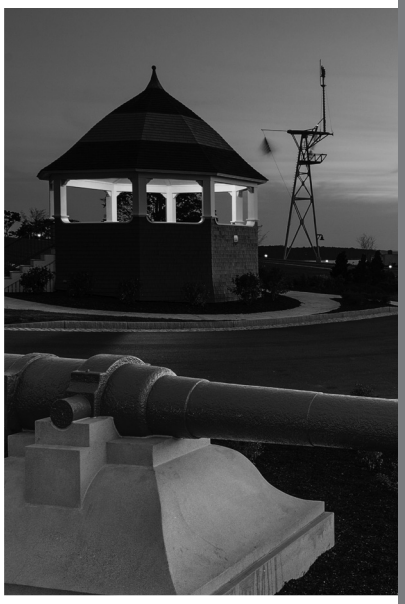
13. TRAFFIC ANALYSIS

Gorrill Palmer has prepared a traffic impact analysis for the proposed 58 Fore Street project, a Traffic Movement Permit application and a Transportation Demand Management Plan. A Traffic Study Pre-Scoping meeting was held with City of Portland staff on July 27, 2016 at City Hall. The full traffic analysis and parking summary report has been provided as an attachment to this Section, in addition to a copy of the Traffic Movement Permit Application.

13.1 ATTACHMENTS

- Traffic Impact Study
- Traffic Movement Permit Application
- Site Parking Demand Memo for 58 Fore Street Mixed Use Development

Relationships.
Responsiveness.
Results.



Section 7
Traffic Impact Study
58 Fore Street
Redevelopment
Portland, Maine

PREPARED FOR:

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September 2016

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Traffic Impact Study
58 Fore Street Development
Portland, Maine
September 2016

Table of Contents

Section	*Description*	*Page*
I.	Introduction	1
II.	Existing Traffic Volumes	2
III.	Other Development in the Vicinity of the Site	3
IV.	Predevelopment Traffic Volumes	3
V.	Trip Generation	4
VI.	Trip Composition and Assignment	10
VII.	Postdevelopment Traffic Volumes	10
VIII.	Capacity Analysis	10
IX.	Sight Line Evaluation	14
X.	Crash Data	15
XI.	Existing Pedestrian, Bicycle, and Transit Infrastructure	16
XII.	Conclusions and Recommendations	17

Appendix

A Location Map
Turning Movement Diagrams
Other Development Figure

B ITE Trip Generation Calculations
NCHRP Spreadsheets
Commute Data Maps
Site Parking Demand Memo
Marina Trip Generation Calculations

C Capacity Analysis Results

D Node Map
Crash Report
Collision Diagrams

I. Introduction

This study examines the impact of the redevelopment of the historic Portland Company at 58 Fore Street on Portland's Eastern Waterfront. The development is proposed to be a total of 958,679 sf of building area and is separated into seven Development Blocks (B1-B7) with varying uses. The following table summarizes the proposed site uses by Development Block:

Proposed Site Use Summary

Development Block	Use	Size
B1		
	Retail	7,878 SF
	Residential	91 Dwelling Units
	Office	79,000 SF
B2		
	Retail	26,895 SF
	Residential	19 Dwelling Units
	Office	25,617 SF
B3		
	Retail	11,500 SF
	Office	19,300 SF
B4		
	Residential	275 Dwelling Units
	Retail	4,000 SF
B5		
	Residential	108 Dwelling Units
	Hotel	132 Rooms
	Restaurant	3,800 SF
	Function Space	5,800 SF
B6		
	Residential (Condos)	131 Dwelling Units
	Residential (Apartments)	14 Dwelling Units
B7		
	Marina Facilities	2,600 SF, 220 Slips

The new marina facilities on B7 are proposed to be three times the size of the existing marina. It will be a new, modern facility with 220 slips proposed; 140 for seasonal boaters and 80 for transient vessels. The facility will service residents of Portland (including Islanders commuting to work on the Portland Peninsula), residents of the 58 Fore Street site, and transient boaters.

There are three proposed accesses to the site; Thames Street Extension into the site, a full movement driveway onto Fore Street across from Waterville Street primarily for residential units, and a new public road connecting Fore Street to Thames Street Extension. The attached Figure 1 (Appendix A) shows the location of the site.

II. Existing Traffic Volumes

Morning and afternoon turning movement counts were completed from 7:30 AM to 9:30 AM and from 4:00 PM to 6:00 PM at the following locations and dates:

- Franklin Street / Middle Street – August 10, 2016 (PM) and August 17, 2016 (AM)
- Franklin Street / Fore Street – August 10, 2016 (PM) and August 17, 2016 (AM)
- Franklin Street / Commercial Street – August 10, 2016 (PM) and August 17, 2016 (AM)
- Cumberland Avenue / Washington Street – August 16, 2016 (AM and PM)
- Congress Street / Mountfort Street / Washington Street – August 16, 2016 (AM and PM)
- Congress Street / India Street – August 16, 2016 (AM and PM)
- Fore Street / Mountfort Street – August 11, 2016 (AM and PM)
- Fore Street / Existing Site Driveways – August 11, 2016 (AM and PM)
- Fore Street / Waterville Street – August 11, 2016 (AM and PM)

The dates, times, and locations of the counts were approved by the City prior to the counts.

Additionally, as part of a different study, GP had completed morning and afternoon turning movement counts at the following locations:

- India Street / Fore Street
- India Street / Commercial Street
- Fore Street / Hancock Street

These counts were collected on October 7, 2015 from 7:00 AM to 8:30 AM and from 4:00 PM to 6:00 PM. The date, times, and locations of the counts were approved by the City prior to the counts.

The AM and PM peak hour volumes of the counts at all 12 locations are shown on the attached Figure 2 (Appendix A).

III. Other Development in the Vicinity of the Site

Approved projects that are not yet opened as well as projects for which applications have been filed are required to be included in the predevelopment volumes for this project. Based on conversations with City Staff the following projects have been included in the background traffic for this project:

- A – 158 Fore Street: 180 room hotel
- B – 1 India Street: office and bank
- C – 185 Fore Street: 4,085 sf of office or retail and 8 residential units
- D – 16 Middle Street: 5,305 sf of retail and 39,526 sf of office
- E – 113 Newbury Street: 39 condominium units (Seaport Lofts)
- F – 48 Hancock Street: 2 residential units
- G – 49 Hancock Street: 2 residential units
- H – 62 India Street: 5,409 sf of retail and 29 condominium units
- I – 169 Newbury Street: 24 condominium units
- J – 273 Congress Street: 2,290 sf of retail and 10 residential units
- K – 31 Fore Street: 4 condominium units

The locations, sizes, and uses of these developments are shown on the attached Other Development Figure in Appendix A. The forecast traffic from these projects within the study area is shown on the attached Figure 4 in Appendix A.

IV. Predevelopment Traffic Volumes

Traffic volumes are typically seasonally adjusted to approximate the 30th highest hour of the year using the weekly group mean factors published by MaineDOT. This seasonal adjustment increases the volumes to those that may be experienced during peak summer months. Since August is a peak summer month, no seasonal adjustment needs to be applied to the counts collected in August 2016. However, October is not a peak summer month, so the three locations counted for another study in October 2015 needed to be adjusted. This seasonal adjustment resulted in an increase of 3.4%.

In addition to seasonally adjusting the traffic volumes, they are also increased by a yearly growth to approximate the build out year of the project. The proposed project is anticipated to be completed and occupied in 2027. MaineDOT traffic counts in the area show a decrease in traffic volumes in the past six years. To be conservative, an annual growth of 0.5% per year was utilized. This is the same growth used for the recently completed Franklin Street Study. The seasonally and annually adjusted volumes are shown on the attached Figure 3 in Appendix A.

The annually and seasonally adjusted traffic volumes have been combined with the approved other development ahead of this project in the approval process to yield the 2027 Predevelopment Design Hour Volumes (DHV) shown on the attached Figure 5 in Appendix A.

V. Trip Generation

The trip generation for the site was calculated separately for Development Blocks 1-6 (B1-B6) and for Development Block 7 (B7), then combined to yield the total site trip generation. This is due to the unique nature of the marina on B7. The following is a summary of the methods, assumptions, and results of the trip generation calculations for the site.

Development Blocks 1-6

The Institute of Transportation Engineers' publication, *Trip Generation*, Seventh Edition, was used to forecast the traffic to be generated by B1-B6. The Ninth Edition is available, but has not yet been accepted by the MaineDOT. Since this project will generate greater than 200 trip ends in a peak hour, a MaineDOT Traffic Movement Permit (TMP) will be required. The permit process can be administered by the City since they have delegated review authority.

The following table summarizes the trip generation for B1-B6.

Development Blocks 1-6 ITE Trip Generation Summary

Development Block	Land Use Code	Size	AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
B1								
	814 – Specialty Retail	7,878 sf	4	2	6	9	12	21
	220 – Apartment	91 Units	9	37	46	36	20	56
	710 – General Office	79,000 sf	140	15	155	22	127	149
B2								
	814 – Specialty Retail	26,895 sf	12	8	20	33	40	73
	220 – Apartment	19 Units	2	8	10	8	4	12
	710 – General Office	25,617 sf	57	6	63	9	52	61
B3								
	814 – Specialty Retail	11,500 sf	5	4	9	14	17	31
	710 – General Office	19,300 sf	45	5	50	7	41	48
B4								
	220 – Apartment	275 Units	28	112	140	111	60	171
	814 – Specialty Retail	4,000 sf	2	1	3	5	6	11

Development Block	Land Use Code	Size	AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
B5								
	220 – Apartment	108 Units	7	41	48	36	20	56
	310 – Hotel	132 Rooms	44	30	74	43	35	78
	932 – High Turnover Sit-Down Restaurant	3,800 sf	22	22	44	25	16	41
	Function Space*	5,800 sf	0	0	0	0	0	0
B6								
	230 – Residential Condominium / Townhouse	131 Units	9	49	58	44	24	68
	220 – Apartment	14 Units	1	6	7	6	3	9
Development Blocks 1-6			**387**	**346**	**733**	**408**	**477**	**885**

*It was assumed that the function space would be ancillary to the other uses in the Development Block and would not generate additional traffic.

Due to the variety of uses and the site's location within a downtown area, two reductions can be applied to refine the trip generation for B1-B6. These reductions are summarized as follows:

Shared Use Adjustment

Due to the close proximity of the mixed uses and the sharing of people between uses, simply adding the trip generation of each use as if they were isolated would result in an overestimate of trip generation. To estimate the traffic that will visit more than one destination without leaving the site, GP utilized the National Cooperative Highway Research Program (NCHRP) 684 Internal Trip Capture Estimation Tool. The NCHRP 684 spreadsheet uses the ITE forecast trip generation for each type of land use (office, retail, restaurant, residential, hotel, and other) and estimates the trips that will travel between two uses without leaving the site (spreadsheets provided in Appendix B). This yields an internal trip capture percentage, which is the percentage of trip ends that will travel between two uses. The following tables summarize the AM and PM peak hour internal trip capture percentages respectively:

AM Peak Hour NCHRP 684 Internal Trip Capture

Land Use	ITE Trip Generation		Internal Capture %		Internal Capture Trip Ends*		
	Entering	Exiting	Entering	Exiting	Entering	Exiting	Total
Office	242	26	10%	46%	23	12	35
Retail	23	15	57%	47%	13	7	20
Restaurant	22	22	55%	50%	12	11	23
Residential	56	253	4%	5%	2	12	14
Hotel	44	30	2%	30%	1	9	10
Total	**387**	**346**	**12%**	**14%**	**51**	**51**	**102**

*These values are taken directly from the NCHRP spreadsheets (Appendix B), which may not match exact calculations due to rounding in the spreadsheet.

PM Peak Hour NCHRP 684 Internal Trip Capture

Land Use	ITE Trip Generation		Internal Capture %		Internal Capture Trip Ends*		
	Entering	Exiting	Entering	Exiting	Entering	Exiting	Total
Office	38	220	18%	5%	7	10	17
Retail	61	75	31%	44%	19	33	52
Restaurant	25	16	52%	69%	13	11	24
Residential	241	131	11%	15%	27	19	46
Hotel	43	35	21%	6%	9	2	11
Total	**408**	**477**	**18%**	**15%**	**75**	**75**	**150**

*These values are taken directly from the NCHRP spreadsheets (Appendix B), which may not match exact calculations due to rounding in the spreadsheet.

Other Modes of Transportation Reduction

It can be expected for a site in a downtown area that other modes of transportation will be used to go to and from the site. These other modes could include things such as transit, bicycle, or walking. This site is adjacent to an existing bus route, as well as located on a pedestrian and bicycle path, so full use of other modes of transportation are readily available. The other modes reduction for B1-B6 is based on information from the 2009-2013 American Community Survey (ACS) Five-Year Estimate by Census Tract for the City of Portland. Rick Harbison, Planner and GIS Specialist for the Greater Portland Council of Governments, used this data to create maps (Appendix B) that show the estimated percentage of workers living in each Portland Census Tract that use each mode of transportation to travel to work. The site is located on the east side of Census Tract 3, which is a predominantly commercial area. Census Tracts 2 and 5 border the site and consist of primarily residential areas. Since the site is proposed to have a significant number of residential units as well as commercial space, the data from the combination of the three tracts is expected to be more representative of the actual conditions on the site than the data from the

individual tracts. The reduction was calculated by dividing the estimated number of people walking, bicycling, and taking the bus to work in the three Census Tracts by the estimated total number of working people in the same three Census Tracts. This calculation yields a reduction of 35.8%, which appears reasonable for this area. The detailed calculation is described in the "Site Parking Demand" memo included in Appendix B.

The Census data is based on residents of the Census Tracts commuting to work, so it is applicable to the residential units, office space, and retail uses on the site, but not necessarily the proposed restaurant and hotel. The restaurants and hotel were further researched to find studies that included information on other modes of transportation for restaurants and hotels. The studies found indicated that 40%-65% of restaurant customers may be using alternative modes of transportation. Since the studies were not specific to Portland, Maine, the local data is expected to be closer to actual conditions that would be seen at the 58 Fore Street development, so the 35.8% reduction was applied to the restaurants. There was limited data available for hotels, so a conservative reduction of 10% was used for the hotel. The studies are discussed in more detail in the "Site Parking Demand" memo in Appendix C. The following table summarizes the other modes of transportation reduction for the site trip generation:

Other Modes of Transportation Reduction Summary

Trip Generation	AM Peak Hour			PM Peak Hour		
	Entering	Exiting	Total	Entering	Exiting	Total
B1-B6 Trip Generation	387	346	733	408	477	885
Hotel Trip Generation	44	30	74	43	35	78
B1-B6 Trip Generation w/o Hotel	343	316	659	365	442	807
Other Modes Reduction (35.8% of B1-B6 Trip Generation w/o Hotel)	123	113	236	131	158	289
Hotel Other Modes Reduction (10% of Hotel Trip Generation)	4	3	7	4	4	8
Total Other Modes Reduction	**127**	**116**	**243**	**135**	**162**	**297**

Development Block 7 (Marina)

Although the ITE does have a Marina category, the number of studies (2) is limited. Therefore, the trip generation for B7 was not determined using the ITE trip generation rates. Since a marina is such a unique facility, the trip generation was forecast based on the characteristics of this specific 220 slip marina. Applied Technology & Management (ATM), experts in marine and coastal engineering, provided the following information and assumptions:

- Peak weekday usage of the marina is forecast to be approximately 10% of the slips, but possibly greater since Maine's peak boating season is shorter than other less seasonal areas
- Approximately 36% of daily users are forecast to be transient boaters (80 transient boater slips out of 220 total slips)
- 10% of daily users who are not transient boaters are on-site residents
- 90% of daily users who are not transient boaters are off-site Portland residents
- 30% of off-site Portland residents are Islanders commuting to and from the Peninsula
- 9 marina employees
- 4 mega-yacht slips

Based on the information from ATM, the following assumptions were made:

- Peak weekday usage will be 15% of the slips (33 slips). This is higher than the 10% identified by ATM and increased to 15% to account for the short season
- Transient boaters will not have a car on site since they arrive and depart using their boat, so they will not generate trip ends
- On-site residents will not enter or exit the site to visit the marina, so they will not generate any trip ends
- Each slip used by an off-site Portland resident who is not an islander will generate one trip end in during the AM peak hour and one trip end out during the PM peak hour
- Each slip used by an Islander commuting to work will generate one trip end out during the AM peak hour and one trip end in during the PM peak hour
- Each employee will generate one trip end in during the AM peak hour and one trip end out during the PM peak hour
- Each mega-yacht slip would be visited by a provisioning vehicle during both peak hours and the provisioning vehicles would enter and exit the site during the peak hour

Based on these assumptions, the forecast weekday peak hour trip generation for the marina is as follows:

- AM Peak Hour: 36 trip ends (26 in / 10 out)
- PM Peak Hour: 36 trip ends (10 in / 26 out)

The detailed trip generation calculations are attached in Appendix B.

Two reductions (shared use and other modes) were applied to the trip generation for B1-B6; however those reductions were not applied to the marina trip generation, as described in more detail as follows:

Shared Use

Although it is possible for marina visitors to eat at the restaurants or visit the shops on site, to be conservative it was assumed that the marina would be a primary destination and would have very few shared trips with the other uses.

Other Modes

Additionally, there is a possibility that marina users would use alternative modes of transportation to get to or from the site, but to be conservative we assumed that visitors would use cars and not another mode of transportation.

Total Site Trip Generation

The following table summarizes the adjusted site trip generation starting with the ITE trip generation and subtracting the shared use reduction as well as the other modes of transportation reduction and lastly adding the marina trip generation:

Adjusted Trip Generation Summary

Trip Generation	AM Peak Hour			PM Peak Hour		
	Entering	Exiting	Total	Entering	Exiting	Total
B1-B6 ITE Subtotal	387	346	733	408	477	885
Shared Use Adjustment	-51	-51	-102	-75	-75	-150
Other Modes Adjustment	-127	-116	-243	-135	-162	-297
B1-B6 Total	**209**	**179**	**388**	**198**	**240**	**438**
B7 Trip Generation	26	10	36	10	26	36
Site Total	**235**	**189**	**424**	**208**	**266**	**474**

As shown in the table, the proposed development is forecast to generate 424 trip ends during the AM weekday peak hour and 474 trip ends during the PM weekday

peak hour. To be conservative, this trip generation does not include any credit for existing on-site uses. This level of trip generation does require a MaineDOT Traffic Movement Permit because it is over 99 trip ends during the peak hour. The Traffic Movement Permit Application can be reviewed and issued by the City since they have delegated review authority.

VI. Trip Composition and Assignment

GP has assumed that all trips are primary in nature and made for the sole purpose of going to and from the site. The trip assignment has been based on the proposed accesses to the site, the site uses, and the traffic counts completed at the study area intersections. The study area was determined based on conversations with the City. The trip assignment has been separated into Residential and Non-Residential trip distributions. The trip assignments are categorized into Residential, Non-Residential, and Marina. The residential trip assignment assumes that the residents of the site know the neighborhood better than the non-residential site visitors, which would lead residents to use side streets more frequently, while the non-residents would use more major roads and posted routes. The marina trip assignment is assumed to follow the non-residential trip distribution. The trip distribution and assignment is shown on the attached Figures 6-11 in Appendix A.

VII. Postdevelopment Traffic Volumes

The predevelopment traffic volumes shown on Figure 5 have been combined with the total forecast traffic for the development shown on Figure 11 to yield the 2027 Postdevelopment DHV shown on the attached Figure 12 (Appendix A).

VIII. Capacity Analysis

GP completed capacity analyses for the study area intersections using the Synchro/SimTraffic computer analysis software. Level of service rankings are similar to the academic ranking system where an 'A' is very good with little control delay and an 'F' represents very poor conditions. At an intersection if the level of service falls below a 'D', an evaluation should be made to determine if mitigation is warranted.

The following tables summarize the relationship between the control delay and level of service:

Level of Service for Unsignalized Intersections and Roundabouts

Level of Service	Control Delay per Vehicle (sec)
A	Less than 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

Level of Service for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec)
A	Less than 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	Greater than 80.0

The capacity analyses were completed for two scenarios; first with the existing roadway geometry and the second with the approved proposed Franklin Street improvements. The City and MaineDOT approved the proposed Franklin Street design based on a study done by Gorrill Palmer. The City is responsible for implementing the proposed design and sections of Franklin Street are currently in the process of final design. The approved Franklin Street improvements in the 58 Fore Street study area include new intersection geometry and updated signal timing at the intersections of Franklin Street with Fore Street and Franklin Street with Middle Street, and the construction of a single lane roundabout at the intersection of Franklin Street with Commercial Street. The Synchro/SimTraffic software was also used to analyze the proposed roundabout. The following table is a summary of the capacity analysis results. The detailed analyses are attached in Appendix C.

Level of Service Summary

Approach	Existing Geometry				Proposed Franklin Street			
	2027 AM		2027 PM		2027 AM		2027 PM	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Franklin / Middle (S)								
Franklin SE	B	B	C	E	A	B	B	D
Franklin NW	B	B	B	C	A	A	B	B
Middle NE	B	B	C	C	C	C	B	C
Middle SW	B	B	B	B	C	C	B	B
Overall	B	B	C	D	B	B	B	C

Approach	Existing Geometry				Proposed Franklin Street			
	2027 AM		2027 PM		2027 AM		2027 PM	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Franklin / Fore (S)								
Franklin SE	B	B	C	C	B	B	B	B
Franklin NW	B	B	B	C	B	B	B	B
Fore NE	B	B	B	C	B	B	C	E
Fore SW	B	B	C	C	B	B	B	C
Overall	B	B	B	C	B	B	B	C
Franklin / Commercial (S) – Existing, (R) – Proposed								
Franklin EB	B	B	B	B	A	A	A	A
Maine State Pier WB	C	C	D	D	A	A	A	A
Commercial NB	B	B	B	B	A	A	A	A
Commercial SB	C	C	C	C	A	A	A	A
Overall	B	B	C	C	A	A	A	A
Commercial / Thames / India (U)								
Commercial EB	A	A	A	A	A	A	A	A
Thames WB	A	A	A	A	A	A	A	A
India SE	A	A	A	A	A	A	A	A
India / Fore (U)								
Fore EB	A	A	A	B	A	B	B	B
Fore WB	A	B	A	B	A	B	A	B
India SE	A	B	A	B	A	B	A	B
India NW	A	A	A	A	A	A	A	A
Hancock / Fore (U)								
Fore NB	A	A	A	A	A	A	A	A
Fore SB	A	A	A	A	A	A	A	A
Hancock SE	A	A	A	A	A	A	A	A
Hancock NW	A	A	A	A	A	A	A	A
Mountfort / Fore (U)								
Fore NE	A	A	A	A	A	A	A	A
Fore SW	A	A	A	A	A	A	A	A
Mountfort SE	A	A	A	A	A	A	A	A
Existing Driveways / Fore (U)								
Fore EB	A	N/A	A	N/A	A	N/A	A	N/A
Fore WB	A	N/A	A	N/A	A	N/A	A	N/A
100 Fore St NB	A	N/A	A	N/A	A	N/A	A	N/A
58 Fore St NW	A	N/A	A	N/A	A	N/A	A	N/A
Proposed New Road / Fore (U)								
Fore EB	N/A	A	N/A	A	N/A	A	N/A	A
Fore WB	N/A	A	N/A	A	N/A	A	N/A	A
Proposed Road NB	N/A	A	N/A	A	N/A	A	N/A	A
Proposed New Road / Thames (U)								
Thames NE	N/A	A	N/A	A	N/A	A	N/A	A
Thames SW	N/A	A	N/A	A	N/A	A	N/A	A
Proposed Road SB	N/A	A	N/A	A	N/A	A	N/A	A

Approach	Existing Geometry				Proposed Franklin Street			
	2027 AM		2027 PM		2027 AM		2027 PM	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Waterville / Fore (U)								
Fore NE	A	A	A	A	A	A	A	A
Fore SW	A	A	A	A	A	A	A	A
Waterville SE	A	A	A	A	A	A	A	A
Site Driveway NW	N/A	A	N/A	A	N/A	A	N/A	A
Congress / India (S)								
Congress NE	B	B	C	C	B	B	C	C
Congress SW	A	A	B	B	A	A	B	B
India NW	B	B	D	C	B	B	D	C
Overall	B	B	C	C	A	B	C	C
Washington / Congress / Mountfort (S)								
Congress NE	A	A	C	B	A	A	B	B
Congress SW	B	B	C	B	B	C	C	B
Mountfort NB	B	B	C	B	C	B	C	B
Washington SB	A	A	B	B	A	A	B	B
Overall	B	B	C	B	A	B	B	B
Cumberland / Washington (S)								
Cumberland NE	B	B	B	B	B	B	B	B
Cumberland SW	B	B	B	B	B	B	B	B
Washington NB	B	B	B	B	B	B	B	B
Washington SB	A	B	D	C	B	B	D	C
Overall	A	B	C	B	B	B	C	B

*(S) = Signalized, (U) = Unsignalized, (R) = Roundabout

As shown in the table, the study area intersections are forecast to operate at or above level of service 'D' after the development is completed, with the exception of the Fore Street eastbound approach of the intersection of Franklin Street with Fore Street and the Franklin Street southbound approach of the intersection of Franklin Street with Middle Street. These approaches are forecast to operate at a level of service 'E' during the 2027 Postdevelopment PM peak hour. It may be improved with adjustments to the intersection timing; however since the intersection is part of the proposed Franklin Street improvements, changes to the timing were not made for this analysis. Any adjustments to intersection timing would need to consider the platooning of Franklin Street traffic. It should be noted that at the intersections of India Street with Congress Street, Congress Street with Mountfort Street and Washington Avenue, and Washington Avenue with Cumberland Avenue the levels of service are forecast to increase after the development is completed. This increase is due to updated signal timing for those three intersections in the postdevelopment conditions. Please note that the existing timing and phasing of the two intersections of India Street with Congress Street and Congress Street with Mountfort Street / Washington Avenue include an exclusive pedestrian phase. This phase was not included in the analysis, but

if actuated, will cause the intersections to operate at a lower level of service. This is common in a downtown area where signals include an exclusive pedestrian phase.

