

The Factory at 46 Wareham

PNF Appendix Material



Appendix A

Climate Change Preparedness & Resiliency Checklist

Climate Change Preparedness and Resiliency Checklist for New Construction

In November 2013, in conformance with the Mayor's 2011 Climate Action Leadership Committee's recommendations, the Boston Redevelopment Authority adopted policy for all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding project resiliency, preparedness, and to mitigate any identified adverse impacts that might arise under future climate conditions.

For more information about the City of Boston's climate policies and practices, and the 2011 update of the climate action plan, *A Climate of Progress*, please see the City's climate action web pages at <http://www.cityofboston.gov/climate>

In advance we thank you for your time and assistance in advancing best practices in Boston.

Climate Change Analysis and Information Sources:

1. Northeast Climate Impacts Assessment (www.climatechoices.org/ne/)
2. USGCRP 2009 (<http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/>)
3. Army Corps of Engineers guidance on sea level rise (<http://planning.usace.army.mil/toolbox/library/ECs/EC11652212Nov2011.pdf>)
4. Proceeding of the National Academy of Science, "Global sea level rise linked to global temperature", Vermeer and Rahmstorf, 2009 (<http://www.pnas.org/content/early/2009/12/04/0907765106.full.pdf>)
5. "Hotspot of accelerated sea-level rise on the Atlantic coast of North America", Asbury H. Sallenger Jr*, Kara S. Doran and Peter A. Howd, 2012 ([http://www.bostonredevelopmentauthority.org/planning/Hotspot of Accelerated Sea-level Rise 2012.pdf](http://www.bostonredevelopmentauthority.org/planning/Hotspot%20of%20Accelerated%20Sea-level%20Rise%202012.pdf))
6. "Building Resilience in Boston": Best Practices for Climate Change Adaptation and Resilience for Existing Buildings, Linnean Solutions, The Built Environment Coalition, The Resilient Design Institute, 2103 (http://www.greenribboncommission.org/downloads/Building_Resilience_in_Boston_SML.pdf)

Checklist

Please respond to all of the checklist questions to the fullest extent possible. For projects that respond "Yes" to any of the D.1 – Sea-Level Rise and Storms, Location Description and Classification questions, please respond to all of the remaining Section D questions.

Checklist responses are due at the time of initial project filing or Notice of Project Change and final filings just prior seeking Final BRA Approval. A PDF of your response to the Checklist should be submitted to the Boston Redevelopment Authority via your project manager.

Please Note: When initiating a new project, please visit the BRA web site for the most current [Climate Change Preparedness & Resiliency Checklist](#).

Climate Change Resiliency and Preparedness Checklist

A.1 - Project Information

Project Name:	The Factory at 46 Wareham
Project Address Primary:	46 Wareham St., Boston, MA 02118
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	John Holland, President, Holland Development, LLC John.holland@thehollandcompanies.com

A.2 - Team Description

Owner / Developer:	John Holland, Holland Development
Architect:	Hacin + Associates
Engineer (building systems):	RW Sullivan
Sustainability / LEED:	Holland Development
Permitting:	Holland Construction
Construction Management:	Holland Construction
Climate Change Expert:	

A.3 - Project Permitting and Phase

At what phase is the project – most recent completed submission at the time of this response?

PNF / Expanded PNF Submission	Draft / Final Project Impact Report Submission	BRA Board Approved	Notice of Project Change
Planned Development Area	BRA Final Design Approved	Under Construction	Construction just completed:

A.4 - Building Classification and Description

List the principal Building Uses:	Mixed Use/ Commercial & residential
List the First Floor Uses:	Commercial & residential lobby

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

Wood Frame	Masonry	Steel Frame	Concrete
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Describe the building?

Site Area:	16,752 SF	Building Area:	62,215SF
Building Height:	69'-9" Ft.	Number of Stories:	7 Flrs.
First Floor Elevation (reference Boston City Base):	17.25'	Are there below grade spaces/levels, if yes how many:	Yes No / Number of Levels 1

A.5 - Green Building

Which LEED Rating System(s) and version has or will your project use (by area for multiple rating systems)?

Select by Primary Use:	New Construction	Core & Shell	Healthcare	Schools
	Retail	Homes Midrise	Homes	Other
Select LEED Outcome:	Certified	Silver	Gold	Platinum

Will the project be USGBC Registered and / or USGBC Certified?

Registered:	Yes / No	Certified:	Yes / No

A.6 - Building Energy

What are the base and peak operating energy loads for the building?

Electric:	(kW)	Heating:	(MMBtu/hr)
What is the planned building Energy Use Intensity:	(kbut/SF or kWh/SF)	Cooling:	(Tons/hr)

What are the peak energy demands of your critical systems in the event of a service interruption?

Electric:	(kW)	Heating:	(MMBtu/hr)
		Cooling:	(Tons/hr)

What is nature and source of your back-up / emergency generators?

Electrical Generation:	(kW)	Fuel Source:	
System Type and Number of Units:	Combustion Engine	Gas Turbine	Combine Heat and Power (Units)

B - Extreme Weather and Heat Events

Climate change will result in more extreme weather events including higher year round average temperatures, higher peak temperatures, and more periods of extended peak temperatures. The section explores how a project responds to higher temperatures and heat waves.

B.1 - Analysis

What is the full expected life of the project?

Select most appropriate:	10 Years	25 Years	50 Years	75 Years
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What is the full expected operational life of key building systems (e.g. heating, cooling, ventilation)?

Select most appropriate:	10 Years	25 Years	50 Years	75 Years
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What time span of future Climate Conditions was considered?

Select most appropriate:	10 Years	25 Years	50 Years	75 Years
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Analysis Conditions - What range of temperatures will be used for project planning – Low/High?

Deg.

What Extreme Heat Event characteristics will be used for project planning – Peak High, Duration, and Frequency?

Deg.	Days	Events / yr.
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What Drought characteristics will be used for project planning – Duration and Frequency?

Days	Events / yr.
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What Extreme Rain Event characteristics will be used for project planning – Seasonal Rain Fall, Peak Rain Fall, and Frequency of Events per year?

Inches / yr.	Inches	Events / yr.
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What Extreme Wind Storm Event characteristics will be used for project planning – Peak Wind Speed, Duration of Storm Event, and Frequency of Events per year?

Peak Wind	Hours	Events / yr.
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B.2 - Mitigation Strategies

What will be the overall energy performance, based on use, of the project and how will performance be determined?

Building energy use below code:

%

How is performance determined:

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

Select all appropriate:

High performance building envelop	High performance lighting & controls	Building day lighting	EnergyStar equip. / appliances
High performance HVAC equipment	Energy recovery ventilation	No active cooling	No active heating

Describe any added measures:

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What are the insulation (R) values for building envelop elements?

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

What specific measures will the project employ to reduce building energy demands on the utilities and infrastructure?

On-site clean energy / CHP system(s)	Building-wide power dimming	Thermal energy storage systems	Ground source heat pump
On-site Solar PV	On-site Solar Thermal	Wind power	None

Describe any added measures:

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Will the project employ Distributed Energy / Smart Grid Infrastructure and /or Systems?

Select all appropriate:

Connected to local distributed	Building will be Smart Grid ready	Connected to distributed steam,	Distributed thermal energy
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electrical		hot, chilled water	ready
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Will the building remain operable without utility power for an extended period?

Yes / No	If yes, for how long:	Days
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If Yes, is building "Islandable"?

If Yes, describe strategies:

Describe any non-mechanical strategies that will support building functionality and use during an extended interruption(s) of utility services and infrastructure:

Select all appropriate:

Solar oriented – longer south walls	Prevailing winds oriented	External shading devices	Tuned glazing,
Building cool zones	Operable windows	Natural ventilation	Building shading
Potable water for drinking / food preparation	Potable water for sinks / sanitary systems	Waste water storage capacity	High Performance Building Envelop

Describe any added measures:

What measures will the project employ to reduce urban heat-island effect?

Select all appropriate:

High reflective paving materials	Shade trees & shrubs	High reflective roof materials	Vegetated roofs
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Describe other strategies:

What measures will the project employ to accommodate rain events and more rain fall?

Select all appropriate:

On-site retention systems & ponds	Infiltration galleries & areas	vegetated water capture systems	Vegetated roofs
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Describe other strategies:

What measures will the project employ to accommodate extreme storm events and high winds?

Select all appropriate:

Hardened building structure & elements	Buried utilities & hardened infrastructure	Hazard removal & protective landscapes	Soft & permeable surfaces (water infiltration)
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Describe other strategies:

C - Sea-Level Rise and Storms

Rising Sea-Levels and more frequent Extreme Storms increase the probability of coastal and river flooding and enlarging the extent of the 100 Year Flood Plain. This section explores if a project is or might be subject to Sea-Level Rise and Storm impacts.

C.1 - Location Description and Classification:

Do you believe the building to susceptible to flooding now or during the full expected life of the building?

Yes / No

Describe site conditions?

Site Elevation – Low/High Points:

Boston City Base

	16.1 - 18.2 Elev.(Ft.)	
Building Proximity to Water:	2,000 Ft.	
Is the site or building located in any of the following?		
Coastal Zone:	Yes / No	Velocity Zone: Yes / No
Flood Zone:	Yes / No	Area Prone to Flooding: Yes / No
Will the 2013 Preliminary FEMA Flood Insurance Rate Maps or future floodplain delineation updates due to Climate Change result in a change of the classification of the site or building location?		
2013 FEMA Prelim. FIRMs:	Yes / No	Future floodplain delineation updates: Yes / No
What is the project or building proximity to nearest Coastal, Velocity or Flood Zone or Area Prone to Flooding?		
500 Ft.		

If you answered YES to any of the above Location Description and Classification questions, please complete the following questions. Otherwise you have completed the questionnaire; thank you!

C - Sea-Level Rise and Storms

This section explores how a project responds to Sea-Level Rise and / or increase in storm frequency or severity.

C.2 - Analysis

How were impacts from higher sea levels and more frequent and extreme storm events analyzed:

Sea Level Rise:	Ft.	Frequency of storms:	per year
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C.3 - Building Flood Proofing

Describe any strategies to limit storm and flood damage and to maintain functionality during an extended periods of disruption.

What will be the Building Flood Proof Elevation and First Floor Elevation:

Flood Proof Elevation:	Boston City Base Elev.(Ft.)	First Floor Elevation:	Boston City Base Elev. (Ft.)
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Will the project employ temporary measures to prevent building flooding (e.g. barricades, flood gates):

Yes / No	If Yes, to what elevation	Boston City Base Elev. (Ft.)
If Yes, describe:		

What measures will be taken to ensure the integrity of critical building systems during a flood or severe storm event:

Systems located above 1 st Floor.	Water tight utility conduits	Waste water back flow prevention	Storm water back flow prevention
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Were the differing effects of fresh water and salt water flooding considered:

Yes / No

Will the project site / building(s) be accessible during periods of inundation or limited access to transportation:

	Yes / No	If yes, to what height above 100 Year Floodplain:	Boston City Base Elev. (Ft.)
Will the project employ hard and / or soft landscape elements as velocity barriers to reduce wind or wave impacts?			
	Yes / No		
If Yes, describe:			
Will the building remain occupiable without utility power during an extended period of inundation:			
	Yes / No	If Yes, for how long:	days
Describe any additional strategies to addressing sea level rise and or sever storm impacts:			

C.4 - Building Resilience and Adaptability

Describe any strategies that would support rapid recovery after a weather event and accommodate future building changes that respond to climate change:

Will the building be able to withstand severe storm impacts and endure temporary inundation?

Select appropriate:	Yes / No	Hardened / Resilient Ground Floor Construction	Temporary shutters and or barricades	Resilient site design, materials and construction
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Can the site and building be reasonably modified to increase Building Flood Proof Elevation?

Select appropriate:	Yes / No	Surrounding site elevation can be raised	Building ground floor can be raised	Construction been engineered
Describe additional strategies:				

Has the building been planned and designed to accommodate future resiliency enhancements?

Select appropriate:	Yes / No	Solar PV	Solar Thermal	Clean Energy / CHP System(s)
		Potable water storage	Wastewater storage	Back up energy systems & fuel
Describe any specific or additional strategies:				

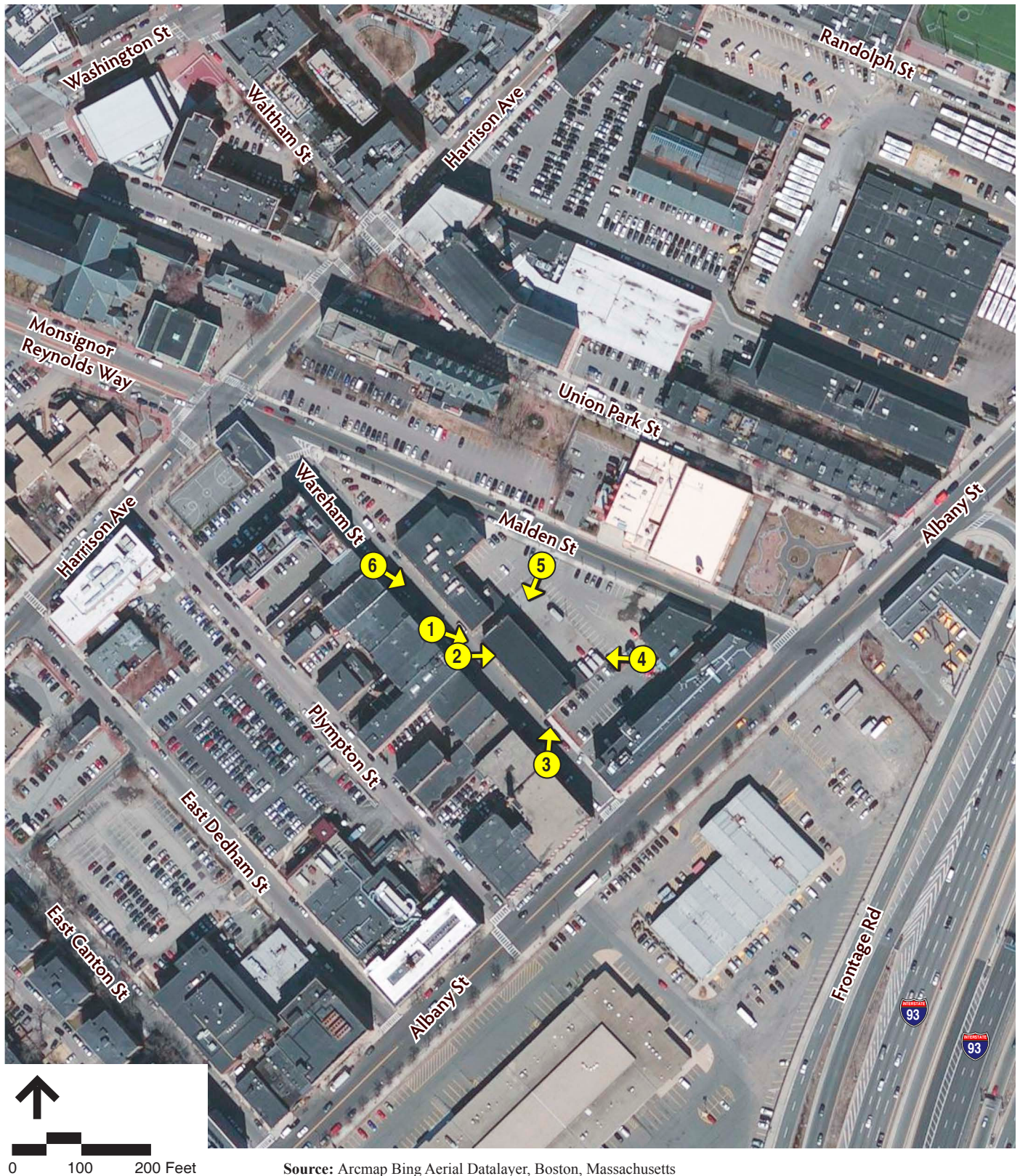
Thank you for completing the Boston Climate Change Resilience and Preparedness Checklist!

For questions or comments about this checklist or Climate Change Resiliency and Preparedness best practices, please contact: John.Dalzell.BRA@cityofboston.gov



Appendix B

Historic Resources Photographs



Vanasse Hangen Brustlin, Inc.

Site Photos Location Map

Figure



1. New England Organ Co., 46 Wareham Street, Boston, MA. View of 46 Wareham, on left hand side of photo, Photographer facing SE, May 2014.



2. New England Organ Co., 46 Wareham Street, Boston, MA. View of west side and partial south side (front) of building, Photographer facing E, May 2014.



3. New England Organ Co., 46 Wareham Street, Boston, MA. View of partial south (front) and east side of building, Photographer facing NW, May 2014.



4. New England Organ Co., 46 Wareham Street, Boston, MA. View of east and partial rear (north) side of building, Photographer facing SW, May 2014.



5. New England Organ Co., 46 Wareham Street, Boston, MA. View of rear (north) and partial west elevations, Photographer facing SE, May 2014.



6. New England Organ Co., 46 Wareham Street, Boston, MA. View of Wareham Street, with 46 Wareham at left rear of photo, Photographer facing SE, May 2014.



Appendix C

Transportation

- **Observed Traffic Volume Data**
 - Turning Movement Counts (TMCs)
 - Automatic Traffic Recorder (ATR)
- **Synchro Level of Service (LOS)**
 - 2014 Existing Conditions
 - 2019 No Build Conditions
 - 2019 Build Conditions
- **Trip Generation**
- **Crash/Accident Analysis**
 - Vehicular Crash Summary (2008-2010)

Observed Traffic Volume Data



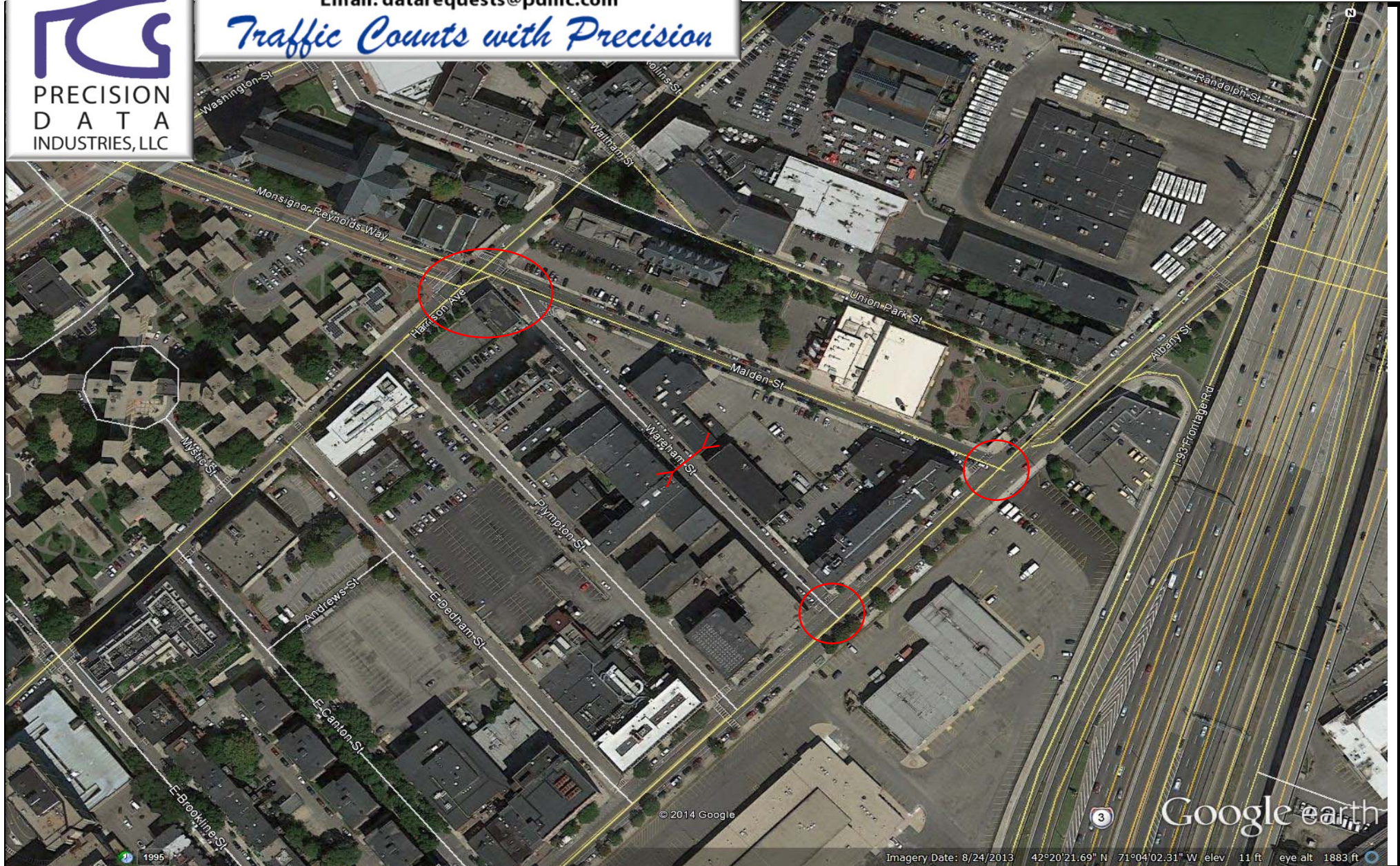
PRECISION
DATA
INDUSTRIES, LLC

PRECISION DATA INDUSTRIES, LLC

Office: 508.481.3999 Fax: 508.545.1234

Email: datarequests@pdillc.com

Traffic Counts with Precision



Client:
VHB

Engineer:
E. Orlando

Site Code:

Date:
Wed 5/7 thru Thurs 5/8/14

PDI Job Number:
143880

City, State:
Boston, MA

Wareham Street
north of #46 Wareham Street
City, State: Boston, MA
Client: VHB/ L. Orlando



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

143880 A Volume
Site Code: 12734.00
Date Start: 07-May-14

Start Time	A.M.	SB	P.M.	Wed 07-May-14										
12:00	3		28											
12:15	3		23											
12:30	2		11											
12:45	1	9	23	85										
01:00	0		17											
01:15	0		23											
01:30	1		20											
01:45	1	2	23	83										
02:00	1		17											
02:15	0		22											
02:30	0		32											
02:45	2	3	21	92										
03:00	2		22											
03:15	1		32											
03:30	2		43											
03:45	0	5	30	127										
04:00	1		30											
04:15	0		25											
04:30	1		33											
04:45	1	3	35	123										
05:00	4		39											
05:15	6		29											
05:30	7		30											
05:45	5	22	24	122										
06:00	7		23											
06:15	8		22											
06:30	13		12											
06:45	15	43	13	70										
07:00	16		11											
07:15	13		16											
07:30	22		7											
07:45	16	67	12	46										
08:00	27		6											
08:15	31		12											
08:30	24		6											
08:45	24	106	8	32										
09:00	21		4											
09:15	20		8											
09:30	27		6											
09:45	26	94	5	23										
10:00	18		11											
10:15	18		7											
10:30	21		5											
10:45	25	82	7	30										
11:00	23		2											
11:15	19		3											
11:30	36		3											
11:45	39	117	5	13										
Total	553		846											
Percent			100.0 %	0.0%										
Day Total		1399												
Peak	11:00	-	04:30	-	-	-	-	-	-	-	-	-	-	-
Vol.	117	-	136	-	-	-	-	-	-	-	-	-	-	-
P.H.F.	0.750		0.791											

Wareham Street
north of #46 Wareham Street
City, State: Boston, MA
Client: VHB/ L. Orlando



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

143880 A Volume
Site Code: 12734.00
Date Start: 07-May-14

Start	SB			Thu 08-May-14										
Time	A.M.		P.M.											
12:00	2		17											
12:15	1		18											
12:30	3		21											
12:45	0	6	19	75										
01:00	2		23											
01:15	0		22											
01:30	0		17											
01:45	1	3	20	82										
02:00	2		18											
02:15	0		25											
02:30	0		21											
02:45	3	5	25	89										
03:00	1		34											
03:15	2		27											
03:30	2		40											
03:45	1	6	24	125										
04:00	2		30											
04:15	0		32											
04:30	4		30											
04:45	1	7	27	119										
05:00	2		31											
05:15	5		40											
05:30	4		35											
05:45	8	19	22	128										
06:00	10		28											
06:15	8		22											
06:30	10		25											
06:45	14	42	21	96										
07:00	12		23											
07:15	14		23											
07:30	32		12											
07:45	24	82	6	64										
08:00	23		10											
08:15	26		10											
08:30	24		8											
08:45	20	93	5	33										
09:00	25		3											
09:15	26		8											
09:30	26		5											
09:45	18	95	5	21										
10:00	39		4											
10:15	25		4											
10:30	41		4											
10:45	35	140	9	21										
11:00	29		2											
11:15	22		2											
11:30	20		5											
11:45	26	97	4	13										
Total	595		866											
Percent			100.0 %	0.0%	0.0%									
Day Total		1461												
Peak	10:00	-	04:45	-	-	-	-	-	-	-	-	-	-	-
Vol.	140	-	133	-	-	-	-	-	-	-	-	-	-	-
P.H.F.	0.854		0.831											



