Inpatient Building			
Project Address:	111 Francis Street			
Filing Type:	Initial (PNF, EPNF, NPC or other substantial filing)			
Filing Contact:	Geoff Starsiak	Epsilon Associates, Inc.	gstarsiak@epsilonassociates.com	978-897-7100
Is MEPA approval required?	No	MEPA date:	04/06/2018	

A.2 - Project Team

Owner / Developer:	Beth Israel Deaconess Medical Center
Architect:	Payette Associates, Inc.
Engineer:	BR+A
Sustainability / LEED:	Payette Associates, Inc.
Permitting:	Epsilon Associates, Inc.
Construction Management:	Turner Construction COmpany

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Hospital
List the First Floor Uses:	Hospital, loading
List any Critical Site Infrastructure and or Building Uses:	Hospital

Site and Building:

Site Area (SF):	45000	Building Area (SF):	325000
Building Height (Ft):	178	Building Height (Stories):	10
Existing Site Elevation – Low (Ft BCB):	32	Existing Site Elevation – High (Ft BCB):	43
Proposed Site Elevation – Low (Ft BCB):	32	Proposed Site Elevation – High (Ft BCB):	43
Proposed First Floor Elevation (Ft BCB):	33	Below grade spaces/levels (#):	1

Article 37 Green Building:

LEED Version - Rating System:	v4 BD+C, Healthcare	LEED Certification:	

Boston Planning & Development Agency
Climate Resiliency Report Summary

boston planning & development agency

Proposed LEED rating:	Silver	Proposed LEED point score (Pts.):	53

Building Envelope:

When reporting R values, differentiate between R discontinuous and R continuous. For example, use "R13" to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	30c.i.	Exposed Floor :	N/A
Foundation Wall:	7.5c.i.	Slab Edge (at or below grade):	30

Vertical Above-grade Assemblies (%'s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	54.7	Wall & Spandrel Assembly Value:	.055
Area of Framed & Insulated / Standard Wall:	28.3	Wall Value:	18
Area of Vision Window:	16.5	Window Glazing Assembly Value:	0.4
		Window Glazing SHGC:	0.35
Area of Doors:	0.5	Door Assembly Value :	0.5

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined	Using other projects and extrapolating information		
Annual Electric (kWh):	13900000	Peak Electric (kW):	4500
Annual Heating (MMbtu/hr):	19000	Peak Heating (MMbtu):	35.8
Annual Cooling (Tons/hr):	334000	Peak Cooling (Tons):	1600
Energy Use - Below ASHRAE 90.1 - 2013 (%):	19	Have the local utilities reviewed the building energy performance?:	No
Energy Use - Below Mass. Code (%):	9	Energy Use Intensity (kBtu/SF):	159

Back-up / Emergency Power System

Electrical Generation Output (kW):	2000	Number of Power Units:	2
System Type (kW):	Combustion	Fuel Source:	Diesel

Emergency and Critical System Loads (in the event of a service interruption)

Electric (kW):	4000	Heating (MMbtu/hr):	35.8
		Cooling (Tons/hr):	1600

B – Greenhouse Gas Reduction and Net Zero / Net Positive Carbon Building Performance

Reducing greenhouse gas emissions is critical to avoiding more extreme climate change conditions. To achieve the City's goal of carbon-neutrality by 2050 the performance of new buildings will need to progressively improve to carbon net zero and net positive.

B.1 – GHG Emissions - Design Conditions

For this filing - Annual Building GHG Emissions (Tons): 3632

For this filing - describe how building energy performance has been integrated into project planning, design, and engineering and any supporting analysis or modeling:

The design team has modeled a patient room to help align the design of the building envelope with the capacity of the cooling system, in order to determine the preferred mechanical system (linking mechanical selection with façade design).

Describe building specific passive energy efficiency measures including orientation, massing, building envelop, and systems:

Building orientation is determined by the lot dimensions. The design team is studying ways to break up the massing to tweak portions of the massing in favorable ways to increase energy efficiency.

Describe building specific active energy efficiency measures including high performance equipment, controls, fixtures, and systems:

A range of energy reduction options are currently being evaluated for energy saving measures such as triple glazed windows, heat recovery, dedicated outside air systems, and chilled beams.

Describe building specific load reduction strategies including on-site renewable energy, clean energy, and storage systems:

The design team is studying load reduction strategies to determine what may be feasible. The team is studying the potential for water storage on-site as a potential way to store energy.

Describe any area or district scale emission reduction strategies including renewable energy, central energy plants, distributed energy systems, and smart grid infrastructure:

MATEP provides electricity, steam and chilled water to parts of BIDMC's campuses.

Describe any energy efficiency assistance or support provided or to be provided to the project:

B.2 - GHG Reduction - Adaptation Strategies

Describe how the building and its systems will evolve to further reduce GHG emissions and achieve annual carbon net zero and net positive performance (e.g. added efficiency measures, renewable energy, energy storage, etc.) and the timeline for meeting that goal (by 2050):

As BIDMC will own and run the building as long as it meets its needs, the building is being designed to be adaptable to changing health care industry, allowing for equipment to be moved in and out. Similarly, it is anticipated that other, non-medical equipment, could be handled in a similar fashion.

C - Extreme Heat Events

Annual average temperature in Boston increased by about 2˚F in the past hundred years and will continue to rise due to climate change. By the end of the century, the average annual temperature could be 56° (compared to 46° now) and the number of days above 90° (currently about 10 a year) could rise to 90.

C.1 – Extreme Heat - Design Conditions

Temperature Range - Low (Deg.):	8	Temperature Range - High (Deg.):	91
Annual Heating Degree Days:	6	Annual Cooling Degree Days	5

What Extreme Heat Event characteristics will be / have been used for project planning

Days - Above 90° (#):	60	Days - Above 100° (#):	30
Number of Heatwaves / Year (#):	6	Average Duration of Heatwave (Days):	5

Describe all building and site measures to reduce heat-island effect at the site and in the surrounding area:

The Project will include green roofs and light roof areas. Street trees and landscaping are planned, where feasible.