Although the capacity analysis shows that the study area intersections are forecast to operate at acceptable levels of service with the existing geometry, it should be noted that observations of the Franklin Street intersections identified that during the PM peak hour queueing on northbound Franklin Street was significant. This queuing resulted in inefficiencies in the upstream intersections such that they operated at very low levels of service.

IX. Sight Line Evaluation

Both the City of Portland and MaineDOT have guidelines for sight distances. The City's sight distance criteria is the same as MaineDOT. The basic sight line standards are as follows.

Standards for Sight Distance

Posted Speed (mph)	MaineDOT Required (ft)	City of Portland Required
25	200	200
30	250	250
35	305	305
40	360	360
45	425	425

MaineDOT and the City measure sight distance using the same methodology. GP has evaluated the available sight lines in accordance with MaineDOT / City standards.

The evaluation method is as follows:

Driveway observation point:	10 feet off edge of travel way
Height of eye at driveway:	3 ½ feet above ground
Height of approaching vehicle:	4 ¼ feet above ground

Speed limits on Fore Street are posted 25 mph, which requires a MaineDOT and City sight distance of 200 feet.

GP measured the sight distance at the proposed site accesses on Fore Street. The following table summarizes the measured sight distances:

Sight Distance Summary

	Posted Speed (mph)	Looking Left (ft)	Looking Right (ft)	MaineDOT Required (ft)	City Required (ft)
Driveway onto Fore	25 mph	300+	300+	200	200
Proposed Road onto Fore	25 mph	250	300+	200	200

As shown in the table, the sight distances exceed MaineDOT and City requirements. It should be noted that the sight distances exiting the proposed site driveway onto Fore Street assume the removal or relocation of on-street parking spaces on either side of the site driveway within the sight triangle. Additionally, the sight distance looking left from the proposed road onto Fore Street could be improved by relocating the Hamilton Marine sign further from the edge of the road.

X. Crash Data

GP obtained the crash data (attached in Appendix D) from MaineDOT for the period of 2013-2015, the most recent period available at the time this study was prepared. In order to evaluate whether a location has a crash problem, MaineDOT uses two criteria to define a High Crash Location (HCL). Both criteria must be met in order to be classified as an HCL.

1. A critical rate factor of 1.00 or more for a three-year period. (A Critical Rate Factor {CRF} compares the actual crash rate to the rate for similar intersections in the state. A CRF of less than 1.00 indicates a rate of less than average) **and**:

2. A minimum of eight crashes over the same three-year period

Based on the crash data provided by MaineDOT there are two high crash locations within the study area; one at the intersection of Franklin Street with Middle Street, and one on Fore Street from its intersection with India Street to its intersection with Mountfort Street. It should be noted that there were two locations that did not meet the HCL criteria, but were close. The intersection of India Street with Fore Street has a CRF of 1.60 and experienced seven collisions during the most recent three-year period and Cumberland Avenue from Boyd Street to Locust Street has a CRF of 4.13 and experienced seven collisions over the most recent three-year period. The intersection of India Street with Fore Street was previously identified as an HCL based on 2012-2014 crash data, but there were fewer crashes during the 2013-2015 period, so it no longer meets both HCL criteria.

To better evaluate the high crash locations and identify correctable crash patterns, the police reports for these locations were requested from MaineDOT and collision diagrams were created (attached in Appendix D). The two locations are described in more detail as follows:

Franklin Street / Middle Street

The intersection of Franklin Street with Middle Street has a CRF of 1.08 and experienced 20 crashes over the most recent three-year period. It is a four legged signalized intersection. Based on a review of the collision diagram all 20 collisions involved vehicles turning left from Franklin Street onto Middle Street colliding with vehicles traveling in the opposite direction of Franklin Street. This occurs in both the Franklin Street northbound and southbound directions, but 16 of the collisions involved southbound left-turning vehicles and northbound through vehicles. Of those 16 collisions, six occurred because the left-turning vehicle could not see the northbound through vehicle due to a snowbank in the median blocking the sight distance. Increased winter maintenance, specifically snow removal, could improve the sight distance at the intersection during winter months, providing left-turning vehicles with a clear view of oncoming traffic.

Fore Street from India Street to Mountfort Street

This section of Fore Street has a CRF of 2.12 and experienced nine crashes over the most recent three-year period, seven of which occurred at the intersection of Fore Street with Hancock Street. The intersection of Fore Street with Hancock Street is stop controlled with stop signs on Hancock Street and free flowing traffic on Fore Street. Based on a review of the collision diagram there does not appear to be a clear and correctable crash pattern. Most collisions at the intersection of Hancock Street with Fore Street were caused by a driver failing to yield the right of way.

XI. Existing Pedestrian, Bicycle, and Transit Infrastructure

One of the benefits of being located in a downtown area is that there is a complete network of sidewalks in the vicinity of the site. The Eastern Promenade Trail runs through the 58 Fore Street development. This pedestrian and bicycle trail connects the site to a 70-mile trail network. Fore Street has sidewalks on both sides that extend west into Downtown Portland and east toward the Eastern Promenade. The sidewalks are in adequate condition, however there are utility poles and sign posts on the south side of Fore Street are located within the sidewalk, which decreases the sidewalk width. As part of the 58 Fore Street development, the sidewalk on Fore

Street in front of the site will be rebuilt. It is recommended that any new sidewalks be constructed to meet ADA requirements.

The site is located within a 3-8 minute walk to several METRO bus stops. It is also approximately a five minute walk from the Ocean Gateway Pier and approximately a ten minute walk from the Maine State Pier, where the Casco Bay Lines Ferry Terminal is located. These bus stops and piers have a continuous network of sidewalks connecting them to the site.

Overall, the existing pedestrian, bicycle, and transit infrastructure is adequate.

XII. Conclusions and Recommendations

The following is a summary of the conclusions and recommendations based on the information and analyses presented in this study:

1. The proposed mixed use development is forecast to generate 424 trip ends during the weekday AM peak hour and 474 trip ends during the weekday PM peak hour. This level of trip generation requires a MaineDOT traffic movement permit. The Traffic Movement Permit Application can be reviewed and the permit issued by the City since they have delegated review authority.

2. The capacity analyses show that the study area intersections are forecast to operate at acceptable levels of service for almost all scenarios once the development is completed and occupied. The exception is the eastbound Fore Street approach of the intersection of Fore Street with Franklin Street and the southbound Franklin Street approach of the intersection of Middle Street with Franklin Street, which are forecast to operate at a level of service 'E' during the 2027 PM Postdevelopment condition. However, a slight change in timing at the intersections may improve the level of service.

3. The sight distances exceed MaineDOT and City requirements at the proposed new road connecting Fore Street to Thames Street Extension and at the proposed site driveway onto Fore Street, provided on-street parking within the sight triangle on either side of the proposed driveway is removed or relocated.

4. The crash data shows that there are two high crash locations in the study area. Based on a review of the collision diagrams there is no clear correctable crash pattern on Fore Street from India Street to Mountfort Street, but there is a crash pattern of left turning vehicle colliding with through vehicles at the

intersection of Middle Street with Franklin Street. The traffic from this development is not anticipated to significantly impact this crash pattern.

5. The existing pedestrian, bicycle, and transit infrastructure is adequate, except the utility poles and signs located within the sidewalks along the south side of Fore Street, which is proposed to be rebuilt as part of this project. The site is surrounded by a continuous sidewalk network, located within a 3-8 minute walk from METRO bus stops and a 5-10 minute walk from the two closest piers, and the Eastern Promenade bicycle and pedestrian trail runs through the site.

Appendix A

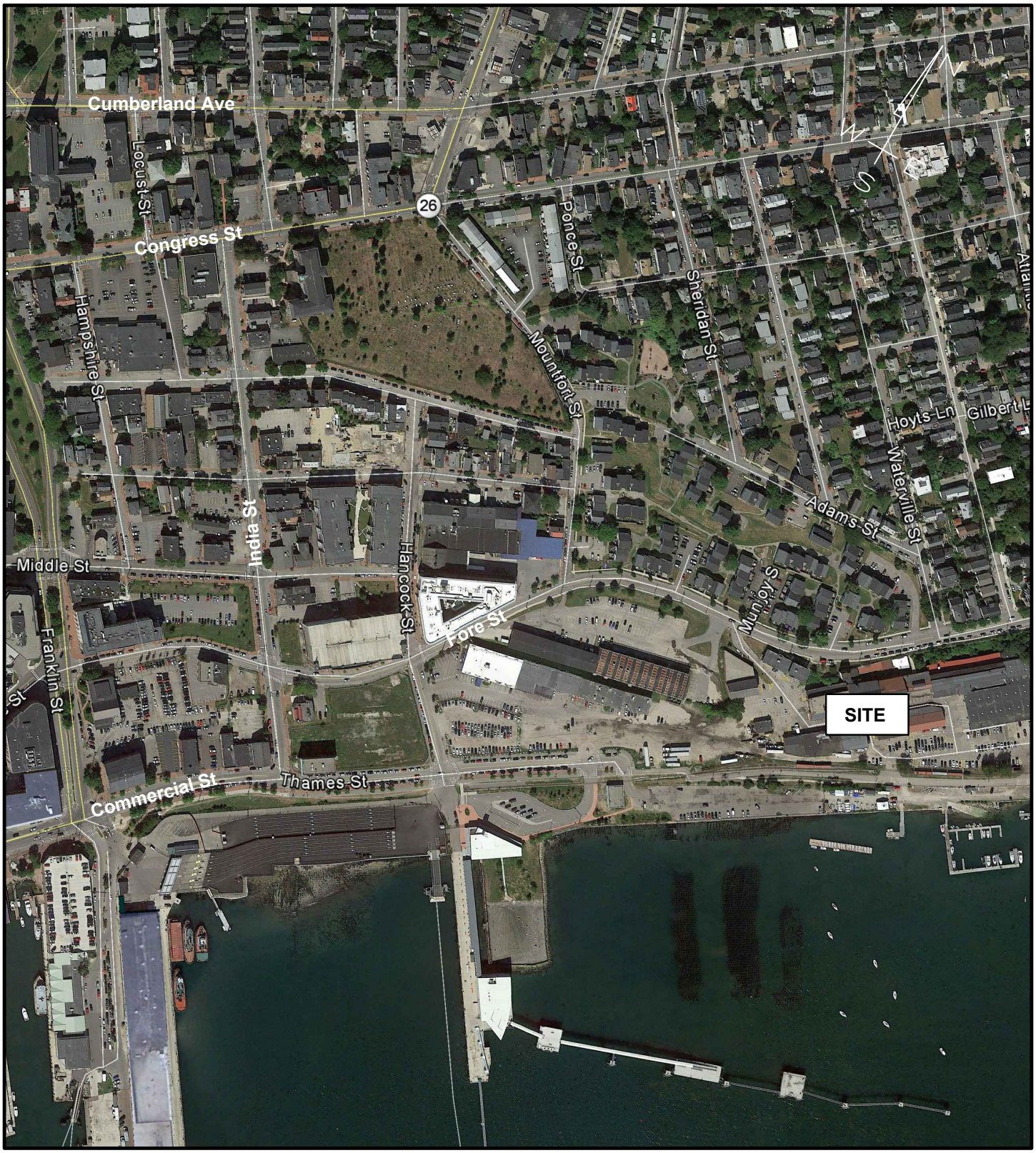
Location Map

Turning Movement Diagrams

Other Development Figure

Location Map

Figure No. 1



58 FORE STREET REDEVELOPMENT
PORTLAND, MAINE

Design:	ET	Scale:	NONE
Draft:	LAN	Date:	OCT 2015
Checked:	RED	File Name:	3138-TRAFF.dwg

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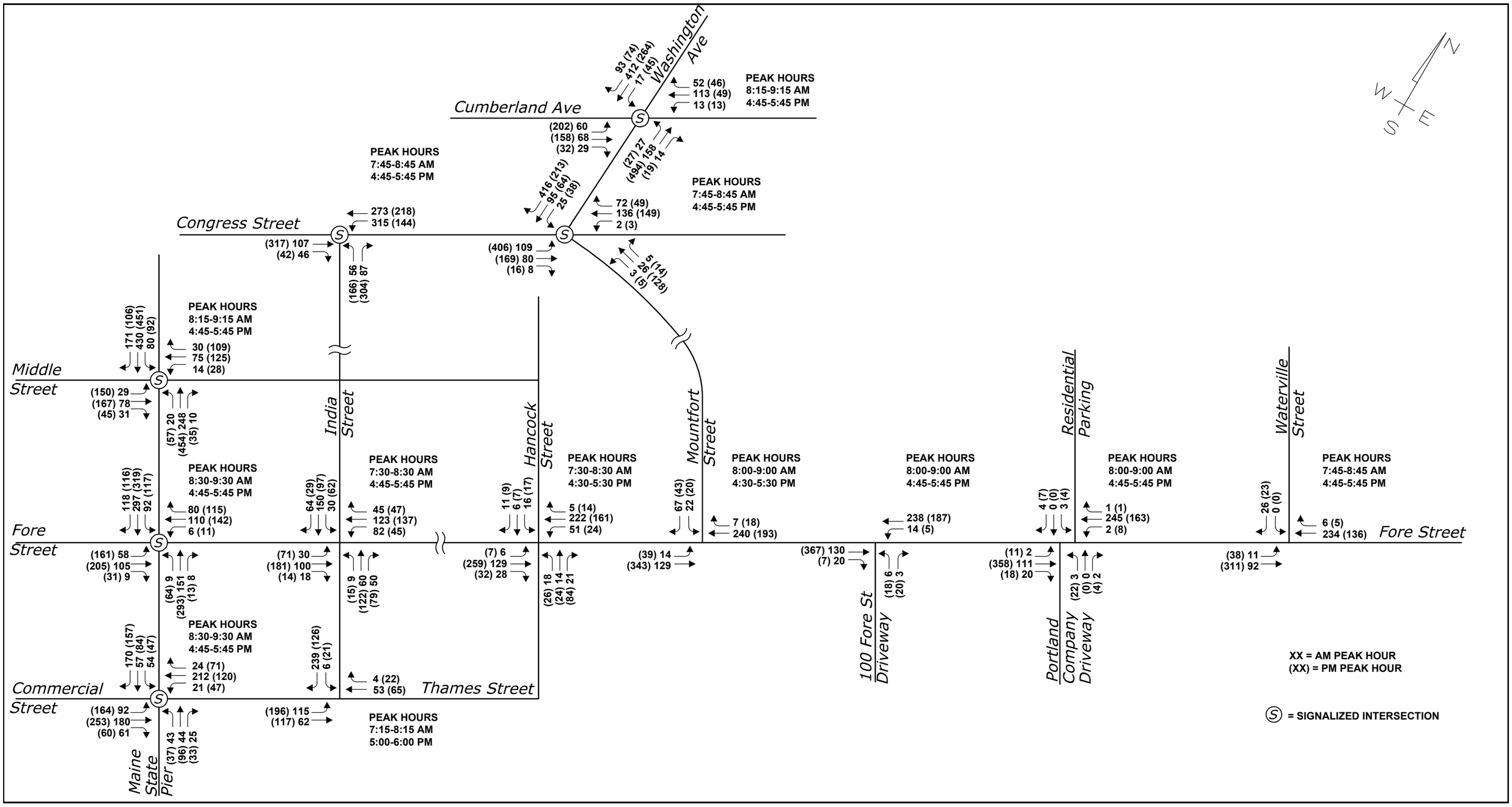
Raw Volumes

Figure No. 2



58 FORE STREET REDEVELOPMENT
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Scale: NONE
Date: AUGUST 2016
File Name: 3138-TRAFF.dwg

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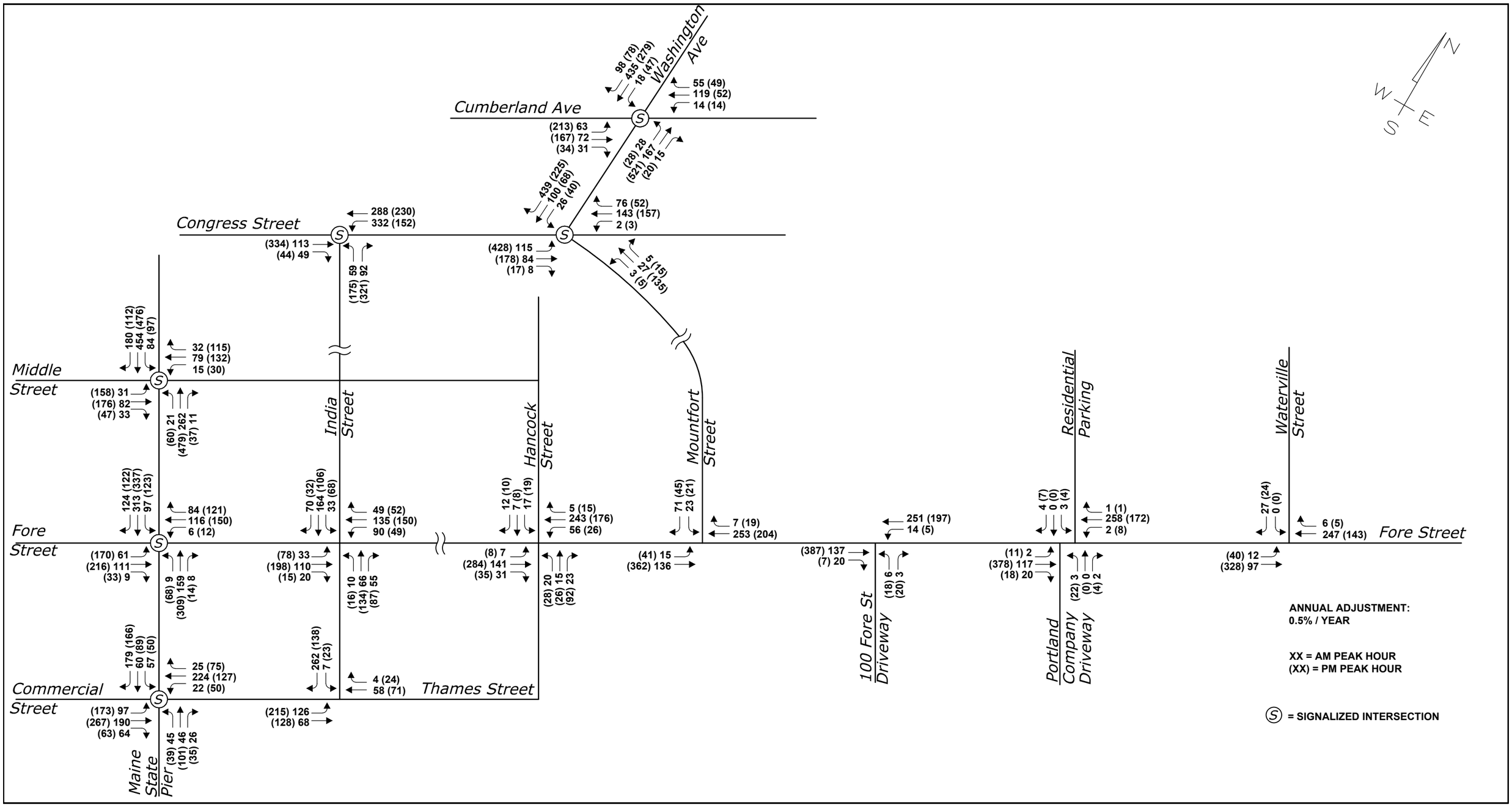
2027 Adjusted Volumes

Figure No. 3



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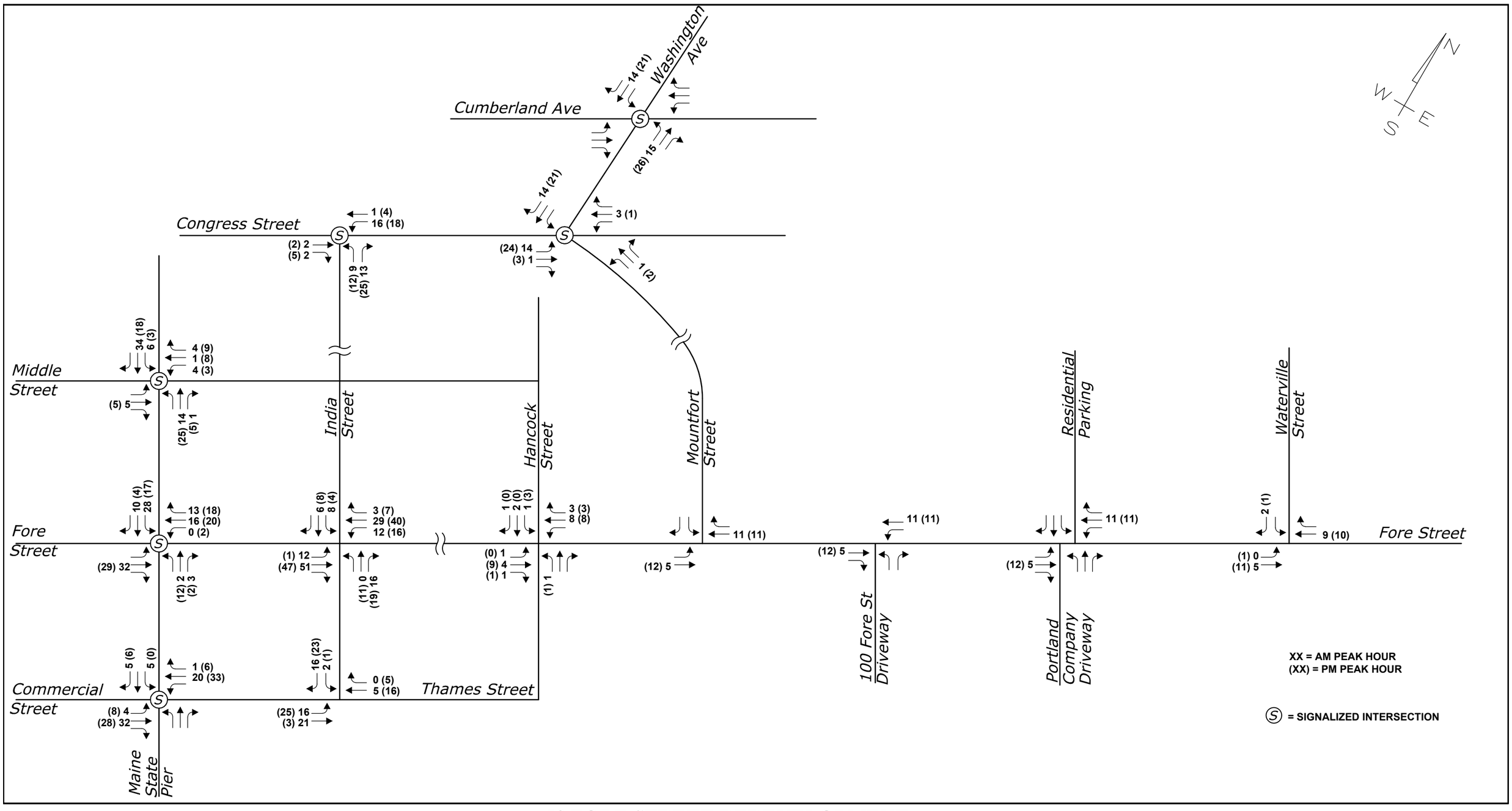
Other Development

Figure No. 4



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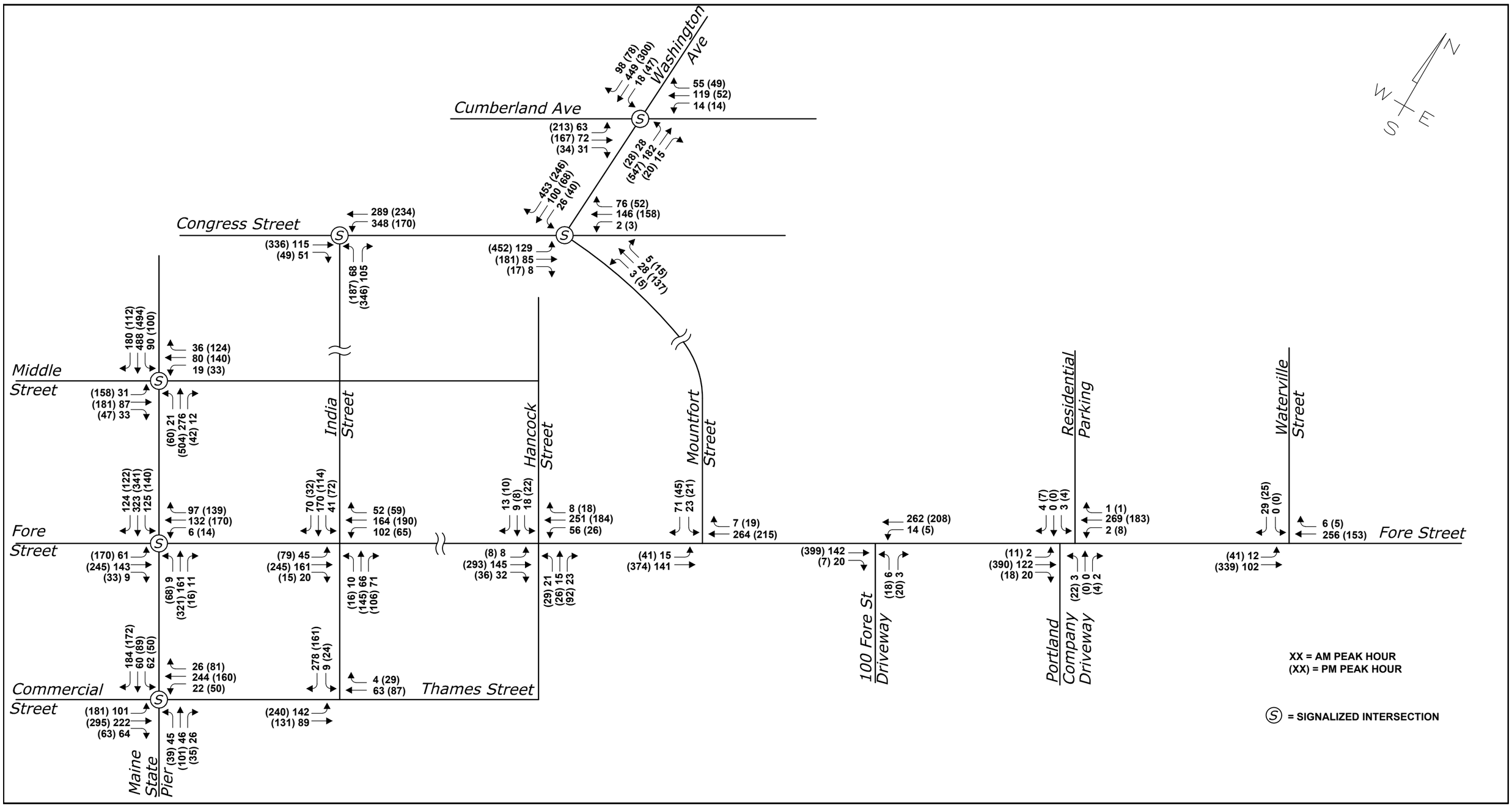
2027 Predevelopment DHV