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N/S: Monsignor Reynolds Way/ Malden St
E/W/SW: Harrison Ave/ Wareham St
City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 A
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Cars - Bus - Heavy Vehicles

Start Time	Monsignor Reynolds Way From North					Harrison Avenue From East					Malden Street From South					Wareham Street From Southwest					Harrison Avenue From West					Int. Total
	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	
07:00 AM	24	4	34	9	0	22	33	4	6	0	19	29	1	1	0	0	1	0	0	0	3	6	18	16	0	230
07:15 AM	27	6	33	8	0	27	21	3	8	0	23	35	3	5	0	2	0	0	0	0	0	3	36	15	0	255
07:30 AM	21	14	39	8	0	25	32	8	13	0	26	43	1	3	0	0	0	0	0	0	0	7	52	19	0	311
07:45 AM	22	10	46	7	0	23	21	3	8	0	27	62	0	5	0	1	1	1	0	0	4	5	37	28	0	311
Total	94	34	152	32	0	97	107	18	35	0	95	169	5	14	0	3	2	1	0	0	7	21	143	78	0	1107
08:00 AM	25	8	42	12	1	19	28	4	7	0	28	47	0	5	0	0	0	0	0	0	6	17	44	27	0	320
08:15 AM	27	14	48	9	0	18	39	5	6	0	23	36	0	1	0	0	0	0	0	0	7	19	34	19	0	305
08:30 AM	22	10	42	10	0	16	33	5	2	0	31	48	0	1	0	0	0	0	0	0	7	8	52	28	0	315
08:45 AM	24	11	42	12	2	20	32	2	5	0	28	45	0	1	0	0	0	0	0	0	2	10	38	18	0	292
Total	98	43	174	43	3	73	132	16	20	0	110	176	0	8	0	0	0	0	0	0	22	54	168	92	0	1232
Grand Total	192	77	326	75	3	170	239	34	55	0	205	345	5	22	0	3	2	1	0	0	29	75	311	170	0	2339
Apprch %	28.5	11.4	48.4	11.1	0.4	34.1	48	6.8	11	0	35.5	59.8	0.9	3.8	0	50	33.3	16.7	0	0	5	12.8	53.2	29.1	0	
Total %	8.2	3.3	13.9	3.2	0.1	7.3	10.2	1.5	2.4	0	8.8	14.7	0.2	0.9	0	0.1	0.1	0	0	0	1.2	3.2	13.3	7.3	0	
Cars	166	71	308	71	3	155	226	34	54	0	197	317	5	21	0	3	2	1	0	0	28	71	297	158	0	2188
% Cars	86.5	92.2	94.5	94.7	100	91.2	94.6	100	98.2	0	96.1	91.9	100	95.5	0	100	100	100	0	0	96.6	94.7	95.5	92.9	0	93.5
Bus	25	1	13	2	0	7	3	0	1	0	1	2	0	0	0	0	0	0	0	0	0	1	6	7	0	69
% Bus	13	1.3	4	2.7	0	4.1	1.3	0	1.8	0	0.5	0.6	0	0	0	0	0	0	0	0	0	1.3	1.9	4.1	0	2.9
Heavy Vehicles	1	5	5	2	0	8	10	0	0	0	7	26	0	1	0	0	0	0	0	0	1	3	8	5	0	82
% Heavy Vehicles	0.5	6.5	1.5	2.7	0	4.7	4.2	0	0	0	3.4	7.5	0	4.5	0	0	0	0	0	0	3.4	4	2.6	2.9	0	3.5

Start Time	Monsignor Reynolds Way From North						Harrison Avenue From East						Malden Street From South						Wareham Street From Southwest						Harrison Avenue From West						Int. Total
	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 07:45 AM																															
07:45 AM	22	10	46	7	0	85	23	21	3	8	0	55	27	62	0	5	0	94	1	1	1	0	0	3	4	5	37	28	0	74	311
08:00 AM	25	8	42	12	1	88	19	28	4	7	0	58	28	47	0	5	0	80	0	0	0	0	0	0	6	17	44	27	0	94	320
08:15 AM	27	14	48	9	0	98	18	39	5	6	0	68	23	36	0	1	0	60	0	0	0	0	0	0	7	19	34	19	0	79	305
08:30 AM	22	10	42	10	0	84	16	33	5	2	0	56	31	48	0	1	0	80	0	0	0	0	0	0	7	8	52	28	0	95	315
Total Volume	96	42	178	38	1	355	76	121	17	23	0	237	109	193	0	12	0	314	1	1	1	0	0	3	24	49	167	102	0	342	1251
% App. Total	27	11.8	50.1	10.7	0.3		32.1	51.1	7.2	9.7	0		34.7	61.5	0	3.8	0		33.3	33.3	33.3	0	0		7	14.3	48.8	29.8	0		
PHF	.889	.750	.927	.792	.250	.906	.826	.776	.850	.719	.000	.871	.879	.778	.000	.600	.000	.835	.250	.250	.250	.000	.000	.250	.857	.645	.803	.911	.000	.900	.977
Cars	84	39	167	37	1	328	70	114	17	23	0	224	106	174	0	12	0	292	1	1	1	0	0	3	24	45	158	94	0	321	1168
% Cars	87.5	92.9	93.8	97.4	100	92.4	92.1	94.2	100	100	0	94.5	97.2	90.2	0	100	0	93.0	100	100	100	0	0	100	100	91.8	94.6	92.2	0	93.9	93.4
Bus	12	1	8	0	0	21	3	2	0	0	0	5	0	1	0	0	0	1	0	0	0	0	0	0	0	1	3	4	0	8	35
% Bus	12.5	2.4	4.5	0	0	5.9	3.9	1.7	0	0	0	2.1	0	0.5	0	0	0	0.3	0	0	0	0	0	0	0	2.0	1.8	3.9	0	2.3	2.8
Heavy Vehicles	0	2	3	1	0	6	3	5	0	0	0	8	3	18	0	0	0	21	0	0	0	0	0	0	0	3	6	4	0	13	48
% Heavy Vehicles	0	4.8	1.7	2.6	0	1.7	3.9	4.1	0	0	0	3.4	2.8	9.3	0	0	0	6.7	0	0	0	0	0	0	0	6.1	3.6	3.9	0	3.8	3.8



PRECISION
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N/S: Monsignor Reynolds Way/Malden St
E/W/SW: Harrison Ave/ Wareham St
City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 A
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Cars

Start Time	Monsignor Reynolds Way From North					Harrison Avenue From East					Malden Street From South					Wareham Street From Southwest					Harrison Avenue From West					Int. Total
	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	
07:00 AM	19	2	33	7	0	21	30	4	6	0	16	26	1	0	0	0	1	0	0	0	2	6	18	15	0	207
07:15 AM	24	6	31	8	0	26	20	3	8	0	22	33	3	5	0	2	0	0	0	0	0	3	32	13	0	239
07:30 AM	20	13	38	8	0	23	31	8	12	0	26	42	1	3	0	0	0	0	0	0	0	7	51	19	0	302
07:45 AM	20	10	44	7	0	23	20	3	8	0	25	58	0	5	0	1	1	1	0	0	4	4	35	26	0	295
Total	83	31	146	30	0	93	101	18	34	0	89	159	5	13	0	3	2	1	0	0	6	20	136	73	0	1043
08:00 AM	21	7	36	12	1	18	26	4	7	0	28	44	0	5	0	0	0	0	0	0	6	16	43	26	0	300
08:15 AM	24	12	46	8	0	16	35	5	6	0	23	32	0	1	0	0	0	0	0	0	7	19	32	17	0	283
08:30 AM	19	10	41	10	0	13	33	5	2	0	30	40	0	1	0	0	0	0	0	0	7	6	48	25	0	290
08:45 AM	19	11	39	11	2	15	31	2	5	0	27	42	0	1	0	0	0	0	0	0	2	10	38	17	0	272
Total	83	40	162	41	3	62	125	16	20	0	108	158	0	8	0	0	0	0	0	0	22	51	161	85	0	1145
Grand Total	166	71	308	71	3	155	226	34	54	0	197	317	5	21	0	3	2	1	0	0	28	71	297	158	0	2188
Apprch %	26.8	11.5	49.8	11.5	0.5	33	48.2	7.2	11.5	0	36.5	58.7	0.9	3.9	0	50	33.3	16.7	0	0	5.1	12.8	53.6	28.5	0	
Total %	7.6	3.2	14.1	3.2	0.1	7.1	10.3	1.6	2.5	0	9	14.5	0.2	1	0	0.1	0.1	0	0	0	1.3	3.2	13.6	7.2	0	

Start Time	Monsignor Reynolds Way From North					Harrison Avenue From East					Malden Street From South					Wareham Street From Southwest					Harrison Avenue From West					Int. Total
	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	
07:30 AM	20	13	38	8	0	23	31	8	12	0	26	42	1	3	0	0	0	0	0	0	0	7	51	19	0	302
07:45 AM	20	10	44	7	0	23	20	3	8	0	25	58	0	5	0	1	1	1	0	0	4	4	35	26	0	295
08:00 AM	21	7	36	12	1	18	26	4	7	0	28	44	0	5	0	0	0	0	0	0	6	16	43	26	0	300
08:15 AM	24	12	46	8	0	16	35	5	6	0	23	32	0	1	0	0	0	0	0	0	7	19	32	17	0	283
Total Volume	85	42	164	35	1	80	112	20	33	0	102	176	1	14	0	1	1	1	0	0	17	46	161	88	0	1180
% App. Total	26	12.8	50.2	10.7	0.3	32.7	45.7	8.2	13.5	0	34.8	60.1	0.3	4.8	0	33.3	33.3	33.3	0	0	5.4	14.7	51.6	28.2	0	
PHF	.885	.808	.891	.729	.250	.870	.800	.625	.688	.000	.911	.759	.250	.700	.000	.250	.250	.250	.000	.000	.607	.605	.789	.846	.000	.977

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:30 AM



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E/W/SW: Harrison Ave/ Wareham St
City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 A
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Bus

Start Time	Monsignor Reynolds Way From North					Harrison Avenue From East					Malden Street From South					Wareham Street From Southwest					Harrison Avenue From West					Int. Total
	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	
07:00 AM	5	0	1	2	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	12
07:15 AM	3	0	2	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	1	0	11
07:30 AM	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
07:45 AM	2	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	6
Total	11	0	4	2	0	3	1	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0	4	3	0	32
08:00 AM	4	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	11
08:15 AM	3	1	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	12
08:30 AM	3	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
08:45 AM	4	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	8
Total	14	1	9	0	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	4	0	37
Grand Total	25	1	13	2	0	7	3	0	1	0	1	2	0	0	0	0	0	0	0	0	0	1	6	7	0	69
Apprch %	61	2.4	31.7	4.9	0	63.6	27.3	0	9.1	0	33.3	66.7	0	0	0	0	0	0	0	0	0	7.1	42.9	50	0	
Total %	36.2	1.4	18.8	2.9	0	10.1	4.3	0	1.4	0	1.4	2.9	0	0	0	0	0	0	0	0	0	1.4	8.7	10.1	0	

	Monsignor Reynolds Way From North						Harrison Avenue From East						Malden Street From South						Wareham Street From Southwest						Harrison Avenue From West							
Start Time	Right	Bear Right	Thru	Left	U- Turn	App. Total	Right	Thru	Bear Left	Left	U- Turn	App. Total	Right	Thru	Left	Hard Left	U- Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U- Turn	App. Total	Hard Right	Right	Thru	Left	U- Turn	App. Total	Int. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 08:00 AM																																
08:00 AM	4	0	4	0	0	8	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	11
08:15 AM	3	1	2	0	0	6	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4	12
08:30 AM	3	0	1	0	0	4	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	6
08:45 AM	4	0	2	0	0	6	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	8
Total Volume	14	1	9	0	0	24	4	2	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	4	0	7	37
% App. Total	58.3	4.2	37.5	0	0		66.7	33.3	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	14.3	28.6	57.1	0		
PHF	.875	.250	.563	.000	.000	.750	.500	.500	.000	.000	.000	.750	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.500	.000	.438	.771

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



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E/W/SW: Harrison Ave/ Wareham St
City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 A
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Monsignor Reynolds Way From North					Harrison Avenue From East					Malden Street From South					Wareham Street From Southwest					Harrison Avenue From West					Int. Total
	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	
07:00 AM	0	2	0	0	0	0	2	0	0	0	3	2	0	1	0	0	0	0	0	0	1	0	0	0	0	11
07:15 AM	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	5
07:30 AM	0	1	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	6
07:45 AM	0	0	1	0	0	0	1	0	0	0	2	3	0	0	0	0	0	0	0	0	0	1	1	1	0	10
Total	0	3	2	0	0	1	5	0	0	0	5	8	0	1	0	0	0	0	0	0	1	1	3	2	0	32
08:00 AM	0	1	2	0	0	1	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	9
08:15 AM	0	1	0	1	0	1	3	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	10
08:30 AM	0	0	0	0	0	1	0	0	0	0	1	8	0	0	0	0	0	0	0	0	0	2	4	3	0	19
08:45 AM	1	0	1	1	0	4	1	0	0	0	1	3	0	0	0	0	0	0	0	0	0	2	0	0	0	12
Total	1	2	3	2	0	7	5	0	0	0	2	18	0	0	0	0	0	0	0	0	0	2	5	3	0	50
Grand Total	1	5	5	2	0	8	10	0	0	0	7	26	0	1	0	0	0	0	0	0	1	3	8	5	0	82
Apprch %	7.7	38.5	38.5	15.4	0	44.4	55.6	0	0	0	20.6	76.5	0	2.9	0	0	0	0	0	0	5.9	17.6	47.1	29.4	0	
Total %	1.2	6.1	6.1	2.4	0	9.8	12.2	0	0	0	8.5	31.7	0	1.2	0	0	0	0	0	0	1.2	3.7	9.8	6.1	0	

Start Time	Monsignor Reynolds Way From North					Harrison Avenue From East					Malden Street From South					Wareham Street From Southwest					Harrison Avenue From West					Int. Total
	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	
07:00 AM	0	2	0	0	0	0	2	0	0	0	3	2	0	1	0	0	0	0	0	0	1	0	0	0	0	11
07:15 AM	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	5
07:30 AM	0	1	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	6
07:45 AM	0	0	1	0	0	0	1	0	0	0	2	3	0	0	0	0	0	0	0	0	0	1	1	1	0	10
Total	0	3	2	0	0	1	5	0	0	0	5	8	0	1	0	0	0	0	0	0	1	1	3	2	0	32
08:00 AM	0	1	2	0	0	1	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	9
08:15 AM	0	1	0	1	0	1	3	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	10
08:30 AM	0	0	0	0	0	1	0	0	0	0	1	8	0	0	0	0	0	0	0	0	0	2	4	3	0	19
08:45 AM	1	0	1	1	0	4	1	0	0	0	1	3	0	0	0	0	0	0	0	0	0	2	0	0	0	12
Total	1	2	3	2	0	7	5	0	0	0	2	18	0	0	0	0	0	0	0	0	0	2	5	3	0	50
Total Volume	12.5	25	37.5	25	0	58.3	41.7	0	0	0	10	90	0	0	0	0	0	0	0	0	0	20	50	30	0	
% App. Total	.250	.500	.375	.500	.000	.438	.417	.000	.000	.000	.556	.556	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.313	.250	.000	
PHF	.250	.500	.375	.500	.000	.438	.417	.000	.000	.000	.556	.556	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.313	.250	.000	

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



PRECISION
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File Name : 143880 A
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Monsignor Reynolds Way From North					Harrison Avenue From East					Malden Street From South					Wareham Street From Southwest					Harrison Avenue From West					Int. Total
	Right	Bear Right	Thru	Left	Peds	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Hard Right	Right	Thru	Left	Peds	
07:00 AM	0	0	0	0	12	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	17
07:15 AM	0	0	0	1	10	0	0	0	0	2	0	1	0	0	2	0	0	0	0	0	0	0	0	2	2	20
07:30 AM	0	0	0	0	8	0	2	0	0	1	0	0	0	0	2	0	1	0	0	0	0	1	3	0	2	20
07:45 AM	0	0	0	0	6	0	1	0	0	4	0	0	1	0	2	0	0	0	0	0	0	0	1	0	7	22
Total	0	0	0	1	36	0	3	0	0	10	0	1	1	0	7	0	1	0	0	0	0	1	4	2	12	79
08:00 AM	2	2	1	0	18	0	2	0	0	5	0	0	0	0	2	0	0	0	0	0	0	1	0	0	2	35
08:15 AM	0	0	0	0	15	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	0	2	2	4	28
08:30 AM	2	1	1	0	16	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	1	0	2	0	5	33
08:45 AM	1	0	0	0	24	0	3	0	0	5	0	0	0	0	2	0	0	0	0	0	0	0	1	0	6	42
Total	5	3	2	0	73	0	5	0	0	18	1	0	0	0	5	0	0	0	0	0	1	1	5	2	17	138
Grand Total	5	3	2	1	109	0	8	0	0	28	1	1	1	0	12	0	1	0	0	0	1	2	9	4	29	217
Apprch %	4.2	2.5	1.7	0.8	90.8	0	22.2	0	0	77.8	6.7	6.7	6.7	0	80	0	100	0	0	0	2.2	4.4	20	8.9	64.4	
Total %	2.3	1.4	0.9	0.5	50.2	0	3.7	0	0	12.9	0.5	0.5	0.5	0	5.5	0	0.5	0	0	0	0.5	0.9	4.1	1.8	13.4	

	Monsignor Reynolds Way From North						Harrison Avenue From East						Malden Street From South						Wareham Street From Southwest						Harrison Avenue From West							
Start Time	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Right	Thru	Left	Peds	App. Total	Int. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 08:00 AM																																
08:00 AM	2	2	1	0	18	23	0	2	0	0	5	7	0	0	0	0	2	2	0	0	0	0	0	0	0	0	1	0	0	2	3	35
08:15 AM	0	0	0	0	15	15	0	0	0	0	4	4	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2	2	4	8	28
08:30 AM	2	1	1	0	16	20	0	0	0	0	4	4	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2	0	5	8	33
08:45 AM	1	0	0	0	24	25	0	3	0	0	5	8	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	1	0	6	7	42
Total Volume	5	3	2	0	73	83	0	5	0	0	18	23	1	0	0	0	5	6	0	0	0	0	0	0	0	1	1	5	2	17	26	138
% App. Total	6	3.6	2.4	0	88		0	21.7	0	0	78.3		16.7	0	0	0	83.3		0	0	0	0	0			3.8	3.8	19.2	7.7	65.4		
PHF	.625	.375	.500	.000	.760	.830	.000	.417	.000	.000	.900	.719	.250	.000	.000	.000	.625	.750	.000	.000	.000	.000	.000	.000	.000	.250	.250	.625	.250	.708	.813	.821

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 08:00 AM



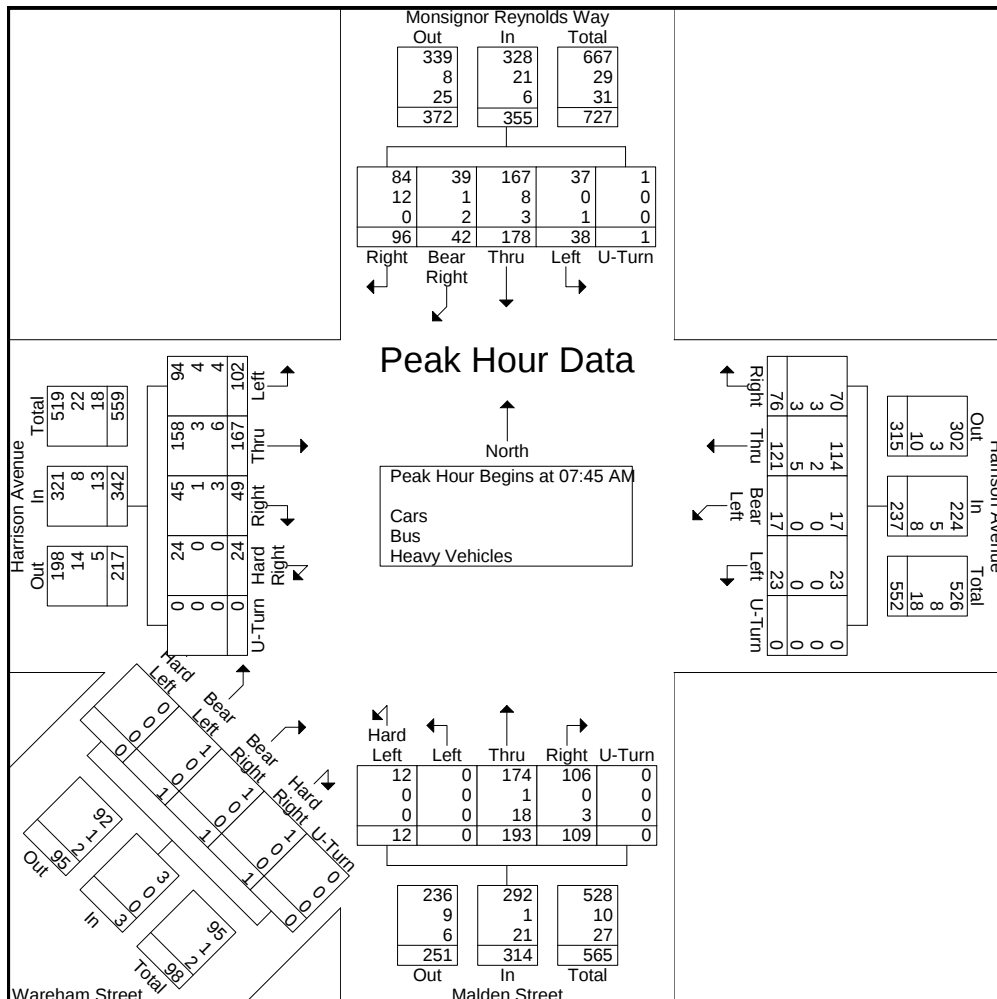
PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N/S: Monsignor Reynolds Way/ Malden St
E/W/SW: Harrison Ave/ Wareham St
City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 A
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

	Monsignor Reynolds Way From North						Harrison Avenue From East						Malden Street From South						Wareham Street From Southwest						Harrison Avenue From West						
Start Time	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 07:45 AM																															
07:45 AM	22	10	46	7	0	85	23	21	3	8	0	55	27	62	0	5	0	94	1	1	1	0	0	3	4	5	37	28	0	74	311
08:00 AM	25	8	42	12	1	88	19	28	4	7	0	58	28	47	0	5	0	80	0	0	0	0	0	0	6	17	44	27	0	94	320
08:15 AM	27	14	48	9	0	98	18	39	5	6	0	68	23	36	0	1	0	60	0	0	0	0	0	0	7	19	34	19	0	79	305
08:30 AM	22	10	42	10	0	84	16	33	5	2	0	56	31	48	0	1	0	80	0	0	0	0	0	0	7	8	52	28	0	95	315
Total Volume	96	42	178	38	1	355	76	121	17	23	0	237	109	193	0	12	0	314	1	1	1	0	0	3	24	49	167	102	0	342	1251
% App. Total	27	11.8	50.1	10.7	0.3		32.1	51.1	7.2	9.7	0		34.7	61.5	0	3.8	0		33.3	33.3	33.3	0	0		7	14.3	48.8	29.8	0		
PHF	.889	.750	.927	.792	.250	.906	.826	.776	.850	.719	.000	.871	.879	.778	.000	.600	.000	.835	.250	.250	.250	.000	.000	.250	.857	.645	.803	.911	.000	.900	.977
Cars	84	39	167	37	1	328	70	114	17	23	0	224	106	174	0	12	0	292	1	1	1	0	0	3	24	45	158	94	0	321	1168
% Cars	87.5	92.9	93.8	97.4	100	92.4	92.1	94.2	100	100	0	94.5	97.2	90.2	0	100	0	93.0	100	100	100	0	0	100	100	91.8	94.6	92.2	0	93.9	93.4
Bus	12	1	8	0	0	21	3	2	0	0	0	5	0	1	0	0	0	1	0	0	0	0	0	0	0	1	3	4	0	8	35
% Bus	12.5	2.4	4.5	0	0	5.9	3.9	1.7	0	0	0	2.1	0	0.5	0	0	0	0.3	0	0	0	0	0	0	0	2.0	1.8	3.9	0	2.3	2.8
Heavy Vehicles	0	2	3	1	0	6	3	5	0	0	0	8	3	18	0	0	0	21	0	0	0	0	0	0	0	3	6	4	0	13	48
% Heavy Vehicles	0	4.8	1.7	2.6	0	1.7	3.9	4.1	0	0	0	3.4	2.8	9.3	0	0	0	6.7	0	0	0	0	0	0	0	6.1	3.6	3.9	0	3.8	3.8





PRECISION
D A T A
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N/S: Monsignor Reynolds Way/ Malden St
E/W/SW: Harrison Ave/ Wareham St
City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 AA
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Cars - Bus - Heavy Vehicles