C.2 - Extreme Heat – Adaptation Strategies

Describe how the building and its systems will be adapted to efficiently manage future higher average temperatures, higher extreme temperatures, additional annual heatwaves, and longer heatwaves:

The design team seeks to design a building that is as energy efficient as possible and is responsive to the unique climatic and environmental factors of the proposed site. The design is expected to include a high performance mechanical system, façade designs that are tuned to the specific solar exposure of each side of the building, and green roofs where feasible.

Describe all mechanical and non-mechanical strategies that will support building functionality and use during extended interruptions of utility services and infrastructure including proposed and future adaptations:

As a hospital, continued operation in all conditions is necessary. BIDMC has an emergency plan that allows for the continued operation of the hospital in extreme cases for extended periods of time (weeks), with plans in place to extend operations as long as necessary, or the selective closing of certain facilities that are less critical.

Boston Planning & Development Agency

Climate Resiliency Report Summary

boston planning & development agency

D - Extreme Precipitation Events

From 1958 to 2010, there was a 70 percent increase in the amount of precipitation that fell on the days with the heaviest precipitation. Currently, the 10-Year, 24-Hour Design Storm precipitation level is 5.25". There is a significant probability that this will increase to at least 6" by the end of the century. Additionally, fewer, larger storms are likely to be accompanied by more frequent droughts.

D.1 – Extreme Precipitation - Design Conditions

What is the project design precipitation level? (In. / 24 Hours)	6

Describe all building and site measures for reducing storm water run-off:

The Project will infiltrate one-inch of run-off per 24-hour storm. A rainwater management system that includes both green roofs and a 28,000 gallon rainwater harvesting tank is being developed to comply with the requirements for the LEED Rainwater Management credits.

D.2 - Extreme Precipitation - Adaptation Strategies

Describe how site and building systems will be adapted to efficiently accommodate future more significant rain events (e.g. rainwater harvesting, on-site storm water retention, bio swales, green roofs):

A rainwater management system that includes both green roofs and a 28,000 gallon rainwater harvesting tank is being developed to comply with the requirements for the LEED Rainwater Management credits. The Project will also be designed to be consistent with BIDMC's efforts to reduce the potential impact of flooding on its campus.

E – Sea Level Rise and Storms

Under any plausible greenhouse gas emissions scenario, the sea level in Boston will continue to rise throughout the century. This will increase the number of buildings in Boston susceptible to coastal flooding and the likely frequency of flooding for those already in the floodplain.

Is any portion of the site in a FEMA Special Flood Hazard Area?	No	What Zone:	
What is the current FEMA SFHA Zone Base Flood Elevation for the site (Ft BCB)?			

Boston Planning & Development Agency

Climate Resiliency Report Summary

boston planning & development agency

Is any portion of the site in the BPDA Sea Level Rise Flood Hazard Area (see SLR-FHA online map)?	No

If you answered YES to either of the above questions, please complete the following questions.
Otherwise you have completed the questionnaire; thank you!

E.1 – Sea Level Rise and Storms – Design Conditions

Proposed projects should identify immediate and future adaptation strategies for managing the flooding scenario represented by the Sea Level Rise Flood Hazard Area (SLR-FHA), which includes 3.2' of sea level rise above 2013 tide levels, an additional 2.5" to account for subsidence, and the 1% Annual Chance Flood. After using the SLR-FHA to identify a project's Sea Level Rise Base Flood Elevation, proponents should calculate the Sea Level Rise Design Flood Elevation by adding 12" of freeboard for buildings, and 24" of freeboard for critical facilities and infrastructure and any ground floor residential units.

What is the Sea Level Rise - Base Flood Elevation for the site (Ft BCB)?			
What is the Sea Level Rise - Design Flood Elevation for the site (Ft BCB)?		First Floor Elevation (Ft BCB):	
What are the Site Elevations at Building (Ft BCB)?		What is the Accessible Route Elevation (Ft BCB)?	

Describe site design strategies for adapting to sea level rise including building access during flood events, elevated site areas, hard and soft barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Describe how the proposed Building Design Flood Elevation will be achieved including dry / wet flood proofing, critical systems protection, utility service protection, temporary flood barriers, waste and drain water back flow prevention, etc.:

Describe how occupants might shelter in place during a flooding event including any emergency power, water, and waste water provisions and the expected availability of any such measures:

Describe any strategies that would support rapid recovery after a weather event:

E.2 – Sea Level Rise and Storms – Adaptation Strategies

Describe future site design and or infrastructure adaptation strategies for responding to sea level rise including future elevating of site areas and access routes, barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Describe future building adaptation strategies for raising the Sea Level Rise Design Flood Elevation and further protecting critical systems, including permanent and temporary measures:

Thank you for completing the Boston Climate Change Checklist!

For questions or comments about this checklist or Climate Change best practices, please contact:
John.Dalzell@boston.gov

Appendix F

Accessibility Checklist

Article 80 – Accessibility Checklist

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

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

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

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

Accessibility Analysis Information Sources:

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

Glossary of Terms:

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

1. Project Information:

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

Project Name:	Beth Israel Deaconess Medical Center – New Inpatient Building
Primary Project Address:	111 Francis Street, Boston, MA 02215
Total Number of Phases/Buildings:	1 Phase, 1 Building
Primary Contact (Name / Title / Company / Email / Phone):	Walter Armstrong SVP Capital Facilities and Engineering Beth Israel Deaconess Medical Center warmstro@bidmc.harvard.edu 617 667 0377
Owner / Developer:	Owner
Architect:	Payette Associates, Inc 290 Congress St, Fifth Floor Boston MA 02210
Civil Engineer:	VHB 99 High St, Tenth Floor Boston, MA 02110
Landscape Architect:	Payette Associates, Inc 290 Congress St, Fifth Floor Boston MA 02210
Permitting:	Epsilon Associates 3 Mill & Main Place, Suite 250 Maynard, MA 01754
Construction Management:	Turner Construction Company 2 Seaport Lane Boston, MA 02210

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

PNF / Expanded PNF Submitted	**Draft / Final Project Impact Report Submitted**	BPDA Board Approved
BPDA Design Approved	Under Construction	Construction Completed:

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

2. Building Classification and Description:

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

What are the dimensions of the project?			
Site Area:	***45,000** SF*	Building Area:	*325,000 GSF*
Building Height:	***178 FT.***	Number of Stories:	*10 Flrs.*
First Floor Elevation:	33'-6"	Is there below grade space:	*Yes*