Figure No. 5



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Scale: NONE
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File Name: 3138-TRAFF.dwg

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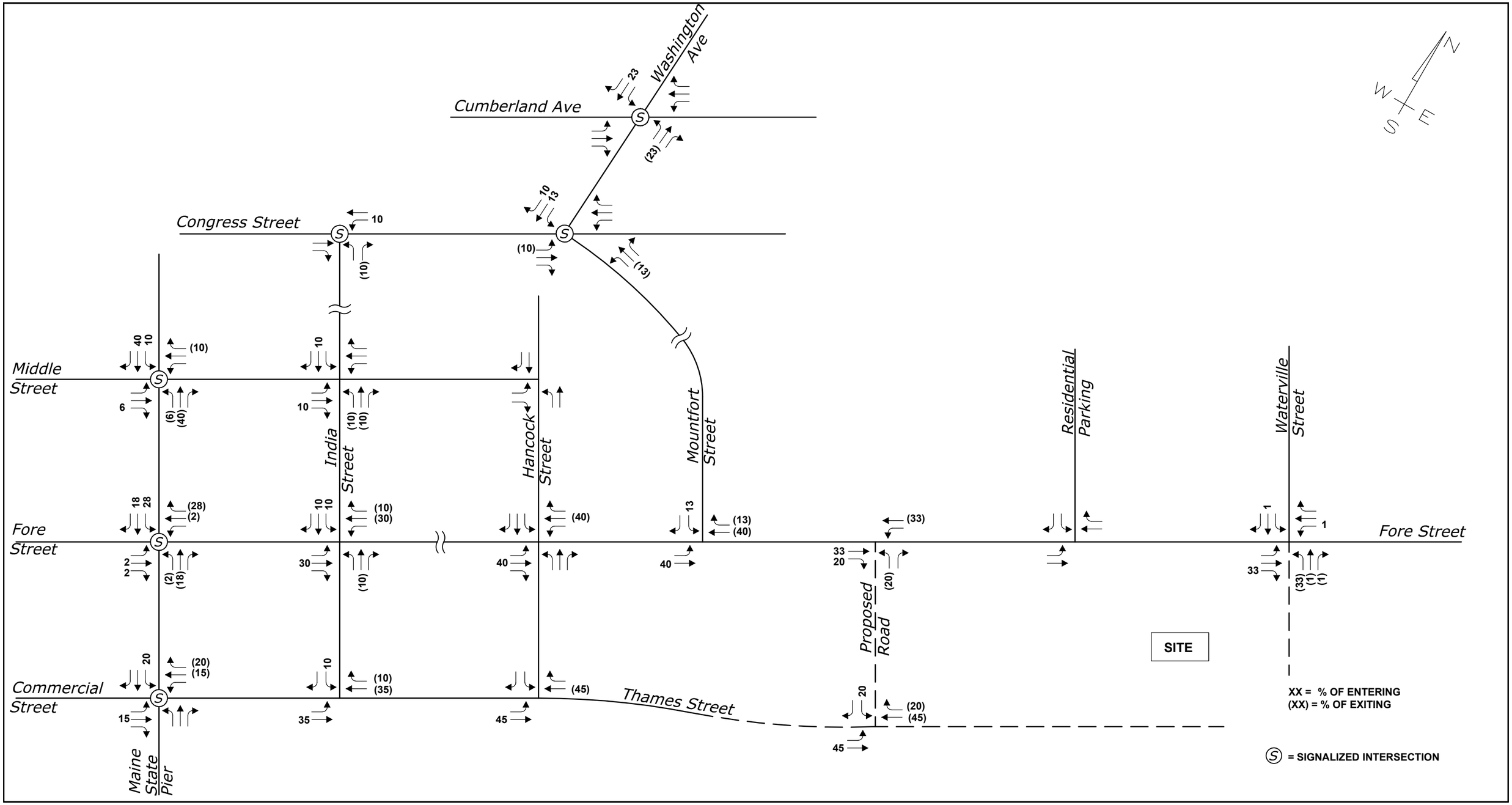
Residential Trip Distribution

Figure No. 6



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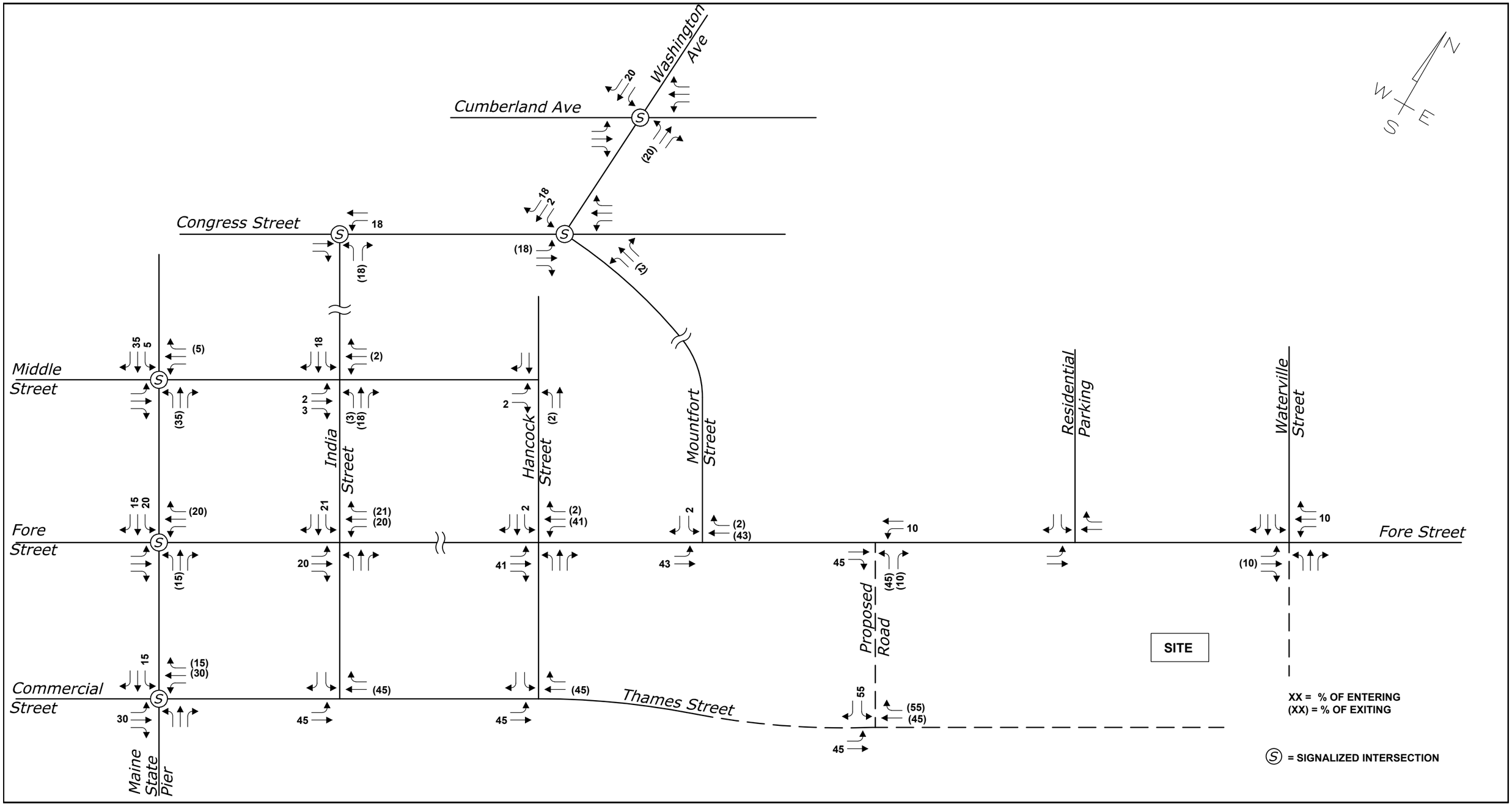
Non-Residential Trip Distribution

Figure No. 7



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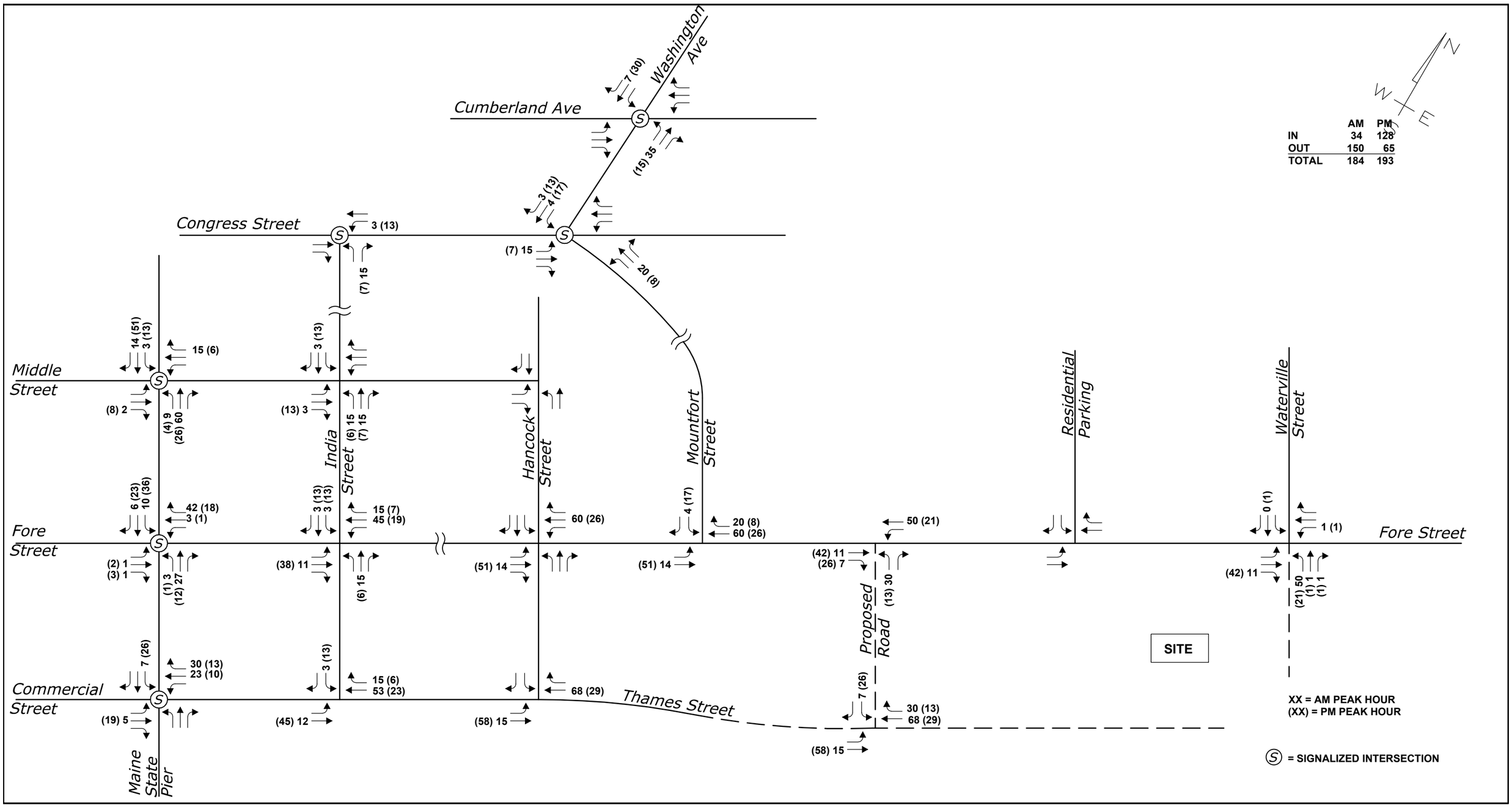
Residential Trip Assignment

Figure No. 8



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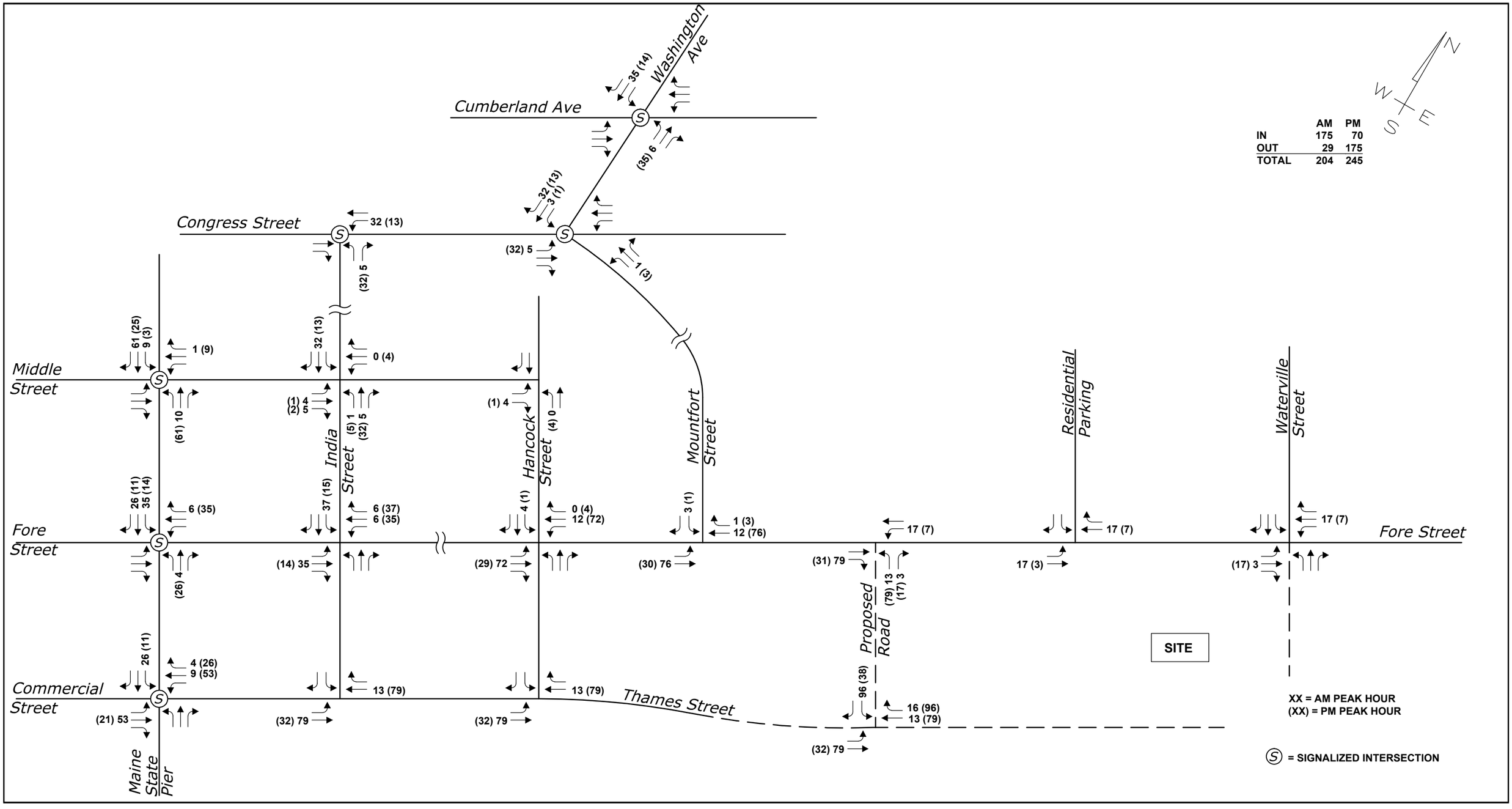
Non-Residential Trip Assignment

Figure No. 9



	AM	PM
IN	175	70
OUT	29	175
TOTAL	204	245

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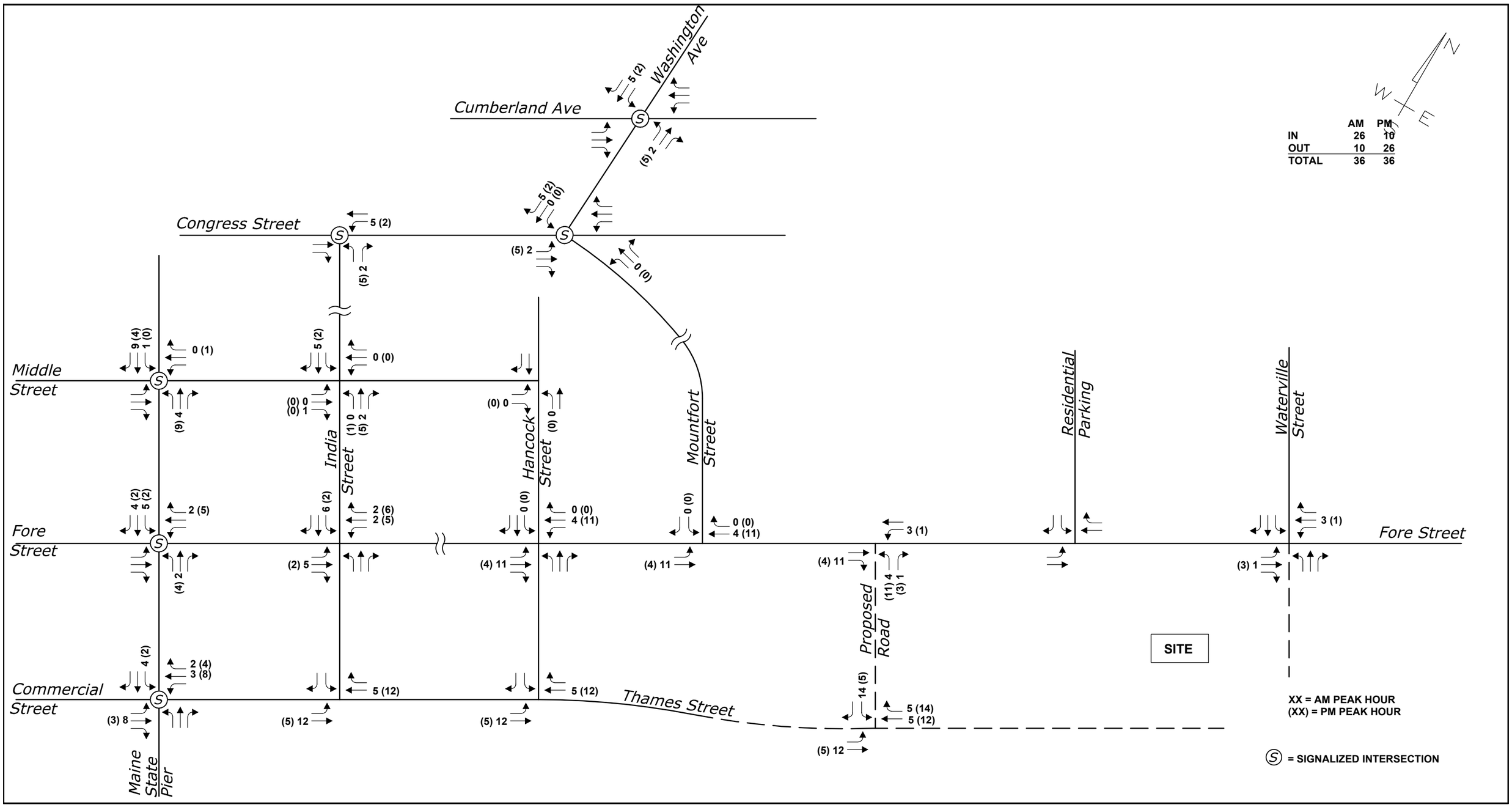
Marina Trip Assignment

Figure No. 10



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Draft: LAN Date: AUGUST 2016
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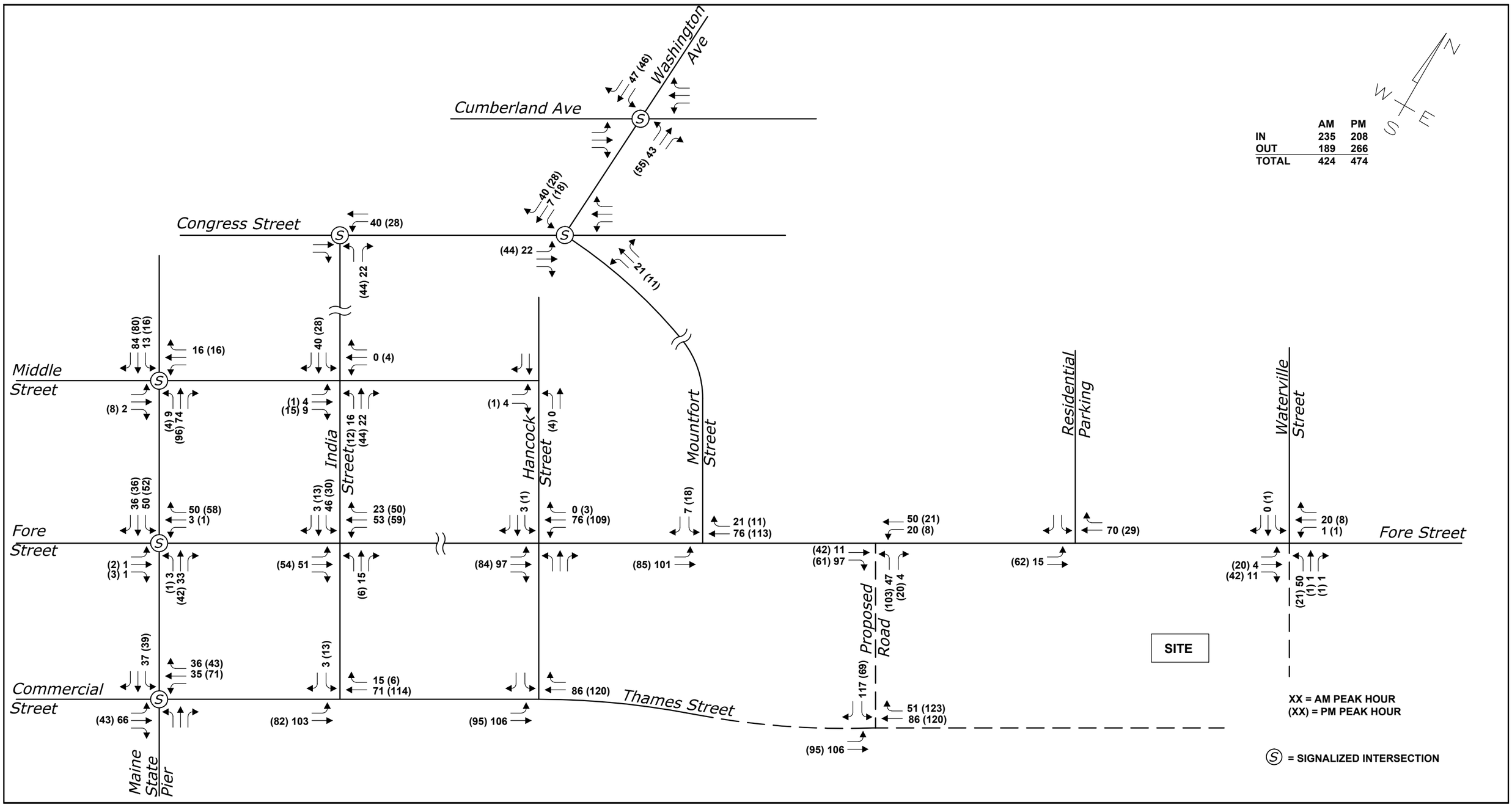
Total Trip Assignment

Figure No. 11



	AM	PM
IN	235	208
OUT	189	266
TOTAL	424	474

58 FORE STREET REDEVELOPMENT
PORTLAND, MAINE

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Draft: LAN
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Scale: NONE
Date: AUGUST 2016
File Name: 3138-TRAFF.dwg