Start Time	Monsignor Reynolds Way From North					Harrison Avenue From East					Malden Street From South					Wareham Street From Southwest					Harrison Avenue From West					Int. Total
	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	
04:00 PM	17	17	69	17	0	28	32	7	2	0	16	42	1	4	0	1	0	0	3	1	2	10	44	24	0	337
04:15 PM	22	17	65	16	0	31	50	7	8	0	18	42	0	2	1	0	0	0	3	0	7	8	37	25	0	359
04:30 PM	16	16	59	14	0	28	39	7	6	0	24	53	0	2	1	0	0	1	2	0	3	11	41	35	0	358
04:45 PM	18	14	52	15	0	38	56	6	9	0	19	44	0	5	0	0	0	0	1	0	7	6	47	23	0	360
Total	73	64	245	62	0	125	177	27	25	0	77	181	1	13	2	1	0	1	9	1	19	35	169	107	0	1414
05:00 PM	21	15	36	14	2	37	49	12	6	0	27	52	1	1	0	0	0	0	0	0	5	8	47	30	0	363
05:15 PM	23	24	52	22	1	41	50	10	10	0	29	53	2	1	0	0	0	0	0	0	4	9	45	24	0	400
05:30 PM	10	23	45	9	0	27	49	6	7	0	23	53	2	1	0	0	1	0	0	0	8	6	44	34	0	348
05:45 PM	24	8	62	20	0	32	40	11	4	0	18	53	1	0	0	0	0	0	0	0	2	5	37	21	0	338
Total	78	70	195	65	3	137	188	39	27	0	97	211	6	3	0	0	1	0	0	0	19	28	173	109	0	1449
Grand Total	151	134	440	127	3	262	365	66	52	0	174	392	7	16	2	1	1	1	9	1	38	63	342	216	0	2863
Apprch %	17.7	15.7	51.5	14.9	0.4	35.2	49	8.9	7	0	29.4	66.3	1.2	2.7	0.3	7.7	7.7	7.7	69.2	7.7	5.8	9.6	51.9	32.8	0	
Total %	5.3	4.7	15.4	4.4	0.1	9.2	12.7	2.3	1.8	0	6.1	13.7	0.2	0.6	0.1	0	0	0	0.3	0	1.3	2.2	11.9	7.5	0	
Cars	139	119	412	119	3	252	348	63	52	0	171	373	7	15	2	1	1	1	7	0	38	60	330	209	0	2722
% Cars	92.1	88.8	93.6	93.7	100	96.2	95.3	95.5	100	0	98.3	95.2	100	93.8	100	100	100	100	77.8	0	100	95.2	96.5	96.8	0	95.1
Bus	11	10	18	4	0	7	14	1	0	0	2	16	0	0	0	0	0	0	0	0	0	2	1	6	0	92
% Bus	7.3	7.5	4.1	3.1	0	2.7	3.8	1.5	0	0	1.1	4.1	0	0	0	0	0	0	0	0	0	3.2	0.3	2.8	0	3.2
Heavy Vehicles	1	5	10	4	0	3	3	2	0	0	1	3	0	1	0	0	0	0	2	1	0	1	11	1	0	49
% Heavy Vehicles	0.7	3.7	2.3	3.1	0	1.1	0.8	3	0	0	0.6	0.8	0	6.2	0	0	0	0	22.2	100	0	1.6	3.2	0.5	0	1.7

	Monsignor Reynolds Way From North					Harrison Avenue From East					Malden Street From South					Wareham Street From Southwest					Harrison Avenue From West										
Start Time	Right	Bear Right	Thru	Left	U- Turn	App. Total	Right	Thru	Bear Left	Left	U- Turn	App. Total	Right	Thru	Left	Hard Left	U- Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U- Turn	App. Total	Hard Right	Right	Thru	Left	U- Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 04:30 PM																															
04:30 PM	16	16	59	14	0	105	28	39	7	6	0	80	24	53	0	2	1	80	0	0	1	2	0	3	3	11	41	35	0	90	358
04:45 PM	18	14	52	15	0	99	38	56	6	9	0	109	19	44	0	5	0	68	0	0	0	1	0	1	7	6	47	23	0	83	360
05:00 PM	21	15	36	14	2	88	37	49	12	6	0	104	27	52	1	1	0	81	0	0	0	0	0	0	5	8	47	30	0	90	363
05:15 PM	23	24	52	22	1	122	41	50	10	10	0	111	29	53	2	1	0	85	0	0	0	0	0	0	4	9	45	24	0	82	400
Total Volume	78	69	199	65	3	414	144	194	35	31	0	404	99	202	3	9	1	314	0	0	1	3	0	4	19	34	180	112	0	345	1481
% App. Total	18.8	16.7	48.1	15.7	0.7		35.6	48	8.7	7.7	0		31.5	64.3	1	2.9	0.3		0	0	25	75	0		5.5	9.9	52.2	32.5	0		
PHF	.848	.719	.843	.739	.375	.848	.878	.866	.729	.775	.000	.910	.853	.953	.375	.450	.250	.924	.000	.000	.250	.375	.000	.333	.679	.773	.957	.800	.000	.958	.926
Cars	73	61	187	62	3	386	140	186	33	31	0	390	98	193	3	9	1	304	0	0	1	2	0	3	19	31	175	108	0	333	1416
% Cars	93.6	88.4	94.0	95.4	100	93.2	97.2	95.9	94.3	100	0	96.5	99.0	95.5	100	100	100	96.8	0	0	100	66.7	0	75.0	100	91.2	97.2	96.4	0	96.5	95.6
Bus	4	3	7	2	0	16	3	7	1	0	0	11	1	8	0	0	0	9	0	0	0	0	0	0	0	2	0	4	0	6	42
% Bus	5.1	4.3	3.5	3.1	0	3.9	2.1	3.6	2.9	0	0	2.7	1.0	4.0	0	0	0	2.9	0	0	0	0	0	0	0	5.9	0	3.6	0	1.7	2.8
Heavy Vehicles	1	5	5	1	0	12	1	1	1	0	0	3	0	1	0	0	0	1	0	0	0	1	0	1	0	1	5	0	0	6	23
% Heavy Vehicles	1.3	7.2	2.5	1.5	0	2.9	0.7	0.5	2.9	0	0	0.7	0	0.5	0	0	0	0.3	0	0	0	33.3	0	25.0	0	2.9	2.8	0	0	1.7	1.6

N/S: Monsignor Reynolds Way/Malden St
 E/W/SW: Harrison Ave/ Wareham St
 City, State: Boston, MA
 Client: VHB/ L. Orlando



File Name : 143880 AA
 Site Code : 12734.00
 Start Date : 5/8/2014
 Page No : 1

Groups Printed- Cars																										
	Monsignor Reynolds Way From North					Harrison Avenue From East					Malden Street From South					Wareham Street From Southwest					Harrison Avenue From West					
Start Time	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	14	14	64	14	0	27	30	7	2	0	14	36	1	4	0	1	0	0	3	0	2	10	44	24	0	311
04:15 PM	20	16	60	15	0	28	48	6	8	0	18	39	0	1	1	0	0	0	2	0	7	8	33	24	0	334
04:30 PM	16	13	54	12	0	27	37	5	6	0	24	50	0	2	1	0	0	1	1	0	3	10	39	31	0	332
04:45 PM	15	13	49	14	0	37	54	6	9	0	18	41	0	5	0	0	0	0	1	0	7	5	46	23	0	343
Total	65	56	227	55	0	119	169	24	25	0	74	166	1	12	2	1	0	1	7	0	19	33	162	102	0	1320
05:00 PM	20	13	34	14	2	36	46	12	6	0	27	51	1	1	0	0	0	0	0	0	5	8	46	30	0	352
05:15 PM	22	22	50	22	1	40	49	10	10	0	29	51	2	1	0	0	0	0	0	0	4	8	44	24	0	389
05:30 PM	9	21	41	8	0	27	46	6	7	0	23	53	2	1	0	0	1	0	0	0	8	6	42	32	0	333
05:45 PM	23	7	60	20	0	30	38	11	4	0	18	52	1	0	0	0	0	0	0	0	2	5	36	21	0	328
Total	74	63	185	64	3	133	179	39	27	0	97	207	6	3	0	0	1	0	0	0	19	27	168	107	0	1402
Grand Total	139	119	412	119	3	252	348	63	52	0	171	373	7	15	2	1	1	1	7	0	38	60	330	209	0	2722
Apprch %	17.6	15	52	15	0.4	35.2	48.7	8.8	7.3	0	30.1	65.7	1.2	2.6	0.4	10	10	10	70	0	6	9.4	51.8	32.8	0	
Total %	5.1	4.4	15.1	4.4	0.1	9.3	12.8	2.3	1.9	0	6.3	13.7	0.3	0.6	0.1	0	0	0	0.3	0	1.4	2.2	12.1	7.7	0	

	Monsignor Reynolds Way From North						Harrison Avenue From East						Malden Street From South						Wareham Street From Southwest						Harrison Avenue From West							
Start Time	Right	Bear Right	Thru	Left	U- Turn	App. Total	Right	Thru	Bear Left	Left	U- Turn	App. Total	Right	Thru	Left	Hard Left	U- Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U- Turn	App. Total	Hard Right	Right	Thru	Left	U- Turn	App. Total	Int. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 04:45 PM																																
04:45 PM	15	13	49	14	0	91	37	54	6	9	0	106	18	41	0	5	0	64	0	0	0	1	0	1	7	5	46	23	0	81	343	
05:00 PM	20	13	34	14	2	83	36	46	12	6	0	100	27	51	1	1	0	80	0	0	0	0	0	0	5	8	46	30	0	89	352	
05:15 PM	22	22	50	22	1	117	40	49	10	10	0	109	29	51	2	1	0	83	0	0	0	0	0	0	4	8	44	24	0	80	389	
05:30 PM	9	21	41	8	0	79	27	46	6	7	0	86	23	53	2	1	0	79	0	1	0	0	0	1	8	6	42	32	0	88	333	
Total Volume	66	69	174	58	3	370	140	195	34	32	0	401	97	196	5	8	0	306	0	1	0	1	0	2	24	27	178	109	0	338	1417	
% App. Total	17.8	18.6	47	15.7	0.8		34.9	48.6	8.5	8	0		31.7	64.1	1.6	2.6	0		0	50	0	50	0		7.1	8	52.7	32.2	0			
PHF	.750	.784	.870	.659	.375	.791	.875	.903	.708	.800	.000	.920	.836	.925	.625	.400	.000	.922	.000	.250	.000	.250	.000	.500	.750	.844	.967	.852	.000	.949	.911	

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



PRECISION
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File Name : 143880 AA
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Bus

	Monsignor Reynolds Way From North					Harrison Avenue From East					Malden Street From South					Wareham Street From Southwest					Harrison Avenue From West					
Start Time	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	3	3	4	2	0	1	2	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	21
04:15 PM	2	1	3	0	0	2	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	1	0	15
04:30 PM	0	2	3	1	0	1	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	4	0	18
04:45 PM	3	0	1	1	0	1	2	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	12
Total	8	6	11	4	0	5	8	1	0	0	2	14	0	0	0	0	0	0	0	0	0	1	1	5	0	66
05:00 PM	1	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
05:15 PM	0	1	2	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	7
05:30 PM	1	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	8
05:45 PM	1	1	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Total	3	4	7	0	0	2	6	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	1	0	26
Grand Total	11	10	18	4	0	7	14	1	0	0	2	16	0	0	0	0	0	0	0	0	0	2	1	6	0	92
Apprch %	25.6	23.3	41.9	9.3	0	31.8	63.6	4.5	0	0	11.1	88.9	0	0	0	0	0	0	0	0	0	22.2	11.1	66.7	0	
Total %	12	10.9	19.6	4.3	0	7.6	15.2	1.1	0	0	2.2	17.4	0	0	0	0	0	0	0	0	2.2	1.1	6.5	0		

	Monsignor Reynolds Way From North						Harrison Avenue From East						Malden Street From South						Wareham Street From Southwest						Harrison Avenue From West							
Start Time	Right	Bear Right	Thru	Left	U- Turn	App. Total	Right	Thru	Bear Left	Left	U- Turn	App. Total	Right	Thru	Left	Hard Left	U- Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U- Turn	App. Total	Hard Right	Right	Thru	Left	U- Turn	App. Total	Int. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 04:00 PM																																
04:00 PM	3	3	4	2	0	12	1	2	0	0	0	3	1	5	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	21
04:15 PM	2	1	3	0	0	6	2	2	0	0	0	4	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	1	1	0	2	15
04:30 PM	0	2	3	1	0	6	1	2	1	0	0	4	0	3	0	0	0	3	0	0	0	0	0	0	0	0	1	0	4	0	5	18
04:45 PM	3	0	1	1	0	5	1	2	0	0	0	3	1	3	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	12
Total Volume	8	6	11	4	0	29	5	8	1	0	0	14	2	14	0	0	0	16	0	0	0	0	0	0	0	0	1	1	5	0	7	66
% App. Total	27.6	20.7	37.9	13.8	0		35.7	57.1	7.1	0	0		12.5	87.5	0	0	0		0	0	0	0	0	0		0	14.3	14.3	71.4	0		
PHF	.667	.500	.688	.500	.000	.604	.625	1.000	.250	.000	.000	.875	.500	.700	.000	.000	.000	.667	.000	.000	.000	.000	.000	.000		.000	.250	.250	.313	.000	.350	.786

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



PRECISION
D A T A
INDUSTRIES, LLC

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N/S: Monsignor Reynolds Way/Malden St
E/W/SW: Harrison Ave/ Wareham St
City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 AA
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Monsignor Reynolds Way From North					Harrison Avenue From East					Malden Street From South					Wareham Street From Southwest					Harrison Avenue From West					Int. Total
	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	
04:00 PM	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	5
04:15 PM	0	0	2	1	0	1	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	3	0	0	10
04:30 PM	0	1	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	8
04:45 PM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	5
Total	0	2	7	3	0	1	0	2	0	0	1	1	0	1	0	0	0	0	2	1	0	1	6	0	0	28
05:00 PM	0	2	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	6
05:15 PM	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4
05:30 PM	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	7
05:45 PM	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	4
Total	1	3	3	1	0	2	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5	1	0	21
Grand Total	1	5	10	4	0	3	3	2	0	0	1	3	0	1	0	0	0	0	2	1	0	1	11	1	0	49
Apprch %	5	25	50	20	0	37.5	37.5	25	0	0	20	60	0	20	0	0	0	0	66.7	33.3	0	7.7	84.6	7.7	0	
Total %	2	10.2	20.4	8.2	0	6.1	6.1	4.1	0	0	2	6.1	0	2	0	0	0	0	4.1	2	0	2	22.4	2	0	

	Monsignor Reynolds Way From North						Harrison Avenue From East						Malden Street From South						Wareham Street From Southwest						Harrison Avenue From West							
Start Time	Right	Bear Right	Thru	Left	U- Turn	App. Total	Right	Thru	Bear Left	Left	U- Turn	App. Total	Right	Thru	Left	Hard Left	U- Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U- Turn	App. Total	Hard Right	Right	Thru	Left	U- Turn	App. Total	Int. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 04:15 PM																																
04:15 PM	0	0	2	1	0	3	1	0	1	0	0	2	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	3	0	0	3	10
04:30 PM	0	1	2	1	0	4	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0	2	8	
04:45 PM	0	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	5
05:00 PM	0	2	1	0	0	3	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	6
Total Volume	0	4	7	2	0	13	1	1	2	0	0	4	0	1	0	1	0	2	0	0	0	2	0	2	0	1	7	0	0	8	29	
% App. Total	0	30.8	53.8	15.4	0		25	25	50	0	0		0	50	0	50	0		0	0	0	100	0		0	12.5	87.5	0	0			
PHF	.000	.500	.875	.500	.000	.813	.250	.250	.500	.000	.000	.500	.000	.250	.000	.250	.000	.500	.000	.000	.000	.500	.000	.500	.000	.250	.583	.000	.000	.667	.725	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:15 PM



PRECISION
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City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 AA
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Monsignor Reynolds Way From North					Harrison Avenue From East					Malden Street From South					Wareham Street From Southwest					Harrison Avenue From West					Int. Total
	Right	Bear Right	Thru	Left	Peds	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Hard Right	Right	Thru	Left	Peds	
04:00 PM	0	0	0	0	9	0	1	0	0	6	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	20
04:15 PM	0	1	1	0	8	0	0	1	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	1	2	22
04:30 PM	0	0	0	0	12	0	2	0	0	19	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	40
04:45 PM	0	0	0	0	6	0	1	0	0	16	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	24
Total	0	1	1	0	35	0	4	1	0	45	0	0	0	0	16	0	0	0	0	0	0	0	0	1	2	106
05:00 PM	0	0	0	0	20	2	3	0	0	10	2	2	0	0	5	0	0	1	0	4	0	0	1	2	6	58
05:15 PM	0	0	0	0	14	3	1	1	0	5	6	0	0	0	4	0	1	0	0	5	0	0	1	1	9	51
05:30 PM	0	2	0	0	12	1	1	0	0	0	0	3	1	0	5	0	0	1	0	0	0	0	1	1	8	36
05:45 PM	0	0	0	0	8	1	5	0	0	8	0	0	0	0	2	0	0	0	0	2	0	0	2	2	6	36
Total	0	2	0	0	54	7	10	1	0	23	8	5	1	0	16	0	1	2	0	11	0	0	5	6	29	181
Grand Total	0	3	1	0	89	7	14	2	0	68	8	5	1	0	32	0	1	2	0	11	0	0	5	7	31	287
Apprch %	0	3.2	1.1	0	95.7	7.7	15.4	2.2	0	74.7	17.4	10.9	2.2	0	69.6	0	7.1	14.3	0	78.6	0	0	11.6	16.3	72.1	
Total %	0	1	0.3	0	31	2.4	4.9	0.7	0	23.7	2.8	1.7	0.3	0	11.1	0	0.3	0.7	0	3.8	0	0	1.7	2.4	10.8	

	Monsignor Reynolds Way From North						Harrison Avenue From East						Malden Street From South						Wareham Street From Southwest						Harrison Avenue From West							
Start Time	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Right	Thru	Left	Peds	App. Total	Int. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 05:00 PM																																
05:00 PM	0	0	0	0	20	20	2	3	0	0	10	15	2	2	0	0	5	9	0	0	1	0	4	5	0	0	1	2	6	9	58	
05:15 PM	0	0	0	0	14	14	3	1	1	0	5	10	6	0	0	0	4	10	0	1	0	0	5	6	0	0	1	1	9	11	51	
05:30 PM	0	2	0	0	12	14	1	1	0	0	0	2	0	3	1	0	5	9	0	0	1	0	0	1	0	0	1	1	8	10	36	
05:45 PM	0	0	0	0	8	8	1	5	0	0	8	14	0	0	0	0	2	2	0	0	0	0	2	2	0	0	2	2	6	10	36	
Total Volume	0	2	0	0	54	56	7	10	1	0	23	41	8	5	1	0	16	30	0	1	2	0	11	14	0	0	5	6	29	40	181	
% App. Total	0	3.6	0	0	96.4		17.1	24.4	2.4	0	56.1		26.7	16.7	3.3	0	53.3		0	7.1	14.3	0	78.6		0	0	12.5	15	72.5			
PHF	.000	.250	.000	.000	.675	.700	.583	.500	.250	.000	.575	.683	.333	.417	.250	.000	.800	.750	.000	.250	.500	.000	.550	.583	.000	.000	.625	.750	.806	.909	.780	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM



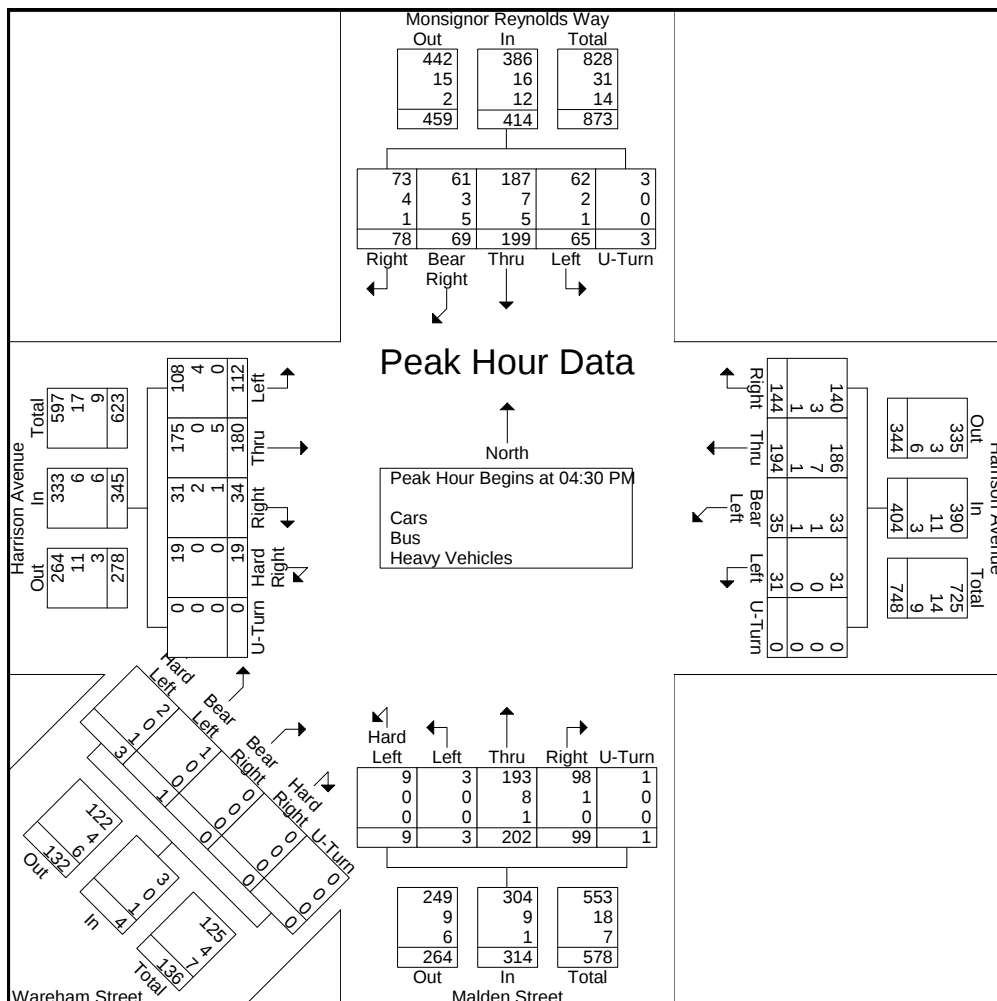
PRECISION
D A T A
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City, State: Boston, MA
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File Name : 143880 AA
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

	Monsignor Reynolds Way From North						Harrison Avenue From East						Malden Street From South						Wareham Street From Southwest						Harrison Avenue From West						
Start Time	Right	Bear Right	Thru	Left	U- Turn	App. Total	Right	Thru	Bear Left	Left	U- Turn	App. Total	Right	Thru	Left	Hard Left	U- Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U- Turn	App. Total	Hard Right	Right	Thru	Left	U- Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 04:30 PM																															
04:30 PM	16	16	59	14	0	105	28	39	7	6	0	80	24	53	0	2	1	80	0	0	1	2	0	3	3	11	41	35	0	90	358
04:45 PM	18	14	52	15	0	99	38	56	6	9	0	109	19	44	0	5	0	68	0	0	0	1	0	1	7	6	47	23	0	83	360
05:00 PM	21	15	36	14	2	88	37	49	12	6	0	104	27	52	1	1	0	81	0	0	0	0	0	0	5	8	47	30	0	90	363
05:15 PM	23	24	52	22	1	122	41	50	10	10	0	111	29	53	2	1	0	85	0	0	0	0	0	0	4	9	45	24	0	82	400
Total Volume	78	69	199	65	3	414	144	194	35	31	0	404	99	202	3	9	1	314	0	0	1	3	0	4	19	34	180	112	0	345	1481
% App. Total	18.8	16.7	48.1	15.7	0.7		35.6	48	8.7	7.7	0		31.5	64.3	1	2.9	0.3		0	0	25	75	0		5.5	9.9	52.2	32.5	0		
PHF	.848	.719	.843	.739	.375	.848	.878	.866	.729	.775	.000	.910	.853	.953	.375	.450	.250	.924	.000	.000	.250	.375	.000	.333	.679	.773	.957	.800	.000	.958	.926
Cars	73	61	187	62	3	386	140	186	33	31	0	390	98	193	3	9	1	304	0	0	1	2	0	3	19	31	175	108	0	333	1416
% Cars	93.6	88.4	94.0	95.4	100	93.2	97.2	95.9	94.3	100	0	96.5	99.0	95.5	100	100	100	96.8	0	0	100	66.7	0	75.0	100	91.2	97.2	96.4	0	96.5	95.6
Bus	4	3	7	2	0	16	3	7	1	0	0	11	1	8	0	0	0	9	0	0	0	0	0	0	0	2	0	4	0	6	42
% Bus	5.1	4.3	3.5	3.1	0	3.9	2.1	3.6	2.9	0	0	2.7	1.0	4.0	0	0	0	2.9	0	0	0	0	0	0	0	5.9	0	3.6	0	1.7	2.8
Heavy Vehicles	1	5	5	1	0	12	1	1	1	0	0	3	0	1	0	0	0	1	0	0	0	1	0	1	0	1	5	0	0	6	23
% Heavy Vehicles	1.3	7.2	2.5	1.5	0	2.9	0.7	0.5	2.9	0	0	0.7	0	0.5	0	0	0	0.3	0	0	0	33.3	0	25.0	0	2.9	2.8	0	0	1.7	1.6