What is the Construction Type? (Select most appropriate type)				
	Wood Frame	Masonry	**Steel Frame**	Concrete

What are the principal building uses? (IBC definitions are below – select all appropriate that apply)				
	Residential – One - Three Unit	Residential - Multi-unit, Four +	**Institutional**	Educational
	Business	Mercantile	Factory	Hospitality
	Laboratory / Medical	Storage, Utility and Other		

List street-level uses of the building:	*Loading Dock, Building Lobby*

3. Assessment of Existing Infrastructure for Accessibility:

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

Provide a description of the neighborhood where this development is located and its identifying topographical characteristics:	The development is located in a dense urban environment within the Longwood Medical and Academic Area. Topographically the site ranges in elevation from elevation 43 to 33 (BCB).
List the surrounding accessible MBTA transit lines and their proximity to development site: commuter rail / subway stations, bus stops:	The Longwood Medical and Academic Area is between the D and E branches of the MBTA Green Line and within a half mile of a station. Several MBTA bus routes pass through and stop near the site on Brookline Avenue.
List the surrounding institutions: hospitals, public housing, elderly and disabled housing developments, educational facilities, others:	The site is located with the Longwood Medical and Academic Area and is part of Beth Israel Deaconess's West Campus. The project is located near several hospitals and local universities, including Boston Children's Hospital, Brigham and Women's Hospital, Wheelock College, Simmons College, and Harvard Medical School.
List the surrounding government buildings: libraries, community centers, recreational facilities, and other related facilities:	There are no nearby government buildings and libraries. The Roxbury Tenants of Harvard has a recreational center located on Fenwood Road.

4. Surrounding Site Conditions – Existing: *This section identifies current condition of the sidewalks and pedestrian ramps at the development site.*	
Is the development site within a historic district? ***If yes,*** identify which district:	No.
Are there sidewalks and pedestrian ramps existing at the development site? ***If yes***, list the existing sidewalk and pedestrian ramp dimensions, slopes, materials, and physical condition at the development site:	Yes, there are existing pedestrian ramps adjacent to the development site. The sidewalks and ramps are cement concrete and have varying widths and slopes.
Are the sidewalks and pedestrian ramps existing-to-remain? ***If yes,*** have they been verified as ADA / MAAB compliant (with yellow composite detectable warning surfaces, cast in concrete)? ***If yes,*** provide description and photos:	Existing ramps immediately adjacent to the proposed building will be re-designed to ADA standards (concrete with detectable warnings).
5. Surrounding Site Conditions – Proposed *This section identifies the proposed condition of the walkways and pedestrian ramps around the development site. Sidewalk width contributes to the degree of comfort walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Wider sidewalks allow people to walk side by side and pass each other comfortably walking alone, walking in pairs, or using a wheelchair.*	
Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? ***If yes***, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, or Boulevard.	The proposed sidewalks will be consistent with the Boston Complete Street Guidelines to the extent feasible based on the preliminary determination of either a Downtown Commercial or Downtown Mixed-Use street-type.
What are the total dimensions and slopes of the proposed sidewalks? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone:	While the Project is still in the early stages of design, it is expected that the sidewalk along Brookline Avenue will maintain the approximately 11' width that currently exists along the face of the adjacent Rosenberg Building, though the building wall will be set back an additional 2 feet (approximately) to allow for a landscaped buffer between the building and the sidewalk. The sidewalk along Francis Street will be widened from its current dimension. The width of the sidewalk will vary between 20 feet in the vicinity of the intersection of Brookline Avenue and Francis Street, and 12 feet along the remainder of the

	length of Francis Street. A landscape buffer between the building and sidewalk will exist from the Brookline / Francis intersection to the mid-block entrance to the building. Opportunities for outdoor seating adjacent to a linear garden are being considered. The sidewalk along Pilgrim Road will match the existing condition approximately 8 feet in width with a 3'-6" landscape buffer between the face of the building and the sidewalk.
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?	Specific materials have not yet been determined, though the proposed design will comply with City standards. Materials along Brookline Avenue will exist on private property, but generally within the extents of an existing sidewalk easement. Sidewalks along Francis Street will exist at least in part within the City of Boston pedestrian right-of-way, though much of the sidewalk will be moved to private property, thereby requiring the provision of an easement. The sidewalk along Pilgrim Road will be entirely on private property.
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way? ***If yes,*** what are the proposed dimensions of the sidewalk café or furnishings and what will the remaining right-of-way clearance be?	Sidewalk furnishings are being considered for portion of the sidewalk along Francis Street. In addition, the Project is currently investigating opportunities to provide bench seating integrated into the base of the building.
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the Public Improvement Commission (PIC)?	The Proponent will not be seeking a pedestrian easement with the Public Improvement Commission (PIC) on Pilgrim Road, which is a private road. Along with streetscape improvements on Francis Street, the Proponent may pursue a pedestrian easement as required by the Public Improvement Commission (PIC).
Will any portion of the Project be going through the PIC? ***If yes,*** identify PIC actions and provide details.	Yes. The project is expected to require PIC approval of Specific Repair Plans for improvements to the public right-of-way along Francis Street and Brookline Avenue, and depending on the final project design might require licenses or other rights for projections over or under the public right-of-way (e.g., awnings and temporary support of excavations).
6. Accessible Parking: *See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability – Disabled Parking Regulations*.	
What is the total number of parking spaces provided at the development site? Will these be in a parking lot or garage?	No new parking is proposed