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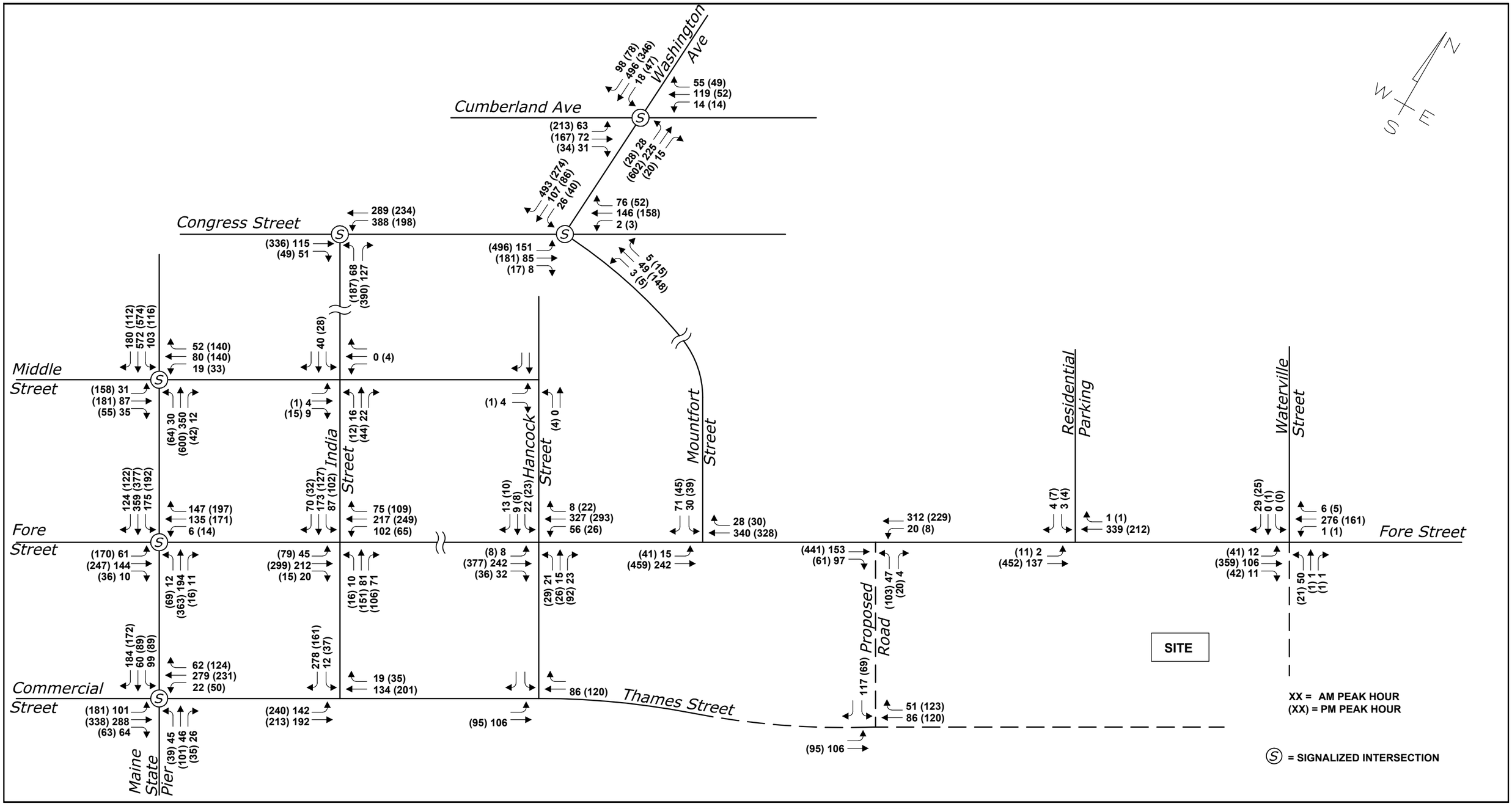
2027 Postdevelopment DHV

Figure No. 12



58 FORE STREET REDEVELOPMENT
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Draft: LAN
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Scale: NONE
Date: AUGUST 2016
File Name: 3138-TRAFF.dwg

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Other Development

A: 180 Room Hotel
B: Office and Bank
C: 4,085 sf Office/Retail, 8 Residential Units
D: 5,305 sf Retail, 39,526 sf Office
E: 39 Condominium Units
F: 2 Residential Units
G: 2 Residential Units
H: 5,409 sf Retail, 29 Condominium Units
I: 24 Condominium Units
J: 2,290 sf Retail, 10 Residential Units
K: 4 Condominium Units

PORTLAND COMPANY
PORTLAND, MAINE

Design:	EAT	Scale:	NONE
Draft:	LAN	Date:	JULY 2016
Checked:	RED	File Name:	3138-Aerial.dwg

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Appendix B

ITE Trip Generation Calculations

NCHRP Spreadsheets

Commute Data Maps

Site Parking Demand Memo

Marina Trip Generation Calculations

58 Fore Street Trip Generation Summary
Portland, Maine
September 2, 2016

Development Block	Use	Land Use Code	Size	Units		AM Trip Generation	% In AM	% Out AM	AM Trips In	AM Trips Out	PM Trip Generation	% In PM	% Out PM	PM Trips In	PM Trips Out
B1															
	Retail	814 - Specialty Retail	7,878	SF		6	60%	40%	4	2	21	45%	55%	9	12
	Residential	220 - Apartment	91	Dwelling Units		46	20%	80%	9	37	56	65%	35%	36	20
	Office	710 - General Office Building	79,000	SF		155	90%	10%	140	15	149	15%	85%	22	127
					B1 Total:	**207**	**74%**	**26%**	**153**	**54**	**226**	**30%**	**70%**	**67**	**159**
B2															
	Retail	814 - Specialty Retail	26,895	SF		20	60%	40%	12	8	73	45%	55%	33	40
	Residential	220 - Apartment	19	Dwelling Units		10	20%	80%	2	8	12	65%	35%	8	4
	Office	710 - General Office Building	25,617	SF		63	90%	10%	57	6	61	15%	85%	9	52
					B2 Total:	**93**	**76%**	**24%**	**71**	**22**	**146**	**34%**	**66%**	**50**	**96**
B3															
	Retail	814 - Specialty Retail	11,500	SF		9	60%	40%	5	4	31	45%	55%	14	17
	Office	710 - General Office Building	19,300	SF		50	90%	10%	45	5	48	15%	85%	7	41
					B3 Total:	**59**	**85%**	**15%**	**50**	**9**	**79**	**27%**	**73%**	**21**	**58**
B4															
	Residential	220 - Apartment	275	Dwelling Units		140	20%	80%	28	112	171	65%	35%	111	60
	Retail	814 - Specialty Retail	4,000	SF		3	60%	40%	2	1	11	45%	55%	5	6
					B4 Total:	**143**	**21%**	**79%**	**30**	**113**	**182**	**64%**	**36%**	**116**	**66**
B5															
	Residential	230 - Residential Condominium/Townhouse	108	Dwelling Units		48	15%	85%	7	41	56	65%	35%	36	20
	Hotel	310 - Hotel	132	Rooms		74	60%	40%	44	30	78	55%	45%	43	35
	Restaurant	932 - High Turnover (Sit Down) Restaurant	3,800	SF		44	50%	50%	22	22	41	60%	40%	25	16
					B5 Total:	**166**	**44%**	**56%**	**73**	**93**	**175**	**59%**	**41%**	**104**	**71**
B6															
	Residential	230 - Residential Condominium/Townhouse	131	Dwelling Units		58	15%	85%	9	49	68	65%	35%	44	24
	Residential	220 - Apartment	14	Dwelling Units		7	20%	80%	1	6	9	65%	35%	6	3
					B6 Total:	**65**	**15%**	**85%**	**10**	**55**	**77**	**65%**	**35%**	**50**	**27**
B7															
	Marina Facilities	N/A	2,600	SF		36	72%	28%	26	10	36	28%	72%	10	26
					B7 Total:	36	72%	28%	26	10	36	28%	72%	10	26
					Site Total:	**769**	**54%**	**46%**	**413**	**356**	**921**	**45%**	**55%**	**418**	**503**

			AM Trip Generation	% In AM	% Out AM	AM Trips In	AM Trips Out	PM Trip Generation	% In PM	% Out PM	PM Trips In	PM Trips Out
		B1-B6 Subtotal:	733	53%	47%	387	346	885	46%	54%	408	477
		NCHRP 684 Reduction:	102	12%	14%	51	51	150	18%	15%	75	75
	35.8%	Other Modes Reduction:	236	35.8%	35.8%	123	113	289	35.8%	35.8%	131	158
	10%	Hotel Other Modes Reduction:	7	57%	43%	4	3	8	50%	50%	4	4
		B1-B6 Total:	**388**	**54%**	**46%**	**209**	**179**	**438**	**45%**	**55%**	**198**	**240**
		Marina Total	36	72%	28%	26	10	36	28%	72%	10	26
		Site Total	**424**	**55%**	**45%**	**235**	**189**	**474**	**44%**	**56%**	**208**	**266**

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	58 Fore Street	**Organization:**	Gorrill Palmer
Project Location:	Portland, Maine	**Performed By:**	ET
Scenario Description:	Max Build Out	**Date:**	2-Sep
Analysis Year:	2016	**Checked By:**	RED
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	123,917	SF	268	242	26
Retail	814	50,273	SF	38	23	15
Restaurant	932	3,800	SF	44	22	22
Cinema/Entertainment		-	SF	0	0	0
Residential	220/230	638	Units	309	56	253
Hotel	310	132	Rooms	74	44	30
All Other Land Uses[2]	N/A	2,600	SF	36	26	10
Total				769	413	356

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	5	0	0	0
Retail	4		2	0	1	0
Restaurant	7	2		0	1	1
Cinema/Entertainment	0	0	0		0	0
Residential	5	3	4	0		0
Hotel	7	1	1	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	769	413	356
Internal Capture Percentage	13%	12%	14%
External Vehicle-Trips[3]	667	362	305
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	10%	46%
Retail	57%	47%
Restaurant	55%	50%
Cinema/Entertainment	N/A	N/A
Residential	4%	5%
Hotel	2%	30%

[1]Land Use Codes (LUCs) from *Trip Generation Manual* , published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute

Project Name:	58 Fore Street
Analysis Period:	**Scenario 1 - AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	242	242	1.00	26	26
Retail	1.00	23	23	1.00	15	15
Restaurant	1.00	22	22	1.00	22	22
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	56	56	1.00	253	253
Hotel	1.00	44	44	1.00	30	30

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	16	0	0	0
Retail	4		2	0	2	0
Restaurant	7	3		0	1	1
Cinema/Entertainment	0	0	0		0	0
Residential	5	3	51	0		0
Hotel	23	4	3	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	5	0	0	0
Retail	10		11	0	1	0
Restaurant	34	2		0	3	2
Cinema/Entertainment	0	0	0		0	0
Residential	7	4	4	0		0
Hotel	7	1	1	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	23	219	242	219	0	0
Retail	13	10	23	10	0	0
Restaurant	12	10	22	10	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	54	56	54	0	0
Hotel	1	43	44	43	0	0
All Other Land Uses[3]	0	26	26	26	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	12	14	26	14	0	0
Retail	7	8	15	8	0	0
Restaurant	11	11	22	11	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	12	241	253	241	0	0
Hotel	9	21	30	21	0	0
All Other Land Uses[3]	0	10	10	10	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	58 Fore Street	**Organization:**	Gorrill Palmer
Project Location:	Portland, Maine	**Performed By:**	ET
Scenario Description:	Max Build Out	**Date:**	2-Sep
Analysis Year:	2016	**Checked By:**	RED
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	123,917	SF	258	38	220
Retail	814	50,273	SF	136	61	75
Restaurant	932	3,800	SF	41	25	16
Cinema/Entertainment		-	SF	0	0	0
Residential	220/230	638	Units	372	241	131
Hotel	310	132	Rooms	78	43	35
All Other Land Uses[2]	N/A	2,600	SF	36	10	26
Total				921	418	503

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	1	0	4	0
Retail	2		7	0	20	4
Restaurant	0	7		0	3	1
Cinema/Entertainment	0	0	0		0	0
Residential	5	6	4	0		4
Hotel	0	1	1	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	921	418	503
Internal Capture Percentage	16%	18%	15%
External Vehicle-Trips[3]	771	343	428
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	18%	5%
Retail	31%	44%
Restaurant	52%	69%
Cinema/Entertainment	N/A	N/A
Residential	11%	15%
Hotel	21%	6%

[1]Land Use Codes (LUCs) from *Trip Generation Manual* , published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute

Project Name:	58 Fore Street
Analysis Period:	**Scenario 1 - PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	38	38	1.00	220	220
Retail	1.00	61	61	1.00	75	75
Restaurant	1.00	25	25	1.00	16	16
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	241	241	1.00	131	131
Hotel	1.00	43	43	1.00	35	35

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		44	9	0	4	0
Retail	2		22	3	20	4
Restaurant	0	7		1	3	1
Cinema/Entertainment	0	0	0		0	0
Residential	5	55	28	0		4
Hotel	0	6	24	0	1	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	1	0	10	0
Retail	12		7	0	111	7
Restaurant	11	31		0	39	31
Cinema/Entertainment	2	2	1		10	0
Residential	22	6	4	0		5
Hotel	0	1	1	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	7	31	38	31	0	0
Retail	19	42	61	42	0	0
Restaurant	13	12	25	12	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	27	214	241	214	0	0
Hotel	9	34	43	34	0	0
All Other Land Uses[3]	0	10	10	10	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	10	210	220	210	0	0
Retail	33	42	75	42	0	0
Restaurant	11	5	16	5	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	19	112	131	112	0	0
Hotel	2	33	35	33	0	0
All Other Land Uses[3]	0	26	26	26	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

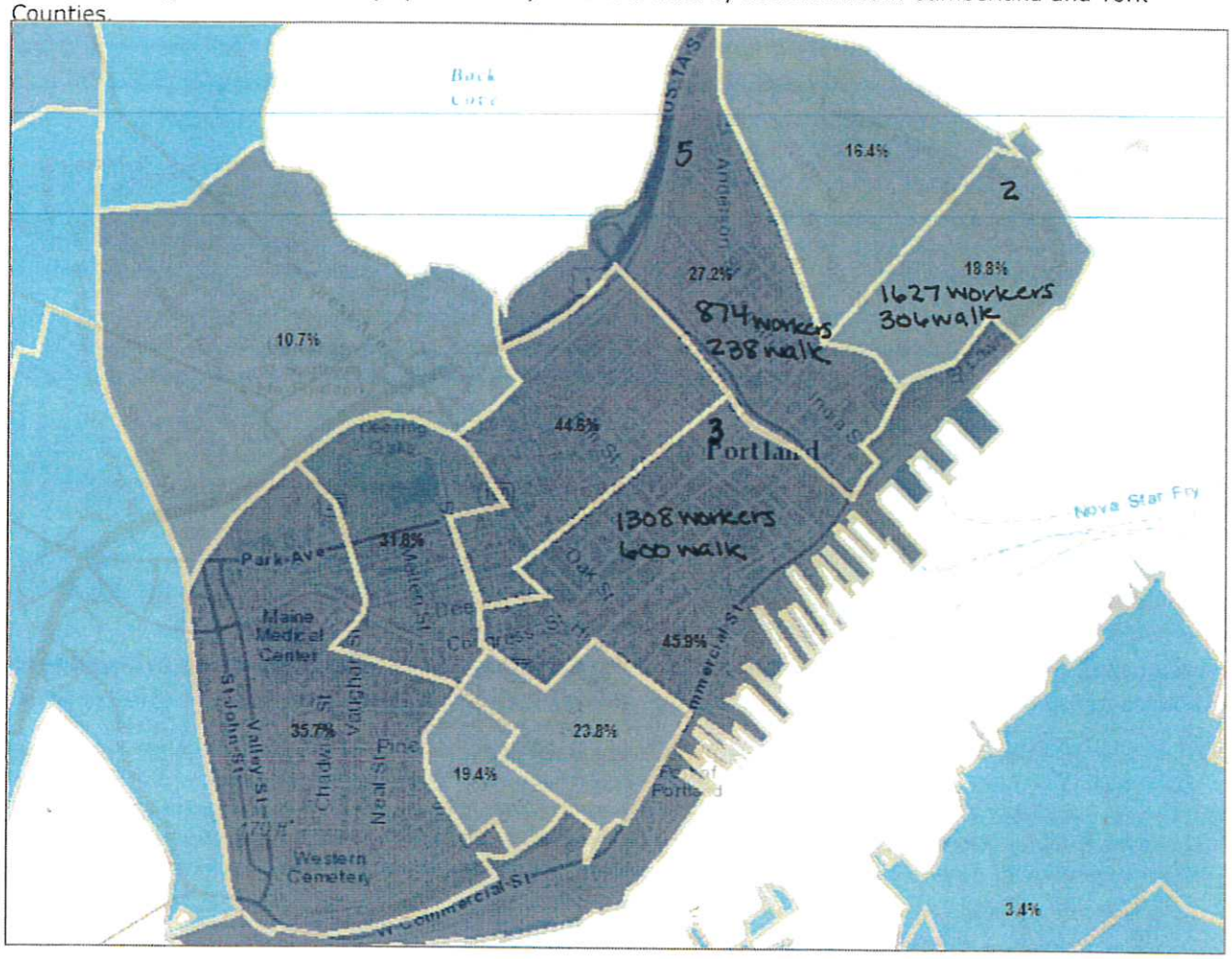
[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Southern Maine Commute Data (ACS 2009-2013, 5-Yr Est. by Census Tract)

Walked

A map showing ACS 2009-2013 (5-yr estimate) commute data by census tract in Cumberland and York Counties.



Esri, HERE, DeLorme, INCREMENT P, USGS, METI/NASA, EPA, USDA

3809 Workers
1144 Walk

30.0% walk

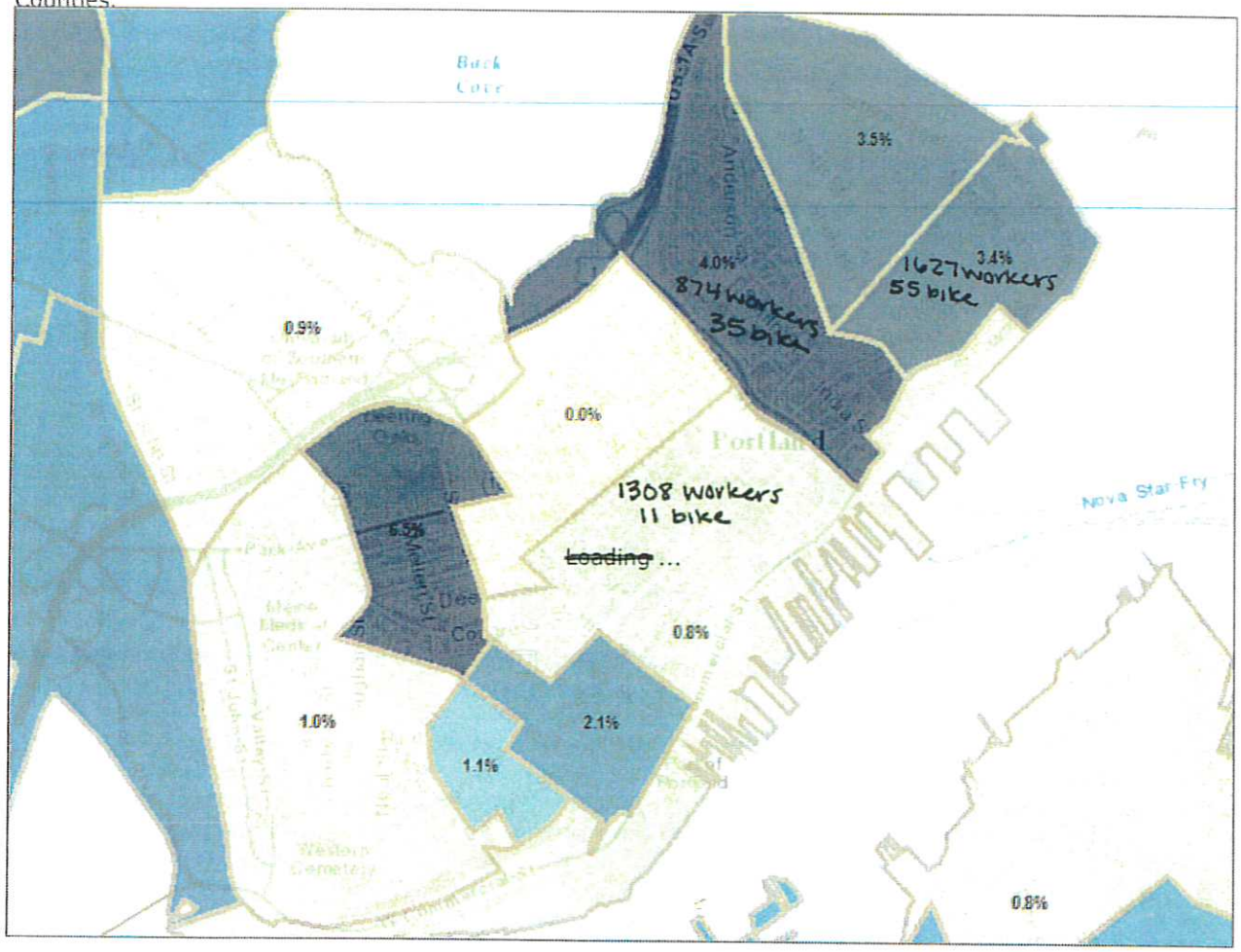
Walk/Bike/Transit

30.0 + 2.7 + 3.1 = 35.8%

Southern Maine Commute Data (ACS 2009-2013, 5-Yr Est. by Census Tract)

Biked

A map showing ACS 2009-2013 (5-yr estimate) commute data by census tract in Cumberland and York Counties.



Esri, HERE, DeLorme, INCREMENT P, USGS, METI/NASA, EPA, USDA

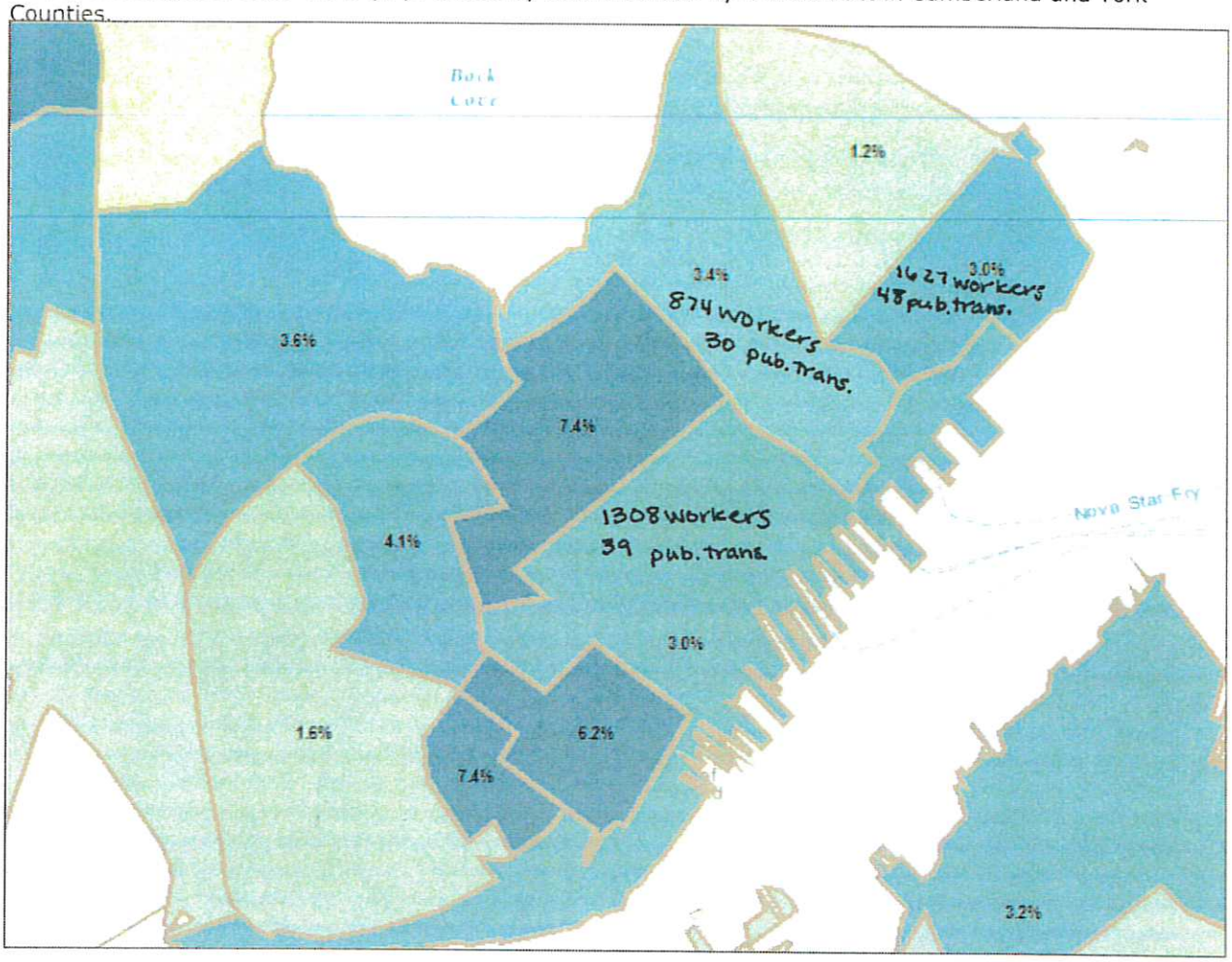
3809 Workers
101 Bike

2.7% Bike

Southern Maine Commute Data (ACS 2009-2013, 5-Yr Est. by Census Tract)

Public Transportation

A map showing ACS 2009-2013 (5-yr estimate) commute data by census tract in Cumberland and York Counties.