PRECISION
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N: Wareham Street
E/W: Albany Street
City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 B
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Cars - Bus - Heavy Vehicles

	Wareham Street From North			Albany Street From East			Albany Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	4	7	0	0	110	3	111	0	0	235
07:15 AM	4	6	0	1	112	7	95	0	0	225
07:30 AM	15	15	0	0	103	7	153	0	0	293
07:45 AM	10	15	0	0	112	5	138	0	0	280
Total	33	43	0	1	437	22	497	0	0	1033
08:00 AM	9	8	0	0	104	4	129	0	1	255
08:15 AM	13	12	0	0	118	3	117	0	0	263
08:30 AM	12	14	0	0	131	8	127	0	0	292
08:45 AM	10	9	0	0	116	11	104	0	0	250
Total	44	43	0	0	469	26	477	0	1	1060
Grand Total	77	86	0	1	906	48	974	0	1	2093
Apprch %	47.2	52.8	0	0.1	94.9	5	99.9	0	0.1	
Total %	3.7	4.1	0	0	43.3	2.3	46.5	0	0	
Cars	73	83	0	1	858	0	915	0	1	1931
% Cars	94.8	96.5	0	100	94.7	0	93.9	0	100	92.3
Bus	0	1	0	0	12	12	21	0	0	46
% Bus	0	1.2	0	0	1.3	25	2.2	0	0	2.2
Heavy Vehicles	4	2	0	0	36	36	38	0	0	116
% Heavy Vehicles	5.2	2.3	0	0	4	75	3.9	0	0	5.5

	Wareham Street From North				Albany Street From East				Albany Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	15	15	0	30	0	103	7	110	153	0	0	153	293
07:45 AM	10	15	0	25	0	112	5	117	138	0	0	138	280
08:00 AM	9	8	0	17	0	104	4	108	129	0	1	130	255
08:15 AM	13	12	0	25	0	118	3	121	117	0	0	117	263
Total Volume	47	50	0	97	0	437	19	456	537	0	1	538	1091
% App. Total	48.5	51.5	0		0	95.8	4.2		99.8	0	0.2		
PHF	.783	.833	.000	.808	.000	.926	.679	.942	.877	.000	.250	.879	.931
Cars	44	48	0	92	0	418	0	418	506	0	1	507	1017
% Cars	93.6	96.0	0	94.8	0	95.7	0	91.7	94.2	0	100	94.2	93.2
Bus	0	1	0	1	0	7	7	14	13	0	0	13	28
% Bus	0	2.0	0	1.0	0	1.6	36.8	3.1	2.4	0	0	2.4	2.6
Heavy Vehicles	3	1	0	4	0	12	12	24	18	0	0	18	46
% Heavy Vehicles	6.4	2.0	0	4.1	0	2.7	63.2	5.3	3.4	0	0	3.3	4.2

N: Wareham Street
 E/W: Albany Street
 City, State: Boston, MA
 Client: VHB/ L. Orlando



File Name : 143880 B
 Site Code : 12734.00
 Start Date : 5/8/2014
 Page No : 1

Groups Printed- Cars

	Wareham Street From North			Albany Street From East			Albany Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	3	6	0	0	107	0	100	0	0	216
07:15 AM	4	6	0	1	105	0	93	0	0	209
07:30 AM	14	15	0	0	96	0	146	0	0	271
07:45 AM	9	15	0	0	107	0	129	0	0	260
Total	30	42	0	1	415	0	468	0	0	956
08:00 AM	8	8	0	0	100	0	126	0	1	243
08:15 AM	13	10	0	0	115	0	105	0	0	243
08:30 AM	12	14	0	0	123	0	118	0	0	267
08:45 AM	10	9	0	0	105	0	98	0	0	222
Total	43	41	0	0	443	0	447	0	1	975
Grand Total	73	83	0	1	858	0	915	0	1	1931
Apprch %	46.8	53.2	0	0.1	99.9	0	99.9	0	0.1	
Total %	3.8	4.3	0	0.1	44.4	0	47.4	0	0.1	

	Wareham Street From North				Albany Street From East				Albany Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	14	15	0	29	0	96	0	96	146	0	0	146	271
07:45 AM	9	15	0	24	0	107	0	107	129	0	0	129	260
08:00 AM	8	8	0	16	0	100	0	100	126	0	1	127	243
08:15 AM	13	10	0	23	0	115	0	115	105	0	0	105	243
Total Volume	44	48	0	92	0	418	0	418	506	0	1	507	1017
% App. Total	47.8	52.2	0		0	100	0		99.8	0	0.2		
PHF	.786	.800	.000	.793	.000	.909	.000	.909	.866	.000	.250	.868	.938



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File Name : 143880 B
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Bus

	Wareham Street From North			Albany Street From East			Albany Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	1	1	3	0	0	5
07:15 AM	0	0	0	0	0	0	1	0	0	1
07:30 AM	0	0	0	0	4	4	2	0	0	10
07:45 AM	0	0	0	0	0	0	4	0	0	4
Total	0	0	0	0	5	5	10	0	0	20
08:00 AM	0	0	0	0	2	2	2	0	0	6
08:15 AM	0	1	0	0	1	1	5	0	0	8
08:30 AM	0	0	0	0	1	1	2	0	0	4
08:45 AM	0	0	0	0	3	3	2	0	0	8
Total	0	1	0	0	7	7	11	0	0	26
Grand Total	0	1	0	0	12	12	21	0	0	46
Apprch %	0	100	0	0	50	50	100	0	0	
Total %	0	2.2	0	0	26.1	26.1	45.7	0	0	

	Wareham Street From North				Albany Street From East				Albany Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	0	0	0	0	0	4	4	8	2	0	0	2	10
07:45 AM	0	0	0	0	0	0	0	0	4	0	0	4	4
08:00 AM	0	0	0	0	0	2	2	4	2	0	0	2	6
08:15 AM	0	1	0	1	0	1	1	2	5	0	0	5	8
Total Volume	0	1	0	1	0	7	7	14	13	0	0	13	28
% App. Total	0	100	0		0	50	50		100	0	0		
PHF	.000	.250	.000	.250	.000	.438	.438	.438	.650	.000	.000	.650	.700

N: Wareham Street
 E/W: Albany Street
 City, State: Boston, MA
 Client: VHB/ L. Orlando



File Name : 143880 B
 Site Code : 12734.00
 Start Date : 5/8/2014
 Page No : 1

Groups Printed- Heavy Vehicles

	Wareham Street From North			Albany Street From East			Albany Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	1	1	0	0	2	2	8	0	0	14
07:15 AM	0	0	0	0	7	7	1	0	0	15
07:30 AM	1	0	0	0	3	3	5	0	0	12
07:45 AM	1	0	0	0	5	5	5	0	0	16
Total	3	1	0	0	17	17	19	0	0	57
08:00 AM	1	0	0	0	2	2	1	0	0	6
08:15 AM	0	1	0	0	2	2	7	0	0	12
08:30 AM	0	0	0	0	7	7	7	0	0	21
08:45 AM	0	0	0	0	8	8	4	0	0	20
Total	1	1	0	0	19	19	19	0	0	59
Grand Total	4	2	0	0	36	36	38	0	0	116
Apprch %	66.7	33.3	0	0	50	50	100	0	0	
Total %	3.4	1.7	0	0	31	31	32.8	0	0	

	Wareham Street From North				Albany Street From East				Albany Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	1	0	0	1	0	2	2	4	1	0	0	1	6
08:15 AM	0	1	0	1	0	2	2	4	7	0	0	7	12
08:30 AM	0	0	0	0	0	7	7	14	7	0	0	7	21
08:45 AM	0	0	0	0	0	8	8	16	4	0	0	4	20
Total Volume	1	1	0	2	0	19	19	38	19	0	0	19	59
% App. Total	50	50	0		0	50	50		100	0	0		
PHF	.250	.250	.000	.500	.000	.594	.594	.594	.679	.000	.000	.679	.702



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N: Wareham Street
E/W: Albany Street
City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 B
Site Code : 12734.00
Start Date : 5/8/2014
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Groups Printed- Peds and Bikes

	Wareham Street From North			Albany Street From East			Albany Street From West			
Start Time	Right	Left	Peds	Right	Thru	Peds	Thru	Left	Peds	Int. Total
07:00 AM	0	0	9	0	0	0	0	0	1	10
07:15 AM	0	0	11	0	0	0	0	0	1	12
07:30 AM	0	0	8	0	0	0	0	0	2	10
07:45 AM	0	0	3	0	0	0	0	0	0	3
Total	0	0	31	0	0	0	0	0	4	35
08:00 AM	1	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	1	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	2	0	0	0	0	0	0	0	0	2
Grand Total	2	0	31	0	0	0	0	0	4	37
Apprch %	6.1	0	93.9	0	0	0	0	0	100	
Total %	5.4	0	83.8	0	0	0	0	0	10.8	

	Wareham Street From North				Albany Street From East				Albany Street From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	0	0	9	9	0	0	0	0	0	0	1	1	10
07:15 AM	0	0	11	11	0	0	0	0	0	0	1	1	12
07:30 AM	0	0	8	8	0	0	0	0	0	0	2	2	10
07:45 AM	0	0	3	3	0	0	0	0	0	0	0	0	3
Total Volume	0	0	31	31	0	0	0	0	0	0	4	4	35
% App. Total	0	0	100		0	0	0		0	0	100		
PHF	.000	.000	.705	.705	.000	.000	.000	.000	.000	.000	.500	.500	.729



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City, State: Boston, MA
Client: VHB/ L. Orlando

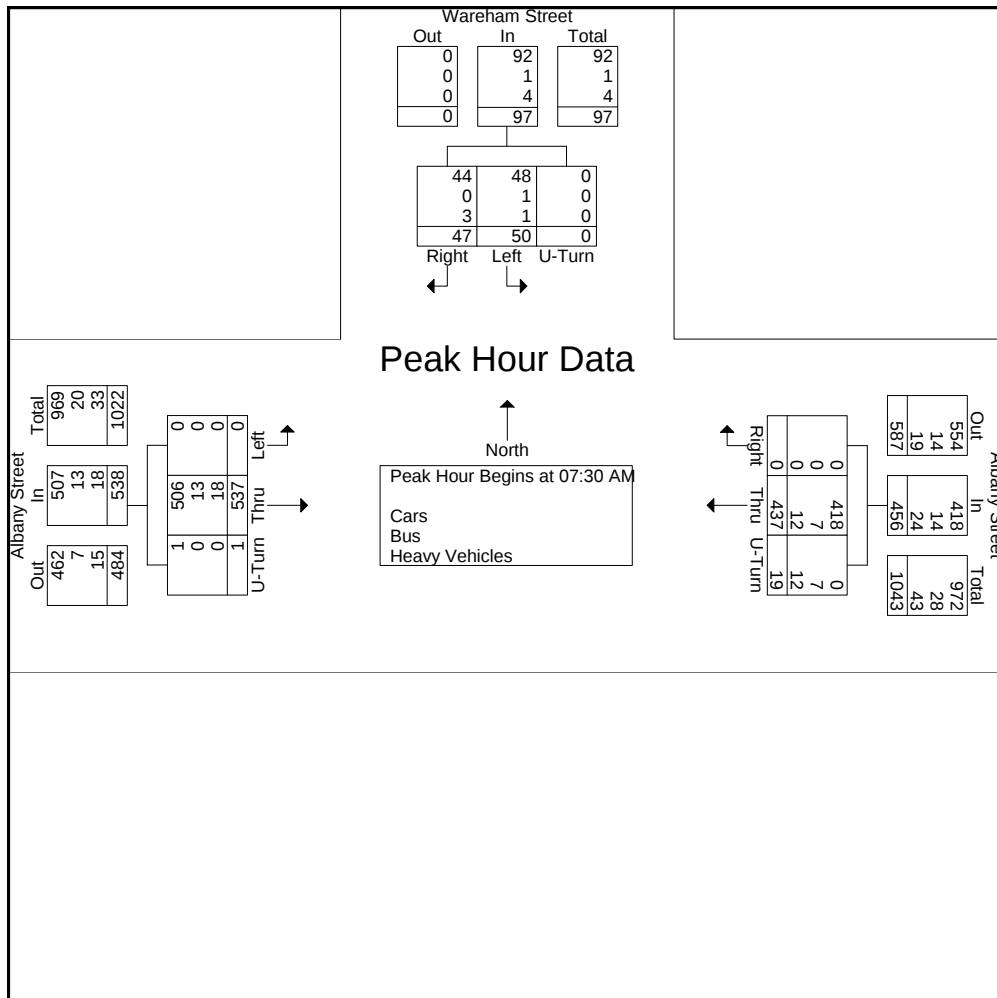
File Name : 143880 B
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Start Time	Wareham Street From North				Albany Street From East				Albany Street From West				Int. Total
	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:30 AM

07:30 AM	15	15	0	30	0	103	7	110	153	0	0	153	293
07:45 AM	10	15	0	25	0	112	5	117	138	0	0	138	280
08:00 AM	9	8	0	17	0	104	4	108	129	0	1	130	255
08:15 AM	13	12	0	25	0	118	3	121	117	0	0	117	263
Total Volume	47	50	0	97	0	437	19	456	537	0	1	538	1091
% App. Total	48.5	51.5	0		0	95.8	4.2		99.8	0	0.2		
PHF	.783	.833	.000	.808	.000	.926	.679	.942	.877	.000	.250	.879	.931
Cars	44	48	0	92	0	418	0	418	506	0	1	507	1017
% Cars	93.6	96.0	0	94.8	0	95.7	0	91.7	94.2	0	100	94.2	93.2
Bus	0	1	0	1	0	7	7	14	13	0	0	13	28
% Bus	0	2.0	0	1.0	0	1.6	36.8	3.1	2.4	0	0	2.4	2.6
Heavy Vehicles	3	1	0	4	0	12	12	24	18	0	0	18	46
% Heavy Vehicles	6.4	2.0	0	4.1	0	2.7	63.2	5.3	3.4	0	0	3.3	4.2





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N: Wareham Street
E/W: Albany Street
City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 BB
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Cars - Bus - Heavy Vehicles

	Wareham Street From North			Albany Street From East			Albany Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:00 PM	6	23	0	0	100	8	230	0	0	367
04:15 PM	11	20	0	0	86	5	213	0	0	335
04:30 PM	7	24	0	0	94	7	183	0	0	315
04:45 PM	7	25	0	0	120	9	168	0	0	329
Total	31	92	0	0	400	29	794	0	0	1346
05:00 PM	11	19	0	0	92	3	198	0	0	323
05:15 PM	14	24	0	0	98	6	200	0	0	342
05:30 PM	12	25	0	0	97	3	180	0	0	317
05:45 PM	9	12	0	0	99	6	126	0	1	253
Total	46	80	0	0	386	18	704	0	1	1235
Grand Total	77	172	0	0	786	47	1498	0	1	2581
Apprch %	30.9	69.1	0	0	94.4	5.6	99.9	0	0.1	
Total %	3	6.7	0	0	30.5	1.8	58	0	0	
Cars	75	158	0	0	740	1	1458	0	1	2433
% Cars	97.4	91.9	0	0	94.1	2.1	97.3	0	100	94.3
Bus	0	9	0	0	23	23	23	0	0	78
% Bus	0	5.2	0	0	2.9	48.9	1.5	0	0	3
Heavy Vehicles	2	5	0	0	23	23	17	0	0	70
% Heavy Vehicles	2.6	2.9	0	0	2.9	48.9	1.1	0	0	2.7

	Wareham Street From North				Albany Street From East				Albany Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	6	23	0	29	0	100	8	108	230	0	0	230	367
04:15 PM	11	20	0	31	0	86	5	91	213	0	0	213	335
04:30 PM	7	24	0	31	0	94	7	101	183	0	0	183	315
04:45 PM	7	25	0	32	0	120	9	129	168	0	0	168	329
Total Volume	31	92	0	123	0	400	29	429	794	0	0	794	1346
% App. Total	25.2	74.8	0		0	93.2	6.8		100	0	0		
PHF	.705	.920	.000	.961	.000	.833	.806	.831	.863	.000	.000	.863	.917
Cars	31	84	0	115	0	371	0	371	771	0	0	771	1257
% Cars	100	91.3	0	93.5	0	92.8	0	86.5	97.1	0	0	97.1	93.4
Bus	0	5	0	5	0	14	14	28	13	0	0	13	46
% Bus	0	5.4	0	4.1	0	3.5	48.3	6.5	1.6	0	0	1.6	3.4
Heavy Vehicles	0	3	0	3	0	15	15	30	10	0	0	10	43
% Heavy Vehicles	0	3.3	0	2.4	0	3.8	51.7	7.0	1.3	0	0	1.3	3.2

N: Wareham Street
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File Name : 143880 BB
 Site Code : 12734.00
 Start Date : 5/8/2014
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Groups Printed- Cars										
	Wareham Street From North			Albany Street From East			Albany Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:00 PM	6	20	0	0	92	0	220	0	0	338
04:15 PM	11	19	0	0	81	0	208	0	0	319
04:30 PM	7	21	0	0	87	0	177	0	0	292
04:45 PM	7	24	0	0	111	0	166	0	0	308
Total	31	84	0	0	371	0	771	0	0	1257
05:00 PM	10	17	0	0	89	0	194	0	0	310
05:15 PM	13	24	0	0	92	0	192	0	0	321
05:30 PM	12	23	0	0	94	0	176	0	0	305
05:45 PM	9	10	0	0	94	1	125	0	1	240
Total	44	74	0	0	369	1	687	0	1	1176
Grand Total	75	158	0	0	740	1	1458	0	1	2433
Apprch %	32.2	67.8	0	0	99.9	0.1	99.9	0	0.1	
Total %	3.1	6.5	0	0	30.4	0	59.9	0	0	

	Wareham Street From North				Albany Street From East				Albany Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	6	20	0	26	0	92	0	92	220	0	0	220	338
04:15 PM	11	19	0	30	0	81	0	81	208	0	0	208	319
04:30 PM	7	21	0	28	0	87	0	87	177	0	0	177	292
04:45 PM	7	24	0	31	0	111	0	111	166	0	0	166	308
Total Volume	31	84	0	115	0	371	0	371	771	0	0	771	1257
% App. Total	27	73	0		0	100	0		100	0	0		
PHF	.705	.875	.000	.927	.000	.836	.000	.836	.876	.000	.000	.876	.930



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Client: VHB/ L. Orlando

File Name : 143880 BB
Site Code : 12734.00
Start Date : 5/8/2014
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Groups Printed- Bus

	Wareham Street From North			Albany Street From East			Albany Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:00 PM	0	3	0	0	5	5	6	0	0	19
04:15 PM	0	0	0	0	4	4	1	0	0	9
04:30 PM	0	2	0	0	2	2	5	0	0	11
04:45 PM	0	0	0	0	3	3	1	0	0	7
Total	0	5	0	0	14	14	13	0	0	46
05:00 PM	0	0	0	0	1	1	2	0	0	4
05:15 PM	0	0	0	0	2	2	5	0	0	9
05:30 PM	0	2	0	0	3	3	3	0	0	11
05:45 PM	0	2	0	0	3	3	0	0	0	8
Total	0	4	0	0	9	9	10	0	0	32
Grand Total	0	9	0	0	23	23	23	0	0	78
Apprch %	0	100	0	0	50	50	100	0	0	
Total %	0	11.5	0	0	29.5	29.5	29.5	0	0	

	Wareham Street From North				Albany Street From East				Albany Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	0	3	0	3	0	5	5	10	6	0	0	6	19
04:15 PM	0	0	0	0	0	4	4	8	1	0	0	1	9
04:30 PM	0	2	0	2	0	2	2	4	5	0	0	5	11
04:45 PM	0	0	0	0	0	3	3	6	1	0	0	1	7
Total Volume	0	5	0	5	0	14	14	28	13	0	0	13	46
% App. Total	0	100	0		0	50	50		100	0	0		
PHF	.000	.417	.000	.417	.000	.700	.700	.700	.542	.000	.000	.542	.605

N: Wareham Street
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File Name : 143880 BB
 Site Code : 12734.00
 Start Date : 5/8/2014
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Groups Printed- Heavy Vehicles

	Wareham Street From North			Albany Street From East			Albany Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	3	3	4	0	0	10
04:15 PM	0	1	0	0	1	1	4	0	0	7
04:30 PM	0	1	0	0	5	5	1	0	0	12
04:45 PM	0	1	0	0	6	6	1	0	0	14
Total	0	3	0	0	15	15	10	0	0	43
05:00 PM	1	2	0	0	2	2	2	0	0	9
05:15 PM	1	0	0	0	4	4	3	0	0	12
05:30 PM	0	0	0	0	0	0	1	0	0	1
05:45 PM	0	0	0	0	2	2	1	0	0	5
Total	2	2	0	0	8	8	7	0	0	27
Grand Total	2	5	0	0	23	23	17	0	0	70
Apprch %	28.6	71.4	0	0	50	50	100	0	0	
Total %	2.9	7.1	0	0	32.9	32.9	24.3	0	0	

	Wareham Street From North				Albany Street From East				Albany Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	0	1	0	1	0	5	5	10	1	0	0	1	12
04:45 PM	0	1	0	1	0	6	6	12	1	0	0	1	14
05:00 PM	1	2	0	3	0	2	2	4	2	0	0	2	9
05:15 PM	1	0	0	1	0	4	4	8	3	0	0	3	12
Total Volume	2	4	0	6	0	17	17	34	7	0	0	7	47
% App. Total	33.3	66.7	0		0	50	50		100	0	0		
PHF	.500	.500	.000	.500	.000	.708	.708	.708	.583	.000	.000	.583	.839

N: Wareham Street
 E/W: Albany Street
 City, State: Boston, MA
 Client: VHB/ L. Orlando



File Name : 143880 BB
 Site Code : 12734.00
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Groups Printed- Peds and Bikes

	Wareham Street From North			Albany Street From East			Albany Street From West			
Start Time	Right	Left	Peds	Right	Thru	Peds	Thru	Left	Peds	Int. Total
04:00 PM	0	0	13	0	0	0	0	0	0	13
04:15 PM	1	0	6	0	0	0	0	0	1	8
04:30 PM	0	0	20	0	0	0	0	0	1	21
04:45 PM	0	0	14	0	0	0	0	0	0	14
Total	1	0	53	0	0	0	0	0	2	56
05:00 PM	0	0	14	0	0	0	0	0	0	14
05:15 PM	0	0	15	0	0	0	0	0	1	16
05:30 PM	0	0	9	0	0	0	0	0	0	9
05:45 PM	1	0	5	0	0	0	0	0	1	7
Total	1	0	43	0	0	0	0	0	2	46
Grand Total	2	0	96	0	0	0	0	0	4	102
Apprch %	2	0	98	0	0	0	0	0	100	
Total %	2	0	94.1	0	0	0	0	0	3.9	

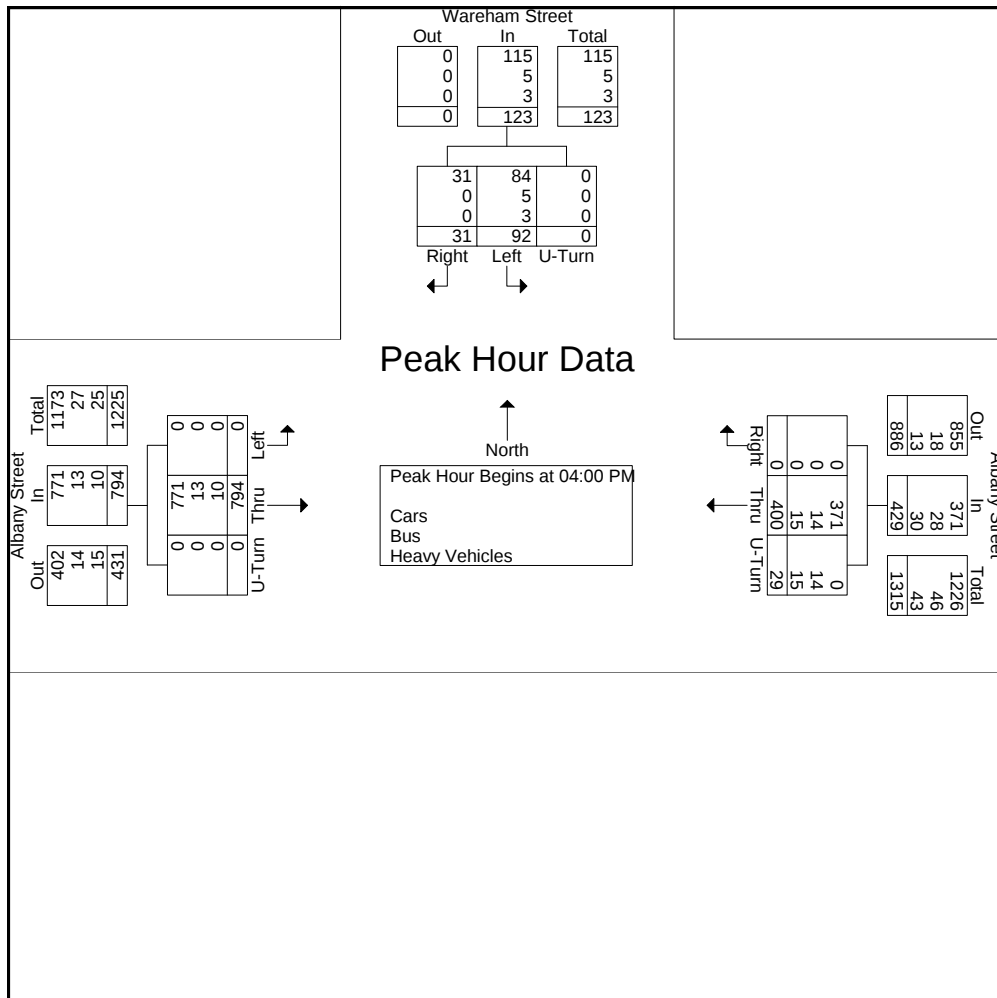
	Wareham Street From North				Albany Street From East				Albany Street From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	0	0	20	20	0	0	0	0	0	0	1	1	21
04:45 PM	0	0	14	14	0	0	0	0	0	0	0	0	14
05:00 PM	0	0	14	14	0	0	0	0	0	0	0	0	14
05:15 PM	0	0	15	15	0	0	0	0	0	0	1	1	16
Total Volume	0	0	63	63	0	0	0	0	0	0	2	2	65
% App. Total	0	0	100		0	0	0		0	0	100		
PHF	.000	.000	.788	.788	.000	.000	.000	.000	.000	.000	.500	.500	.774