What is the total number of accessible spaces provided at the development site? How many of these are "Van Accessible" spaces with an 8 foot access aisle?	N/A
Will any on-street accessible parking spaces be required? ***If yes,*** has the proponent contacted the Commission for Persons with Disabilities regarding this need?	N/A
Where is the accessible visitor parking located?	Existing LMA garages.
Has a drop-off area been identified? ***If yes,*** will it be accessible?	Yes. The drop-off area will be accessible.
7. Circulation and Accessible Routes: *The primary objective in designing smooth and continuous paths of travel is to create universal access to entryways and common spaces, which accommodates persons of all abilities and allows for visitability with neighbors*.	
Describe accessibility at each entryway: Example: Flush Condition, Stairs, Ramp, Lift or Elevator:	Public building entrances will be designed as a flush condition. Entrances into the building in the loading dock will be accessible by stairs and a ramp.
Are the accessible entrances and standard entrance integrated? ***If yes,*** *describe.* ***If no,*** what is the reason?	Yes.
If project is subject to Large Project Review/Institutional Master Plan, describe the accessible routes way-finding / signage package.	BIDMC anticipates creating a signage master plan as the design of the IMP Project moves forward and is reviewed by the BPDA.
8. Accessible Units (Group 2) and Guestrooms: (If applicable) *In order to facilitate access to housing and hospitality, this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing and hotel rooms.*	
What is the total number of proposed housing units or hotel rooms for the	N/A

development?	
If a residential development, how many units are for sale? How many are for rent? What is the breakdown of market value units vs. IDP (Inclusionary Development Policy) units?	N/A
If a residential development, how many accessible Group 2 units are being proposed?	N/A
If a residential development, how many accessible Group 2 units will also be IDP units? ***If none***, describe reason.	N/A
If a hospitality development, how many accessible units will feature a wheel-in shower? Will accessible equipment be provided as well? ***If yes,*** provide amount and location of equipment.	N/A
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs / thresholds at entry, step to balcony, others. ***If yes,*** provide reason.	N/A
Are there interior elevators, ramps or lifts located in the development for access around architectural barriers and/or to separate floors? ***If yes,*** describe:	N/A
9. Community Impact: *Accessibility and inclusion extend past required compliance with building codes. Providing an overall scheme that allows full and equal participation of persons with disabilities makes the development an asset to the surrounding community.*	
Is this project providing any funding or improvements to the surrounding neighborhood? Examples: adding	The Projects includes new street trees around the site.

extra street trees, building or refurbishing a local park, or supporting other community-based initiatives?	
What inclusion elements does this development provide for persons with disabilities in common social and open spaces? Example: Indoor seating and TVs in common rooms; outdoor seating and barbeque grills in yard. Will all of these spaces and features provide accessibility?	The Project will be fully ADA compliant. Areas such as the Lobby, waiting rooms and rooftop garden will accommodate persons with disabilities.
Are any restrooms planned in common public spaces? ***If yes,*** will any be single-stall, ADA compliant and designated as "Family"/ "Companion" restrooms? ***If no***, explain why not.	There will be public restrooms in the lobby, waiting rooms on patient floors and the OR floor, and public spaces such as the elevated connector. Restrooms will be compliant with ADA as required. There will be at least one single stall, Family/Companion restroom accessible from the public space.
Has the proponent reviewed the proposed plan with the City of Boston Disability Commissioner or with their Architectural Access staff? ***If yes,*** did they approve? ***If no,*** what were their comments?	Not at this time.
Has the proponent presented the proposed plan to the Disability Advisory Board at one of their monthly meetings? Did the Advisory Board vote to support this project? ***If no,*** what recommendations did the Advisory Board give to make this project more accessible?	Not at this time.

10. Attachments

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

Provide a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations, including route distances. **See attached for routes from drop-off/pick-up to entrance.**
Provide a diagram of the accessible route connections through the site, including distances. **N/A**

Provide a diagram the accessible route to any roof decks or outdoor courtyard space? (if applicable) **See attached.**
Provide a plan and diagram of the accessible Group 2 units, including locations and route from accessible entry. **N/A**
Provide any additional drawings, diagrams, photos, or any other material that describes the inclusive and accessible elements of this project. • • • •

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

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

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

Architectural Access staff can be reached at:

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

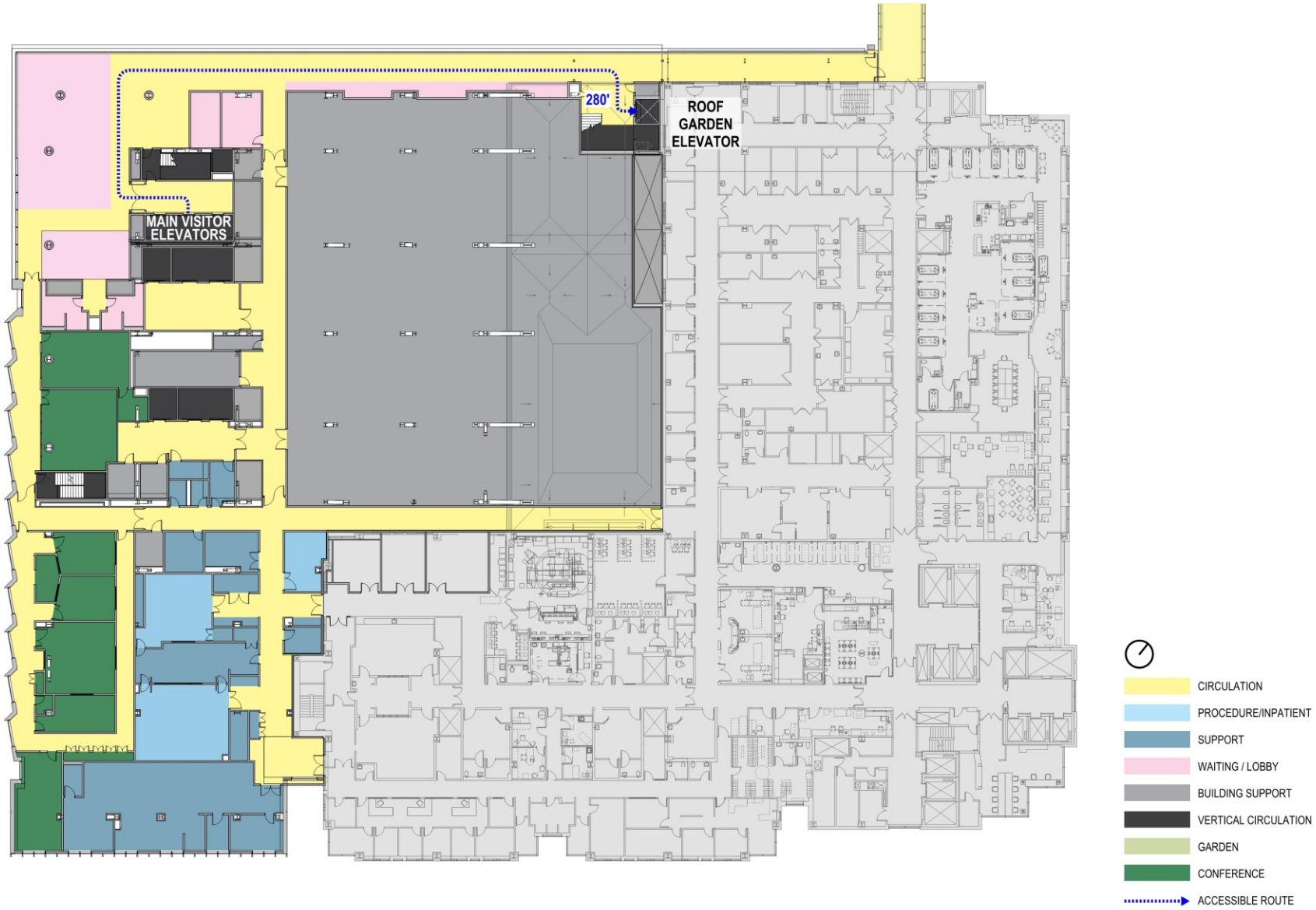


Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Accessible Routes – Level 1

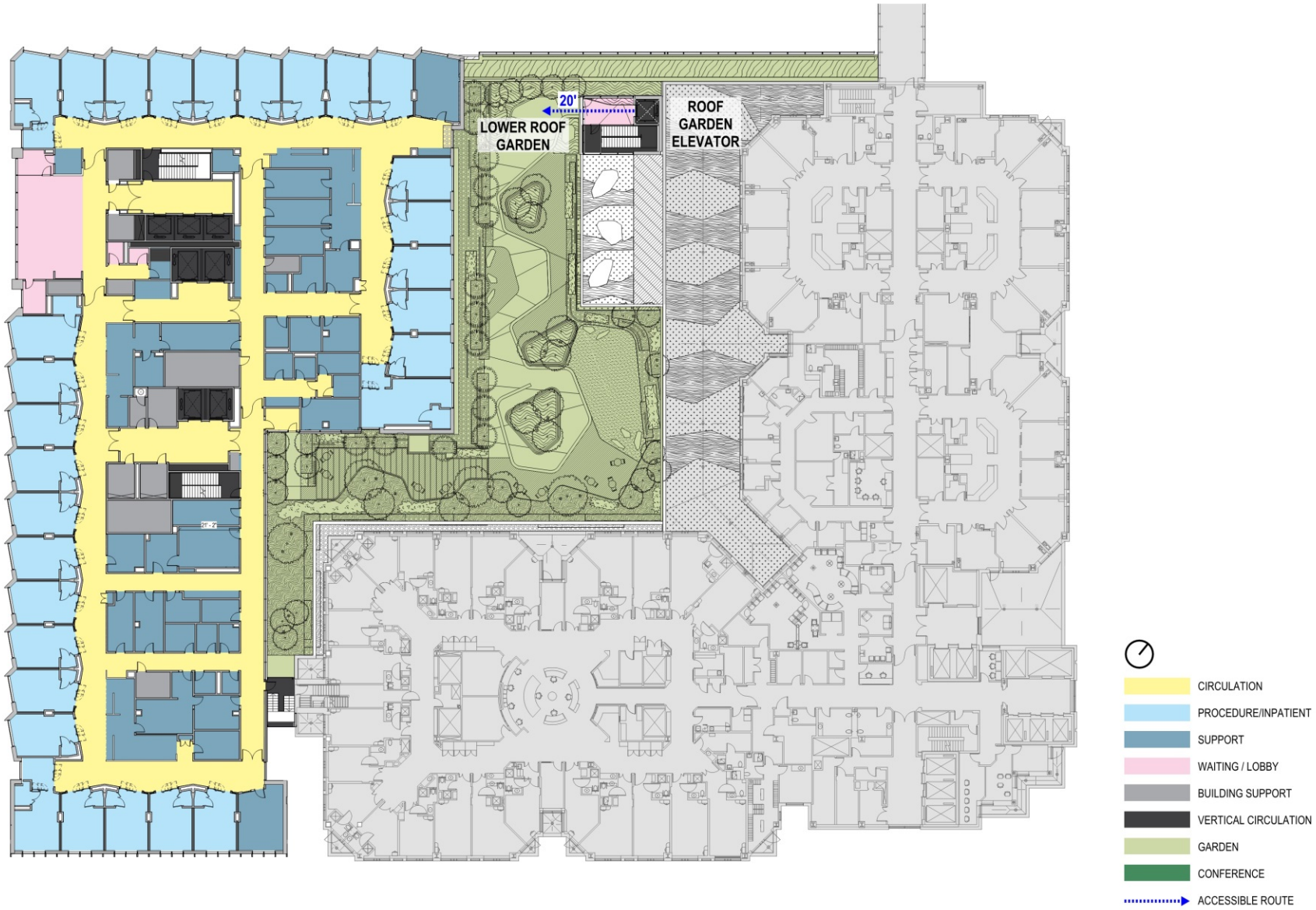


Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Accessible Routes – Level 3



Beth Israel Deaconess Medical Center

PAYETTE

Appendix G

Graphic Analysis of Brookline Avenue

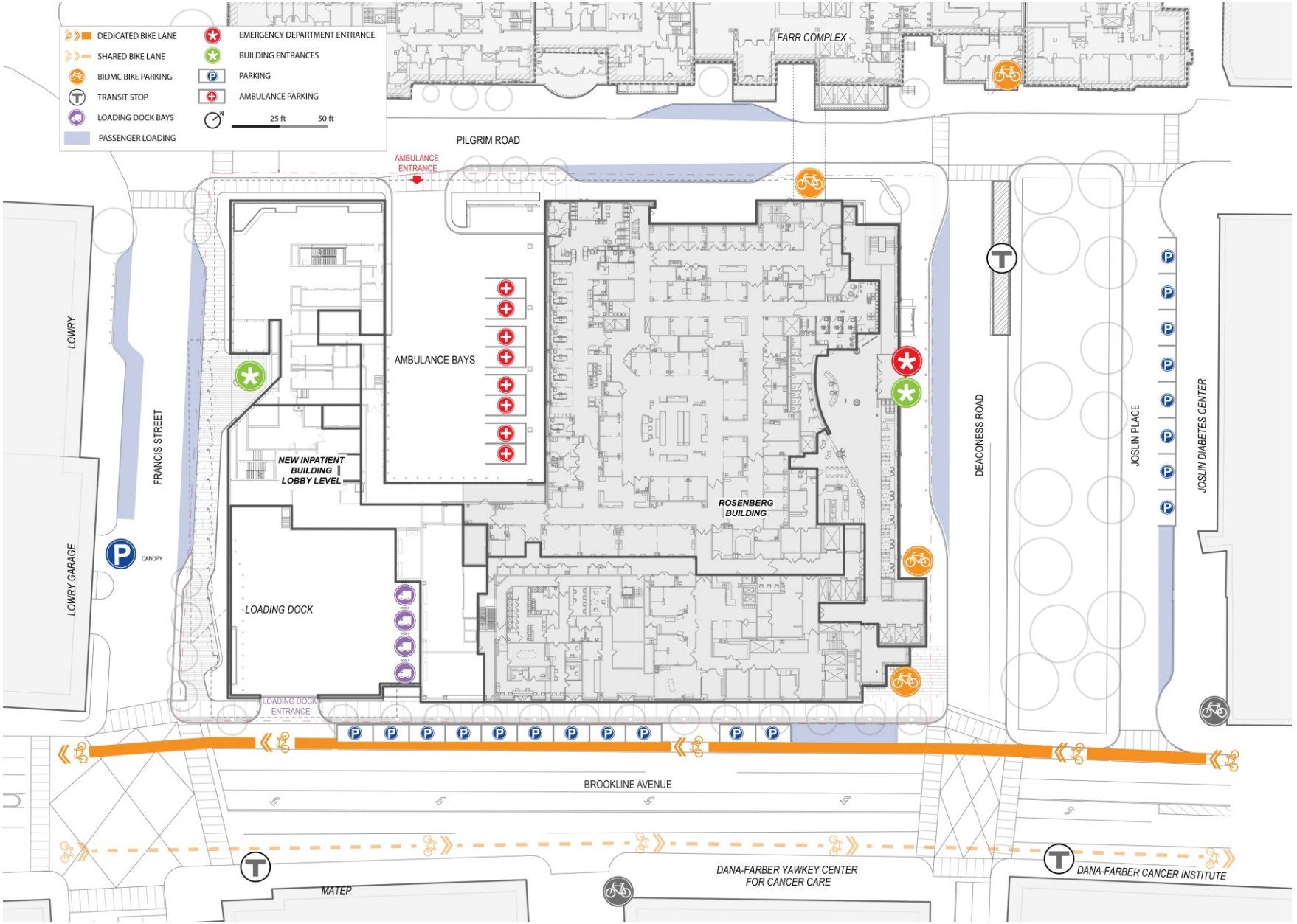


Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Existing Site Plan