Esri, HERE, DeLorme, INCREMENT P, USGS, METI/NASA, EPA, USDA

3809 Workers
117 Public Transportation

3.1% Public Transportation

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Site Parking Demand
58 Fore Street Mixed Use Development
Portland, Maine
JN 3138

Date: September 16, 2016
Subject: Site Parking Demand
58 Fore Street Mixed Use Development
To: David Senus, Mary McCrann, Jim Brady, Kevin Costello, Casey Prentice
From: Randy Dunton and Emily Tynes, Gorrill Palmer (JN 3138)

The following is a summary of the estimated parking demand for the proposed mixed use development at 58 Fore Street. The following table summarizes the sizes and uses of the proposed development used to calculate the parking demand:

Proposed Site Summary

Development Block	Use	Size
B1		
	Retail	7,878 SF
	Residential	91 Dwelling Units
	Office	79,000 SF
B2		
	Retail	26,895 SF
	Residential	19 Dwelling Units
	Office	25,617 SF
B3		
	Retail	11,500 SF
	Office	19,300 SF
B4		
	Residential	275 Dwelling Units
	Retail	4,000 SF
B5		
	Residential	108 Dwelling Units
	Hotel	132 Rooms
	Restaurant	3,800 SF
	Function	5,800 SF
B6		
	Residential (Condos)	131 Dwelling Units
	Residential (Apartments)	14 Dwelling Units
B7		
	Marina Facilities	2,600 SF, 220 Slips

It should be noted that the retail portions of the proposed site will be multiple smaller shops, not large retail stores.

Parking Demand Calculation Methodologies

The parking demand has been determined using two methodologies: using the City Ordinance requirements and based on a shared parking demand. The following summarizes the methodologies in more detail:

City Ordinance Parking Demand

The Ordinance requirement methodology involves calculating the peak parking demand for each use using the City of Portland Code of Ordinances. This method assumes each use is isolated and then adds the individual demands to determine the parking demand for the site. The supporting calculations for this method are attached. This method results in an overestimate because the peak demands for each use are not expected to occur at the same time. For example, offices require more spaces during the day while employees are in the office, and residential buildings would require more spaces later at night when residents are home from work.

The City Ordinance Ch. 14, Art III, Div. 20, Sec. 14-332.2 (c) states, "where construction is proposed of new structures having a total floor area in excess of fifty thousand (50,000) square feet, the planning board shall establish the parking requirement for such structures. The parking requirement shall be determined based upon a parking analysis submitted by the applicant and upon the recommendation of the city transportation engineer." Since this mixed use development is approximately 958,679 sf of building floor area, it meets the criteria. Therefore, the site parking demand was determined based on the following methodology.

Shared Parking Plan

The shared parking plan methodology is based on a combination of City Ordinance parking demand, the ITE Parking Generation Manual (4th Edition), and published data / engineering judgement and it reflects that the demand for different uses will peak during different times of day. Since different uses do not peak at the same times, parking spaces can be shared between uses. To determine the shared parking demand, the total parking demand was calculated for each use, then distributed throughout the day based on the type of use. This is the same methodology used for the recent Thompson's Point project. The supporting calculations are attached. With a shared parking plan it is recommended that shared parking language be included in the leases, to ensure tenants understand the shared parking.

Parking Demand Reductions

Given the mixed use of the site as well as its downtown location, the following two parking demand reductions were applied to the shared parking spaces:

Shared Use Reduction

When evaluating a mixed use development with complementary uses such as this, the overall parking demand can be reduced due to the expectation that there will be some cross use between the individual facilities. For instance, it can be assumed that some of the people living in the apartments would also be those that visit the retail. Gorrill Palmer (GP) used the NCHRP 684 Internal Trip Capture Estimation Tool to calculate the reduction that can be applied to the trip generation. This calculated an internal trip capture of 14% for the AM peak hour and 17% for the PM peak hour. It can be assumed that parking demand can be reduced proportionally to the reduction in trip generation. To be conservative, GP used a shared use reduction of 14% throughout the day to estimate the parking demand. The following table summarizes the shared use reduction:

Shared Use Reduction Summary

Proposed	Ordinance	Shared Parking
B1-B6 Peak Parking Demand	919	690
Shared Use Reduction (14%)	-129	-97

Other Modes Reduction

The overall parking demand for a development in a downtown area can also be reduced due to the expectation that some people going to or from the site would use other modes of transportation such as transit, bicycle, or walking. The site is adjacent to an existing bus route as well as located on a bicycle and pedestrian path. The other modes reduction is based on information from the 2009-2013 American Community Survey (ACS) Five-Year Estimate by Census Tract. Based on this information Rick Harbison, Planner and GIS Specialist for the Greater Portland Council of Governments, created maps using GIS data that illustrate the estimated percentage of workers living in each Portland Census Tract that use each mode of transportation to commute to work. The site is located on the east side of Census Tract 3, which is a predominantly commercial area. Census Tracts 2 and 5 border the site and consist of primarily residential areas. Since the site is proposed to have a significant number of residential units as well as commercial space, the data from the combination of the three tracts is expected to be more representative of the actual conditions on the site than the data from the individual tracts. This reduction was calculated by dividing the estimated number of people walking, bicycling, and taking the bus to work in the three Census Tracts by the estimated total number

of working people in the same three Census Tracts. This calculation yields a 35.8% use of non-vehicular modes of transportation.

The GPCOG data is based on residents of the Census Tracts commuting to work, so it is applicable to the residential units, office space, and retail uses on the site. It was not clear if the 35.8% reduction would also be applicable to the restaurants and hotel, even though there are hotels and restaurants located within the boundaries of the three Census Tracts. GP searched for studies that included information on other modes of transportation for restaurants and hotels and found two sources that had information that could be compared to the other modes of transportation calculated using the Portland Census data. The following is a more detailed description of the relevant information found in the two studies:

The first study is *Contextual Influences on Trip Generation* (found in the United States Department of Transportation National Transportation Library online database or at the following link: http://ntl.bts.gov/lib/46000/46600/46699/CITG_FinalReport_Draft_10022012.pdf), a study for the Oregon Transportation Research and Education Consortium (OTREC) that compared the ITE predicted trip generation to the actual trip generation of 79 locations in Portland, Oregon, 39 of which were high turnover sit-down restaurants. The study also included surveying the visitors of those sites to determine what mode of transportation the visitors used. The results of the study are divided into different types of areas, ranging from central business district, which is considered the most urban area, to suburban areas, which is considered the least urban type of area surveyed. This study surveyed 12 restaurants in the central business district area and found that 35% of the patrons arrived to the sites using a car, while the remaining 65% walked, biked, or used transit (table attached). This result is higher than the 35.8% use of other modes calculated using the GPCOG information. Because the data is for Portland, Oregon it may not be appropriate to use as a reduction, but it does indicate that in an urban area a large portion of site traffic can be expected to use transit, bike, or walk.

The second source that included restaurant information is the National Cooperative Highway Research Program (NCHRP) Report 758, *Trip Generation Rates for Transportation Impact Analyses of Infill Developments*. This study used information from the Household Travel Survey (HTS) for the San Francisco Bay area and Metropolitan Washington D.C. and counted data and surveys at specific sites in those areas. The Washington D.C. HTS data for restaurants shows that approximately 40.3% of residents use transit, walk, or bicycle to and from high-turnover sit-down restaurants (table attached). The study only included one site that was counted and surveyed, so the HTS data could not be verified, however like the Portland, Oregon study, it is higher than the other modes reduction calculated using the GPCOG Census information. Like the Portland, Oregon study, this data indicates that in an urban area a large portion of site traffic can be expected to use transit, bike, or walk.

Based on these two additional sources that contain information specific to restaurant uses, GP determined that the other modes reduction of 35.8% calculated from the GPCOG Census

information that is based on the existing transit system can be applied to the restaurant parking demand. Although the other two studies showed higher percentages of people using alternative modes of transportation to go to or from restaurants, since they are not specific to Portland, Maine, the local data is expected to be closer to the actual conditions that would be seen at the 58 Fore Street development.

The two studies discussed above included information about restaurants, but did not have any data for hotels. Based on our research there is limited information available about modes of transportation used at hotels. It can be assumed for the 58 Fore Street site that hotel employees may take the bus, bike, or walk to get to and from work and some hotel guests may arrive by boat using the marina. To be conservative, GP only used an "other modes of transportation" reduction of 10% for the hotel.

The following table summarizes the other modes of transportation reduction for the site:

Other Modes of Transportation Reduction Summary

Proposed	Ordinance	Shared Parking
B1-B6 Peak Parking Demand w/o Hotel	886	677
Hotel Peak Parking Demand	33	13
Other Modes Reduction (35.8% of B1-B6 Demand w/o Hotel)	-317	-242
Hotel Other Modes Reduction (10% of Hotel Demand)	-3	-1
Total Other Modes Reduction	**-320**	**-243**

Marina Parking Demand

The City Ordinance does not include a parking requirement for marina facilities. The parking demand for the proposed marina is based on information from Applied Technology & Management (ATM). The new marina is proposed to have 220 slips that will service off-site Portland residents, on-site Portland residents, and transient boaters. ATM provided a range of parking rates from one space for every two slips to one space for every four slips. ITE has limited marina parking information available, however the ATM parking rates appear to be consistent with the ITE data. To be conservative, GP used a requirement of one parking space for every two slips. ATM expects peak usage of the marina to be 10% of the slips, but possibly higher since Maine has a shorter boating season. To be conservative, GP assumed that the peak demand would be 15% of the slips. ATM also stated that there would be approximately 9 employees at this marina, therefore GP included an additional 5% to include spaces for employees, giving a total peak demand estimation of 20% of the slips. Because of the nature of a marina use, the two parking demand reductions that were applied to the rest of the site were not applied to the

marina parking demand. Although it is possible that marina users visit other uses on site or use alternative modes of transportation to get to the site, to be conservative the reductions were not applied.

Dedicated Parking Spaces

Often in large developments, a portion of parking spaces are dedicated to a specific use. For example, residential units may have spaces assigned to each unit or a group of spaces may be reserved for use by only an office. These dedicated spaces would not be shared by any other site uses. The number of dedicated parking spaces is added to the number of shared parking spaces to determine the total site demand. On this site, there are 298 dedicated parking spaces proposed. These spaces include; half of the residential units in B1, all the residential units in B5, and all the residential units in B6. The two parking demand reductions that were applied to the rest of the site were not applied to the dedicated parking spaces, since the spaces will not be shared and will be provided for the peak demand regardless of the expected use of transit, bicycles, or walking.

Parking Demand Summary

The following table summarizes the overall parking demand for the site, including the reductions, based on both the Ordinance and the Shared Parking demand methodologies:

Parking Demand Summary

Proposed	Ordinance	Shared Parking
B1-B6 Shared Parking Demand	919	690
Shared Use Reduction	-129	-97
Other Mode Reduction	-320	-243
B1-B6 Total Shared Parking Demand	**470**	**350**
B7 (Marina) Parking Demand	110	22
B1-B7 Total Parking Demand	**580**	**372**
B1-B7 Dedicated Parking	298	298
Net Parking Demand	**878**	**670**

As shown in the table, the proposed parking demand, including reductions, based on the Ordinance and isolated uses is forecast to be 878 spaces and the parking demand based on shared parking is 670 spaces. The parking demand based on the City Ordinance is higher than the shared parking demand because it assumes all uses will require their peak parking demand concurrently whereas the shared parking demand considers the different uses peaking at different times of day.

It should be noted that a parking facility can be considered full when it is approximately 85% occupied. This is because a driver may not see empty parking spaces when the lot is almost completely occupied, especially in a larger parking area. **To ensure the peak parking demand is satisfied, the recommended number of spaces is 736 (372 spaces / 0.85 + 298 spaces).** This assumes that shared spaces are generally available to all users. The increase is not applied to the dedicated parking spaces because it is assumed that they will be visible and easy for the designated users to find.

The marina may also have additional parking needs, such as temporary parking spaces for visitors to drop off passengers or supplies near their boat before parking their vehicle and for fueling trucks and provisional vehicles that service the mega-yachts. These other parking spaces should be considered in addition to the estimated peak parking demand for the visitors and employees.

Bicycle Parking

Per City Ordinance, new uses are required to provide bicycle accommodations based on the type of use. Residential structures are required to provide 2 bicycle spaces for every 5 dwelling units. Non-residential structures are required to provide 2 bicycle parking spaces for every 10 vehicle parking spaces for the first 100 required spaces, plus one bicycle parking space for every 20 required vehicle parking spaces over the 100 vehicle parking spaces. The following table shows the required bicycle parking for the Ordinance vehicle parking demand and the Shared Parking demand:

Bicycle Parking Summary

	Ordinance	Shared Parking
Parking Variable	409 Spaces, 638 Units	322 Spaces, 638 Units
Residential Bicycle Spaces	256	256
Non-Residential Bicycle Spaces	36	31
Total	**292**	**287**

As shown in the table, the site will require 287-292 bicycle parking spaces to meet the City Ordinance Requirements for bicycle accommodations. The Transportation Demand Management (TDM) plan will outline a more detailed approach to incorporating bicycle parking on site.

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JOB 3138-58 Fore Street Redevelopment
SHEET NO. _____ OF _____
CALCULATED BY ET DATE 8/26/16
CHECKED BY _____ DATE _____
SCALE _____

Marina Trip Generation

Info from ATM:
- 220 slips → 140 seasonal users, 80 transient boaters
- Daily usage peaks around 10%, maybe more
- 10% of daily non-transient users are on-site residents
- 90% of daily non-transient users are offsite residents
- 30% of off site residents are Islanders commuting to the Peninsula
- 9 marina employees
- 4 mega-yacht slips

Assumptions:
- 15% of slips is peak daily usage to be conservative (33 slips)
- 36% are transient boaters ($^{80}/_{220} = 36\%$ → 12 slips)
- 21 non-transient slips used during peak (33 slips - 12 slips)
- 2 on-site residents used slips during peak ($21 \times 0.10 = 2.1$)
- 19 off-site residents use slips during peak ($21 \times 0.90 = 18.9$)
- 6 Islanders commuting to Peninsula ($19 \times 0.30 = 5.7$)
- 1 provisioning vehicle per mega-yacht slip (conservative)
- Transient boaters = 0 trip ends
- on-site residents = 0 trip ends
- off-site residents = 1 AM trip end, 1 PM trip end
  - Islanders leave during AM and return during PM
  - other off-site enter during AM and exit during PM
- Employees enter during AM and exit during PM
- Provisioning vehicles enter and exit during the peak hour (conservative)

AM Peak Hour
- 9 employees in
- 6 islanders out
- 13 seasonal in
- 4 provisional veh. in
- 4 provisional veh. out

36 trip ends (26 in / 10 out)

PM Peak Hour
- 9 employees out
- 6 Islanders in
- 13 seasonal out
- 4 provisional veh in
- 4 provisional veh out

36 trip ends (10 in / 26 out)

Appendix C
Capacity Analysis Results

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4372	4255	4290	4256	4352	4303
Vehs Exited	4367	4259	4271	4246	4370	4301
Starting Vehs	80	85	67	76	91	75
Ending Vehs	85	81	86	86	73	78
Denied Entry Before	1	1	1	2	0	0
Denied Entry After	1	2	0	0	1	0
Travel Distance (mi)	1199	1181	1177	1180	1198	1187
Travel Time (hr)	78.5	76.6	77.1	76.8	79.0	77.6
Total Delay (hr)	33.5	32.1	32.9	32.1	33.8	32.9
Total Stops	5922	5903	5875	5873	6020	5918
Fuel Used (gal)	62.4	61.7	61.0	61.6	62.4	61.8

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4372	4255	4290	4256	4352	4303
Vehs Exited	4367	4259	4271	4246	4370	4301
Starting Vehs	80	85	67	76	91	75
Ending Vehs	85	81	86	86	73	78
Denied Entry Before	1	1	1	2	0	0
Denied Entry After	1	2	0	0	1	0
Travel Distance (mi)	1199	1181	1177	1180	1198	1187
Travel Time (hr)	78.5	76.6	77.1	76.8	79.0	77.6
Total Delay (hr)	33.5	32.1	32.9	32.1	33.8	32.9
Total Stops	5922	5903	5875	5873	6020	5918
Fuel Used (gal)	62.4	61.7	61.0	61.6	62.4	61.8

1: Thames St & India St Performance by approach

Approach	EB	WB	SE	All
Denied Del/Veh (s)	0.0	0.2	0.1	0.1
Total Del/Veh (s)	6.4	7.2	5.3	5.9
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

2: India St & Fore Performance by approach

Approach	EB	WB	SE	NW	All
Denied Del/Veh (s)	0.0	0.0	0.3	0.0	0.1
Total Del/Veh (s)	6.8	8.0	8.4	6.1	7.5
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

3: Fore & Hancock St Performance by approach

Approach	NB	SB	SE	NW	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	2.3	1.1	5.8	6.2	2.3
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Fore & Mountfort St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.6	0.5	0.5	1.4
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: 100 Fore St & Existing Driveways & Fore Performance by approach

Approach	EB	WB	NB	NW	All
Denied Del/Veh (s)	0.0	0.0	0.1	1.8	0.0
Total Del/Veh (s)	0.6	0.5	5.7	3.8	0.7
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

6: Fore & Waterville St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.1	0.0	0.2	0.1
Total Del/Veh (s)	3.0	0.4	0.2	0.5
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

7: Congress St Performance by approach

Approach	NW	NE	SW	All
Denied Del/Veh (s)	0.2	0.2	0.2	0.2
Total Del/Veh (s)	13.5	15.8	8.1	10.4
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

8: Congress St & Mountfort St/Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.3	0.1
Total Del/Veh (s)	15.7	9.1	5.8	16.5	10.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

9: Cumberland St & Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.0	0.5	1.7	0.2	0.5
Total Del/Veh (s)	10.2	9.0	11.8	10.9	9.9
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

11: Commercial & Franklin Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	2.6	1.3	0.0	0.7
Total Del/Veh (s)	16.5	32.1	16.5	20.2	19.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

38: Fore & Franklin/Franklin St. Performance by approach

Approach	NB	SE	NW	SW	All
Denied Del/Veh (s)	2.8	0.1	0.0	0.0	0.5
Total Del/Veh (s)	11.8	16.0	19.2	17.3	16.0
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

43: Middle St./Middle St & Franklin St. /Franklin St. Performance by approach

Approach	SE	NW	NE	SW	All
Denied Del/Veh (s)	0.3	0.0	0.2	1.3	0.3
Total Del/Veh (s)	14.9	16.9	15.3	14.1	15.3
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	26.3
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: Thames St & India St

Movement	EB	EB	WB	SE
Directions Served	L	T	TR	LR
Maximum Queue (ft)	61	65	54	137
Average Queue (ft)	40	35	30	68
95th Queue (ft)	59	56	49	116
Link Distance (ft)		495	636	243
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	35			
Storage Blk Time (%)	9	6		
Queuing Penalty (veh)	8	9		

Intersection: 2: India St & Fore

Movement	EB	WB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	72	119	113	73
Average Queue (ft)	35	53	54	35
95th Queue (ft)	62	94	89	59
Link Distance (ft)	527	351	328	243
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Fore & Hancock St

Movement	NB	SB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	22	54	45	61
Average Queue (ft)	2	9	19	24
95th Queue (ft)	14	37	37	49
Link Distance (ft)	351	421	224	227
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Fore & Mountfort St

Movement	SE	NE
Directions Served	LR	LT
Maximum Queue (ft)	76	34
Average Queue (ft)	29	2
95th Queue (ft)	56	16
Link Distance (ft)	1097	421
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: 100 Fore St & Existing Driveways & Fore

Movement	EB	WB	NB	NW	NW
Directions Served	TR>	<LT	LR	L	R
Maximum Queue (ft)	4	38	59	30	30
Average Queue (ft)	0	4	11	4	3
95th Queue (ft)	3	22	42	20	20
Link Distance (ft)	386	549	182	230	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					25
Storage Blk Time (%)				0	0
Queuing Penalty (veh)				0	0

Intersection: 6: Fore & Waterville St

Movement	SE	NE
Directions Served	LR	LT
Maximum Queue (ft)	44	30
Average Queue (ft)	20	2
95th Queue (ft)	43	13
Link Distance (ft)	739	549
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Congress St

Movement	NW	NE	SW	SW
Directions Served	LR	TR	L	T
Maximum Queue (ft)	151	151	94	237
Average Queue (ft)	74	73	76	86
95th Queue (ft)	121	129	108	178
Link Distance (ft)	629	351		542
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			70	
Storage Blk Time (%)			9	3
Queuing Penalty (veh)			27	11

Intersection: 8: Congress St & Mountfort St/Washington

Movement	NB	SB	SB	NE	NE	SW
Directions Served	LTR	LT	R	L	TR	LTR
Maximum Queue (ft)	52	180	139	103	77	195
Average Queue (ft)	17	57	71	38	15	89
95th Queue (ft)	45	130	139	79	49	161
Link Distance (ft)	1097	196		542		386
Upstream Blk Time (%)		0				
Queuing Penalty (veh)		1				
Storage Bay Dist (ft)			115		75	
Storage Blk Time (%)		0	2	1	0	
Queuing Penalty (veh)		1	2	1	0	

Intersection: 9: Cumberland St & Washington

Movement	NB	SB	NE	NE	SW
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	154	251	74	92	120
Average Queue (ft)	64	112	24	37	58
95th Queue (ft)	129	198	52	75	98
Link Distance (ft)	196	557		310	297
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	1				
Storage Bay Dist (ft)			80		
Storage Blk Time (%)			0	1	
Queuing Penalty (veh)			0	0	

Intersection: 11: Commercial & Franklin

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	LT	R
Maximum Queue (ft)	113	96	177	58	145	62	140	175	93	220	126
Average Queue (ft)	38	32	66	29	54	24	59	70	29	119	20
95th Queue (ft)	87	75	140	60	122	60	111	135	72	190	72
Link Distance (ft)		306	306		265			299	299	495	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			25		25	160				150
Storage Blk Time (%)				28	27	17		0		3	
Queuing Penalty (veh)				20	19	15		0		1	

Intersection: 38: Fore & Franklin/Franklin St.

Movement	NB	NB	SE	SE	NW	NW	SW
Directions Served	L	R>	LT	TR	LT	TR	<LR
Maximum Queue (ft)	80	95	195	246	82	79	166
Average Queue (ft)	21	50	96	113	31	24	88
95th Queue (ft)	58	89	175	204	65	63	146
Link Distance (ft)	195		247	247	306	306	527
Upstream Blk Time (%)				0			
Queuing Penalty (veh)				1			
Storage Bay Dist (ft)		75					
Storage Blk Time (%)	0	4					
Queuing Penalty (veh)	0	2					

Intersection: 43: Middle St./Middle St & Franklin St. /Franklin St.

Movement	SE	SE	NW	NW	NE	SW	SW
Directions Served	LT	TR	LT	TR	LTR	LT	R
Maximum Queue (ft)	212	242	128	165	109	106	68
Average Queue (ft)	100	128	60	69	56	37	19
95th Queue (ft)	179	219	108	131	103	80	53
Link Distance (ft)	450	450	247	247	546	292	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							50
Storage Blk Time (%)						6	1
Queuing Penalty (veh)						2	1

Network Summary

Network wide Queuing Penalty: 122

Intersection: 7: Congress St

Phase	1	2	3	6
Movement(s) Served	SWL	NET	NWL	SWTL
Maximum Green (s)	10.0	30.0	25.0	45.0
Minimum Green (s)	4.0	8.0	8.0	15.0
Recall	None	None	None	None
Avg. Green (s)	10.8	12.4	11.0	23.8
g/C Ratio	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	22	28	30	13
Cycles @ Minimum (%)	4	20	29	18
Cycles Maxed Out (%)	49	0	1	3
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 8: Congress St & Mountfort St/Washington

Phase	1	2	4	6	8
Movement(s) Served	NEL	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	20.0	20.0	15.0	44.0	15.0
Minimum Green (s)	10.0	5.0	8.0	5.0	8.0
Recall	None	None	None	None	None
Avg. Green (s)	17.0	11.5	10.8	35.1	10.8
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	17	15	33	23	33
Cycles @ Minimum (%)	9	1	23	1	23
Cycles Maxed Out (%)	41	7	10	16	10
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 9: Cumberland St & Washington

Phase	2	4	6	8
Movement(s) Served	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	25.0	25.0	25.0	25.0
Minimum Green (s)	5.0	5.0	5.0	5.0
Recall	None	None	None	None
Avg. Green (s)	12.3	19.2	12.3	19.2
g/C Ratio	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	11	3	11	3
Cycles @ Minimum (%)	1	1	1	1
Cycles Maxed Out (%)	1	36	1	36
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 11: Commercial & Franklin

Phase	2	4	5	6	8
Movement(s) Served	NBT	EBTL	NBL	SBTL	WBTL
Maximum Green (s)	46.0	19.0	16.0	24.0	7.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0
Recall	None	None	None	None	None
Avg. Green (s)	34.4	12.3	11.1	19.0	8.7
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	11	16	13	6	20
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	7	13	17	37	56
Cycles with Peds (%)	26	2	0	24	9

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 38: Fore & Franklin/Franklin St.

Phase	2	4	6	8
Movement(s) Served	NWTL	NBL	SETL	SWL
Maximum Green (s)	34.0	34.0	34.0	34.0
Minimum Green (s)	4.0	4.0	4.0	4.0
Recall	None	None	None	None
Avg. Green (s)	21.9	22.1	21.7	22.3
g/C Ratio	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	34	10	12	18
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	7	3	9	3
Cycles with Peds (%)	3	58	23	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 43: Middle St./Middle St & Franklin St. /Franklin St.