N: Wareham Street
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 City, State: Boston, MA
 Client: VHB/ L. Orlando



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	Wareham Street From North				Albany Street From East				Albany Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	6	23	0	29	0	100	8	108	230	0	0	230	367
04:15 PM	11	20	0	31	0	86	5	91	213	0	0	213	335
04:30 PM	7	24	0	31	0	94	7	101	183	0	0	183	315
04:45 PM	7	25	0	32	0	120	9	129	168	0	0	168	329
Total Volume	31	92	0	123	0	400	29	429	794	0	0	794	1346
% App. Total	25.2	74.8	0		0	93.2	6.8		100	0	0		
PHF	.705	.920	.000	.961	.000	.833	.806	.831	.863	.000	.000	.863	.917
Cars	31	84	0	115	0	371	0	371	771	0	0	771	1257
% Cars	100	91.3	0	93.5	0	92.8	0	86.5	97.1	0	0	97.1	93.4
Bus	0	5	0	5	0	14	14	28	13	0	0	13	46
% Bus	0	5.4	0	4.1	0	3.5	48.3	6.5	1.6	0	0	1.6	3.4
Heavy Vehicles	0	3	0	3	0	15	15	30	10	0	0	10	43
% Heavy Vehicles	0	3.3	0	2.4	0	3.8	51.7	7.0	1.3	0	0	1.3	3.2





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Client: VHB/ L. Orlando

File Name : 143880 C
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Cars - Bus - Heavy Vehicles

	Malden Street From North				Albany Street From East				Parking Lot From South				Albany Street From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	2	0	39	0	36	108	0	1	1	0	0	0	0	95	16	0	298
07:15 AM	4	0	40	0	47	111	1	2	0	0	0	0	0	90	12	0	307
07:30 AM	2	0	51	0	64	103	0	1	2	0	0	0	0	154	19	0	396
07:45 AM	3	0	56	0	75	110	0	1	0	0	0	0	0	137	20	0	402
Total	11	0	186	0	222	432	1	5	3	0	0	0	0	476	67	0	1403
08:00 AM	4	0	49	0	65	100	0	2	1	0	0	0	0	125	15	0	361
08:15 AM	7	0	53	0	47	113	0	2	0	0	0	0	0	122	18	0	362
08:30 AM	5	0	44	0	61	131	1	2	0	0	0	0	0	119	19	0	382
08:45 AM	8	0	56	0	63	107	0	1	1	0	0	0	0	100	22	0	358
Total	24	0	202	0	236	451	1	7	2	0	0	0	0	466	74	0	1463
Grand Total	35	0	388	0	458	883	2	12	5	0	0	0	0	942	141	0	2866
Apprch %	8.3	0	91.7	0	33.8	65.2	0.1	0.9	100	0	0	0	0	87	13	0	
Total %	1.2	0	13.5	0	16	30.8	0.1	0.4	0.2	0	0	0	0	32.9	4.9	0	
Cars	33	0	367	0	434	825	2	9	4	0	0	0	0	885	131	0	2690
% Cars	94.3	0	94.6	0	94.8	93.4	100	75	80	0	0	0	0	93.9	92.9	0	93.9
Bus	0	0	16	0	5	15	0	2	0	0	0	0	0	23	3	0	64
% Bus	0	0	4.1	0	1.1	1.7	0	16.7	0	0	0	0	0	2.4	2.1	0	2.2
Heavy Vehicles	2	0	5	0	19	43	0	1	1	0	0	0	0	34	7	0	112
% Heavy Vehicles	5.7	0	1.3	0	4.1	4.9	0	8.3	20	0	0	0	0	3.6	5	0	3.9

	Malden Street From North					Albany Street From East					Parking Lot From South					Albany Street From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	2	0	51	0	53	64	103	0	1	168	2	0	0	0	2	0	154	19	0	173	396
07:45 AM	3	0	56	0	59	75	110	0	1	186	0	0	0	0	0	0	137	20	0	157	402
08:00 AM	4	0	49	0	53	65	100	0	2	167	1	0	0	0	1	0	125	15	0	140	361
08:15 AM	7	0	53	0	60	47	113	0	2	162	0	0	0	0	0	0	122	18	0	140	362
Total Volume	16	0	209	0	225	251	426	0	6	683	3	0	0	0	3	0	538	72	0	610	1521
% App. Total	7.1	0	92.9	0		36.7	62.4	0	0.9		100	0	0	0		0	88.2	11.8	0		
PHF	.571	.000	.933	.000	.938	.837	.942	.000	.750	.918	.375	.000	.000	.000	.375	.000	.873	.900	.000	.882	.946
Cars	15	0	197	0	212	242	401	0	5	648	2	0	0	0	2	0	504	69	0	573	1435
% Cars	93.8	0	94.3	0	94.2	96.4	94.1	0	83.3	94.9	66.7	0	0	0	66.7	0	93.7	95.8	0	93.9	94.3
Bus	0	0	8	0	8	3	8	0	1	12	0	0	0	0	0	0	14	1	0	15	35
% Bus	0	0	3.8	0	3.6	1.2	1.9	0	16.7	1.8	0	0	0	0	0	0	2.6	1.4	0	2.5	2.3
Heavy Vehicles	1	0	4	0	5	6	17	0	0	23	1	0	0	0	1	0	20	2	0	22	51
% Heavy Vehicles	6.3	0	1.9	0	2.2	2.4	4.0	0	0	3.4	33.3	0	0	0	33.3	0	3.7	2.8	0	3.6	3.4



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N/S: Malden Street/ Parking Lot
E/W: Albany Street
City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 C
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Cars

	Malden Street From North				Albany Street From East				Parking Lot From South				Albany Street From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	2	0	37	0	32	104	0	1	1	0	0	0	0	85	13	0	275
07:15 AM	4	0	38	0	45	101	1	1	0	0	0	0	0	88	11	0	289
07:30 AM	2	0	50	0	62	96	0	1	1	0	0	0	0	147	18	0	377
07:45 AM	2	0	53	0	71	101	0	1	0	0	0	0	0	128	19	0	375
Total	10	0	178	0	210	402	1	4	2	0	0	0	0	448	61	0	1316
08:00 AM	4	0	43	0	63	95	0	2	1	0	0	0	0	120	15	0	343
08:15 AM	7	0	51	0	46	109	0	1	0	0	0	0	0	109	17	0	340
08:30 AM	4	0	42	0	55	124	1	1	0	0	0	0	0	112	17	0	356
08:45 AM	8	0	53	0	60	95	0	1	1	0	0	0	0	96	21	0	335
Total	23	0	189	0	224	423	1	5	2	0	0	0	0	437	70	0	1374
Grand Total	33	0	367	0	434	825	2	9	4	0	0	0	0	885	131	0	2690
Apprch %	8.2	0	91.8	0	34.2	65	0.2	0.7	100	0	0	0	0	87.1	12.9	0	
Total %	1.2	0	13.6	0	16.1	30.7	0.1	0.3	0.1	0	0	0	0	32.9	4.9	0	

	Malden Street From North					Albany Street From East					Parking Lot From South					Albany Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	2	0	50	0	52	62	96	0	1	159	1	0	0	0	1	0	147	18	0	165	377
07:45 AM	2	0	53	0	55	71	101	0	1	173	0	0	0	0	0	0	128	19	0	147	375
08:00 AM	4	0	43	0	47	63	95	0	2	160	1	0	0	0	1	0	120	15	0	135	343
08:15 AM	7	0	51	0	58	46	109	0	1	156	0	0	0	0	0	0	109	17	0	126	340
Total Volume	15	0	197	0	212	242	401	0	5	648	2	0	0	0	2	0	504	69	0	573	1435
% App. Total	7.1	0	92.9	0		37.3	61.9	0	0.8		100	0	0	0		0	88	12	0		
PHF	.536	.000	.929	.000	.914	.852	.920	.000	.625	.936	.500	.000	.000	.000	.500	.000	.857	.908	.000	.868	.952



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City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 C
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Bus

	Malden Street From North				Albany Street From East				Parking Lot From South				Albany Street From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	2	0	1	2	0	0	0	0	0	0	0	3	0	0	8
07:15 AM	0	0	2	0	0	1	0	1	0	0	0	0	0	1	1	0	6
07:30 AM	0	0	0	0	2	4	0	0	0	0	0	0	0	2	0	0	8
07:45 AM	0	0	2	0	1	1	0	0	0	0	0	0	0	4	0	0	8
Total	0	0	6	0	4	8	0	1	0	0	0	0	0	10	1	0	30
08:00 AM	0	0	4	0	0	2	0	0	0	0	0	0	0	2	0	0	8
08:15 AM	0	0	2	0	0	1	0	1	0	0	0	0	0	6	1	0	11
08:30 AM	0	0	2	0	1	1	0	0	0	0	0	0	0	3	0	0	7
08:45 AM	0	0	2	0	0	3	0	0	0	0	0	0	0	2	1	0	8
Total	0	0	10	0	1	7	0	1	0	0	0	0	0	13	2	0	34
Grand Total	0	0	16	0	5	15	0	2	0	0	0	0	0	23	3	0	64
Apprch %	0	0	100	0	22.7	68.2	0	9.1	0	0	0	0	0	88.5	11.5	0	
Total %	0	0	25	0	7.8	23.4	0	3.1	0	0	0	0	0	35.9	4.7	0	

	Malden Street From North					Albany Street From East					Parking Lot From South					Albany Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	2	4	0	0	6	0	0	0	0	0	0	2	0	0	2	8
07:45 AM	0	0	2	0	2	1	1	0	0	2	0	0	0	0	0	0	4	0	0	4	8
08:00 AM	0	0	4	0	4	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	8
08:15 AM	0	0	2	0	2	0	1	0	1	2	0	0	0	0	0	0	6	1	0	7	11
Total Volume	0	0	8	0	8	3	8	0	1	12	0	0	0	0	0	0	14	1	0	15	35
% App. Total	0	0	100	0		25	66.7	0	8.3		0	0	0	0		0	93.3	6.7	0		
PHF	.000	.000	.500	.000	.500	.375	.500	.000	.250	.500	.000	.000	.000	.000	.000	.000	.583	.250	.000	.536	.795



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File Name : 143880 C
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Heavy Vehicles

	Malden Street From North				Albany Street From East				Parking Lot From South				Albany Street From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	0	0	3	2	0	0	0	0	0	0	0	7	3	0	15
07:15 AM	0	0	0	0	2	9	0	0	0	0	0	0	0	1	0	0	12
07:30 AM	0	0	1	0	0	3	0	0	1	0	0	0	0	5	1	0	11
07:45 AM	1	0	1	0	3	8	0	0	0	0	0	0	0	5	1	0	19
Total	1	0	2	0	8	22	0	0	1	0	0	0	0	18	5	0	57
08:00 AM	0	0	2	0	2	3	0	0	0	0	0	0	0	3	0	0	10
08:15 AM	0	0	0	0	1	3	0	0	0	0	0	0	0	7	0	0	11
08:30 AM	1	0	0	0	5	6	0	1	0	0	0	0	0	4	2	0	19
08:45 AM	0	0	1	0	3	9	0	0	0	0	0	0	0	2	0	0	15
Total	1	0	3	0	11	21	0	1	0	0	0	0	0	16	2	0	55
Grand Total	2	0	5	0	19	43	0	1	1	0	0	0	0	34	7	0	112
Apprch %	28.6	0	71.4	0	30.2	68.3	0	1.6	100	0	0	0	0	82.9	17.1	0	
Total %	1.8	0	4.5	0	17	38.4	0	0.9	0.9	0	0	0	0	30.4	6.2	0	

	Malden Street From North					Albany Street From East					Parking Lot From South					Albany Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	1	0	1	0	2	3	8	0	0	11	0	0	0	0	0	0	5	1	0	6	19
08:00 AM	0	0	2	0	2	2	3	0	0	5	0	0	0	0	0	0	3	0	0	3	10
08:15 AM	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	7	0	0	7	11
08:30 AM	1	0	0	0	1	5	6	0	1	12	0	0	0	0	0	0	4	2	0	6	19
Total Volume	2	0	3	0	5	11	20	0	1	32	0	0	0	0	0	0	19	3	0	22	59
% App. Total	40	0	60	0		34.4	62.5	0	3.1		0	0	0	0		0	86.4	13.6	0		
PHF	.500	.000	.375	.000	.625	.550	.625	.000	.250	.667	.000	.000	.000	.000	.000	.000	.679	.375	.000	.786	.776



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Client: VHB/ L. Orlando

File Name : 143880 C
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Peds and Bikes

	Malden Street From North				Albany Street From East				Parking Lot From South				Albany Street From West				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07:00 AM	0	0	0	10	0	0	0	0	0	0	0	6	0	0	0	2	18
07:15 AM	0	0	0	9	0	0	0	4	0	0	0	8	0	1	0	5	27
07:30 AM	0	0	0	7	0	0	0	1	0	0	0	9	0	0	0	3	20
07:45 AM	0	0	1	4	0	1	0	0	0	0	0	10	0	1	0	3	20
Total	0	0	1	30	0	1	0	5	0	0	0	33	0	2	0	13	85
08:00 AM	1	0	0	16	0	0	0	2	0	0	0	4	0	1	0	6	30
08:15 AM	0	0	0	14	0	3	0	0	0	0	0	3	0	2	0	4	26
08:30 AM	0	0	1	11	0	0	0	0	0	0	0	2	0	1	0	2	17
08:45 AM	1	0	0	16	1	2	0	0	0	0	0	2	0	0	0	4	26
Total	2	0	1	57	1	5	0	2	0	0	0	11	0	4	0	16	99
Grand Total	2	0	2	87	1	6	0	7	0	0	0	44	0	6	0	29	184
Apprch %	2.2	0	2.2	95.6	7.1	42.9	0	50	0	0	0	100	0	17.1	0	82.9	
Total %	1.1	0	1.1	47.3	0.5	3.3	0	3.8	0	0	0	23.9	0	3.3	0	15.8	

	Malden Street From North					Albany Street From East					Parking Lot From South					Albany Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	1	0	0	16	17	0	0	0	2	2	0	0	0	4	4	0	1	0	6	7	30
08:15 AM	0	0	0	14	14	0	3	0	0	3	0	0	0	3	3	0	2	0	4	6	26
08:30 AM	0	0	1	11	12	0	0	0	0	0	0	0	0	2	2	0	1	0	2	3	17
08:45 AM	1	0	0	16	17	1	2	0	0	3	0	0	0	2	2	0	0	0	4	4	26
Total Volume	2	0	1	57	60	1	5	0	2	8	0	0	0	11	11	0	4	0	16	20	99
% App. Total	3.3	0	1.7	95		12.5	62.5	0	25		0	0	0	100		0	20	0	80		
PHF	.500	.000	.250	.891	.882	.250	.417	.000	.250	.667	.000	.000	.000	.688	.688	.000	.500	.000	.667	.714	.825



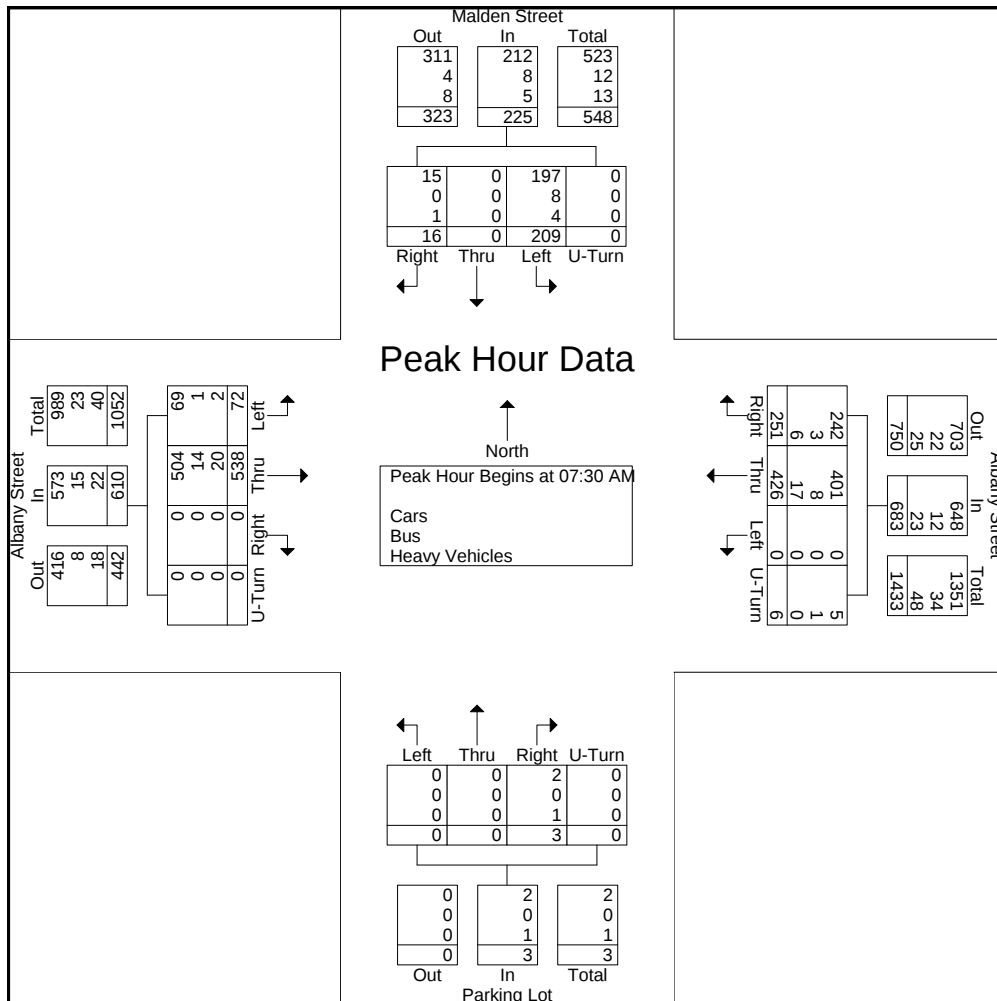
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	Malden Street From North					Albany Street From East					Parking Lot From South					Albany Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	2	0	51	0	53	64	103	0	1	168	2	0	0	0	2	0	154	19	0	173	396
07:45 AM	3	0	56	0	59	75	110	0	1	186	0	0	0	0	0	0	137	20	0	157	402
08:00 AM	4	0	49	0	53	65	100	0	2	167	1	0	0	0	1	0	125	15	0	140	361
08:15 AM	7	0	53	0	60	47	113	0	2	162	0	0	0	0	0	0	122	18	0	140	362
Total Volume	16	0	209	0	225	251	426	0	6	683	3	0	0	0	3	0	538	72	0	610	1521
% App. Total	7.1	0	92.9	0		36.7	62.4	0	0.9		100	0	0	0		0	88.2	11.8	0		
PHF	.571	.000	.933	.000	.938	.837	.942	.000	.750	.918	.375	.000	.000	.000	.375	.000	.873	.900	.000	.882	.946
Cars	15	0	197	0	212	242	401	0	5	648	2	0	0	0	2	0	504	69	0	573	1435
% Cars	93.8	0	94.3	0	94.2	96.4	94.1	0	83.3	94.9	66.7	0	0	0	66.7	0	93.7	95.8	0	93.9	94.3
Bus	0	0	8	0	8	3	8	0	1	12	0	0	0	0	0	0	14	1	0	15	35
% Bus	0	0	3.8	0	3.6	1.2	1.9	0	16.7	1.8	0	0	0	0	0	0	2.6	1.4	0	2.5	2.3
Heavy Vehicles	1	0	4	0	5	6	17	0	0	23	1	0	0	0	1	0	20	2	0	22	51
% Heavy Vehicles	6.3	0	1.9	0	2.2	2.4	4.0	0	0	3.4	33.3	0	0	0	33.3	0	3.7	2.8	0	3.6	3.4





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Groups Printed- Cars - Bus - Heavy Vehicles

	Malden Street From North				Albany Street From East				Parking Lot From South				Albany Street From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	1	0	64	0	51	104	0	0	0	0	0	0	0	232	20	0	472
04:15 PM	2	0	54	0	61	81	0	2	0	0	0	0	0	212	21	0	433
04:30 PM	5	0	57	0	56	89	1	2	0	0	0	0	0	190	19	0	419
04:45 PM	6	0	46	0	52	116	0	0	0	0	0	0	0	176	18	0	414
Total	14	0	221	0	220	390	1	4	0	0	0	0	0	810	78	0	1738
05:00 PM	2	0	48	0	53	95	0	2	0	0	0	0	0	184	29	0	413
05:15 PM	6	0	60	0	74	92	0	1	0	0	0	0	0	218	10	0	461
05:30 PM	2	0	66	0	49	92	0	0	0	0	0	0	0	186	21	0	416
05:45 PM	5	0	75	0	56	105	0	4	0	0	0	0	0	127	12	0	384
Total	15	0	249	0	232	384	0	7	0	0	0	0	0	715	72	0	1674
Grand Total	29	0	470	0	452	774	1	11	0	0	0	0	0	1525	150	0	3412
Apprch %	5.8	0	94.2	0	36.5	62.5	0.1	0.9	0	0	0	0	0	91	9	0	
Total %	0.8	0	13.8	0	13.2	22.7	0	0.3	0	0	0	0	0	44.7	4.4	0	
Cars	26	0	451	0	427	727	1	11	0	0	0	0	0	1473	147	0	3263
% Cars	89.7	0	96	0	94.5	93.9	100	100	0	0	0	0	0	96.6	98	0	95.6
Bus	0	0	13	0	22	21	0	0	0	0	0	0	0	30	1	0	87
% Bus	0	0	2.8	0	4.9	2.7	0	0	0	0	0	0	0	2	0.7	0	2.5
Heavy Vehicles	3	0	6	0	3	26	0	0	0	0	0	0	0	22	2	0	62
% Heavy Vehicles	10.3	0	1.3	0	0.7	3.4	0	0	0	0	0	0	0	1.4	1.3	0	1.8

	Malden Street From North					Albany Street From East					Parking Lot From South					Albany Street From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	1	0	64	0	65	51	104	0	0	155	0	0	0	0	0	0	232	20	0	252	472
04:15 PM	2	0	54	0	56	61	81	0	2	144	0	0	0	0	0	0	212	21	0	233	433
04:30 PM	5	0	57	0	62	56	89	1	2	148	0	0	0	0	0	0	190	19	0	209	419
04:45 PM	6	0	46	0	52	52	116	0	0	168	0	0	0	0	0	0	176	18	0	194	414
Total Volume	14	0	221	0	235	220	390	1	4	615	0	0	0	0	0	0	810	78	0	888	1738
% App. Total	6	0	94	0		35.8	63.4	0.2	0.7		0	0	0	0	0	0	91.2	8.8	0		
PHF	.583	.000	.863	.000	.904	.902	.841	.250	.500	.915	.000	.000	.000	.000	.000	.000	.873	.929	.000	.881	.921
Cars	11	0	212	0	223	198	362	1	4	565	0	0	0	0	0	0	781	76	0	857	1645
% Cars	78.6	0	95.9	0	94.9	90.0	92.8	100	100	91.9	0	0	0	0	0	0	96.4	97.4	0	96.5	94.6
Bus	0	0	6	0	6	20	11	0	0	31	0	0	0	0	0	0	17	1	0	18	55
% Bus	0	0	2.7	0	2.6	9.1	2.8	0	0	5.0	0	0	0	0	0	0	2.1	1.3	0	2.0	3.2
Heavy Vehicles	3	0	3	0	6	2	17	0	0	19	0	0	0	0	0	0	12	1	0	13	38
% Heavy Vehicles	21.4	0	1.4	0	2.6	0.9	4.4	0	0	3.1	0	0	0	0	0	0	1.5	1.3	0	1.5	2.2