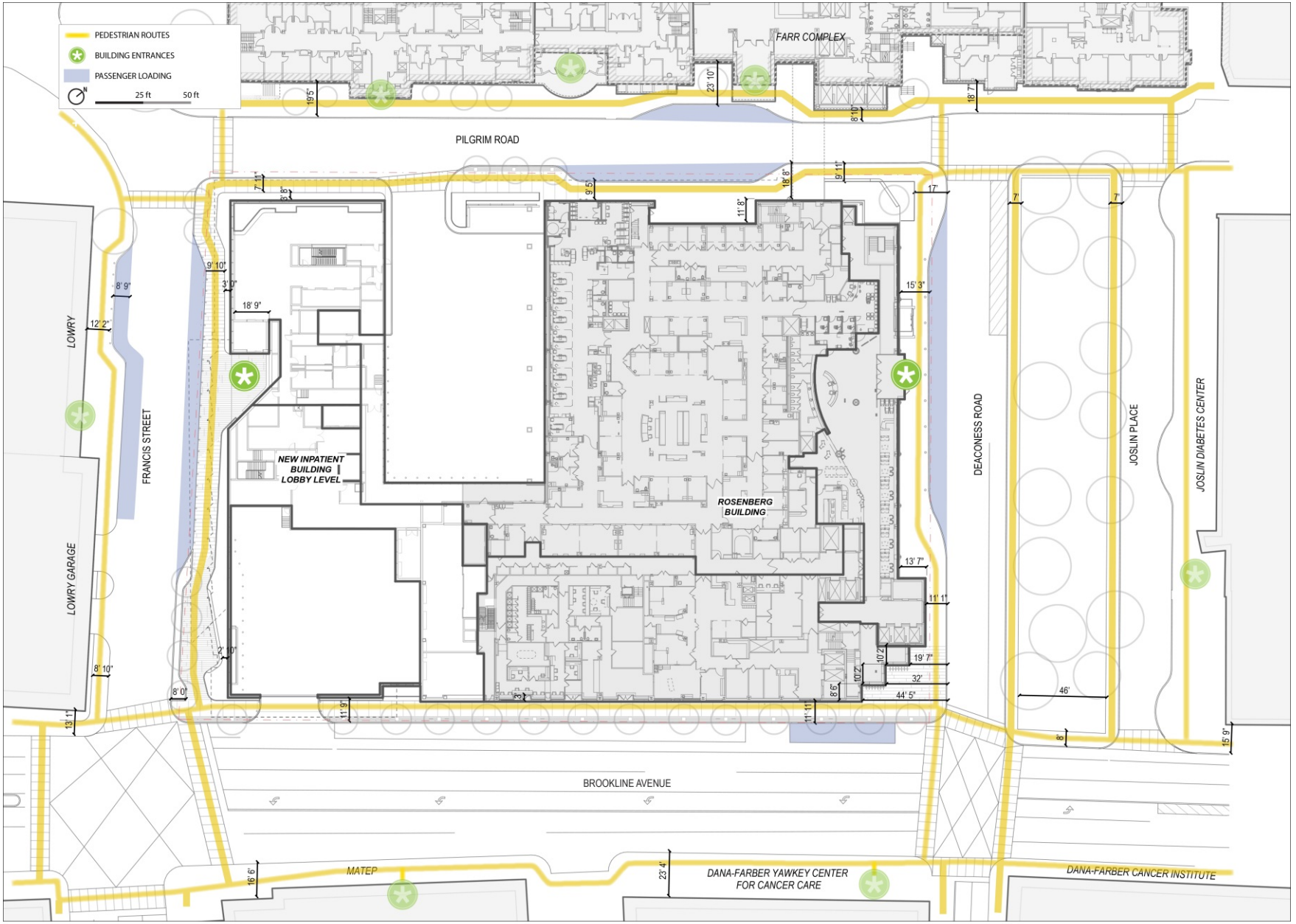


Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Proposed Site Plan

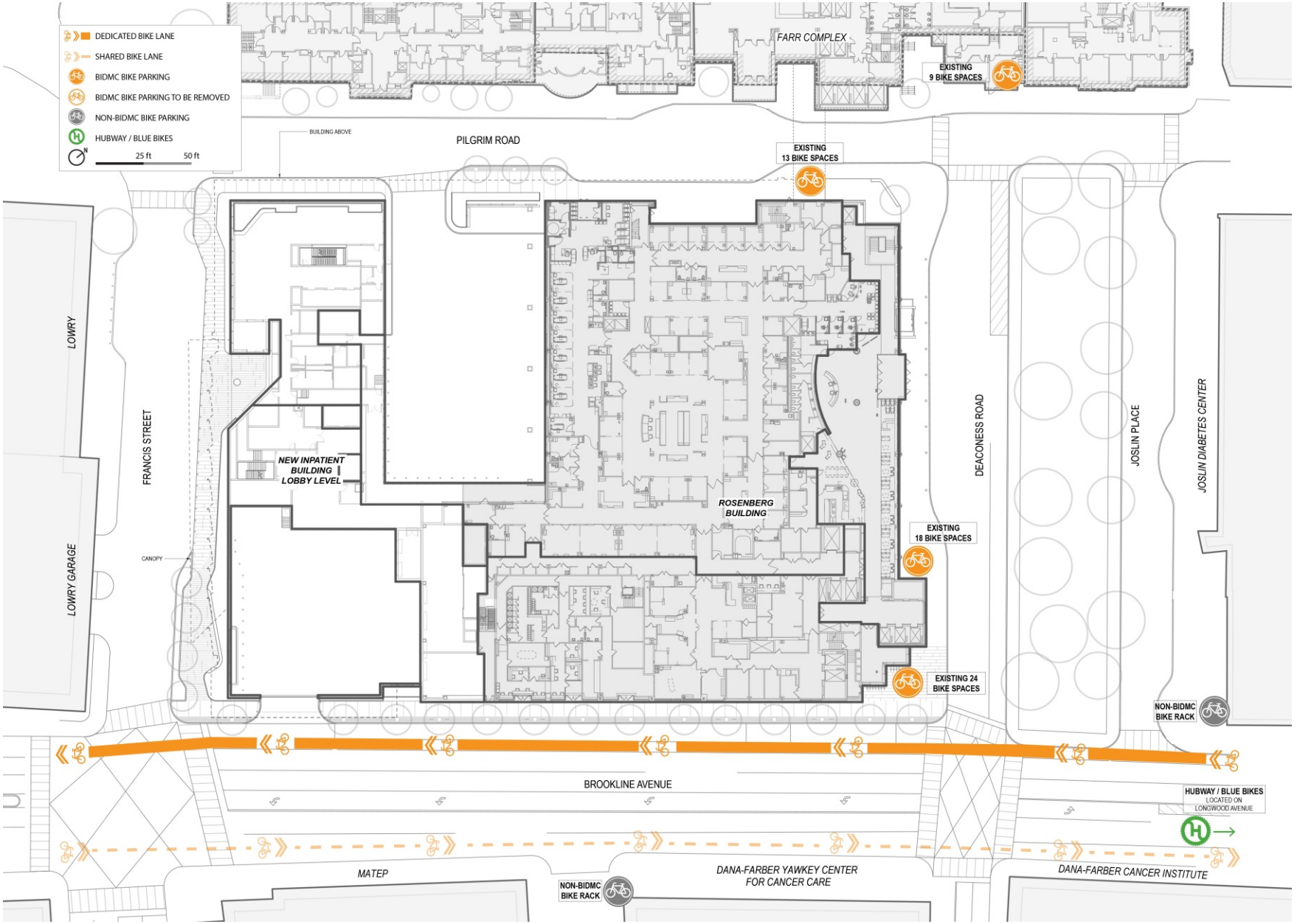


Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Entrances and Pedestrian Routes