Phase	2	3	6
Movement(s) Served	SETL	NESW	NWTL
Maximum Green (s)	34.0	34.0	34.0
Minimum Green (s)	4.0	4.0	4.0
Recall	None	None	None
Avg. Green (s)	24.9	19.0	25.5
g/C Ratio	-0.01	-0.01	-0.01
Cycles Skipped (%)	4	10	22
Cycles @ Minimum (%)	0	0	0
Cycles Maxed Out (%)	29	0	25
Cycles with Peds (%)	0	31	4

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4874	4799	4748	4773	4684	4775
Vehs Exited	4869	4789	4746	4770	4669	4768
Starting Vehs	101	83	103	94	83	84
Ending Vehs	106	93	105	97	98	92
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	1	1	0	0	2	0
Travel Distance (mi)	1506	1506	1499	1479	1446	1487
Travel Time (hr)	97.7	97.3	96.4	95.7	92.3	95.8
Total Delay (hr)	42.0	41.6	40.9	40.9	38.7	40.8
Total Stops	7144	7171	7082	7039	6829	7054
Fuel Used (gal)	76.3	76.2	75.4	75.2	72.4	75.1

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4874	4799	4748	4773	4684	4775
Vehs Exited	4869	4789	4746	4770	4669	4768
Starting Vehs	101	83	103	94	83	84
Ending Vehs	106	93	105	97	98	92
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	1	1	0	0	2	0
Travel Distance (mi)	1506	1506	1499	1479	1446	1487
Travel Time (hr)	97.7	97.3	96.4	95.7	92.3	95.8
Total Delay (hr)	42.0	41.6	40.9	40.9	38.7	40.8
Total Stops	7144	7171	7082	7039	6829	7054
Fuel Used (gal)	76.3	76.2	75.4	75.2	72.4	75.1

1: Thames St & India St Performance by approach

Approach	EB	WB	SE	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.0
Total Del/Veh (s)	7.7	7.4	5.5	6.8
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

2: India St & Fore Performance by approach

Approach	EB	WB	SE	NW	All
Denied Del/Veh (s)	0.0	0.1	0.4	0.0	0.1
Total Del/Veh (s)	8.4	10.6	10.3	7.1	9.5
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

3: Fore & Hancock St Performance by approach

Approach	NB	SB	SE	NW	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	2.5	1.4	8.4	7.5	2.6
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Fore & Mountfort St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.8	0.6	0.8	1.7
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: Proposed New Road & Fore Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.7	0.8	6.2	1.2
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

6: Fore & Site Driveway/Waterville St Performance by approach

Approach	SE	NW	NE	SW	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.2	0.1
Total Del/Veh (s)	3.3	6.1	0.5	0.3	1.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

7: Congress St & India St Performance by approach

Approach	NW	NE	SW	All
Denied Del/Veh (s)	0.2	0.2	0.2	0.2
Total Del/Veh (s)	13.4	15.8	9.5	11.3
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

8: Congress St & Mountfort St/Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.3	0.1
Total Del/Veh (s)	16.9	9.5	6.2	17.1	10.7
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

9: Cumberland St & Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.0	0.5	1.7	0.3	0.5
Total Del/Veh (s)	12.9	11.8	12.7	11.0	12.0
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

11: Commercial & Franklin Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	2.5	1.1	0.0	0.6
Total Del/Veh (s)	17.2	33.3	16.7	21.2	19.5
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

23: Thames St/Site Access & Proposed New Road Performance by approach

Approach	SB	NE	SW	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	5.3	2.8	0.5	2.7
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

38: Fore & Franklin/Franklin St. Performance by approach

Approach	NB	SE	NW	SW	All
Denied Del/Veh (s)	2.8	0.1	0.0	0.0	0.5
Total Del/Veh (s)	13.7	17.5	18.1	18.5	17.3
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

43: Middle St./Middle St & Franklin St. /Franklin St. Performance by approach

Approach	SE	NW	NE	SW	All
Denied Del/Veh (s)	0.4	0.0	0.2	1.7	0.4
Total Del/Veh (s)	16.7	16.0	16.8	14.5	16.3
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	29.6
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: Thames St & India St

Movement	EB	EB	WB	SE
Directions Served	L	T	TR	LR
Maximum Queue (ft)	63	98	59	150
Average Queue (ft)	44	47	37	68
95th Queue (ft)	63	77	55	112
Link Distance (ft)		495	1144	243
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	35			
Storage Blk Time (%)	10	13		
Queuing Penalty (veh)	19	18		

Intersection: 2: India St & Fore

Movement	EB	WB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	114	178	140	82
Average Queue (ft)	46	71	68	39
95th Queue (ft)	87	133	113	65
Link Distance (ft)	528	351	343	243
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Fore & Hancock St

Movement	NB	SB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	37	67	48	68
Average Queue (ft)	3	13	18	27
95th Queue (ft)	19	45	39	52
Link Distance (ft)	351	421	224	227
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Fore & Mountfort St

Movement	SE	NE	SW
Directions Served	LR	LT	TR
Maximum Queue (ft)	95	64	4
Average Queue (ft)	35	7	0
95th Queue (ft)	69	37	3
Link Distance (ft)	1097	421	398
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Proposed New Road & Fore

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	62	60
Average Queue (ft)	5	27
95th Queue (ft)	30	49
Link Distance (ft)	555	328
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Fore & Site Driveway/Waterville St

Movement	SE	NW	NE
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	39	51	29
Average Queue (ft)	21	26	2
95th Queue (ft)	43	47	16
Link Distance (ft)	739	228	555
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Congress St & India St

Movement	NW	NE	SW	SW
Directions Served	LR	TR	L	T
Maximum Queue (ft)	169	156	94	284
Average Queue (ft)	81	76	82	103
95th Queue (ft)	137	131	107	219
Link Distance (ft)	611	350		542
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			70	
Storage Blk Time (%)			14	4
Queuing Penalty (veh)			40	16

Intersection: 8: Congress St & Mountfort St/Washington

Movement	NB	SB	SB	NE	NE	SW
Directions Served	LTR	LT	R	L	TR	LTR
Maximum Queue (ft)	88	186	140	137	95	177
Average Queue (ft)	30	68	78	43	20	83
95th Queue (ft)	65	146	149	95	64	144
Link Distance (ft)	1097	196		542		386
Upstream Blk Time (%)		0				
Queuing Penalty (veh)		1				
Storage Bay Dist (ft)			115		75	
Storage Blk Time (%)		0	3	1	0	
Queuing Penalty (veh)		1	4	1	0	

Intersection: 9: Cumberland St & Washington

Movement	NB	SB	NE	NE	SW
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	202	305	68	100	136
Average Queue (ft)	81	138	25	39	63
95th Queue (ft)	166	250	53	79	108
Link Distance (ft)	196	815		310	297
Upstream Blk Time (%)	1				
Queuing Penalty (veh)	3				
Storage Bay Dist (ft)			80		
Storage Blk Time (%)			0	1	
Queuing Penalty (veh)			0	1	

Intersection: 11: Commercial & Franklin

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	LT	R
Maximum Queue (ft)	128	119	179	55	158	67	162	212	88	259	154
Average Queue (ft)	53	35	69	26	47	23	64	87	27	127	43
95th Queue (ft)	108	86	136	56	113	60	123	161	65	216	116
Link Distance (ft)		308	308		265			296	296	495	
Upstream Blk Time (%)								0			
Queuing Penalty (veh)								0			
Storage Bay Dist (ft)	200			25		25	160				150
Storage Blk Time (%)				23	27	17	0	1		5	0
Queuing Penalty (veh)				17	19	15	0	1		3	0

Intersection: 23: Thames St/Site Access & Proposed New Road

Movement	SB	NE
Directions Served	LR	LT
Maximum Queue (ft)	57	6
Average Queue (ft)	31	0
95th Queue (ft)	47	4
Link Distance (ft)	328	1144
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 38: Fore & Franklin/Franklin St.

Movement	NB	NB	SE	SE	NW	NW	SW
Directions Served	L	R>	LT	TR	LT	TR	<LR
Maximum Queue (ft)	124	96	244	236	98	96	228
Average Queue (ft)	24	51	138	109	36	27	112
95th Queue (ft)	74	91	232	202	75	71	185
Link Distance (ft)	254		247	247	308	308	528
Upstream Blk Time (%)			0	0			
Queuing Penalty (veh)			1	0			
Storage Bay Dist (ft)		75					
Storage Blk Time (%)	0	4					
Queuing Penalty (veh)	0	2					

Intersection: 43: Middle St./Middle St & Franklin St. /Franklin St.

Movement	SE	SE	NW	NW	NE	SW	SW
Directions Served	LT	TR	LT	TR	LTR	LT	R
Maximum Queue (ft)	276	244	162	196	148	135	70
Average Queue (ft)	136	124	68	81	61	42	26
95th Queue (ft)	226	211	131	152	115	93	63
Link Distance (ft)	492	492	247	247	546	292	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							50
Storage Blk Time (%)						8	1
Queuing Penalty (veh)						4	1

Network Summary

Network wide Queuing Penalty: 169

Intersection: 7: Congress St & India St

Phase	1	2	3	6
Movement(s) Served	SWL	NET	NWL	SWTL
Maximum Green (s)	10.0	30.0	25.0	45.0
Minimum Green (s)	4.0	8.0	8.0	15.0
Recall	None	None	None	None
Avg. Green (s)	10.7	12.5	11.4	23.4
g/C Ratio	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	21	29	26	13
Cycles @ Minimum (%)	4	19	30	17
Cycles Maxed Out (%)	54	0	0	3
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 8: Congress St & Mountfort St/Washington

Phase	1	2	4	6	8
Movement(s) Served	NEL	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	20.0	20.0	15.0	44.0	15.0
Minimum Green (s)	10.0	5.0	8.0	5.0	8.0
Recall	None	None	None	None	None
Avg. Green (s)	17.3	11.3	11.6	32.9	11.6
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	18	12	26	16	26
Cycles @ Minimum (%)	8	1	18	0	18
Cycles Maxed Out (%)	46	8	20	16	20
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 9: Cumberland St & Washington

Phase	2	4	6	8
Movement(s) Served	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	25.0	25.0	25.0	25.0
Minimum Green (s)	5.0	5.0	5.0	5.0
Recall	None	None	None	None
Avg. Green (s)	12.9	20.5	12.9	20.5
g/C Ratio	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	11	1	11	1
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	2	51	2	51
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 11: Commercial & Franklin

Phase	2	4	5	6	8
Movement(s) Served	NBT	EBTL	NBL	SBTL	WBTL
Maximum Green (s)	46.0	19.0	16.0	24.0	7.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0
Recall	None	None	None	None	None
Avg. Green (s)	34.2	13.9	11.5	20.1	8.9
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	8	10	19	4	21
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	10	20	21	46	56
Cycles with Peds (%)	27	6	0	29	12

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 38: Fore & Franklin/Franklin St.

Phase	2	4	6	8
Movement(s) Served	NWTL	NBL	SETL	SWL
Maximum Green (s)	34.0	34.0	34.0	34.0
Minimum Green (s)	4.0	4.0	4.0	4.0
Recall	None	None	None	None
Avg. Green (s)	25.0	24.2	24.9	23.9
g/C Ratio	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	23	8	5	8
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	21	7	23	7
Cycles with Peds (%)	5	64	25	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 43: Middle St./Middle St & Franklin St. /Franklin St.

Phase	2	3	6
Movement(s) Served	SETL	NESW	NWTL
Maximum Green (s)	34.0	34.0	34.0
Minimum Green (s)	4.0	4.0	4.0
Recall	None	None	None
Avg. Green (s)	27.2	20.3	27.7
g/C Ratio	-0.01	-0.01	-0.01
Cycles Skipped (%)	2	6	16
Cycles @ Minimum (%)	0	0	0
Cycles Maxed Out (%)	42	0	38
Cycles with Peds (%)	0	34	5

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5799	5806	5781	5983	5683	5815
Vehs Exited	5724	5781	5802	5961	5709	5793
Starting Vehs	119	93	154	124	147	118
Ending Vehs	194	118	133	146	121	135
Denied Entry Before	1	2	0	1	2	0
Denied Entry After	2	2	1	0	1	1
Travel Distance (mi)	1832	1815	1830	1867	1801	1829
Travel Time (hr)	144.5	133.1	129.5	138.7	125.4	134.2
Total Delay (hr)	76.9	66.0	61.9	69.8	58.8	66.7
Total Stops	8918	8862	8600	9035	8563	8790
Fuel Used (gal)	96.2	93.5	92.7	97.3	91.3	94.2

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	5799	5806	5781	5983	5683	5815
Vehs Exited	5724	5781	5802	5961	5709	5793
Starting Vehs	119	93	154	124	147	118
Ending Vehs	194	118	133	146	121	135
Denied Entry Before	1	2	0	1	2	0
Denied Entry After	2	2	1	0	1	1
Travel Distance (mi)	1832	1815	1830	1867	1801	1829
Travel Time (hr)	144.5	133.1	129.5	138.7	125.4	134.2
Total Delay (hr)	76.9	66.0	61.9	69.8	58.8	66.7
Total Stops	8918	8862	8600	9035	8563	8790
Fuel Used (gal)	96.2	93.5	92.7	97.3	91.3	94.2

1: India St & Thames St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	5.2	8.8	6.6	7.4
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

2: India St & Fore Performance by approach

Approach	EB	WB	SE	NW	All
Denied Del/Veh (s)	0.0	0.1	0.2	0.0	0.1
Total Del/Veh (s)	9.2	8.8	8.9	8.7	8.9
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

3: Fore & Hancock St Performance by approach

Approach	NB	SB	SE	NW	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	2.6	0.9	6.5	6.0	2.9
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Fore & Mountfort St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.8	1.1	0.6	1.3
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: 100 Fore St & Existing Driveways & Fore Performance by approach

Approach	EB	WB	NB	NW	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.8	0.1
Total Del/Veh (s)	0.6	0.7	7.6	8.8	1.3
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

6: Fore & Waterville St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.1	0.0	0.2	0.0
Total Del/Veh (s)	2.8	0.8	0.2	0.7
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

7: Congress St & India St Performance by approach

Approach	NW	NE	SW	All
Denied Del/Veh (s)	0.6	0.4	0.0	0.4
Total Del/Veh (s)	36.8	22.0	13.9	25.6
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

8: Congress St & Mountfort St/Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.2	0.1
Total Del/Veh (s)	32.1	11.5	23.6	28.4	22.3
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

9: Cumberland St & Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.1	0.3	2.2	0.2	0.7
Total Del/Veh (s)	18.0	35.7	14.3	11.1	21.3
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

11: Commercial/Commercial St & Franklin Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	4.9	1.5	0.2	1.2
Total Del/Veh (s)	17.1	45.1	18.8	22.5	22.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	1	0	1

38: Fore & Franklin/Franklin St. Performance by approach

Approach	NB	SE	NW	SW	All
Denied Del/Veh (s)	2.7	0.1	0.0	0.1	0.7
Total Del/Veh (s)	16.0	20.2	19.5	20.6	19.0
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

43: Middle St. & Franklin St. /Franklin St. Performance by approach

Approach	SE	NW	NE	SW	All
Denied Del/Veh (s)	1.0	0.0	0.4	1.9	0.7
Total Del/Veh (s)	25.5	18.6	22.2	12.2	20.8
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	39.4
Denied Entry Before	0
Denied Entry After	1

Intersection: 1: India St & Thames St

Movement	SE	NE	NE	SW
Directions Served	LR	L	T	TR
Maximum Queue (ft)	70	62	119	68
Average Queue (ft)	34	51	53	36
95th Queue (ft)	53	66	93	56
Link Distance (ft)	230		495	666
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		35		
Storage Blk Time (%)		18	9	
Queuing Penalty (veh)		24	21	

Intersection: 2: India St & Fore

Movement	EB	WB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	119	110	116	105
Average Queue (ft)	53	49	47	54
95th Queue (ft)	92	85	84	90
Link Distance (ft)	516	340	273	230
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Fore & Hancock St

Movement	NB	SB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	22	47	36	92
Average Queue (ft)	1	6	16	41
95th Queue (ft)	10	26	35	73
Link Distance (ft)	340	418	194	210
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Fore & Mountfort St

Movement	SE	NE
Directions Served	LR	LT
Maximum Queue (ft)	52	58
Average Queue (ft)	19	10
95th Queue (ft)	41	39
Link Distance (ft)	1093	418
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: 100 Fore St & Existing Driveways & Fore

Movement	EB	WB	NB	NW	NW
Directions Served	TR>	<LT	LR	L	R
Maximum Queue (ft)	4	52	57	40	32
Average Queue (ft)	0	7	23	16	5
95th Queue (ft)	3	30	49	42	25
Link Distance (ft)	394	536	232	256	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					25
Storage Blk Time (%)				4	1
Queuing Penalty (veh)				0	0

Intersection: 6: Fore & Waterville St

Movement	SE	NE
Directions Served	LR	LT
Maximum Queue (ft)	44	49
Average Queue (ft)	19	5
95th Queue (ft)	42	27
Link Distance (ft)	792	536
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Congress St & India St

Movement	NW	NE	SW	SW
Directions Served	LR	TR	L	T
Maximum Queue (ft)	630	291	94	208
Average Queue (ft)	263	156	68	86
95th Queue (ft)	517	256	106	162
Link Distance (ft)	1066	318		534
Upstream Blk Time (%)	1	0		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)			70	
Storage Blk Time (%)			7	9
Queuing Penalty (veh)			16	15

Intersection: 8: Congress St & Mountfort St/Washington

Movement	NB	SB	SB	NE	NE	SW
Directions Served	LTR	LT	R	L	TR	LTR
Maximum Queue (ft)	210	164	134	518	100	221
Average Queue (ft)	84	47	43	205	70	98
95th Queue (ft)	167	114	107	470	132	174
Link Distance (ft)	1093	199		534		330
Upstream Blk Time (%)		0		2		0
Queuing Penalty (veh)		0		12		0
Storage Bay Dist (ft)			115		75	
Storage Blk Time (%)		1	1	28	1	
Queuing Penalty (veh)		2	1	55	4	

Intersection: 9: Cumberland St & Washington

Movement	NB	SB	NE	NE	SW
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	219	524	104	168	87
Average Queue (ft)	176	197	66	78	40
95th Queue (ft)	255	409	111	143	73
Link Distance (ft)	199	1555		234	264
Upstream Blk Time (%)	12				
Queuing Penalty (veh)	76				
Storage Bay Dist (ft)			80		
Storage Blk Time (%)			4	4	
Queuing Penalty (veh)			9	8	

Intersection: 11: Commercial/Commercial St & Franklin

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	LT	R
Maximum Queue (ft)	77	102	168	58	155	57	183	267	44	225	175
Average Queue (ft)	30	49	62	28	91	34	100	93	14	95	37
95th Queue (ft)	68	96	128	63	154	66	168	191	33	175	92
Link Distance (ft)		308	308		133			300	300	495	
Upstream Blk Time (%)					9			0			
Queuing Penalty (veh)					0			0			
Storage Bay Dist (ft)	200			25		25	160				150
Storage Blk Time (%)				19	56	24	2	1		3	0
Queuing Penalty (veh)				25	41	33	5	2		2	0

Intersection: 38: Fore & Franklin/Franklin St.

Movement	NB	NB	SE	SE	NW	NW	SW
Directions Served	L	R>	LT	TR	LT	TR	<LR
Maximum Queue (ft)	206	100	254	219	152	135	245
Average Queue (ft)	86	80	127	113	65	43	122
95th Queue (ft)	186	115	216	204	129	107	211
Link Distance (ft)	193		240	240	308	308	516
Upstream Blk Time (%)	1		0	0			
Queuing Penalty (veh)	0		1	1			
Storage Bay Dist (ft)		75					
Storage Blk Time (%)	3	13					
Queuing Penalty (veh)	9	22					

Intersection: 43: Middle St. & Franklin St. /Franklin St.

Movement	SE	SE	NW	NW	NE	SW	SW
Directions Served	LT	TR	LT	TR	LTR	LT	R
Maximum Queue (ft)	297	280	179	205	256	159	75
Average Queue (ft)	167	127	102	115	145	61	40
95th Queue (ft)	292	239	165	185	226	122	81
Link Distance (ft)	309	309	240	240	546	468	
Upstream Blk Time (%)	3	1		0			
Queuing Penalty (veh)	0	0		0			
Storage Bay Dist (ft)							50
Storage Blk Time (%)						16	1
Queuing Penalty (veh)						19	3

Network Summary

Network wide Queuing Penalty: 408

Intersection: 7: Congress St & India St

Phase	1	2	3	6
Movement(s) Served	SWL	NET	NWL	SWTL
Maximum Green (s)	10.0	30.0	25.0	45.0
Minimum Green (s)	4.0	8.0	8.0	15.0
Recall	None	None	None	None
Avg. Green (s)	7.7	19.2	23.0	28.7
g/C Ratio	-0.01	NA	NA	NA
Cycles Skipped (%)	22	0	0	0
Cycles @ Minimum (%)	0	2	0	9
Cycles Maxed Out (%)	21	11	71	3
Cycles with Peds (%)	0	0	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 8: Congress St & Mountfort St/Washington

Phase	1	2	4	6	8
Movement(s) Served	NEL	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	20.0	20.0	15.0	44.0	15.0
Minimum Green (s)	10.0	5.0	8.0	5.0	8.0
Recall	None	None	None	None	None
Avg. Green (s)	18.9	13.4	13.1	35.8	13.1
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	3	11	7	5	7
Cycles @ Minimum (%)	3	0	9	0	9
Cycles Maxed Out (%)	79	20	45	21	45
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 9: Cumberland St & Washington

Phase	2	4	6	8
Movement(s) Served	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	25.0	25.0	25.0	25.0
Minimum Green (s)	5.0	5.0	5.0	5.0
Recall	None	None	None	None
Avg. Green (s)	17.6	24.4	17.6	24.4
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	18	86	18	86
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 11: Commercial/Commercial St & Franklin

Phase	2	4	5	6	8
Movement(s) Served	NBT	EBTL	NBL	SBTL	WBTL
Maximum Green (s)	46.0	19.0	16.0	24.0	7.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0
Recall	None	None	None	None	None
Avg. Green (s)	40.4	13.6	13.1	22.4	9.2
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	2	4	2	2	4
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	30	22	39	73	84
Cycles with Peds (%)	77	9	0	69	13

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 38: Fore & Franklin/Franklin St.

Phase	2	4	6	8
Movement(s) Served	NWTL	NBL	SETL	SWL
Maximum Green (s)	34.0	34.0	34.0	34.0
Minimum Green (s)	4.0	4.0	4.0	4.0
Recall	None	None	None	None
Avg. Green (s)	28.4	28.9	28.0	29.4
g/C Ratio	-0.01	NA	NA	-0.01
Cycles Skipped (%)	6	0	0	10
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	35	35	35	33
Cycles with Peds (%)	12	88	47	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 43: Middle St. & Franklin St. /Franklin St.