PRECISION
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N/S: Malden Street/ Parking Lot
E/W: Albany Street
City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 CC
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Cars

	Malden Street From North				Albany Street From East				Parking Lot From South				Albany Street From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	1	0	62	0	43	95	0	0	0	0	0	0	0	221	18	0	440
04:15 PM	2	0	51	0	55	75	0	2	0	0	0	0	0	204	21	0	410
04:30 PM	4	0	55	0	53	83	1	2	0	0	0	0	0	181	19	0	398
04:45 PM	4	0	44	0	47	109	0	0	0	0	0	0	0	175	18	0	397
Total	11	0	212	0	198	362	1	4	0	0	0	0	0	781	76	0	1645
05:00 PM	2	0	46	0	52	90	0	2	0	0	0	0	0	178	29	0	399
05:15 PM	6	0	57	0	72	86	0	1	0	0	0	0	0	210	10	0	442
05:30 PM	2	0	62	0	49	89	0	0	0	0	0	0	0	180	21	0	403
05:45 PM	5	0	74	0	56	100	0	4	0	0	0	0	0	124	11	0	374
Total	15	0	239	0	229	365	0	7	0	0	0	0	0	692	71	0	1618
Grand Total	26	0	451	0	427	727	1	11	0	0	0	0	0	1473	147	0	3263
Apprch %	5.5	0	94.5	0	36.6	62.3	0.1	0.9	0	0	0	0	0	90.9	9.1	0	
Total %	0.8	0	13.8	0	13.1	22.3	0	0.3	0	0	0	0	0	45.1	4.5	0	

	Malden Street From North					Albany Street From East					Parking Lot From South					Albany Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	1	0	62	0	63	43	95	0	0	138	0	0	0	0	0	0	221	18	0	239	440
04:15 PM	2	0	51	0	53	55	75	0	2	132	0	0	0	0	0	0	204	21	0	225	410
04:30 PM	4	0	55	0	59	53	83	1	2	139	0	0	0	0	0	0	181	19	0	200	398
04:45 PM	4	0	44	0	48	47	109	0	0	156	0	0	0	0	0	0	175	18	0	193	397
Total Volume	11	0	212	0	223	198	362	1	4	565	0	0	0	0	0	0	781	76	0	857	1645
% App. Total	4.9	0	95.1	0		35	64.1	0.2	0.7		0	0	0	0		0	91.1	8.9	0		
PHF	.688	.000	.855	.000	.885	.900	.830	.250	.500	.905	.000	.000	.000	.000	.000	.000	.883	.905	.000	.896	.935



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E/W: Albany Street
City, State: Boston, MA
Client: VHB/ L. Orlando

File Name : 143880 CC
Site Code : 12734.00
Start Date : 5/8/2014
Page No : 1

Groups Printed- Bus

	Malden Street From North				Albany Street From East				Parking Lot From South				Albany Street From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	0	1	0	8	4	0	0	0	0	0	0	0	8	1	0	22
04:15 PM	0	0	2	0	4	4	0	0	0	0	0	0	0	2	0	0	12
04:30 PM	0	0	1	0	3	1	0	0	0	0	0	0	0	7	0	0	12
04:45 PM	0	0	2	0	5	2	0	0	0	0	0	0	0	0	0	0	9
Total	0	0	6	0	20	11	0	0	0	0	0	0	0	17	1	0	55
05:00 PM	0	0	1	0	0	2	0	0	0	0	0	0	0	2	0	0	5
05:15 PM	0	0	3	0	2	2	0	0	0	0	0	0	0	5	0	0	12
05:30 PM	0	0	2	0	0	3	0	0	0	0	0	0	0	4	0	0	9
05:45 PM	0	0	1	0	0	3	0	0	0	0	0	0	0	2	0	0	6
Total	0	0	7	0	2	10	0	0	0	0	0	0	0	13	0	0	32
Grand Total	0	0	13	0	22	21	0	0	0	0	0	0	0	30	1	0	87
Apprch %	0	0	100	0	51.2	48.8	0	0	0	0	0	0	0	96.8	3.2	0	
Total %	0	0	14.9	0	25.3	24.1	0	0	0	0	0	0	0	34.5	1.1	0	

	Malden Street From North					Albany Street From East					Parking Lot From South					Albany Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	1	0	1	8	4	0	0	12	0	0	0	0	0	0	8	1	0	9	22
04:15 PM	0	0	2	0	2	4	4	0	0	8	0	0	0	0	0	0	2	0	0	2	12
04:30 PM	0	0	1	0	1	3	1	0	0	4	0	0	0	0	0	0	7	0	0	7	12
04:45 PM	0	0	2	0	2	5	2	0	0	7	0	0	0	0	0	0	0	0	0	0	9
Total Volume	0	0	6	0	6	20	11	0	0	31	0	0	0	0	0	0	17	1	0	18	55
% App. Total	0	0	100	0		64.5	35.5	0	0		0	0	0	0		0	94.4	5.6	0		
PHF	.000	.000	.750	.000	.750	.625	.688	.000	.000	.646	.000	.000	.000	.000	.000	.000	.531	.250	.000	.500	.625

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 Start Date : 5/8/2014
 Page No : 1

Groups Printed- Heavy Vehicles

	Malden Street From North				Albany Street From East				Parking Lot From South				Albany Street From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	0	1	0	0	5	0	0	0	0	0	0	0	3	1	0	10
04:15 PM	0	0	1	0	2	2	0	0	0	0	0	0	0	6	0	0	11
04:30 PM	1	0	1	0	0	5	0	0	0	0	0	0	0	2	0	0	9
04:45 PM	2	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0	8
Total	3	0	3	0	2	17	0	0	0	0	0	0	0	12	1	0	38
05:00 PM	0	0	1	0	1	3	0	0	0	0	0	0	0	4	0	0	9
05:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0	7
05:30 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	4
05:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	1	0	4
Total	0	0	3	0	1	9	0	0	0	0	0	0	0	10	1	0	24
Grand Total	3	0	6	0	3	26	0	0	0	0	0	0	0	22	2	0	62
Apprch %	33.3	0	66.7	0	10.3	89.7	0	0	0	0	0	0	0	91.7	8.3	0	
Total %	4.8	0	9.7	0	4.8	41.9	0	0	0	0	0	0	0	35.5	3.2	0	

	Malden Street From North					Albany Street From East					Parking Lot From South					Albany Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	1	0	1	0	5	0	0	5	0	0	0	0	0	0	3	1	0	4	10
04:15 PM	0	0	1	0	1	2	2	0	0	4	0	0	0	0	0	0	6	0	0	6	11
04:30 PM	1	0	1	0	2	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	9
04:45 PM	2	0	0	0	2	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	8
Total Volume	3	0	3	0	6	2	17	0	0	19	0	0	0	0	0	0	12	1	0	13	38
% App. Total	50	0	50	0		10.5	89.5	0	0		0	0	0	0		0	92.3	7.7	0		
PHF	.375	.000	.750	.000	.750	.250	.850	.000	.000	.950	.000	.000	.000	.000	.000	.000	.500	.250	.000	.542	.864



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Groups Printed- Peds and Bikes

	Malden Street From North				Albany Street From East				Parking Lot From South				Albany Street From West				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	0	0	0	12	0	0	0	0	0	0	0	1	0	0	0	3	16
04:15 PM	0	0	0	7	0	0	0	0	0	0	0	2	0	1	0	0	10
04:30 PM	0	0	0	14	0	0	0	1	0	0	0	4	0	0	0	2	21
04:45 PM	0	0	1	9	0	0	0	0	0	0	0	1	0	0	0	1	12
Total	0	0	1	42	0	0	0	1	0	0	0	8	0	1	0	6	59
05:00 PM	0	0	0	15	0	1	0	0	0	0	0	0	0	0	3	2	21
05:15 PM	0	0	0	11	0	2	0	0	0	0	0	0	0	0	6	3	22
05:30 PM	1	0	0	11	1	1	0	0	0	0	0	0	0	1	0	2	17
05:45 PM	0	0	1	2	0	0	0	0	0	0	0	0	0	1	0	0	4
Total	1	0	1	39	1	4	0	0	0	0	0	0	0	2	9	7	64
Grand Total	1	0	2	81	1	4	0	1	0	0	0	8	0	3	9	13	123
Apprch %	1.2	0	2.4	96.4	16.7	66.7	0	16.7	0	0	0	100	0	12	36	52	
Total %	0.8	0	1.6	65.9	0.8	3.3	0	0.8	0	0	0	6.5	0	2.4	7.3	10.6	

	Malden Street From North					Albany Street From East					Parking Lot From South					Albany Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	14	14	0	0	0	1	1	0	0	0	4	4	0	0	0	2	2	21
04:45 PM	0	0	1	9	10	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	12
05:00 PM	0	0	0	15	15	0	1	0	0	1	0	0	0	0	0	0	0	3	2	5	21
05:15 PM	0	0	0	11	11	0	2	0	0	2	0	0	0	0	0	0	0	6	3	9	22
Total Volume	0	0	1	49	50	0	3	0	1	4	0	0	0	5	5	0	0	9	8	17	76
% App. Total	0	0	2	98		0	75	0	25		0	0	0	100		0	0	52.9	47.1		
PHF	.000	.000	.250	.817	.833	.000	.375	.000	.250	.500	.000	.000	.000	.313	.313	.000	.000	.375	.667	.472	.864



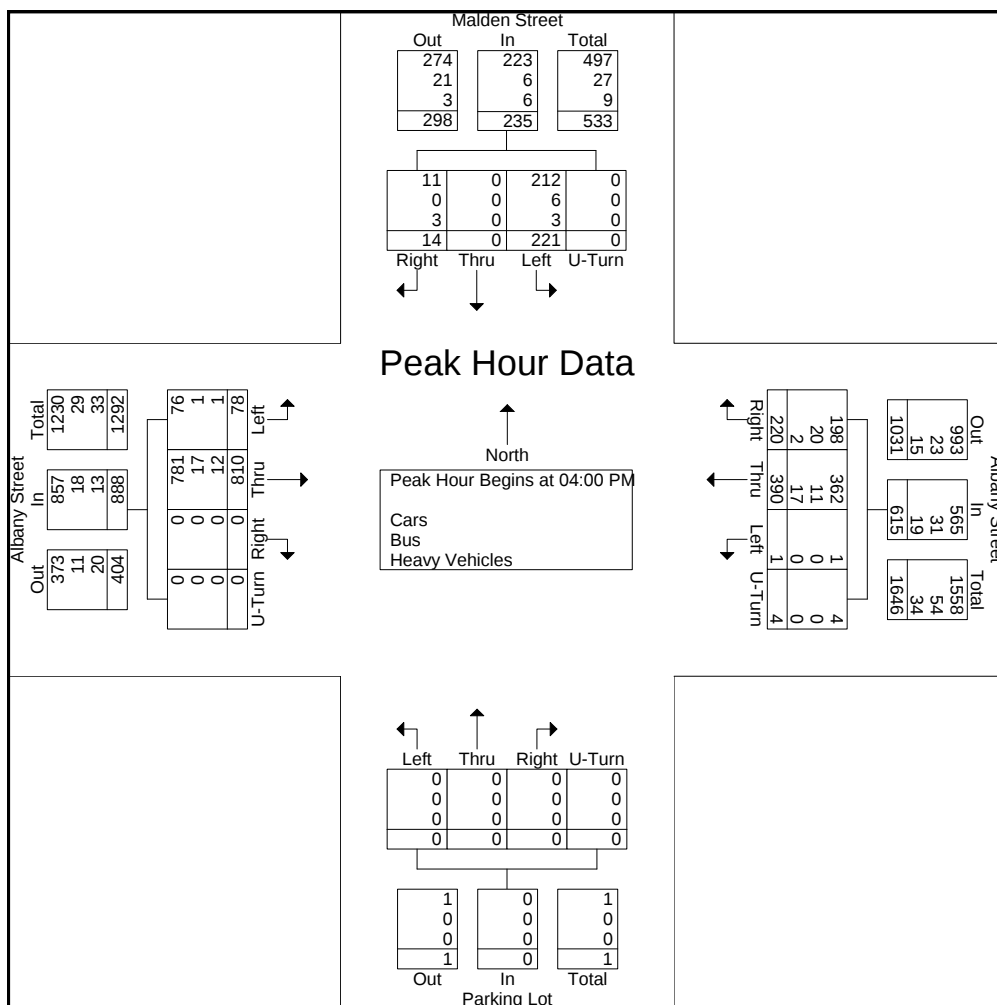
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	Malden Street From North					Albany Street From East					Parking Lot From South					Albany Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	1	0	64	0	65	51	104	0	0	155	0	0	0	0	0	0	232	20	0	252	472
04:15 PM	2	0	54	0	56	61	81	0	2	144	0	0	0	0	0	0	212	21	0	233	433
04:30 PM	5	0	57	0	62	56	89	1	2	148	0	0	0	0	0	0	190	19	0	209	419
04:45 PM	6	0	46	0	52	52	116	0	0	168	0	0	0	0	0	0	176	18	0	194	414
Total Volume	14	0	221	0	235	220	390	1	4	615	0	0	0	0	0	0	810	78	0	888	1738
% App. Total	6	0	94	0		35.8	63.4	0.2	0.7		0	0	0	0		0	91.2	8.8	0		
PHF	.583	.000	.863	.000	.904	.902	.841	.250	.500	.915	.000	.000	.000	.000	.000	.000	.873	.929	.000	.881	.921
Cars	11	0	212	0	223	198	362	1	4	565	0	0	0	0	0	0	781	76	0	857	1645
% Cars	78.6	0	95.9	0	94.9	90.0	92.8	100	100	91.9	0	0	0	0	0	0	96.4	97.4	0	96.5	94.6
Bus	0	0	6	0	6	20	11	0	0	31	0	0	0	0	0	0	17	1	0	18	55
% Bus	0	0	2.7	0	2.6	9.1	2.8	0	0	5.0	0	0	0	0	0	0	2.1	1.3	0	2.0	3.2
Heavy Vehicles	3	0	3	0	6	2	17	0	0	19	0	0	0	0	0	0	12	1	0	13	38
% Heavy Vehicles	21.4	0	1.4	0	2.6	0.9	4.4	0	0	3.1	0	0	0	0	0	0	1.5	1.3	0	1.5	2.2



Synchro Level of Service

46 Wareham Street, Boston
1: Malden St & Wareham St.

2014 Existing Condition
Morning Peak

						
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	255	85	15	300	0	0
Peak Hour Factor	0.86	0.86	0.82	0.82	0.92	0.92
Hourly flow rate (vph)	297	99	18	366	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)	108					
pX, platoon unblocked			0.81		0.81	0.81
vC, conflicting volume			395		748	346
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			253		689	192
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	100
cM capacity (veh/h)			1048		327	688
Direction, Lane #	EB 1	WB 1				
Volume Total	395	384				
Volume Left	0	18				
Volume Right	99	0				
cSH	1700	1048				
Volume to Capacity	0.23	0.02				
Queue Length 95th (ft)	0	1				
Control Delay (s)	0.0	0.6				
Lane LOS		A				
Approach Delay (s)	0.0	0.6				
Approach LOS						
Intersection Summary						
Average Delay		0.3				
Intersection Capacity Utilization		34.5%	ICU Level of Service	A		
Analysis Period (min)		15				

46 Wareham Street, Boston
2: Wareham St. & Driveway

2014 Existing Condition
Morning Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	100	0	0	0	0
Peak Hour Factor	0.83	0.83	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	120	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				120	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				120	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1604				868	1076
Direction, Lane #	EB 1	SB 1				
Volume Total	120	0				
Volume Left	0	0				
Volume Right	0	0				
cSH	1604	1700				
Volume to Capacity	0.00	0.00				
Queue Length 95th (ft)	0	0				
Control Delay (s)	0.0	0.0				
Lane LOS		A				
Approach Delay (s)	0.0	0.0				
Approach LOS		A				
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		9.2%	ICU Level of Service	A		
Analysis Period (min)		15				

46 Wareham Street, Boston
3: Wareham St. &

2014 Existing Condition
Morning Peak

									
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations									
Sign Control	Stop			Free	Free				
Grade	0%			0%	0%				
Volume (veh/h)	55	45	0	540	435	0			
Peak Hour Factor	0.81	0.81	0.88	0.88	0.93	0.93			
Hourly flow rate (vph)	68	56	0	614	468	0			
Pedestrians	2			13	11				
Lane Width (ft)	16.0			12.0	12.0				
Walking Speed (ft/s)	4.0			4.0	4.0				
Percent Blockage	0			1	1				
Right turn flare (veh)									
Median type	None								
Median storage (veh)									
Upstream signal (ft)									
pX, platoon unblocked									
vC, conflicting volume	1094	483	470						
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol	1094	483	470						
tC, single (s)	6.4	6.2	4.2						
tC, 2 stage (s)									
tF (s)	3.5	3.3	2.3						
p0 queue free %	71	90	100						
cM capacity (veh/h)	231	570	1069						
Direction, Lane #	EB 1	NB 1	SB 1						
Volume Total	123	614	468						
Volume Left	68	0	0						
Volume Right	56	0	0						
cSH	315	1700	1700						
Volume to Capacity	0.39	0.36	0.28						
Queue Length 95th (ft)	45	0	0						
Control Delay (s)	23.6	0.0	0.0						
Lane LOS	C								
Approach Delay (s)	23.6	0.0	0.0						
Approach LOS	C								
Intersection Summary									
Average Delay	2.4								
Intersection Capacity Utilization	47.5%		ICU Level of Service		A				
Analysis Period (min)	15								

46 Wareham Street, Boston
4: Malden St & Albany St

2014 Existing Condition
Morning Peak

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	210	15	70	535	425	250
Peak Hour Factor	0.94	0.94	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	223	16	80	608	462	272
Pedestrians	56			56	44	
Lane Width (ft)	12.0			12.0	11.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	5			5	3	
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1161	710	790			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1161	710	790			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	0	95	90			
cM capacity (veh/h)	151	334	763			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	239	282	405	734		
Volume Left	223	80	0	0		
Volume Right	16	0	0	272		
cSH	156	763	1700	1700		
Volume to Capacity	1.53	0.10	0.24	0.43		
Queue Length 95th (ft)	400	9	0	0		
Control Delay (s)	320.9	3.8	0.0	0.0		
Lane LOS	F	A				
Approach Delay (s)	320.9	1.5		0.0		
Approach LOS	F					
Intersection Summary						
Average Delay	46.9					
Intersection Capacity Utilization	86.1%		ICU Level of Service		E	
Analysis Period (min)	15					

46 Wareham Street, Boston
1: Malden St & Wareham St.

2014 Existing Condition
Evening Peak

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	265	125	10	305	0	0
Peak Hour Factor	0.91	0.91	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	291	137	11	332	0	0
Pedestrians					9	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)	108					
pX, platoon unblocked			0.77		0.77	0.77
vC, conflicting volume			438		722	369
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			271		640	182
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			992		335	664
Direction, Lane #	EB 1	WB 1				
Volume Total	429	342				
Volume Left	0	11				
Volume Right	137	0				
cSH	1700	992				
Volume to Capacity	0.25	0.01				
Queue Length 95th (ft)	0	1				
Control Delay (s)	0.0	0.4				
Lane LOS	A					
Approach Delay (s)	0.0	0.4				
Approach LOS						
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization	30.1%		ICU Level of Service		A	
Analysis Period (min)	15					

46 Wareham Street, Boston
2: Wareham St. & Driveway

2014 Existing Condition
Evening Peak

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰			↰	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	1	130	0	0	0	0
Peak Hour Factor	0.89	0.89	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	146	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				148	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				148	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1604				843	1085
Direction, Lane #	EB 1	SB 1				
Volume Total	147	0				
Volume Left	1	0				
Volume Right	0	0				
cSH	1604	1700				
Volume to Capacity	0.00	0.00				
Queue Length 95th (ft)	0	0				
Control Delay (s)	0.1	0.0				
Lane LOS	A	A				
Approach Delay (s)	0.1	0.0				
Approach LOS		A				
Intersection Summary						
Average Delay	0.1					
Intersection Capacity Utilization	11.0%		ICU Level of Service		A	
Analysis Period (min)	15					

46 Wareham Street, Boston
3: Wareham St. &

2014 Existing Condition
Evening Peak

									
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations									
Sign Control	Stop			Free	Free				
Grade	0%			0%	0%				
Volume (veh/h)	90	40	0	750	405	0			
Peak Hour Factor	0.86	0.86	0.94	0.94	0.84	0.84			
Hourly flow rate (vph)	105	47	0	798	482	0			
Pedestrians	65			65	63				
Lane Width (ft)	16.0			12.0	12.0				
Walking Speed (ft/s)	4.0			4.0	4.0				
Percent Blockage	7			5	5				
Right turn flare (veh)									
Median type	None								
Median storage (veh)									
Upstream signal (ft)									
pX, platoon unblocked									
vC, conflicting volume	1408	612	547						
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol	1408	612	547						
tC, single (s)	6.5	6.3	4.1						
tC, 2 stage (s)									
tF (s)	3.6	3.4	2.2						
p0 queue free %	21	89	100						
cM capacity (veh/h)	132	426	944						
Direction, Lane #	EB 1	NB 1	SB 1						
Volume Total	151	798	482						
Volume Left	105	0	0						
Volume Right	47	0	0						
cSH	167	1700	1700						
Volume to Capacity	0.90	0.47	0.28						
Queue Length 95th (ft)	165	0	0						
Control Delay (s)	100.8	0.0	0.0						
Lane LOS	F								
Approach Delay (s)	100.8	0.0	0.0						
Approach LOS	F								
Intersection Summary									
Average Delay			10.6						
Intersection Capacity Utilization			63.4%	ICU Level of Service	B				
Analysis Period (min)			15						

46 Wareham Street, Boston
4: Malden St & Albany St

2014 Existing Condition
Evening Peak

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	210	20	75	770	390	235
Peak Hour Factor	0.87	0.87	0.93	0.93	0.94	0.94
Hourly flow rate (vph)	241	23	81	828	415	250
Pedestrians	57			57	50	
Lane Width (ft)	12.0			12.0	11.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	5			5	4	
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1222	654	722			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1222	654	722			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	94	90			
cM capacity (veh/h)	139	365	828			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	264	357	552	665		
Volume Left	241	81	0	0		
Volume Right	23	0	0	250		
cSH	147	828	1700	1700		
Volume to Capacity	1.80	0.10	0.32	0.39		
Queue Length 95th (ft)	494	8	0	0		
Control Delay (s)	439.9	3.1	0.0	0.0		
Lane LOS	F	A				
Approach Delay (s)	439.9	1.2		0.0		
Approach LOS	F					
Intersection Summary						
Average Delay			63.9			
Intersection Capacity Utilization			91.0%	ICU Level of Service	E	
Analysis Period (min)			15			

46 Wareham Street, Boston
1: Malden St & Wareham St.

2019 NoBuild Condition
Morning Peak Hou

						
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	261	103	15	317	0	0
Peak Hour Factor	0.86	0.86	0.82	0.82	0.92	0.92
Hourly flow rate (vph)	303	120	18	387	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)	108					
pX, platoon unblocked			0.78		0.78	0.78
vC, conflicting volume			423		787	363
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			265		728	188
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	100
cM capacity (veh/h)			1006		301	670
Direction, Lane #	EB 1	WB 1				
Volume Total	423	405				
Volume Left	0	18				
Volume Right	120	0				
cSH	1700	1006				
Volume to Capacity	0.25	0.02				
Queue Length 95th (ft)	0	1				
Control Delay (s)	0.0	0.6				
Lane LOS		A				
Approach Delay (s)	0.0	0.6				
Approach LOS						
Intersection Summary						
Average Delay		0.3				
Intersection Capacity Utilization		35.4%	ICU Level of Service	A		
Analysis Period (min)		15				

46 Wareham Street, Boston
2: Wareham St. & Driveway

2019 NoBuild Condition
Morning Peak Hou

	↖	→	←	↙	↘	↗
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖			↖	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	119	0	0	0	0
Peak Hour Factor	0.83	0.83	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	143	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				143	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				143	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1604				842	1076
Direction, Lane #	EB 1	SB 1				
Volume Total	143	0				
Volume Left	0	0				
Volume Right	0	0				
cSH	1604	1700				
Volume to Capacity	0.00	0.00				
Queue Length 95th (ft)	0	0				
Control Delay (s)	0.0	0.0				
Lane LOS		A				
Approach Delay (s)	0.0	0.0				
Approach LOS		A				
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		10.3%	ICU Level of Service	A		
Analysis Period (min)		15				