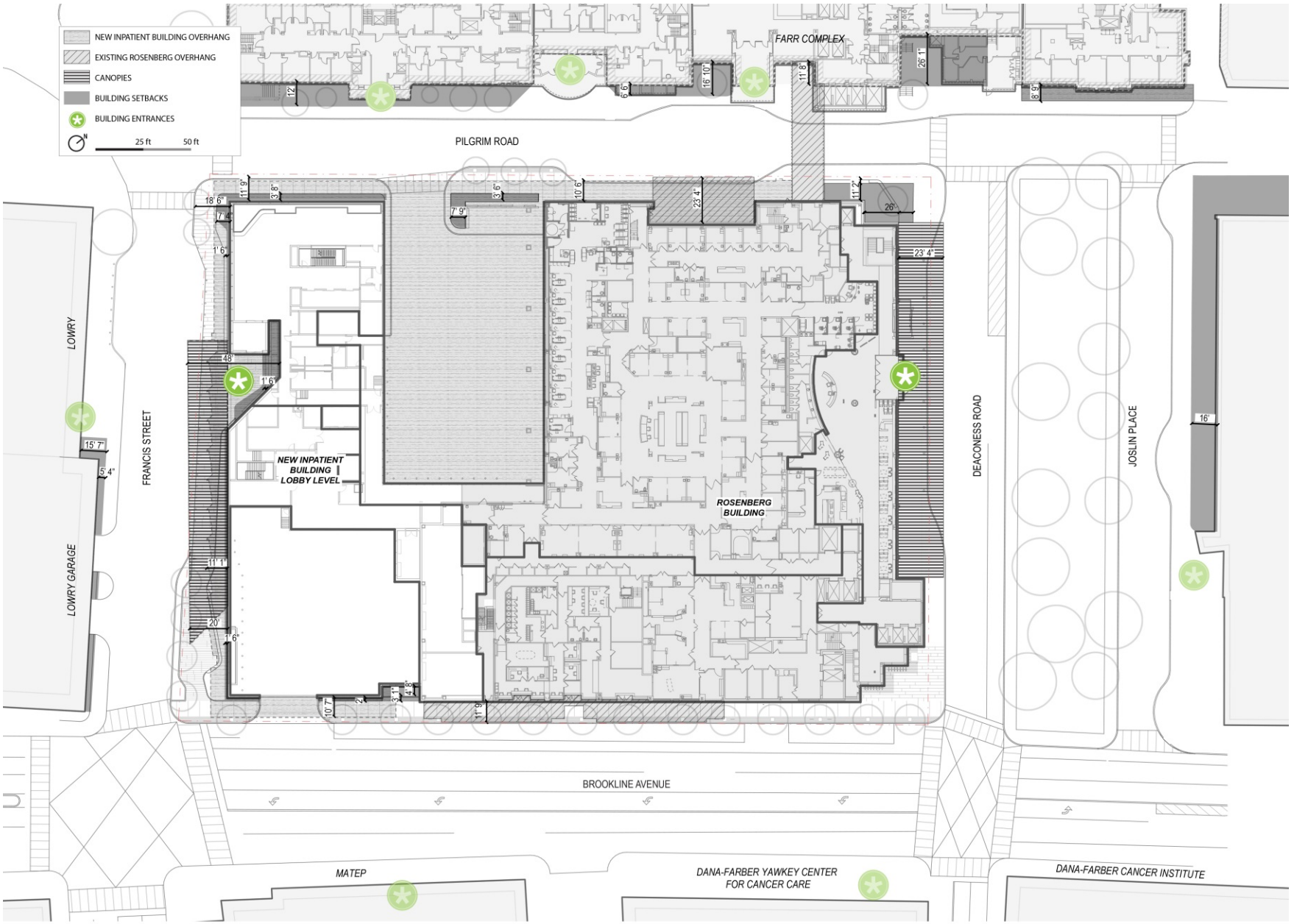


Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Bike Routes and Parking

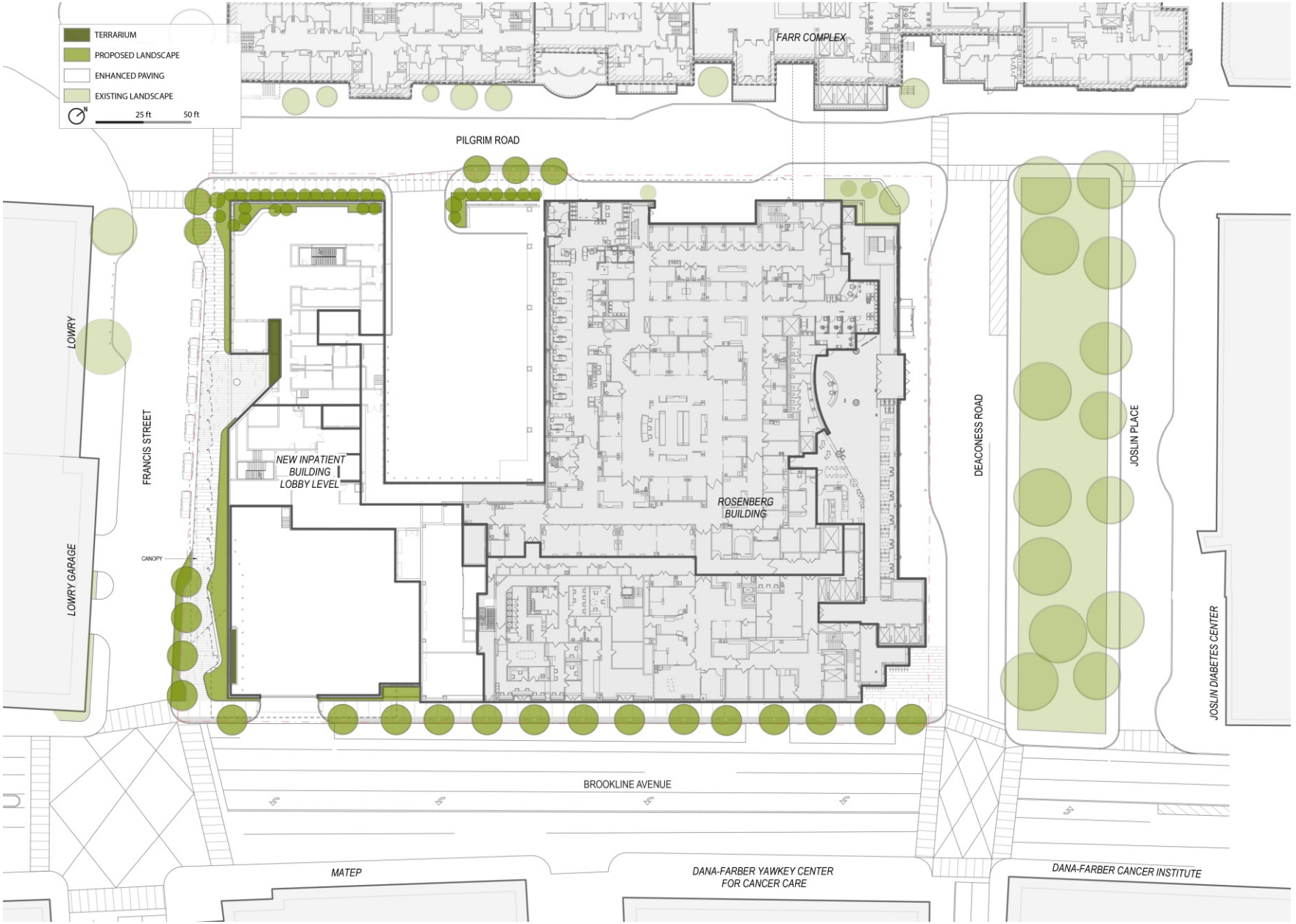


Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Building Overhangs



Beth Israel Deaconess Medical Center

PAYETTE

BIDMC DPIR

Proposed Landscaping