Phase	2	3	6
Movement(s) Served	SETL	NESW	NWTL
Maximum Green (s)	34.0	34.0	34.0
Minimum Green (s)	4.0	4.0	4.0
Recall	None	None	None
Avg. Green (s)	31.3	30.7	31.0
g/C Ratio	NA	NA	NA
Cycles Skipped (%)	0	0	0
Cycles @ Minimum (%)	0	0	0
Cycles Maxed Out (%)	65	40	65
Cycles with Peds (%)	2	58	8

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	6344	6450	6482	6344	6358	6401
Vehs Exited	6326	6421	6460	6304	6341	6372
Starting Vehs	157	135	150	170	143	145
Ending Vehs	175	164	172	210	160	170
Denied Entry Before	2	0	0	2	2	0
Denied Entry After	2	2	2	0	1	0
Travel Distance (mi)	2556	2590	2597	2537	2544	2565
Travel Time (hr)	163.8	178.3	177.9	180.2	181.9	176.4
Total Delay (hr)	73.6	86.9	86.2	90.6	91.8	85.9
Total Stops	10222	10745	10612	10555	10705	10570
Fuel Used (gal)	119.4	123.5	124.1	123.2	123.3	122.7

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	6344	6450	6482	6344	6358	6401
Vehs Exited	6326	6421	6460	6304	6341	6372
Starting Vehs	157	135	150	170	143	145
Ending Vehs	175	164	172	210	160	170
Denied Entry Before	2	0	0	2	2	0
Denied Entry After	2	2	2	0	1	0
Travel Distance (mi)	2556	2590	2597	2537	2544	2565
Travel Time (hr)	163.8	178.3	177.9	180.2	181.9	176.4
Total Delay (hr)	73.6	86.9	86.2	90.6	91.8	85.9
Total Stops	10222	10745	10612	10555	10705	10570
Fuel Used (gal)	119.4	123.5	124.1	123.2	123.3	122.7

1: India St & Thames St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.1
Total Del/Veh (s)	5.6	9.6	8.1	8.3
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

2: India St & Fore Performance by approach

Approach	EB	WB	SE	NW	All
Denied Del/Veh (s)	0.0	0.1	0.3	0.0	0.1
Total Del/Veh (s)	12.9	12.2	11.2	9.3	11.7
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

3: Fore & Hancock St Performance by approach

Approach	NB	SB	SE	NW	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	2.8	1.0	8.0	8.0	3.1
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Fore & Mountfort St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.6	1.1	0.8	1.7
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: Proposed New Road & Fore Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.9	0.6	9.1	2.0
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

6: Fore & Site Driveway/Waterville St Performance by approach

Approach	SE	NW	NE	SW	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.2	0.1
Total Del/Veh (s)	2.5	6.8	1.2	0.2	1.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

7: Congress St & India St Performance by approach

Approach	NW	NE	SW	All
Denied Del/Veh (s)	0.5	0.4	0.0	0.3
Total Del/Veh (s)	29.0	28.3	14.5	24.2
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

8: Congress St & Mountfort St/Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.3	0.1
Total Del/Veh (s)	19.7	10.7	17.2	16.5	15.7
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

9: Cumberland St & Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.0	0.4	2.2	0.2	0.7
Total Del/Veh (s)	12.5	32.7	15.8	12.0	18.9
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

11: Commercial/Commercial St & Franklin Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	1.9	1.4	0.2	0.8
Total Del/Veh (s)	19.2	44.1	18.6	23.5	22.7
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

18: Thames St/Site Access & Proposed New Road Performance by approach

Approach	SB	NE	SW	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.1
Total Del/Veh (s)	5.2	2.8	1.0	2.3
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

38: Fore & Franklin/Franklin St. Performance by approach

Approach	NB	SE	NW	SW	All
Denied Del/Veh (s)	2.6	0.2	0.0	0.5	0.8
Total Del/Veh (s)	20.5	25.0	20.5	25.1	23.0
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

43: Middle St. & Franklin St. /Franklin St. Performance by approach

Approach	SE	NW	NE	SW	All
Denied Del/Veh (s)	0.3	0.0	0.5	2.0	0.5
Total Del/Veh (s)	72.8	20.4	26.4	13.7	39.3
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	46.4
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: India St & Thames St

Movement	SE	NE	NE	SW
Directions Served	LR	L	T	TR
Maximum Queue (ft)	67	70	131	88
Average Queue (ft)	36	53	60	47
95th Queue (ft)	55	68	108	71
Link Distance (ft)	230		495	1115
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		35		
Storage Blk Time (%)		19	16	
Queuing Penalty (veh)		40	38	

Intersection: 2: India St & Fore

Movement	EB	WB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	158	175	132	118
Average Queue (ft)	77	77	60	56
95th Queue (ft)	138	138	107	93
Link Distance (ft)	515	340	312	230
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Fore & Hancock St

Movement	NB	SB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	25	50	42	112
Average Queue (ft)	2	8	19	42
95th Queue (ft)	16	32	41	79
Link Distance (ft)	340	418	194	210
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Fore & Mountfort St

Movement	SE	NE
Directions Served	LR	LT
Maximum Queue (ft)	70	74
Average Queue (ft)	27	16
95th Queue (ft)	55	53
Link Distance (ft)	1093	418
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Proposed New Road & Fore

Movement	WB	NB	NB
Directions Served	LT	L	R
Maximum Queue (ft)	39	79	49
Average Queue (ft)	5	32	17
95th Queue (ft)	24	60	49
Link Distance (ft)	532	339	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			25
Storage Blk Time (%)		19	2
Queuing Penalty (veh)		4	3

Intersection: 6: Fore & Site Driveway/Waterville St

Movement	SE	NW	NE
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	40	40	56
Average Queue (ft)	18	17	6
95th Queue (ft)	41	41	34
Link Distance (ft)	792	375	532
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Congress St & India St

Movement	NW	NE	SW	SW
Directions Served	LR	TR	L	T
Maximum Queue (ft)	481	360	94	202
Average Queue (ft)	236	172	73	90
95th Queue (ft)	427	300	107	173
Link Distance (ft)	1063	578		534
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			70	
Storage Blk Time (%)			11	8
Queuing Penalty (veh)			25	16

Intersection: 8: Congress St & Mountfort St/Washington

Movement	NB	SB	SB	NE	NE	SW
Directions Served	LTR	LT	R	L	TR	LTR
Maximum Queue (ft)	156	139	136	456	100	133
Average Queue (ft)	66	49	49	165	69	76
95th Queue (ft)	125	104	112	386	128	119
Link Distance (ft)	1093	199		534		330
Upstream Blk Time (%)		0		2		
Queuing Penalty (veh)		0		11		
Storage Bay Dist (ft)			115		75	
Storage Blk Time (%)		0	0	22	1	
Queuing Penalty (veh)		1	0	44	4	

Intersection: 9: Cumberland St & Washington

Movement	NB	SB	NE	NE	SW
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	224	643	104	186	96
Average Queue (ft)	147	205	67	72	40
95th Queue (ft)	232	472	110	139	78
Link Distance (ft)	199	1237		234	264
Upstream Blk Time (%)	5			0	
Queuing Penalty (veh)	37			0	
Storage Bay Dist (ft)			80		
Storage Blk Time (%)			6	2	
Queuing Penalty (veh)			12	5	

Intersection: 11: Commercial/Commercial St & Franklin

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	LT	R
Maximum Queue (ft)	121	117	152	59	186	55	182	270	46	299	175
Average Queue (ft)	50	51	58	27	89	29	97	105	15	140	57
95th Queue (ft)	97	101	115	62	161	63	161	204	34	247	143
Link Distance (ft)		310	310		368			606	606	495	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			25		25	160				150
Storage Blk Time (%)				22	52	23	2	1		6	0
Queuing Penalty (veh)				31	38	32	7	2		8	0

Intersection: 18: Thames St/Site Access & Proposed New Road

Movement	SB
Directions Served	LR
Maximum Queue (ft)	42
Average Queue (ft)	26
95th Queue (ft)	43
Link Distance (ft)	339
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 38: Fore & Franklin/Franklin St.

Movement	NB	NB	SE	SE	NW	NW	SW
Directions Served	L	R>	LT	TR	LT	TR	<LR
Maximum Queue (ft)	285	100	263	247	153	137	306
Average Queue (ft)	105	85	167	122	72	56	151
95th Queue (ft)	227	118	272	226	135	119	262
Link Distance (ft)	522		240	240	310	310	515
Upstream Blk Time (%)			4	0			
Queuing Penalty (veh)			14	1			
Storage Bay Dist (ft)		75					
Storage Blk Time (%)	7	17					
Queuing Penalty (veh)	19	29					

Intersection: 43: Middle St. & Franklin St. /Franklin St.

Movement	SE	SE	NW	NW	NE	SW	SW
Directions Served	LT	TR	LT	TR	LTR	LT	R
Maximum Queue (ft)	764	736	236	238	320	207	75
Average Queue (ft)	385	328	125	137	157	75	52
95th Queue (ft)	767	728	202	215	269	154	91
Link Distance (ft)	1345	1345	240	240	543	468	
Upstream Blk Time (%)			0	1			
Queuing Penalty (veh)			2	2			
Storage Bay Dist (ft)							50
Storage Blk Time (%)						18	3
Queuing Penalty (veh)						25	6

Network Summary

Network wide Queuing Penalty: 455

Intersection: 7: Congress St & India St

Phase	1	2	3	6
Movement(s) Served	SWL	NET	NWL	SWTL
Maximum Green (s)	4.0	17.0	24.0	26.0
Minimum Green (s)	4.0	8.0	8.0	15.0
Recall	None	None	None	None
Avg. Green (s)	4.4	15.7	21.8	23.1
g/C Ratio	-0.01	-0.01	NA	NA
Cycles Skipped (%)	17	3	0	0
Cycles @ Minimum (%)	80	3	2	3
Cycles Maxed Out (%)	83	64	68	51
Cycles with Peds (%)	0	0	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 8: Congress St & Mountfort St/Washington

Phase	1	2	4	6	8
Movement(s) Served	NEL	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	10.0	19.0	9.0	33.0	9.0
Minimum Green (s)	10.0	5.0	8.0	5.0	8.0
Recall	None	None	None	None	None
Avg. Green (s)	10.3	11.9	9.0	24.8	9.0
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	6	23	14	10	14
Cycles @ Minimum (%)	87	0	11	0	11
Cycles Maxed Out (%)	94	9	73	16	73
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 9: Cumberland St & Washington

Phase	2	4	6	8
Movement(s) Served	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	11.0	21.0	11.0	21.0
Minimum Green (s)	5.0	5.0	5.0	5.0
Recall	None	None	None	None
Avg. Green (s)	10.7	20.3	10.7	20.3
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	83	84	83	84
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 11: Commercial/Commercial St & Franklin

Phase	2	4	5	6	8
Movement(s) Served	NBT	EBTL	NBL	SBTL	WBTL
Maximum Green (s)	46.0	19.0	16.0	24.0	7.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0
Recall	None	None	None	None	None
Avg. Green (s)	43.0	13.6	13.1	23.7	9.2
g/C Ratio	NA	-0.01	-0.01	NA	-0.01
Cycles Skipped (%)	0	2	2	0	5
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	40	19	41	84	81
Cycles with Peds (%)	79	5	0	75	14

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 38: Fore & Franklin/Franklin St.

Phase	2	4	6	8
Movement(s) Served	NWTL	NBL	SETL	SWL
Maximum Green (s)	34.0	34.0	34.0	34.0
Minimum Green (s)	4.0	4.0	4.0	4.0
Recall	None	None	None	None
Avg. Green (s)	31.1	31.2	31.0	31.6
g/C Ratio	-0.01	NA	NA	-0.01
Cycles Skipped (%)	2	0	0	4
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	63	52	63	53
Cycles with Peds (%)	6	96	50	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 43: Middle St. & Franklin St. /Franklin St.

Phase	2	3	6
Movement(s) Served	SETL	NESW	NWTL
Maximum Green (s)	34.0	34.0	34.0
Minimum Green (s)	4.0	4.0	4.0
Recall	None	None	None
Avg. Green (s)	33.6	31.8	33.4
g/C Ratio	NA	NA	NA
Cycles Skipped (%)	0	0	0
Cycles @ Minimum (%)	0	0	0
Cycles Maxed Out (%)	93	50	91
Cycles with Peds (%)	0	63	7

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4306	4311	4350	4310	4320	4314
Vehs Exited	4326	4293	4361	4319	4335	4325
Starting Vehs	98	59	93	83	77	75
Ending Vehs	78	77	82	74	62	68
Denied Entry Before	0	1	0	0	2	0
Denied Entry After	2	0	0	0	1	0
Travel Distance (mi)	1221	1211	1209	1207	1223	1214
Travel Time (hr)	74.9	74.9	75.4	74.2	74.4	74.8
Total Delay (hr)	25.5	26.0	26.4	25.4	24.9	25.7
Total Stops	5307	5221	5247	5132	5159	5209
Fuel Used (gal)	56.0	56.3	56.5	56.0	56.2	56.2

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4306	4311	4350	4310	4320	4314
Vehs Exited	4326	4293	4361	4319	4335	4325
Starting Vehs	98	59	93	83	77	75
Ending Vehs	78	77	82	74	62	68
Denied Entry Before	0	1	0	0	2	0
Denied Entry After	2	0	0	0	1	0
Travel Distance (mi)	1221	1211	1209	1207	1223	1214
Travel Time (hr)	74.9	74.9	75.4	74.2	74.4	74.8
Total Delay (hr)	25.5	26.0	26.4	25.4	24.9	25.7
Total Stops	5307	5221	5247	5132	5159	5209
Fuel Used (gal)	56.0	56.3	56.5	56.0	56.2	56.2

1: Thames St & India St Performance by approach

Approach	EB	WB	SE	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.0
Total Del/Veh (s)	4.9	7.1	4.9	5.1
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

2: India St & Fore Performance by approach

Approach	EB	WB	SE	NW	All
Denied Del/Veh (s)	0.0	0.0	0.3	0.0	0.1
Total Del/Veh (s)	7.7	8.2	8.1	6.1	7.7
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

3: Fore & Hancock St Performance by approach

Approach	NB	SB	SE	NW	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	2.4	1.2	6.2	5.6	2.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Fore & Mountfort St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.4	0.6	0.5	1.5
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: Existing Driveways & Fore Performance by approach

Approach	EB	WB	NB	NW	All
Denied Del/Veh (s)	0.0	0.0	0.1	2.7	0.0
Total Del/Veh (s)	0.6	0.5	7.0	5.6	0.7
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

6: Fore & Waterville St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.1	0.0	0.2	0.1
Total Del/Veh (s)	2.9	0.5	0.3	0.5
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

7: Congress St & India Street Performance by approach

Approach	NW	NE	SW	All
Denied Del/Veh (s)	0.2	0.2	0.2	0.2
Total Del/Veh (s)	13.5	13.8	7.0	9.4
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

8: Congress St & Mountfort St/Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.2	0.1
Total Del/Veh (s)	22.7	8.4	5.5	15.4	9.7
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

9: Cumberland St & Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.1	0.5	1.7	0.2	0.6
Total Del/Veh (s)	12.1	10.2	12.7	10.8	11.0
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

11: Commercial & Franklin/Maine State Pier Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.2	0.4	0.0	0.1
Total Del/Veh (s)	4.9	2.9	3.7	3.0	3.8
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

38: Franklin/Franklin St. & Fore Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.3	0.3	0.2
Total Del/Veh (s)	18.4	17.8	19.5	13.5	16.1
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

43: Middle St. & Franklin St. /Franklin St. Performance by approach

Approach	SE	NW	NE	SW	All
Denied Del/Veh (s)	1.2	0.1	1.0	0.7	0.8
Total Del/Veh (s)	9.2	5.8	22.8	22.0	11.1
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	0.6
Total Del/Veh (s)	20.4
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: Thames St & India St

Movement	EB	EB	WB	SE
Directions Served	L	T	TR	LR
Maximum Queue (ft)	61	58	46	125
Average Queue (ft)	37	32	27	59
95th Queue (ft)	54	48	47	98
Link Distance (ft)		456	600	222
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	35			
Storage Blk Time (%)	9	6		
Queuing Penalty (veh)	8	9		

Intersection: 2: India St & Fore

Movement	EB	WB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	86	105	112	76
Average Queue (ft)	33	50	55	36
95th Queue (ft)	67	87	90	59
Link Distance (ft)	522	343	214	222
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Fore & Hancock St

Movement	NB	SB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	23	55	38	70
Average Queue (ft)	1	9	19	25
95th Queue (ft)	10	34	38	54
Link Distance (ft)	343	416	197	162
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Fore & Mountfort St

Movement	SE	NE	SW
Directions Served	LR	LT	TR
Maximum Queue (ft)	70	57	13
Average Queue (ft)	28	4	0
95th Queue (ft)	56	28	6
Link Distance (ft)	1091	416	383
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Existing Driveways & Fore

Movement	WB	NB	NW	NW
Directions Served	<LT	LR	L	R
Maximum Queue (ft)	39	56	21	34
Average Queue (ft)	3	9	2	4
95th Queue (ft)	21	36	13	20
Link Distance (ft)	552	180	299	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				25
Storage Blk Time (%)			0	0
Queuing Penalty (veh)			0	0

Intersection: 6: Fore & Waterville St

Movement	SE	NE
Directions Served	LR	LT
Maximum Queue (ft)	38	34
Average Queue (ft)	16	4
95th Queue (ft)	40	20
Link Distance (ft)	545	552
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Congress St & India Street

Movement	NW	NE	SW	SW
Directions Served	LR	TR	L	T
Maximum Queue (ft)	139	173	119	193
Average Queue (ft)	72	70	77	69
95th Queue (ft)	119	127	124	145
Link Distance (ft)	383	255		540
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			70	
Storage Blk Time (%)			7	3
Queuing Penalty (veh)			20	11

Intersection: 8: Congress St & Mountfort St/Washington

Movement	NB	SB	SB	NE	NE	SW
Directions Served	LTR	LT	R	L	TR	LTR
Maximum Queue (ft)	66	179	140	121	70	151
Average Queue (ft)	19	51	70	35	16	84
95th Queue (ft)	53	114	135	77	51	138
Link Distance (ft)	1091	208		540		279
Upstream Blk Time (%)		0				
Queuing Penalty (veh)		0				
Storage Bay Dist (ft)			115		75	
Storage Blk Time (%)		0	2	1	0	
Queuing Penalty (veh)		0	2	1	0	

Intersection: 9: Cumberland St & Washington

Movement	NB	SB	NE	NE	SW
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	213	274	76	112	120
Average Queue (ft)	69	120	27	44	60
95th Queue (ft)	152	215	58	84	104
Link Distance (ft)	208	707		313	242
Upstream Blk Time (%)	1				
Queuing Penalty (veh)	2				
Storage Bay Dist (ft)			80		
Storage Blk Time (%)			0	1	
Queuing Penalty (veh)			0	0	

Intersection: 11: Commercial & Franklin/Maine State Pier

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	124	73	128	58
Average Queue (ft)	48	27	33	24
95th Queue (ft)	103	66	84	53
Link Distance (ft)	312	108	714	456
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 38: Franklin/Franklin St. & Fore

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	95	123	39	159	51	206	124	254
Average Queue (ft)	36	58	4	85	9	75	58	130
95th Queue (ft)	73	104	23	148	35	152	126	234
Link Distance (ft)	230	230		522		312		239
Upstream Blk Time (%)								1
Queuing Penalty (veh)								4
Storage Bay Dist (ft)			100		90		75	
Storage Blk Time (%)				7		7	3	18
Queuing Penalty (veh)				0		1	12	23

Intersection: 43: Middle St. & Franklin St. /Franklin St.

Movement	SE	SE	NW	NW	NE	NE	SW	SW
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	149	346	62	166	57	115	76	136
Average Queue (ft)	40	152	17	59	18	53	19	55
95th Queue (ft)	111	268	49	128	47	98	56	103
Link Distance (ft)		442		239		551		477
Upstream Blk Time (%)				0				
Queuing Penalty (veh)				0				
Storage Bay Dist (ft)	100		40		125		50	
Storage Blk Time (%)	0	11	2	8		0	6	15
Queuing Penalty (veh)	0	10	5	2		0	7	3

Network Summary

Network wide Queuing Penalty: 119

Intersection: 7: Congress St & India Street

Phase	1	2	3	6
Movement(s) Served	SWL	NET	NWL	SWTL
Maximum Green (s)	10.0	30.0	25.0	45.0
Minimum Green (s)	4.0	8.0	8.0	15.0
Recall	None	None	None	None
Avg. Green (s)	10.3	12.5	10.4	23.1
g/C Ratio	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	26	26	33	15
Cycles @ Minimum (%)	4	19	32	19
Cycles Maxed Out (%)	47	0	0	2
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 8: Congress St & Mountfort St/Washington

Phase	1	2	4	6	8
Movement(s) Served	NEL	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	20.0	20.0	15.0	44.0	15.0
Minimum Green (s)	10.0	5.0	8.0	5.0	8.0
Recall	None	None	None	None	None
Avg. Green (s)	17.1	11.3	10.6	33.8	10.6
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	20	17	30	22	30
Cycles @ Minimum (%)	8	0	23	0	23
Cycles Maxed Out (%)	42	8	10	15	10
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 9: Cumberland St & Washington

Phase	2	4	6	8
Movement(s) Served	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	25.0	25.0	25.0	25.0
Minimum Green (s)	5.0	5.0	5.0	5.0
Recall	None	None	None	None
Avg. Green (s)	12.8	19.7	12.8	19.7
g/C Ratio	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	9	1	9	1
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	2	41	2	41
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 38: Franklin/Franklin St. & Fore

Phase	2	3	4	6	7	8
Movement(s) Served	SBTL	EBL	WBT	NBTL	WBL	EBT
Maximum Green (s)	24.0	6.0	25.0	24.0	5.0	26.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Recall	C-Min	None	None	None	None	None
Avg. Green (s)	28.2	7.8	17.0	24.5	7.6	22.5
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	5	35	5	18	94	2
Cycles @ Minimum (%)	0	0	0	0	0	0
Cycles Maxed Out (%)	95	12	13	49	0	33
Cycles with Peds (%)	46	0	64	23	0	88

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 43: Middle St. & Franklin St. /Franklin St.

Phase	2	4	6	8
Movement(s) Served	NWTL	NETL	SETL	SWTL
Maximum Green (s)	43.0	17.0	42.5	17.0
Minimum Green (s)	4.0	4.0	4.0	4.0
Recall	Min	None	C-Max	None
Avg. Green (s)	47.1	12.9	46.6	12.9
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	20	100	20
Cycles with Peds (%)	6	41	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4749	4847	4810	4847	4789	4807
Vehs Exited	4751	4857	4819	4877	4808	4820
Starting Vehs	90	83	102	115	93	89
Ending Vehs	88	73	93	85	74	73
Denied Entry Before	0	2	2	0	0	0
Denied Entry After	0	0	0	0	0	0
Travel Distance (mi)	1491	1548	1524	1535	1519	1524
Travel Time (hr)	93.2	96.2	95.6	98.6	94.4	95.6
Total Delay (hr)	33.4	34.3	34.6	36.8	33.4	34.5
Total Stops	6391	6645	6659	6589	6412	6537
Fuel Used (gal)	68.4	71.0	69.9	71.1	69.3	69.9

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4749	4847	4810	4847	4789	4807
Vehs Exited	4751	4857	4819	4877	4808	4820
Starting Vehs	90	83	102	115	93	89
Ending Vehs	88	73	93	85	74	73
Denied Entry Before	0	2	2	0	0	0
Denied Entry After	0	0	0	0	0	0
Travel Distance (mi)	1491	1548	1524	1535	1519	1524
Travel Time (hr)	93.2	96.2	95.6	98.6	94.4	95.6
Total Delay (hr)	33.4	34.3	34.6	36.8	33.4	34.5
Total Stops	6391	6645	6659	6589	6412	6537
Fuel Used (gal)	68.4	71.0	69.9	71.1	69.3	69.9

1: Thames St & India St Performance by approach

Approach	EB	WB	SE	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.0
Total Del/Veh (s)	6.2	7.5	5.3	6.1
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

2: India St & Fore Performance by approach

Approach	EB	WB	SE	NW	All
Denied Del/Veh (s)	0.0	0.1	0.3	0.0	0.1
Total Del/Veh (s)	10.1	11.4	10.2	7.0	10.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

3: Fore & Hancock St Performance by approach

Approach	NB	SB	SE	NW	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.1	0.0
Total Del/Veh (s)	2.5	1.4	8.5	6.8	2.5
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Fore & Mountfort St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.2	0.7	0.8	1.8
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: Proposed New Road & Fore Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.8	0.6	6.6	1.2
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

6: Fore & Site Driveway/Waterville St Performance by approach

Approach	SE	NW	NE	SW	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.3	0.2
Total Del/Veh (s)	2.7	5.3	0.5	0.3	1.0
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

7: Congress St & India St Performance by approach

Approach	NW	NE	SW	All
Denied Del/Veh (s)	0.2	0.2	0.2	0.2
Total Del/Veh (s)	14.2	14.3	9.3	11.0
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

8: Congress St & Mountfort St/Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.6	0.2
Total Del/Veh (s)	17.8	9.4	7.6	21.1	11.7
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

9: Cumberland St & Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.5	0.6	1.6	0.2	0.6
Total Del/Veh (s)	15.9	11.3	13.0	12.0	12.7
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

11: Commercial & Franklin/Maine State Pier Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.2	0.4	0.0	0.2
Total Del/Veh (s)	5.8	3.3	4.2	3.5	4.4
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

23: Thames St/Site Access & Proposed New Road Performance by approach

Approach	SB	NE	SW	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	5.1	3.0	0.2	2.7
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

38: Franklin/Franklin St. & Fore Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.4	0.2
Total Del/Veh (s)	18.1	19.7	16.8	17.8	18.1
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

43: Middle St. & Franklin St. /Franklin St. Performance by approach

Approach	SE	NW	NE	SW	All
Denied Del/Veh (s)	1.5	0.1	1.0	0.7	1.0
Total Del/Veh (s)	12.8	6.6	21.9	20.5	12.7
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	0.8
Total Del/Veh (s)	24.6
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: Thames St & India St

Movement	EB	EB	WB	SE
Directions Served	L	T	TR	LR
Maximum Queue (ft)	66	67	68	134
Average Queue (ft)	38	39	40	62
95th Queue (ft)	58	59	59	107
Link Distance (ft)		456	1088	222
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	35			
Storage Blk Time (%)	9	13		
Queuing Penalty (veh)	17	19		

Intersection: 2: India St & Fore

Movement	EB	WB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	128	186	157	78
Average Queue (ft)	45	73	71	38
95th Queue (ft)	96	143	123	61
Link Distance (ft)	522	343	214	222
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Fore & Hancock St

Movement	NB	SB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	34	67	60	72
Average Queue (ft)	2	12	20	29
95th Queue (ft)	16	43	47	57
Link Distance (ft)	343	416	197	162
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Fore & Mountfort St

Movement	SE	NE
Directions Served	LR	LT
Maximum Queue (ft)	92	61
Average Queue (ft)	36	6
95th Queue (ft)	71	32
Link Distance (ft)	1091	416
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Proposed New Road & Fore

Movement	WB	NB	NB
Directions Served	LT	L	R
Maximum Queue (ft)	28	53	35
Average Queue (ft)	3	23	3
95th Queue (ft)	18	45	18
Link Distance (ft)	545	347	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			25
Storage Blk Time (%)		7	0
Queuing Penalty (veh)		0	0

Intersection: 6: Fore & Site Driveway/Waterville St

Movement	SE	NW	NE	SW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	30	50	22	6
Average Queue (ft)	17	25	1	0
95th Queue (ft)	39	49	12	4
Link Distance (ft)	545	135	545	269
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Congress St & India St

Movement	NW	NE	SW	SW
Directions Served	LR	TR	L	T
Maximum Queue (ft)	149	159	119	234
Average Queue (ft)	79	65	92	89
95th Queue (ft)	135	120	131	189
Link Distance (ft)	383	632		540
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			70	
Storage Blk Time (%)			14	4
Queuing Penalty (veh)			39	15

Intersection: 8: Congress St & Mountfort St/Washington

Movement	NB	SB	SB	NE	NE	SW
Directions Served	LTR	LT	R	L	TR	LTR
Maximum Queue (ft)	83	216	140	153	97	230
Average Queue (ft)	31	64	79	46	19	96
95th Queue (ft)	66	150	148	118	62	183
Link Distance (ft)	1091	208		540		279
Upstream Blk Time (%)		0				1
Queuing Penalty (veh)		1				0
Storage Bay Dist (ft)			115		75	
Storage Blk Time (%)		1	3	3	0	
Queuing Penalty (veh)		3	4	3	0	

Intersection: 9: Cumberland St & Washington

Movement	NB	SB	NE	NE	SW
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	219	281	67	109	128
Average Queue (ft)	90	134	27	41	60
95th Queue (ft)	186	242	57	80	102
Link Distance (ft)	208	719		313	242
Upstream Blk Time (%)	3				
Queuing Penalty (veh)	8				
Storage Bay Dist (ft)			80		
Storage Blk Time (%)			0	1	
Queuing Penalty (veh)			0	0	

Intersection: 11: Commercial & Franklin/Maine State Pier

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	158	97	125	65
Average Queue (ft)	62	30	43	29
95th Queue (ft)	127	71	99	60
Link Distance (ft)	312	108	714	456
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 23: Thames St/Site Access & Proposed New Road

Movement	SB
Directions Served	LR
Maximum Queue (ft)	69
Average Queue (ft)	30
95th Queue (ft)	51
Link Distance (ft)	347
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 38: Franklin/Franklin St. & Fore

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	86	134	56	240	58	205	124	261
Average Queue (ft)	40	59	6	109	9	77	87	168
95th Queue (ft)	74	114	32	187	36	147	151	281
Link Distance (ft)	230	230		522		312		239
Upstream Blk Time (%)								3
Queuing Penalty (veh)								20
Storage Bay Dist (ft)			100		90		75	
Storage Blk Time (%)				13		6	9	25
Queuing Penalty (veh)				1		1	44	44

Intersection: 43: Middle St. & Franklin St. /Franklin St.