46 Wareham Street, Boston
3: Wareham St. &

2019 NoBuild Condition
Morning Peak Hou

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰			↑	↑	
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	56	62	0	586	449	0
Peak Hour Factor	0.81	0.81	0.88	0.88	0.93	0.93
Hourly flow rate (vph)	69	77	0	666	483	0
Pedestrians	2			13	11	
Lane Width (ft)	16.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			1	1	
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1162	498	485			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1162	498	485			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	67	86	100			
cM capacity (veh/h)	210	559	1055			
Direction, Lane #	EB 1		NB 1	SB 1		
Volume Total	146		666	483		
Volume Left	69	0	0			
Volume Right	77	0	0			
cSH	313	1700	1700			
Volume to Capacity	0.47	0.39	0.28			
Queue Length 95th (ft)	59	0	0			
Control Delay (s)	26.2	0.0	0.0			
Lane LOS	D					
Approach Delay (s)	26.2	0.0	0.0			
Approach LOS	D					
Intersection Summary						
Average Delay			2.9			
Intersection Capacity Utilization		51.0%		ICU Level of Service		A
Analysis Period (min)			15			

46 Wareham Street, Boston
4: Malden St & Albany St

2019 NoBuild Condition
Morning Peak Hou

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	226	15	89	579	462	268
Peak Hour Factor	0.94	0.94	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	240	16	101	658	502	291
Pedestrians	56			56	44	
Lane Width (ft)	12.0			12.0	11.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	5			5	3	
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1279	760	849			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1279	760	849			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	0	95	86			
cM capacity (veh/h)	121	309	724			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	256	320	439	793		
Volume Left	240	101	0	0		
Volume Right	16	0	0	291		
cSH	126	724	1700	1700		
Volume to Capacity	2.04	0.14	0.26	0.47		
Queue Length 95th (ft)	524	12	0	0		
Control Delay (s)	553.0	4.6	0.0	0.0		
Lane LOS	F	A				
Approach Delay (s)	553.0	1.9		0.0		
Approach LOS	F					
Intersection Summary						
Average Delay			79.2			
Intersection Capacity Utilization	92.4%			ICU Level of Service	F	
Analysis Period (min)			15			

46 Wareham Street, Boston
1: Malden St & Wareham St.

2019 NoBuild Condition
Evening Peak

						
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Volume (veh/h)	272	169	10	332	0	0
Peak Hour Factor	0.91	0.91	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	299	186	11	361	0	0
Pedestrians					9	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)	108					
pX, platoon unblocked			0.76		0.76	0.76
vC, conflicting volume			494		783	401
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			335		715	213
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			928		299	630
Direction, Lane #	EB 1	WB 1				
Volume Total	485	372				
Volume Left	0	11				
Volume Right	186	0				
cSH	1700	928				
Volume to Capacity	0.29	0.01				
Queue Length 95th (ft)	0	1				
Control Delay (s)	0.0	0.4				
Lane LOS		A				
Approach Delay (s)	0.0	0.4				
Approach LOS						
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			31.7%		ICU Level of Service	A
Analysis Period (min)			15			

46 Wareham Street, Boston
2: Wareham St. & Driveway

2019 NoBuild Condition
Evening Peak

	↖	→	←	↖	↙	↗
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖			↖	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	1	174	0	0	0	0
Peak Hour Factor	0.89	0.89	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	196	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				198	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				198	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1604				790	1085
Direction, Lane #	EB 1	SB 1				
Volume Total	197	0				
Volume Left	1	0				
Volume Right	0	0				
cSH	1604	1700				
Volume to Capacity	0.00	0.00				
Queue Length 95th (ft)	0	0				
Control Delay (s)	0.0	0.0				
Lane LOS	A	A				
Approach Delay (s)	0.0	0.0				
Approach LOS		A				
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		13.6%	ICU Level of Service	A		
Analysis Period (min)		15				

46 Wareham Street, Boston
3: Wareham St. &

2019 NoBuild Condition
Evening Peak

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	92	82	0	840	417	0
Peak Hour Factor	0.86	0.86	0.94	0.94	0.84	0.84
Hourly flow rate (vph)	107	95	0	894	496	0
Pedestrians	65			65	63	
Lane Width (ft)	16.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	7			5	5	
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1518	626	561			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1518	626	561			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	5	77	100			
cM capacity (veh/h)	113	418	932			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	202	894	496			
Volume Left	107	0	0			
Volume Right	95	0	0			
cSH	172	1700	1700			
Volume to Capacity	1.18	0.53	0.29			
Queue Length 95th (ft)	270	0	0			
Control Delay (s)	178.3	0.0	0.0			
Lane LOS	F					
Approach Delay (s)	178.3	0.0	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		22.7				
Intersection Capacity Utilization		69.3%		ICU Level of Service	C	
Analysis Period (min)		15				

46 Wareham Street, Boston
4: Malden St & Albany St

2019 NoBuild Condition
Evening Peak

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	240	21	105	867	406	256
Peak Hour Factor	0.87	0.87	0.93	0.93	0.94	0.94
Hourly flow rate (vph)	276	24	113	932	432	272
Pedestrians	57			57	50	
Lane Width (ft)	12.0			12.0	11.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	5			5	4	
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1367	682	761			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1367	682	761			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	93	86			
cM capacity (veh/h)	106	350	800			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	300	424	622	704		
Volume Left	276	113	0	0		
Volume Right	24	0	0	272		
cSH	112	800	1700	1700		
Volume to Capacity	2.68	0.14	0.37	0.41		
Queue Length 95th (ft)	689	12	0	0		
Control Delay (s)	840.0	4.0	0.0	0.0		
Lane LOS	F	A				
Approach Delay (s)	840.0	1.6		0.0		
Approach LOS	F					
Intersection Summary						
Average Delay		123.8				
Intersection Capacity Utilization		99.2%		ICU Level of Service	F	
Analysis Period (min)		15				

46 Wareham Street, Boston
1: Malden St & Wareham St.

2019 Build Condition
Morning Peak Hou

						
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Volume (veh/h)	261	107	16	320	0	0
Peak Hour Factor	0.86	0.86	0.82	0.82	0.92	0.92
Hourly flow rate (vph)	303	124	20	390	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)	108					
pX, platoon unblocked			0.78		0.78	0.78
vC, conflicting volume			428		795	366
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			268		738	189
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	100
cM capacity (veh/h)			999		295	667
Direction, Lane #	EB 1	WB 1				
Volume Total	428	410				
Volume Left	0	20				
Volume Right	124	0				
cSH	1700	999				
Volume to Capacity	0.25	0.02				
Queue Length 95th (ft)	0	1				
Control Delay (s)	0.0	0.6				
Lane LOS		A				
Approach Delay (s)	0.0	0.6				
Approach LOS						
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			36.5%	ICU Level of Service	A	
Analysis Period (min)			15			

46 Wareham Street, Boston
2: Wareham St. & Driveway

2019 Build Condition
Morning Peak Hou

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	5	119	0	0	12	0
Peak Hour Factor	0.83	0.83	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	6	143	0	0	13	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				155	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				155	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1604				826	1076
Direction, Lane #	EB 1	SB 1				
Volume Total	149	13				
Volume Left	6	13				
Volume Right	0	0				
cSH	1604	826				
Volume to Capacity	0.00	0.02				
Queue Length 95th (ft)	0	1				
Control Delay (s)	0.3	9.4				
Lane LOS	A	A				
Approach Delay (s)	0.3	9.4				
Approach LOS		A				
Intersection Summary						
Average Delay		1.1				
Intersection Capacity Utilization		17.3%	ICU Level of Service	A		
Analysis Period (min)		15				

46 Wareham Street, Boston
3: Wareham St. &

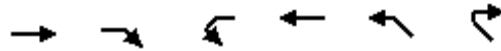
2019 Build Condition
Morning Peak Hou

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	65	62	0	586	449	0
Peak Hour Factor	0.81	0.81	0.88	0.88	0.93	0.93
Hourly flow rate (vph)	80	77	0	666	483	0
Pedestrians	2			13	11	
Lane Width (ft)	16.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			1	1	
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1162	498	485			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1162	498	485			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	62	86	100			
cM capacity (veh/h)	210	559	1055			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	157	666	483			
Volume Left	80	0	0			
Volume Right	77	0	0			
cSH	302	1700	1700			
Volume to Capacity	0.52	0.39	0.28			
Queue Length 95th (ft)	70	0	0			
Control Delay (s)	29.1	0.0	0.0			
Lane LOS	D					
Approach Delay (s)	29.1	0.0	0.0			
Approach LOS	D					
Intersection Summary						
Average Delay		3.5				
Intersection Capacity Utilization		51.4%		ICU Level of Service	A	
Analysis Period (min)		15				

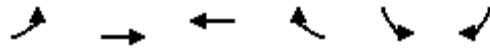
46 Wareham Street, Boston
4: Malden St & Albany St

2019 Build Condition
Morning Peak Hou

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	226	15	92	587	462	259
Peak Hour Factor	0.94	0.94	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	240	16	105	667	502	282
Pedestrians	56			56	44	
Lane Width (ft)	12.0			12.0	11.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	5			5	3	
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1286	755	840			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1286	755	840			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	0	95	86			
cM capacity (veh/h)	119	311	730			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	256	327	445	784		
Volume Left	240	105	0	0		
Volume Right	16	0	0	282		
cSH	124	730	1700	1700		
Volume to Capacity	2.07	0.14	0.26	0.46		
Queue Length 95th (ft)	528	12	0	0		
Control Delay (s)	565.9	4.6	0.0	0.0		
Lane LOS	F	A				
Approach Delay (s)	565.9	2.0		0.0		
Approach LOS	F					
Intersection Summary						
Average Delay		80.9				
Intersection Capacity Utilization		92.1%		ICU Level of Service	F	
Analysis Period (min)		15				



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↶			↷		
Sign Control	Free			Free		Stop
Grade	0%			0%		0%
Volume (veh/h)	272	185	12	337	0	0
Peak Hour Factor	0.91	0.91	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	299	203	13	366	0	0
Pedestrians						9
Lane Width (ft)						0.0
Walking Speed (ft/s)						4.0
Percent Blockage						0
Right turn flare (veh)						
Median type						None
Median storage (veh)						
Upstream signal (ft)	108					
pX, platoon unblocked			0.76		0.76	0.76
vC, conflicting volume			511		802	410
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			354		738	220
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			907		287	620
Direction, Lane #	EB 1	WB 1				
Volume Total	502	379				
Volume Left	0	13				
Volume Right	203	0				
cSH	1700	907				
Volume to Capacity	0.30	0.01				
Queue Length 95th (ft)	0	1				
Control Delay (s)	0.0	0.5				
Lane LOS		A				
Approach Delay (s)	0.0	0.5				
Approach LOS						
Intersection Summary						
Average Delay		0.2				
Intersection Capacity Utilization		33.8%		ICU Level of Service		A
Analysis Period (min)		15				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰			↰	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	19	174	0	0	15	0
Peak Hour Factor	0.89	0.89	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	196	0	0	16	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0				238	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				238	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	100
cM capacity (veh/h)	1604				740	1085
Direction, Lane #	EB 1	SB 1				
Volume Total	217	16				
Volume Left	21	16				
Volume Right	0	0				
cSH	1604	740				
Volume to Capacity	0.01	0.02				
Queue Length 95th (ft)	1	2				
Control Delay (s)	0.8	10.0				
Lane LOS	A	A				
Approach Delay (s)	0.8	10.0				
Approach LOS		A				
Intersection Summary						
Average Delay		1.5				
Intersection Capacity Utilization		21.3%		ICU Level of Service		A
Analysis Period (min)		15				

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	106	83	0	841	417	0
Peak Hour Factor	0.86	0.86	0.94	0.94	0.84	0.84
Hourly flow rate (vph)	123	97	0	895	496	0
Pedestrians	65			65	63	
Lane Width (ft)	16.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	7			5	5	
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1519	626	561			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1519	626	561			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	0	77	100			
cM capacity (veh/h)	113	418	932			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	220	895	496			
Volume Left	123	0	0			
Volume Right	97	0	0			
cSH	166	1700	1700			
Volume to Capacity	1.33	0.53	0.29			
Queue Length 95th (ft)	326	0	0			
Control Delay (s)	235.3	0.0	0.0			
Lane LOS	F					
Approach Delay (s)	235.3	0.0	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay			32.1			
Intersection Capacity Utilization			70.1%	ICU Level of Service	C	
Analysis Period (min)			15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	240	21	111	876	406	257
Peak Hour Factor	0.87	0.87	0.93	0.93	0.94	0.94
Hourly flow rate (vph)	276	24	119	942	432	273
Pedestrians	57			57	50	
Lane Width (ft)	12.0			12.0	11.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	5			5	4	
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1385	683	762			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1385	683	762			
tC, single (s)	6.9	7.0	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	0	93	85			
cM capacity (veh/h)	102	349	799			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	300	433	628	705		
Volume Left	276	119	0	0		
Volume Right	24	0	0	273		
cSH	108	799	1700	1700		
Volume to Capacity	2.78	0.15	0.37	0.41		
Queue Length 95th (ft)	700	13	0	0		
Control Delay (s)	887.0	4.2	0.0	0.0		
Lane LOS	F	A				
Approach Delay (s)	887.0	1.7		0.0		
Approach LOS	F					
Intersection Summary						
Average Delay			129.6			
Intersection Capacity Utilization			99.7%	ICU Level of Service	F	
Analysis Period (min)			15			

Trip Generation

46 Wareham - Retail Trips

BTD Area 15 Mode Shar	Daily		AM		PM		Vehicle Occupancy	
	IN	OUT	IN	OUT	IN	OUT		
Auto a.	53%	53%	53%	53%	53%	53%	VOR (National) d.	1.78 (used to change ITE Trips to Person Trips)
Transit b.	12%	12%	12%	12%	12%	12%	VOR (Local) e.	1.78 (Used to change Person Trips to Auto Trips)
Walk c.	35%	35%	35%	35%	35%	35%		

Trips by Mode Share

	ITE Trips	Person Trips	Auto-Person Trips	Auto Trips	Transit Trips	Walk Trips	
Period	national VOR			local VOR			
Weekday Daily							
Entering	196	350	185	104	42	122	
Exiting	196	350	185	104	42	122	
Total	393	699	371	208	84	245	
Weekday Morning							
Entering	5	10	5	3	1	3	with peak mode shares 3
Exiting	3	6	3	2	1	2	1
Total	9	16	8	5	2	6	
Weekday Evening							
Entering	16	29	15	9	3	10	7
Exiting	18	32	17	9	4	11	9
Total	34	61	32	18	7	21	

46 Wareham - Residential Trips

BTD Area 15 Mode Sha	Daily		AM		PM		Vehicle Occupancy	
	IN	OUT	IN	OUT	IN	OUT		
Auto a.	57%	57%	57%	57%	57%	57%	VOR (National) d.	1.13 (used to change ITE Trips to Person Trips)
Transit b.	17%	17%	17%	17%	17%	17%	VOR (Local) e.	1.13 (Used to change Person Trips to Auto Trips)
Walk c.	26%	26%	26%	26%	26%	26%		

Trips by Mode Share

	ITE Trips	Person Trips	Auto-Person Trips	Auto Trips	Transit Trips	Walk Trips		
Period	national VOR			local VOR				
Weekday Daily								
Entering	140	158	90	80	27	41		
Exiting	140	158	90	80	27	41		
Total	279	316	180	159	54	82		
Weekday Morning								
Entering	4	5	3	2	1	1	2	residential + retail
Exiting	17	19	11	10	3	5	8	5
Total	21	24	14	12	4	6		12
Weekday Evening								
Entering	17	19	11	10	3	5	7	17
Exiting	9	10	6	5	2	3	5	12
Total	26	29	17	15	5	8		15

ITE TRIP GENERATION WORKSHEET
(9th Edition, Updated 2012)

LANDUSE: Shopping Center (non-Christmas)
LANDUSE CODE: 820

Independent Variable --- 1,000 square feet GLA

JOB NAME:
JOB NUMBER:

SIZE (ksf): 9.2

WEEKDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	302	0.79	42.70	12.50	270.89	331	0	1600	50%	50%
AM PEAK	104	0.56	0.96	0.10	9.05	310	0	1600	62%	38%
PM PEAK	426	0.81	3.71	0.68	29.27	376	0	2400	48%	52%

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	393	196	196	1440	720	720
AM PEAK (ADJACENT ST)	9	5	3	37	23	14
PM PEAK (ADJACENT ST)	34	16	18	130	62	67

SATURDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	123	0.82	49.97	16.70	227.50	450	0	1600	50%	50%
PEAK OF GENERATOR	128	0.83	4.82	1.46	18.32	458	0	1600	52%	48%

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	460	230	230	2,055	1,028	1,028
PEAK OF GENERATOR	44	23	21	184	95	88

SUNDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	77	0.52	25.24	4.15	148.15	439	0	1600	50%	50%
PEAK OF GENERATOR	39	---	3.12	0.39	12.40	369	0	1300	49%	51%

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	232	116	116	4358	2179	2179
PEAK OF GENERATOR	29	14	15	NA	NA	NA

ITE TRIP GENERATION WORKSHEET
(9th Edition, Updated 2012)

LANDUSE: Apartment
LANDUSE CODE: 220

Independent Variable --- Number of Units

JOB NAME:
JOB NUMBER:

UNITS (#): 42

WEEKDAY

RATES:		# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
				Average	Low	High	Average	Low	High	Enter	Exit
	DAILY	88	0.87	6.65	1.27	12.50	210	0	1000	50%	50%
	AM PEAK (ADJACENT ST)	78	0.83	0.51	0.10	1.02	235	0	1100	20%	80%
	PM PEAK (ADJACENT ST)	90	0.77	0.62	0.10	1.64	233	0	1100	65%	35%

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	279	140	140	403	201	201
AM PEAK (ADJACENT ST)	21	4	17	24	5	19
PM PEAK (ADJACENT ST)	26	17	9	41	26	14

SATURDAY

RATES:		# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
				Average	Low	High	Average	Low	High	Enter	Exit
	DAILY	15	0.85	6.39	2.84	8.40	175	65	360	50%	50%
	PEAK OF GENERATOR	14	0.56	0.52	0.26	1.05	178	65	360	Peak Distribution Not Available	

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	268	134	134	74	37	37
PEAK OF GENERATOR	22	NA	NA	36	NA	NA

SUNDAY

RATES:		# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
				Average	Low	High	Average	Low	High	Enter	Exit
	DAILY	14	0.82	5.86	3.21	7.53	182	90	360	50%	50%
	PEAK OF GENERATOR	13	--	0.51	0.26	1.43	186	90	380	Peak Distribution Not Available	

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	246	123	123	169	84	84
PEAK OF GENERATOR	21	NA	NA	NA	NA	NA

Crash/Accident Analysis

CRASH RATE WORKSHEET

CITY/TOWN : Boston

COUNT DATE :

MassDOT USE ONLY

DISTRICT : 6

UNSIGNALIZED : X

SIGNALIZED :

Source #

~ INTERSECTION DATA ~

MAJOR STREET : Albany Street

RIN #

MINOR STREET(S) : Wareham Street

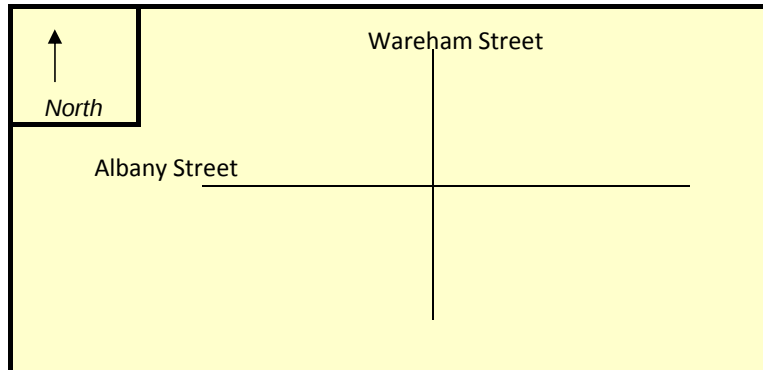
RIN #

RIN #

RIN #

RIN #

INTERSECTION
 DIAGRAM
 (Label Approaches)



INTERSECTION
 REF #

Peak Hour Volumes

APPROACH :

DIRECTION :

VOLUMES (PM) :

1	2	3	4	5	6
NB	SB	EB	WB		
	131	749	429		

" K " FACTOR :

0.09

APPROACH ADT :

14544.444

ADT = TOTAL VOL/"K" FACT.

TOTAL # OF
 ACCIDENTS :

1

OF
 YEARS :

3

AVERAGE # OF
 ACCIDENTS (A) :

0.33

CRASH RATE CALCULATION :

0.06

RATE =

$$\frac{(A * 1,000,000)}{(ADT * 365)}$$

Source (optional):

Comments:

CRASH RATE WORKSHEET

CITY/TOWN : Boston

COUNT DATE :

MassDOT USE ONLY

DISTRICT : 6

UNSIGNALIZED : X

SIGNALIZED :

Source #

~ INTERSECTION DATA ~

MAJOR STREET : Albany Street

RIN #

MINOR STREET(S) : Malden Street

RIN #

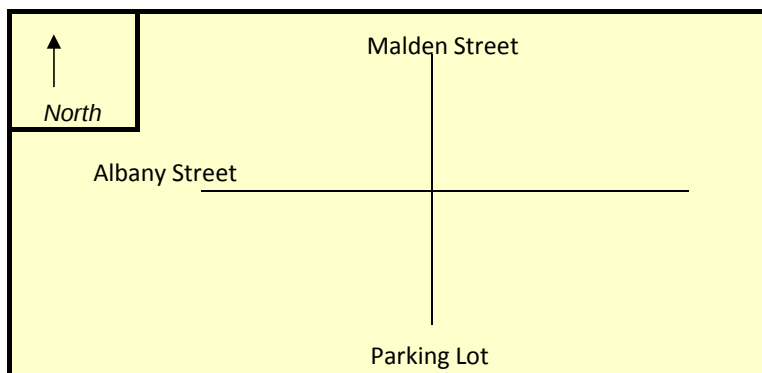
Parking Lot

RIN #

RIN #

RIN #

INTERSECTION
 DIAGRAM
 (Label Approaches)



INTERSECTION
 REF #

Peak Hour Volumes

APPROACH :

DIRECTION :

VOLUMES (PM) :

1	2	3	4	5	6
NB	SB	EB	WB		
0	230	844	633		

" K " FACTOR :

0.09

APPROACH ADT :

18966.667

ADT = TOTAL VOL/"K" FACT.

TOTAL # OF
 ACCIDENTS :

2

OF
 YEARS :

3

AVERAGE # OF
 ACCIDENTS (A) :

0.67

CRASH RATE CALCULATION :

0.10

RATE =

$$\frac{(A * 1,000,000)}{(ADT * 365)}$$

Source (optional):

Comments:



Appendix D

Noise Analysis

- **Noise Monitoring Data**
- **Mechanical Equipment Sound Level Data**
- **Receptor Location Sound Level Calculation**

Noise Monitoring Data

Summary

Filename	14051502.LD0
Serial Number	3707
Model	SoundExpert™ LxT
Firmware Version	2.205
User	QVT/JR
Location	Wareham Street
Job Description	46 Wareham St

Note

Measurement Description

Start	2014/05/15 15:13:18
Stop	2014/05/15 15:33:39
Duration	0:20:20.6
Run Time	0:20:20.6
Pause	0:00:00.0

Pre Calibration	2014/05/15 15:12:08
Post Calibration	2014/05/15 15:34:08
Calibration Deviation	-0.05 dB

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/1 Octave
OBA Freq. Weighting	A Weighting

Results

LASeq	63.6 dB
LAS1.00	72.7 dB
LAS5.00	65.3 dB
LAS10.00	64.0 dB
LAS15.00	63.3 dB
LAS50.00	61.4 dB
LAS90.00	60.1 dB

Summary

Filename	14051501.LD0
Serial Number	3707
Model	SoundExpert™ LxT
Firmware Version	2.205
User	QVT/JR
Location	Malden Street
Job Description	46 Wareham St

Note

Measurement Description

Start	2014/05/15 14:47:28
Stop	2014/05/15 15:07:15
Duration	0:19:46.5
Run Time	0:19:46.5
Pause	0:00:00.0

Pre Calibration	2014/05/15 14:43:16
Post Calibration	2014/05/15 15:07:53
Calibration Deviation	0.01 dB

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/1 Octave
OBA Freq. Weighting	A Weighting

Results

LASeq	63.2 dB
LAS1.00	71.6 dB
LAS5.00	68.1 dB
LAS10.00	66.0 dB
LAS15.00	64.9 dB
LAS50.00	61.0 dB
LAS90.00	57.6 dB

Summary

Filename	14051400.LD0
Serial Number	3707
Model	SoundExpert™ LxT
Firmware Version	2.205
User	QVT/JR
Location	Wareham Street
Job Description	46 Wareham St

Note

Measurement Description

Start	2014/05/14 0:44:49
Stop	2014/05/14 1:07:21
Duration	0:22:31.9
Run Time	0:22:31.9
Pause	0:00:00.0

Pre Calibration	2014/05/14 0:41:40
-----------------	--------------------

Post Calibration	None
------------------	------

Calibration Deviation	---
-----------------------	-----

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/1 Octave
OBA Freq. Weighting	A Weighting

Results

LASeq	57.0 dB
LAS1.00	62.9 dB
LAS5.00	59.4 dB
LAS10.00	57.8 dB
LAS15.00	57.4 dB
LAS50.00	56.4 dB
LAS90.00	55.6 dB

Summary

Filename	14051402.LD0
Serial Number	3707
Model	SoundExpert™ LxT
Firmware Version	2.205
User	QVT/JR
Location	Malden Street
Job Description	46 Wareham St
Note	
Measurement Description	
Start	2014/05/14 1:15:46
Stop	2014/05/14 1:39:44
Duration	0:23:58.2
Run Time	0:23:58.2
Pause	0:00:00.0

Pre Calibration	2014/05/14 0:41:34
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Exponential
OBA Range	Normal
OBA Bandwidth	1/1 Octave
OBA Freq. Weighting	A Weighting

Results

LASeq	53.4 dB
LAS1.00	63.8 dB
LAS5.00	56.9 dB
LAS10.00	53.6 dB
LAS15.00	52.7 dB
LAS50.00	51.2 dB
LAS90.00	49.5 dB

Mechanical Equipment Sound Level Data

Air-Cooled Chiller, Scroll Compressors

Job Information

		Lavoie Misc. Boston Main Office (U98)Unassigned	
Tag	CGAM-2		
Model Number	CGAM 120		
Quantity	1		
Product Version	164		
Unit nominal tonnage	120 tons		
Unit type	High efficiency		

General Information

Sound attenuator package	Comprehensive package	IPLV	15.1 EER
Refrigerant	R410A	NPLV	15.1 EER
Capacity	114.40 tons	Sound power level	92 dBA
Full load efficiency	9.7 EER	Sound pressure level *	66 dBA
Note: * At 30 feet in free field.			

Evaporator Information

Evaporator application	Std cooling	Fouling factor	0.00010 hr-sq ft-deg F/Btu
Entering temperature	54.00 F	Saturated temperature-ckt 1	37.90 F
Leaving temperature	44.00 F	Saturated temperature-ckt 2	37.90 F
Fluid flow rate	273.60 gpm	Minimum flow rate	169.90 gpm
Pressure drop	14.10 ft H2O	Pressure drop at min flow rate	7.70 ft H2O
Total PD evap+strainer	19.30 ft H2O	Maximum flow rate	407.70 gpm
Evap fluid type	Water	Pressure drop at max flow rate	42.00 ft H2O
Evap fluid freeze point	32.00 F	Freeze protection (factory inst)	Ext. t-stat control

Condenser Information

Unit application	Wide ambient	Total fan FLA	51.80 A
Ambient air temperature	95.00 F	Total airflow	71977 cfm
Elevation	0.00 ft	Fin material	Lanced aluminum
Number of fans	8.00 Each	Saturated temperature-ckt 1	127.10 F
Fan motor power	9.30 kW	Saturated temperature-ckt 2	127.10 F

Compressor Information

Number of compressors	4		RLA	LRA
Number of circuits	2	Compressor A	109.50 A	680.00 A
Capacity steps	4	Compressor B	109.50 A	680.00 A
Total compressor power	131.90 kW	Compressor D	109.50 A	680.00 A
		Compressor E	109.50 A	680.00 A

Electrical Information

Unit voltage	208 volt 3 phases		MCA	MOP
Unit hertz	60 hertz	Single point power	521.30 A	600.00 A
Short circuit	Default	Incoming power line connection	Single point	
Short circuit rating	5000.00 A	Starter type	Across the line	
Unit power	141.50 kW			
Note: Unit power includes: compressors, condenser fans, and control kW				

Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages using the Vapor Compression Cycle Certification Program which is based on AHRI Standard 550/590 (I-P). Certified units may be found in the AHRI directory at www.ahridirectory.org.



Air-Cooled Chiller, Scroll Compressors

Job Information



Lavoie Misc.
Boston Main Office
(U98)Unassigned

Tag **CGAM-2**
Model Number **CGAM 120**
Quantity **1**
Product Version **164**
Unit nominal tonnage **120 tons**
Unit type **High efficiency**



Physical Information

Length	165.900 in	Water connections	4.000 in
Width	89.000 in	Refrigerant charge circuit 1	86.0 lb
Height	92.500 in	Refrigerant charge circuit 2	86.0 lb
Operating weight	6883.9 lb	Oil charge circuit 1	3.80 gal
Shipping weight	6761.8 lb	Oil charge circuit 2	3.80 gal

Acoustical Performance

	<u>63 Hz</u>	<u>125 Hz</u>	<u>250 Hz</u>	<u>500 Hz</u>	<u>1 kHz</u>	<u>2 kHz</u>	<u>4 kHz</u>	<u>8 kHz</u>
Sound power	89 dB	88 dB	94 dB	92 dB	87 dB	82 dB	77 dB	68 dB

Note: Sound data measured in accordance with AHRI Standard 370.

Information for LEED Projects

ASHRAE 90.1/CSA compliance	All versions	IPLV	15.1 EER
Refrigerant charge circuit 1	86.0 lb	Rated capacity (AHRI)	114.30 tons
Refrigerant charge circuit 2	86.0 lb		

Note: This product meets the minimum efficiency requirements of ASHRAE Standard 90.1 and CANS/CSA C743 for all versions (which are based on AHRI standard rating conditions) and, therefore, also meets the LEED "Minimum Energy Performance" prerequisite in the Energy and Atmosphere section.

The LEED Green Building Rating System™, developed by the U.S. Green Building Council, provides independent, third-party verification that a building project meets green building and performance measures.



Shown with
Optional
Equipment

CAE – SOUND ATTENUATED WEATHERPROOF ENCLOSURES

These fully weatherproof, sound attenuated, factory installed, enclosures incorporate internally mounted exhaust silencers that reduce engine noise by –25 dbA and fabricated steel skidbase. Optional UL listed tanks are available. These enclosures are of extremely rugged construction to withstand outdoor exposure and rough handling common on many construction sites. They are designed on modular principles with many interchangeable components permitting on-site repair.

FEATURES

HIGHLY CORROSION RESISTANT CONSTRUCTION

- Stainless steel flush fitting latches and hinges tested and proven to withstand extreme conditions of corrosion
- Zinc plated or stainless steel fasteners
- Body made from steel components treated with polyester powder coating

EXCELLENT ACCESS FOR MAINTENANCE

- Full length extra wide doors on each side
- Doors top hung and supported by gas struts
- Radiator fill access
- Lube oil and cooling water drains piped to exterior of the enclosure skidbase

SECURITY AND SAFETY

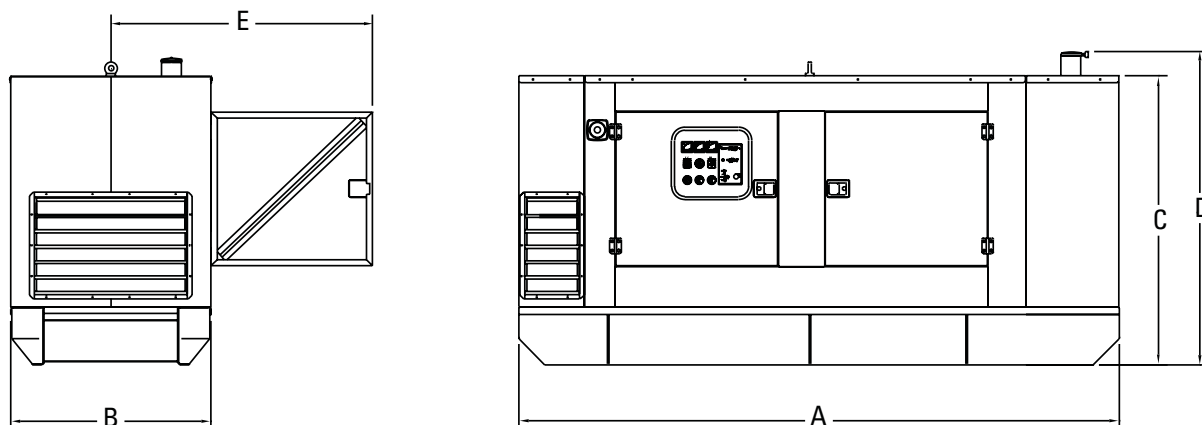
- Lockable access doors
- Stub-up cover sheets for “rodent proofing”
- Cooling fan and battery charging alternator fully guarded
- Fuel fill and battery can only be reached via lockable access doors (only provided when optional fuel tank is ordered)
- Exhaust silencing system totally enclosed for operator safety

TRANSPORTABILITY

- Lifting points on baseframe
- Tested and certified single point lifting facility

OPTIONS

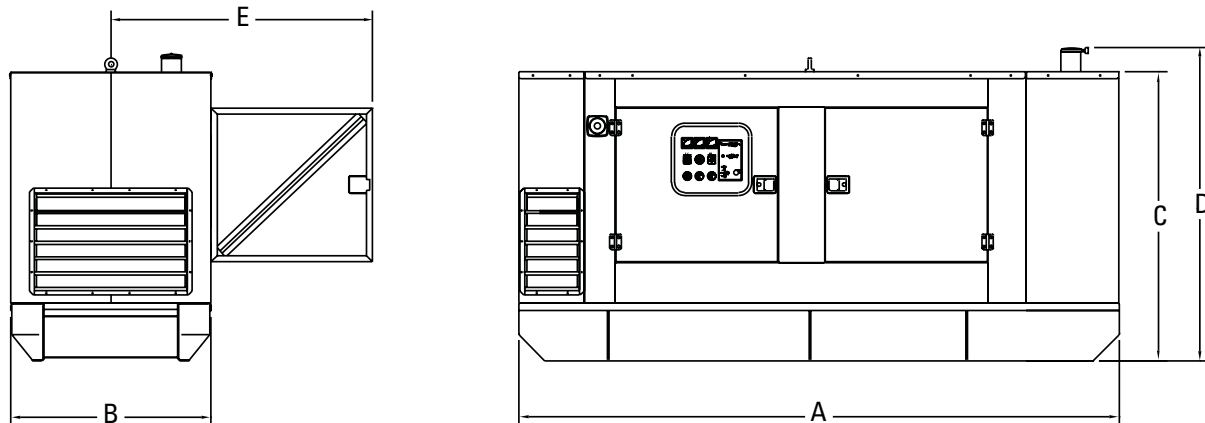
- FTP Integral welded fuel tank
- Control panel viewing window
- Emergency stop push button (red) mounted flush on exterior enclosure wall



FSK SKIDBASE WITH CAE SOUND ATTENUATED ENCLOSURE GENERATOR WEIGHTS AND DIMENSIONS

Generator Set Model	A mm (in)	B mm (in)	C mm (in)	D mm (in)	E* mm (in)	Weight kg (lb)
D125-6	3900 (153.5)	1304 (51.3)	1877 (73.9)	2027 (79.8)	1700 (66.9)	2518 (5,551)
D150-8	3900 (153.5)	1304 (51.3)	1877 (73.9)	2027 (79.8)	1700 (66.9)	2593 (5,617)
D175-2	3900 (153.5)	1304 (51.3)	1877 (73.9)	2027 (79.8)	1700 (66.9)	2611 (5,756)

*Clearance required both sides.
Weight with lube oil, no coolant.



12 HR UL WITH CAE SOUND ATTENUATED ENCLOSURE GENERATOR WEIGHTS AND DIMENSIONS

Generator Set Model	A mm (in)	B mm (in)	C mm (in)	D mm (in)	E* mm (in)	Fuel Capacity L (US gal)	Weight kg (lb)
D125-6	3900 (153.5)	1304 (51.3)	1942 (76.4)	2092 (82.3)	1700 (66.9)	592 (156)	2805 (6,184)
D150-8	3900 (153.5)	1304 (51.3)	1942 (76.4)	2092 (82.3)	1700 (66.9)	592 (156)	2880 (6,349)
D175-2	3900 (153.5)	1304 (51.3)	1942 (76.4)	2092 (82.3)	1700 (66.9)	592 (156)	2898 (6,389)

*Clearance required both sides.
Weight with lube oil, no coolant, no fuel.

SOUND LEVELS

Generator Set Model			1800 rpm (60 Hz)			
	15 m (50 ft)		7 m (23 ft)		1 m (3 ft)	
	No Load (dBA)	Full Load* (dBA)	No Load (dBA)	Full Load* (dBA)	No Load (dBA)	Full Load* (dBA)
D125-6	63.8	65.7	69.8	71.7	82.1	83.2
D150-8	63.9	66.3	69.9	72.3	82.1	83.5
D175-2	68.9	69.3	74.9	75.3	85.0	85.9

*Noise levels tested at prime ratings.

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www.cat-electricpower.com

Market: N. America

LEHE7064-02 (06-08)

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Unit Rating

2425 South Yukon Ave - Tulsa, Oklahoma 74107-2728 - Ph. (918) 583-2266 Fax (918) 583-6094
AAONEcat32 Ver. 4.134 (SN: 5770512-U9UARX5D)

1A 1B 1C 1D 2 3 4 5A 5B 5C 6A 6B 6C 7 8 9 10 11 12 13 14A 14B 15 16 17 18 19 20 21 22 23

RN-030-3-0-EB09-3C9:VEDG-U0B-DEL-AFB-CJABCNF-00-000000AB

Tag: ERV-2 (rev.7.31)

Job Information

Job Name:
Job Number: RWS
Site Altitude: 0 ft
Refrigerant: R-410A

Unit Information

Approx. Op./Ship Weights: 3774 / 3774 lbs.
Supply CFM/ESP: 9300 / 1.5 in. wg.
Pre-Filter FV / Qty: 446.40 fpm / 6
Final-Filter FV / Qty: 446.40 fpm / 6
Exhaust CFM/ESP/TSP: 7000 / 1.50 / 2.96 in. wg.
Outside CFM: 9300
Ambient Temperature: 91 °F DB / 74 °F WB

Static Pressure

External: 1.50 in. wg.
Evaporator: 0.66 in. wg.
Filters Clean: 0.53 in. wg.
Dirt Allowance: 0.35 in. wg.
Re-Heat Coil: 0.10 in. wg.

Economizer: 0.17 in. wg.
Heating: 0.43 in. wg.
Cabinet: 0.11 in. wg.
Heatwheel: 1.11 in. wg.
Total: 4.96 in. wg.

Cooling Section

	Gross	Net
Equivalent Total Capacity:	535.59 MBH	504.45 MBH
Total Capacity:	370.07	338.94 MBH
Sensible Capacity:	266.42	235.29 MBH
Latent Capacity:	103.65 MBH	
HW Total Cooling Capacity:	165.51 MBH	
Mixed Air Temp:	83.86 °F DB	69.48 °F WB
Entering Air Temp:	83.86 °F DB	69.48 °F WB
Lv Air Temp (Coil):	56.60 °F DB	56.58 °F WB
Lv Air Temp (Unit):	59.66 °F DB	57.76 °F WB
Digital Comp. Capacity Ratio:	100%	
Supply Air Fan:	1 x 270 @ 11.38 BHP	
SA Fan RPM / Width:	1555 / 5.51"	
Exhaust Air Fan:	1 x RM220A @ 5.53 BHP	
EA Fan RPM / Width:	1856 / 4.92"	
Evaporator Coil:	19.9 ft² / 6 Rows / 12 FPI	
Evaporator Face Velocity:	468.3 fpm	
Energy Recovery Wheel:	1 x ERC-5262	

Heating Section

PreHeat Type: Std (No Preheat)
Heating Type: Nat. Gas Heat
Heating CFM: 9300
Total Capacity: 432.0 MBH
OA Temp: 6.0 DB / 3.0°F WB
RA Temp: 75.0 °F DB / 62.0 °F WB
Entering Air Temp: 36.8 °F DB / 34.2 °F WB
Leaving Air Temp: 79.8 °F DB / 54.9 °F WB
Input: 540.0 MBH
Heater Qty: 1
Consumption: 540.0 MBH
Operation: N/A

Re-Heat Coil:

Capacity: 135 MBH
LA DB / WB: 70.00 °F / 61.56 °F
RH: 62%

EER - ARI Listing Information

EER @ ARI Conditions: 11.0
No ARI Rating Program Exists for Units Over 20 Tons
All AAON Units Are Tested in Accordance With ARI Standards

Application EER @ Op. Conditions: 12.4

Electrical Data

Rating:	460/3/60						
Unit FLA:	86						
	Qty	HP	VAC	Phase	RPM	FLA	RLA
Compressor 1:	1		460	3			23.1
Compressor 2:	1		460	3			23.1
Condenser Fans:	3	0.75	460	1	1075	2.3	
Supply Fan:	1	15.00	460	3	1760	21.0	
Exhaust Fan:	1	7.50	460	3	1760	11.0	
Combustion:	1	0.25	460	1	3200	0.9	
Heatwheel:	1	0.1667	460	1	1760	0.6	

Cabinet Sound Power Levels*

Octave Bands:	63	125	250	500	1000	2000	4000	8000
Discharge LW(dB):	94	92	95	95	91	89	88	85
Return LW(dB):	96	92	91	85	83	81	79	73

*Sound power levels are given for informational purposes only. The sound levels are not guaranteed.

AAON Condenser Radiated Sound Levels

Sound Pressure Level in a Hemispherical Free Field
3
Dist (ft)

Fans Dia RPM					Sound Power Level								Sound Pressure Level									
					63	125	250	500	1000	2000	4000	8000	LwA	63	125	250	500	1000	2000	4000	8000	dBA
HB 2-3 Ton	Inlet	1	22	825	70	77	75	71	70	66	62	53	74	63	69	68	64	62	58	55	46	67
	Outlet				72	80	74	72	71	66	62	53	75	64	73	66	65	63	58	55	45	68
	Total				74	82	77	75	73	69	65	56	78	67	75	70	67	66	61	58	49	70
HB 4-5 Ton	Inlet	1	22	1075	76	82	81	77	75	71	68	59	80	68	75	74	69	68	64	61	52	73
	Outlet				77	86	79	78	76	71	68	58	81	70	79	72	71	69	64	61	51	74
	Total				80	88	83	80	79	74	71	62	83	72	80	76	73	72	67	64	55	76
RQ 2-3 Ton	Inlet	1	22	825	70	77	75	71	70	66	62	53	74	63	69	68	64	62	58	55	46	67
	Outlet				72	80	74	72	71	66	62	53	75	64	73	66	65	63	58	55	45	68
	Total				74	82	77	75	73	69	65	56	78	67	75	70	67	66	61	58	49	70
RQ 4-5 Ton	Inlet	1	22	1075	76	82	81	77	75	71	68	59	80	68	75	74	69	68	64	61	52	73
	Outlet				77	86	79	78	76	71	68	58	81	70	79	72	71	69	64	61	51	74
	Total				80	88	83	80	79	74	71	62	83	72	80	76	73	72	67	64	55	76
RN 6-10 Ton	Inlet	1	30	1085	92	86	85	82	78	75	72	71	84	85	79	77	75	71	67	65	64	77
	Outlet				94	90	83	83	79	75	72	71	85	86	83	76	76	72	68	65	63	78
	Total				96	91	87	86	82	78	75	74	88	89	84	80	79	74	71	68	67	80
RN 13-15 Ton	Inlet	2	30	1085	95	89	88	85	81	78	75	74	87	88	82	80	78	74	70	68	67	80
	Outlet				97	93	86	86	82	78	75	74	88	89	86	79	79	75	71	68	66	81
	Total				99	94	90	89	85	81	78	77	91	92	87	83	82	77	74	71	70	83
RN 16-20 Ton	Inlet	2	30	1085	95	89	88	85	81	78	75	74	87	88	82	80	78	74	70	68	67	80
	Outlet				97	93	86	86	82	78	75	74	88	89	86	79	79	75	71	68	66	81
	Total				99	94	90	89	85	81	78	77	91	92	87	83	82	77	74	71	70	83
RN 25-30 Ton	Inlet	3	30	1085	97	91	89	87	83	80	77	76	89	89	84	82	80	76	72	69	69	82
	Outlet				98	95	88	88	84	80	77	75	90	91	87	81	81	77	72	69	68	83
	Total				101	96	92	91	86	83	80	79	92	93	89	84	83	79	75	72	71	85
RN 26-40 Ton	Inlet	4	30	1085	98	92	91	88	84	81	78	77	90	91	85	83	81	77	74	71	70	83
	Outlet				100	96	89	89	85	81	78	77	91	92	89	82	82	78	74	71	69	84
	Total				102	98	93	92	88	84	81	80	94	95	90	86	85	80	77	74	73	86
RN 50-70 Ton	Inlet	6	30	1085	100	94	92	90	86	83	80	79	92	92	87	85	83	79	75	72	72	85
	Outlet				101	98	91	91	87	83	80	78	93	94	90	84	84	80	75	72	71	86
	Total				104	99	95	94	89	86	83	82	95	96	92	87	86	82	78	75	74	88

Tested in Accordance with AMCA 300 - Revised for new fan test sound data 9/17/08

Receptor Locations Sound Level Analysis

Monitoring Data - Ambient Sound Levels, dB(A)			
Station		MD1	MD2
Description		Wareham St	Malden St
Existing Sound Levels	Leq	63.6	63.2

Receptor Descriptions		
	REC1	REC2
Description	The 27	89 Union Park Street
Nearest Reference [#]	1	2

Noise Source Descriptions					
		NS1	NS2	NS3	NS4
Noise Source Descriptions		120 ton chiller	8000 cfm RTU	150 kW generator	exhaust fan
Noise Sources					
Source Description					
Noise Level [dBA]		66	85	86	91
Reference distance [ft]		30	3	3	3
# units [#]		1	1	1	1
Noise Source Level Attenuation [-dB(A)]					
		66	85	86	91
		NS1	NS2	NS3	NS4
Total Noise Source Noise [dB(A)]		66	85	86	91
Reference distance [ft]		30	3	3	3

Ground Type Between Receptors and Noise Sources			
		REC1	REC2
		The 27	89 Union Park Street
NS1	120 ton chiller	H	H
NS2	8000 cfm RTU	H	H
NS3	150 kW generator	H	H
NS4	exhaust fan	H	H

Distances from RECEPTOR TO NOISE SOURCE (feet)			
		REC1	REC2
		The 27	89 Union Park Street
NS1	120 ton chiller	330	385
NS2	8000 cfm RTU	330	385
NS3	150 kW generator	330	385
NS4	exhaust fan	330	385

Receptor Blockage Attenuation			
Description		REC1	REC2
		The 27	89 Union Park Street
NS1	120 ton chiller		
NS2	8000 cfm RTU		
NS3	150 kW generator		
NS4	exhaust fan		

Noise Propagation Calculator			
Description		REC1	REC2
		The 27	89 Union Park Street
NS1	120 ton chiller	45	44
NS2	8000 cfm RTU	44	43
NS3	150 kW generator	45	44
NS4	exhaust fan	50	49
TOTAL		53	52

Resultant Noise Levels at Receptor Locations [dB(A)]		
	REC1	REC2
Description	The 27	89 Union Park Street
Noise Monitoring Data [dBA]	64	63
Noise Source [dBA]	53	52
Calculated Noise Level [dBA]	64	63
Difference	0	0

Monitoring Data - Ambient Sound Levels, dB(A)			
Station		MD1	MD2
Description		Wareham St	Malden St
Existing Sound Levels	Leq	57.0	53.4

Receptor Descriptions		
	REC1	REC2
Description	The 27	89 Union Park Street
Nearest Reference [#]	1	2

Noise Source Descriptions					
		NS1	NS2	NS3	NS4
Noise Source Descriptions		120 ton chiller	8000 cfm RTU	150 kW generator	exhaust fan
Noise Sources					
Source Description					
Noise Level [dBA]		66	85	86	91
Reference distance [ft]		30	3	3	3
# units [#]		1	1	1	1
Noise Source Level Attenuation [-dB(A)]					
		66	85	86	91
		NS1	NS2	NS3	NS4
Total Noise Source Noise [dB(A)]		66	85	86	91
Reference distance [ft]		30	3	3	3

Ground Type Between Receptors and Noise Sources			
		REC1	REC2
		The 27	89 Union Park Street
NS1	120 ton chiller	H	H
NS2	8000 cfm RTU	H	H
NS3	150 kW generator	H	H
NS4	exhaust fan	H	H

Distances from RECEPTOR TO NOISE SOURCE (feet)			
		REC1	REC2
		The 27	89 Union Park Street
NS1	120 ton chiller	330	385
NS2	8000 cfm RTU	330	385
NS3	150 kW generator	330	385
NS4	exhaust fan	330	385

Receptor Blockage Attenuation			
Description		REC1	REC2
		The 27	89 Union Park Street
NS1	120 ton chiller		
NS2	8000 cfm RTU		
NS3	150 kW generator		
NS4	exhaust fan		

Noise Propagation Calculator			
Description		REC1	REC2
		The 27	89 Union Park Street
NS1	120 ton chiller	45	44
NS2	8000 cfm RTU	44	43
NS3	150 kW generator	45	44
NS4	exhaust fan	50	49
TOTAL		53	52

Resultant Noise Levels at Receptor Locations [dB(A)]		
	REC1	REC2
Description	The 27	89 Union Park Street
Noise Monitoring Data [dBA]	57	53
Noise Source [dBA]	53	52
Calculated Noise Level [dBA]	58	56
Difference	1	2