Movement	SE	SE	NW	NW	NE	NE	SW	SW
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	149	491	89	184	55	145	92	144
Average Queue (ft)	47	195	25	74	20	56	22	55
95th Queue (ft)	122	368	63	154	50	110	70	108
Link Distance (ft)		517		239		508		477
Upstream Blk Time (%)		1		0				
Queuing Penalty (veh)		0		0				
Storage Bay Dist (ft)	100		40		125		50	
Storage Blk Time (%)	0	18	3	11		1	6	14
Queuing Penalty (veh)	0	18	11	3		0	8	3

Network Summary

Network wide Queuing Penalty: 264

Intersection: 7: Congress St & India St

Phase	1	2	3	6
Movement(s) Served	SWL	NET	NWL	SWTL
Maximum Green (s)	10.0	30.0	25.0	45.0
Minimum Green (s)	4.0	8.0	8.0	15.0
Recall	None	Min	Min	None
Avg. Green (s)	9.0	11.0	11.2	23.6
g/C Ratio	-0.01	NA	NA	NA
Cycles Skipped (%)	9	0	0	0
Cycles @ Minimum (%)	0	40	40	6
Cycles Maxed Out (%)	53	0	0	0
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 8: Congress St & Mountfort St/Washington

Phase	1	2	4	6	8
Movement(s) Served	NEL	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	20.0	20.0	15.0	44.0	15.0
Minimum Green (s)	10.0	5.0	8.0	5.0	8.0
Recall	None	None	None	None	None
Avg. Green (s)	17.7	11.5	11.3	34.0	11.3
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	15	15	24	16	24
Cycles @ Minimum (%)	7	0	17	0	17
Cycles Maxed Out (%)	51	10	16	15	16
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 9: Cumberland St & Washington

Phase	2	4	6	8
Movement(s) Served	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	25.0	25.0	25.0	25.0
Minimum Green (s)	5.0	5.0	5.0	5.0
Recall	None	None	None	None
Avg. Green (s)	12.6	21.5	12.6	21.5
g/C Ratio	-0.01	NA	-0.01	NA
Cycles Skipped (%)	3	0	3	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	1	57	1	57
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 38: Franklin/Franklin St. & Fore

Phase	2	3	4	6	7	8
Movement(s) Served	SBTL	EBL	WBT	NBTL	WBL	EBT
Maximum Green (s)	24.0	6.0	25.0	24.0	5.0	26.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Recall	C-Min	None	None	None	None	None
Avg. Green (s)	28.3	7.2	18.9	26.8	6.6	25.9
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	2	27	2	9	92	2
Cycles @ Minimum (%)	0	0	0	0	0	0
Cycles Maxed Out (%)	98	22	24	70	4	50
Cycles with Peds (%)	50	0	69	29	0	91

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 43: Middle St. & Franklin St. /Franklin St.

Phase	2	4	6	8
Movement(s) Served	NWTL	NETL	SETL	SWTL
Maximum Green (s)	43.0	17.0	42.5	17.0
Minimum Green (s)	4.0	4.0	4.0	4.0
Recall	Min	None	C-Max	None
Avg. Green (s)	46.9	13.2	46.4	13.2
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	22	100	22
Cycles with Peds (%)	4	43	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5963	5923	5791	5819	5881	5882
Vehs Exited	5930	5908	5822	5820	5894	5875
Starting Vehs	120	107	128	124	146	117
Ending Vehs	153	122	97	123	133	121
Denied Entry Before	0	0	0	0	2	0
Denied Entry After	2	1	0	2	1	0
Travel Distance (mi)	1877	1890	1857	1855	1884	1873
Travel Time (hr)	138.8	129.3	126.8	131.2	130.4	131.3
Total Delay (hr)	63.1	53.3	51.8	56.3	54.2	55.7
Total Stops	8193	8117	8171	7843	8375	8143
Fuel Used (gal)	88.9	87.1	85.5	86.5	87.5	87.1

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	5963	5923	5791	5819	5881	5882
Vehs Exited	5930	5908	5822	5820	5894	5875
Starting Vehs	120	107	128	124	146	117
Ending Vehs	153	122	97	123	133	121
Denied Entry Before	0	0	0	0	2	0
Denied Entry After	2	1	0	2	1	0
Travel Distance (mi)	1877	1890	1857	1855	1884	1873
Travel Time (hr)	138.8	129.3	126.8	131.2	130.4	131.3
Total Delay (hr)	63.1	53.3	51.8	56.3	54.2	55.7
Total Stops	8193	8117	8171	7843	8375	8143
Fuel Used (gal)	88.9	87.1	85.5	86.5	87.5	87.1

1: India St & Thames St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	5.1	6.7	6.7	6.3
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

2: India St & Fore Performance by approach

Approach	EB	WB	SE	NW	All
Denied Del/Veh (s)	0.0	0.1	0.3	0.0	0.1
Total Del/Veh (s)	11.3	9.2	8.4	8.0	9.5
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

3: Fore & Hancock St Performance by approach

Approach	NB	SB	SE	NW	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	2.6	1.0	6.5	6.2	2.8
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Fore & Mountfort St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.8	0.9	0.6	1.2
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: 100 Fore St & Existing Driveways & Fore Performance by approach

Approach	EB	WB	NB	NW	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.8	0.1
Total Del/Veh (s)	0.6	0.5	6.8	8.9	1.3
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

6: Fore & Waterville St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.1	0.0	0.2	0.0
Total Del/Veh (s)	2.3	0.9	0.2	0.8
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

7: Congress St & India St Performance by approach

Approach	NW	NE	SW	All
Denied Del/Veh (s)	0.8	0.4	0.0	0.5
Total Del/Veh (s)	40.7	24.4	13.6	27.5
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

8: Congress St & Mountfort St/Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.2	0.1
Total Del/Veh (s)	24.3	10.8	18.7	23.4	18.1
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

9: Cumberland St & Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.1	1.8	2.2	0.2	1.1
Total Del/Veh (s)	16.2	41.0	13.9	11.2	21.8
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

11: Commercial & Franklin/Maine State Pier Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.2	0.5	0.1	0.2
Total Del/Veh (s)	3.7	3.9	4.7	4.1	4.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

38: Franklin/Franklin St. & Fore Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.5	0.1	0.1	0.2	0.5
Total Del/Veh (s)	30.0	17.2	12.9	13.2	18.0
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

43: Middle St. & Franklin St. /Franklin St. Performance by approach

Approach	SE	NW	NE	SW	All
Denied Del/Veh (s)	1.2	0.1	1.8	0.7	0.9
Total Del/Veh (s)	17.2	12.6	19.0	12.0	15.3
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	32.5
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: India St & Thames St

Movement	SE	NE	NE	SW
Directions Served	LR	L	T	TR
Maximum Queue (ft)	58	66	88	55
Average Queue (ft)	33	43	40	35
95th Queue (ft)	48	63	68	53
Link Distance (ft)	225		455	750
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		35		
Storage Blk Time (%)		17	8	
Queuing Penalty (veh)		22	20	

Intersection: 2: India St & Fore

Movement	EB	WB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	154	106	116	103
Average Queue (ft)	55	47	54	50
95th Queue (ft)	112	85	96	82
Link Distance (ft)	527	335	167	225
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Fore & Hancock St

Movement	NB	SB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	39	51	44	90
Average Queue (ft)	2	8	20	41
95th Queue (ft)	16	34	39	72
Link Distance (ft)	335	421	286	217
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Fore & Mountfort St

Movement	SE	NE
Directions Served	LR	LT
Maximum Queue (ft)	60	56
Average Queue (ft)	22	10
95th Queue (ft)	42	37
Link Distance (ft)	1093	421
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: 100 Fore St & Existing Driveways & Fore

Movement	WB	NB	NW	NW
Directions Served	<LT	LR	L	R
Maximum Queue (ft)	35	55	36	38
Average Queue (ft)	4	22	15	6
95th Queue (ft)	22	46	38	27
Link Distance (ft)	539	299	247	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				25
Storage Blk Time (%)			5	1
Queuing Penalty (veh)			0	0

Intersection: 6: Fore & Waterville St

Movement	SE	NE
Directions Served	LR	LT
Maximum Queue (ft)	35	48
Average Queue (ft)	17	5
95th Queue (ft)	39	28
Link Distance (ft)	662	539
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Congress St & India St

Movement	NW	NE	SW	SW
Directions Served	LR	TR	L	T
Maximum Queue (ft)	586	320	119	239
Average Queue (ft)	280	170	70	82
95th Queue (ft)	543	281	116	173
Link Distance (ft)	836	467		533
Upstream Blk Time (%)	2	0		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)			70	
Storage Blk Time (%)			10	7
Queuing Penalty (veh)			23	12

Intersection: 8: Congress St & Mountfort St/Washington

Movement	NB	SB	SB	NE	NE	SW
Directions Served	LTR	LT	R	L	TR	LTR
Maximum Queue (ft)	145	130	125	510	100	196
Average Queue (ft)	71	41	39	183	71	97
95th Queue (ft)	124	93	102	412	132	162
Link Distance (ft)	1093	194		533		396
Upstream Blk Time (%)		0		1		
Queuing Penalty (veh)		0		6		
Storage Bay Dist (ft)			115		75	
Storage Blk Time (%)		0	0	24	1	
Queuing Penalty (veh)		1	0	48	6	

Intersection: 9: Cumberland St & Washington

Movement	NB	SB	NE	NE	SW
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	216	522	104	169	90
Average Queue (ft)	172	206	64	68	40
95th Queue (ft)	246	517	107	131	74
Link Distance (ft)	194	915		255	233
Upstream Blk Time (%)	9	2		0	
Queuing Penalty (veh)	61	0		0	
Storage Bay Dist (ft)			80		
Storage Blk Time (%)			5	3	
Queuing Penalty (veh)			9	6	

Intersection: 11: Commercial & Franklin/Maine State Pier

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	100	93	151	84
Average Queue (ft)	37	36	52	34
95th Queue (ft)	79	74	110	65
Link Distance (ft)	309	108	714	455
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 38: Franklin/Franklin St. & Fore

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	244	225	65	169	118	155	124	248
Average Queue (ft)	104	97	12	96	41	81	60	103
95th Queue (ft)	206	182	43	155	85	135	121	195
Link Distance (ft)	231	231		527		309		248
Upstream Blk Time (%)	5	3						0
Queuing Penalty (veh)	0	0						2
Storage Bay Dist (ft)			100		90		75	
Storage Blk Time (%)				10	1	5	3	11
Queuing Penalty (veh)				1	4	3	16	16

Intersection: 43: Middle St. & Franklin St. /Franklin St.

Movement	SE	SE	NW	NW	NE	NE	SW	SW
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	149	324	89	253	151	202	80	142
Average Queue (ft)	64	164	46	128	68	70	22	72
95th Queue (ft)	133	265	89	218	122	139	57	118
Link Distance (ft)		689		248		543		409
Upstream Blk Time (%)				0				
Queuing Penalty (veh)				1				
Storage Bay Dist (ft)	100		40		125		50	
Storage Blk Time (%)	3	19	13	31	2	0	2	18
Queuing Penalty (veh)	21	19	70	19	6	1	5	6

Network Summary

Network wide Queuing Penalty: 404

Intersection: 7: Congress St & India St

Phase	1	2	3	6
Movement(s) Served	SWL	NET	NWL	SWTL
Maximum Green (s)	10.0	30.0	25.0	45.0
Minimum Green (s)	4.0	8.0	8.0	15.0
Recall	None	None	None	None
Avg. Green (s)	8.0	19.7	23.5	30.4
g/C Ratio	-0.01	NA	NA	NA
Cycles Skipped (%)	16	0	0	0
Cycles @ Minimum (%)	0	4	2	5
Cycles Maxed Out (%)	27	14	79	4
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 8: Congress St & Mountfort St/Washington

Phase	1	2	4	6	8
Movement(s) Served	NEL	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	20.0	20.0	15.0	44.0	15.0
Minimum Green (s)	10.0	5.0	8.0	5.0	8.0
Recall	None	None	None	None	None
Avg. Green (s)	19.1	13.3	12.8	36.0	12.8
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	4	10	9	6	9
Cycles @ Minimum (%)	1	0	12	0	12
Cycles Maxed Out (%)	75	16	41	19	41
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 9: Cumberland St & Washington

Phase	2	4	6	8
Movement(s) Served	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	25.0	25.0	25.0	25.0
Minimum Green (s)	5.0	5.0	5.0	5.0
Recall	None	None	None	None
Avg. Green (s)	17.4	24.0	17.4	24.0
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	18	78	18	78
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 38: Franklin/Franklin St. & Fore

Phase	2	4	6	8
Movement(s) Served	SBTL	WBTL	NBTL	EBTL
Maximum Green (s)	20.0	15.0	20.0	15.0
Minimum Green (s)	4.0	4.0	4.0	4.0
Recall	None	None	C-Min	None
Avg. Green (s)	20.3	14.9	20.3	15.0
g/C Ratio	-0.01	-0.01	NA	NA
Cycles Skipped (%)	4	5	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	80	94	100	97
Cycles with Peds (%)	37	53	24	80

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 43: Middle St. & Franklin St. /Franklin St.

Phase	2	4	6	8
Movement(s) Served	NWTL	NETL	SETL	SWTL
Maximum Green (s)	21.0	14.0	20.5	14.0
Minimum Green (s)	4.0	4.0	4.0	4.0
Recall	C-Min	None	None	None
Avg. Green (s)	21.5	13.5	21.0	13.5
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	75	88	75
Cycles with Peds (%)	4	28	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	6346	6356	6213	6484	6385	6358
Vehs Exited	6344	6342	6269	6440	6388	6357
Starting Vehs	180	166	204	167	166	172
Ending Vehs	182	180	148	211	163	172
Denied Entry Before	0	2	0	0	0	0
Denied Entry After	1	0	0	2	2	0
Travel Distance (mi)	2972	2968	2969	3002	3012	2985
Travel Time (hr)	196.1	178.5	180.7	197.5	182.1	187.0
Total Delay (hr)	77.8	60.4	62.5	77.9	62.5	68.2
Total Stops	9728	9465	9205	10181	9531	9626
Fuel Used (gal)	126.8	122.1	122.5	128.2	124.5	124.8

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	6346	6356	6213	6484	6385	6358
Vehs Exited	6344	6342	6269	6440	6388	6357
Starting Vehs	180	166	204	167	166	172
Ending Vehs	182	180	148	211	163	172
Denied Entry Before	0	2	0	0	0	0
Denied Entry After	1	0	0	2	2	0
Travel Distance (mi)	2972	2968	2969	3002	3012	2985
Travel Time (hr)	196.1	178.5	180.7	197.5	182.1	187.0
Total Delay (hr)	77.8	60.4	62.5	77.9	62.5	68.2
Total Stops	9728	9465	9205	10181	9531	9626
Fuel Used (gal)	126.8	122.1	122.5	128.2	124.5	124.8

1: India St & Thames St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.1
Total Del/Veh (s)	5.6	7.7	8.0	7.3
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

2: India St & Fore Performance by approach

Approach	EB	WB	SE	NW	All
Denied Del/Veh (s)	0.0	0.1	0.3	0.0	0.1
Total Del/Veh (s)	14.1	12.7	11.0	9.4	12.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

3: Fore & Hancock St Performance by approach

Approach	NB	SB	SE	NW	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	2.8	1.0	7.4	7.8	3.0
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Fore & Mountfort St Performance by approach

Approach	SE	NE	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.9	1.0	0.7	1.5
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: Proposed New Road & Fore Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.9	0.6	8.4	1.9
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

6: Fore & Site Driveway/Waterville St Performance by approach

Approach	SE	NW	NE	SW	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.2	0.1
Total Del/Veh (s)	2.5	7.1	1.1	0.2	1.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

7: Congress St & India St Performance by approach

Approach	NW	NE	SW	All
Denied Del/Veh (s)	0.5	0.4	0.0	0.3
Total Del/Veh (s)	34.5	27.5	14.5	26.3
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

8: Congress St & Mountfort St/Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.2	0.0
Total Del/Veh (s)	18.0	10.4	14.9	15.7	14.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

9: Cumberland St & Washington Performance by approach

Approach	NB	SB	NE	SW	All
Denied Del/Veh (s)	0.0	0.4	2.2	0.2	0.7
Total Del/Veh (s)	10.9	21.9	15.6	12.5	15.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

11: Commercial & Franklin/Maine State Pier Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.2	0.5	0.0	0.2
Total Del/Veh (s)	4.1	3.7	5.2	4.8	4.6
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

18: Thames St/Site Access & Proposed New Road Performance by approach

Approach	SB	NE	SW	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.1
Total Del/Veh (s)	5.2	2.8	0.8	2.2
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

38: Franklin/Franklin St. & Fore Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.2	0.2	0.2
Total Del/Veh (s)	62.5	20.6	15.3	15.3	27.3
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

43: Middle St. & Franklin St. /Franklin St. Performance by approach

Approach	SE	NW	NE	SW	All
Denied Del/Veh (s)	0.8	0.0	1.8	0.7	0.7
Total Del/Veh (s)	36.2	15.3	20.5	13.4	23.6
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	37.0
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: India St & Thames St

Movement	SE	NE	NE	SW
Directions Served	LR	L	T	TR
Maximum Queue (ft)	63	62	116	80
Average Queue (ft)	35	47	49	46
95th Queue (ft)	52	64	87	68
Link Distance (ft)	225		455	1072
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		35		
Storage Blk Time (%)		18	15	
Queuing Penalty (veh)		38	36	

Intersection: 2: India St & Fore

Movement	EB	WB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	204	170	120	110
Average Queue (ft)	72	76	59	55
95th Queue (ft)	141	133	100	94
Link Distance (ft)	523	335	263	225
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Fore & Hancock St

Movement	NB	SB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	33	47	47	105
Average Queue (ft)	3	8	18	46
95th Queue (ft)	18	33	41	80
Link Distance (ft)	335	421	286	217
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Fore & Mountfort St

Movement	SE	NE
Directions Served	LR	LT
Maximum Queue (ft)	76	66
Average Queue (ft)	27	14
95th Queue (ft)	54	46
Link Distance (ft)	1093	421
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Proposed New Road & Fore

Movement	WB	NB	NB
Directions Served	LT	L	R
Maximum Queue (ft)	34	72	49
Average Queue (ft)	3	33	20
95th Queue (ft)	20	57	52
Link Distance (ft)	534	347	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			25
Storage Blk Time (%)		18	3
Queuing Penalty (veh)		4	3

Intersection: 6: Fore & Site Driveway/Waterville St

Movement	SE	NW	NE	SW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	40	35	6
Average Queue (ft)	16	18	4	0
95th Queue (ft)	39	43	21	4
Link Distance (ft)	662	308	534	324
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Congress St & India St

Movement	NW	NE	SW	SW
Directions Served	LR	TR	L	T
Maximum Queue (ft)	580	370	120	216
Average Queue (ft)	261	173	79	90
95th Queue (ft)	567	311	123	174
Link Distance (ft)	1092	574		532
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)			70	
Storage Blk Time (%)			12	8
Queuing Penalty (veh)			27	16

Intersection: 8: Congress St & Mountfort St/Washington

Movement	NB	SB	SB	NE	NE	SW
Directions Served	LTR	LT	R	L	TR	LTR
Maximum Queue (ft)	144	119	129	429	100	146
Average Queue (ft)	65	43	51	158	74	79
95th Queue (ft)	115	91	110	350	130	129
Link Distance (ft)	1093	194		532		396
Upstream Blk Time (%)				1		
Queuing Penalty (veh)				4		
Storage Bay Dist (ft)			115		75	
Storage Blk Time (%)		0	0	21	1	
Queuing Penalty (veh)		0	1	41	4	

Intersection: 9: Cumberland St & Washington

Movement	NB	SB	NE	NE	SW
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	213	399	104	184	92
Average Queue (ft)	133	155	66	70	42
95th Queue (ft)	218	317	106	136	78
Link Distance (ft)	194	1247		255	233
Upstream Blk Time (%)	3				
Queuing Penalty (veh)	24				
Storage Bay Dist (ft)			80		
Storage Blk Time (%)			6	2	
Queuing Penalty (veh)			11	5	

Intersection: 11: Commercial & Franklin/Maine State Pier

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	107	92	170	100
Average Queue (ft)	46	36	60	41
95th Queue (ft)	88	73	127	77
Link Distance (ft)	311	108	714	455
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 18: Thames St/Site Access & Proposed New Road

Movement	SB
Directions Served	LR
Maximum Queue (ft)	50
Average Queue (ft)	23
95th Queue (ft)	40
Link Distance (ft)	347
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 38: Franklin/Franklin St. & Fore

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	426	292	129	238	132	216	124	254
Average Queue (ft)	209	97	17	125	45	97	82	114
95th Queue (ft)	498	200	70	216	99	176	135	224
Link Distance (ft)	1273	1273		523		311		248
Upstream Blk Time (%)						0		1
Queuing Penalty (veh)						0		4
Storage Bay Dist (ft)			100		90		75	
Storage Blk Time (%)				17	2	7	10	13
Queuing Penalty (veh)				2	7	5	52	24

Intersection: 43: Middle St. & Franklin St. /Franklin St.

Movement	SE	SE	NW	NW	NE	NE	SW	SW
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	150	791	89	262	150	172	99	167
Average Queue (ft)	98	299	49	148	76	75	23	82
95th Queue (ft)	177	646	95	251	129	136	65	136
Link Distance (ft)		2418		248		545		409
Upstream Blk Time (%)				1				
Queuing Penalty (veh)				9				
Storage Bay Dist (ft)	100		40		125		50	
Storage Blk Time (%)	8	31	19	34	3	1	2	24
Queuing Penalty (veh)	57	36	119	22	7	2	7	8

Network Summary

Network wide Queuing Penalty: 574

Intersection: 7: Congress St & India St

Phase	1	2	3	6
Movement(s) Served	SWL	NET	NWL	SWTL
Maximum Green (s)	4.0	17.0	24.0	26.0
Minimum Green (s)	4.0	8.0	8.0	15.0
Recall	None	None	None	None
Avg. Green (s)	4.2	15.6	21.7	23.2
g/C Ratio	-0.01	-0.01	NA	NA
Cycles Skipped (%)	17	2	0	0
Cycles @ Minimum (%)	82	3	2	5
Cycles Maxed Out (%)	83	61	66	52
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 8: Congress St & Mountfort St/Washington

Phase	1	2	4	6	8
Movement(s) Served	NEL	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	10.0	19.0	9.0	33.0	9.0
Minimum Green (s)	10.0	5.0	8.0	5.0	8.0
Recall	None	None	None	None	None
Avg. Green (s)	10.4	11.7	8.9	24.9	8.9
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	6	21	15	10	15
Cycles @ Minimum (%)	87	0	12	0	12
Cycles Maxed Out (%)	94	9	69	15	69
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 9: Cumberland St & Washington

Phase	2	4	6	8
Movement(s) Served	SWTL	NBTL	NETL	SBTL
Maximum Green (s)	11.0	21.0	11.0	21.0
Minimum Green (s)	5.0	5.0	5.0	5.0
Recall	None	None	None	None
Avg. Green (s)	10.8	20.3	10.8	20.3
g/C Ratio	-0.01	NA	-0.01	NA
Cycles Skipped (%)	1	0	1	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	84	82	84	82
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 38: Franklin/Franklin St. & Fore

Phase	2	4	6	8
Movement(s) Served	SBTL	WBTL	NBTL	EBTL
Maximum Green (s)	20.0	15.0	20.0	15.0
Minimum Green (s)	4.0	4.0	4.0	4.0
Recall	None	None	C-Min	None
Avg. Green (s)	20.4	15.0	20.1	15.0
g/C Ratio	-0.01	-0.01	NA	NA
Cycles Skipped (%)	3	4	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	91	95	100	99
Cycles with Peds (%)	35	51	16	78

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 43: Middle St. & Franklin St. /Franklin St.

Phase	2	4	6	8
Movement(s) Served	NWTL	NETL	SETL	SWTL
Maximum Green (s)	21.0	14.0	20.5	14.0
Minimum Green (s)	4.0	4.0	4.0	4.0
Recall	C-Min	None	None	None
Avg. Green (s)	21.6	13.6	21.1	13.6
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	82	96	82
Cycles with Peds (%)	4	29	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

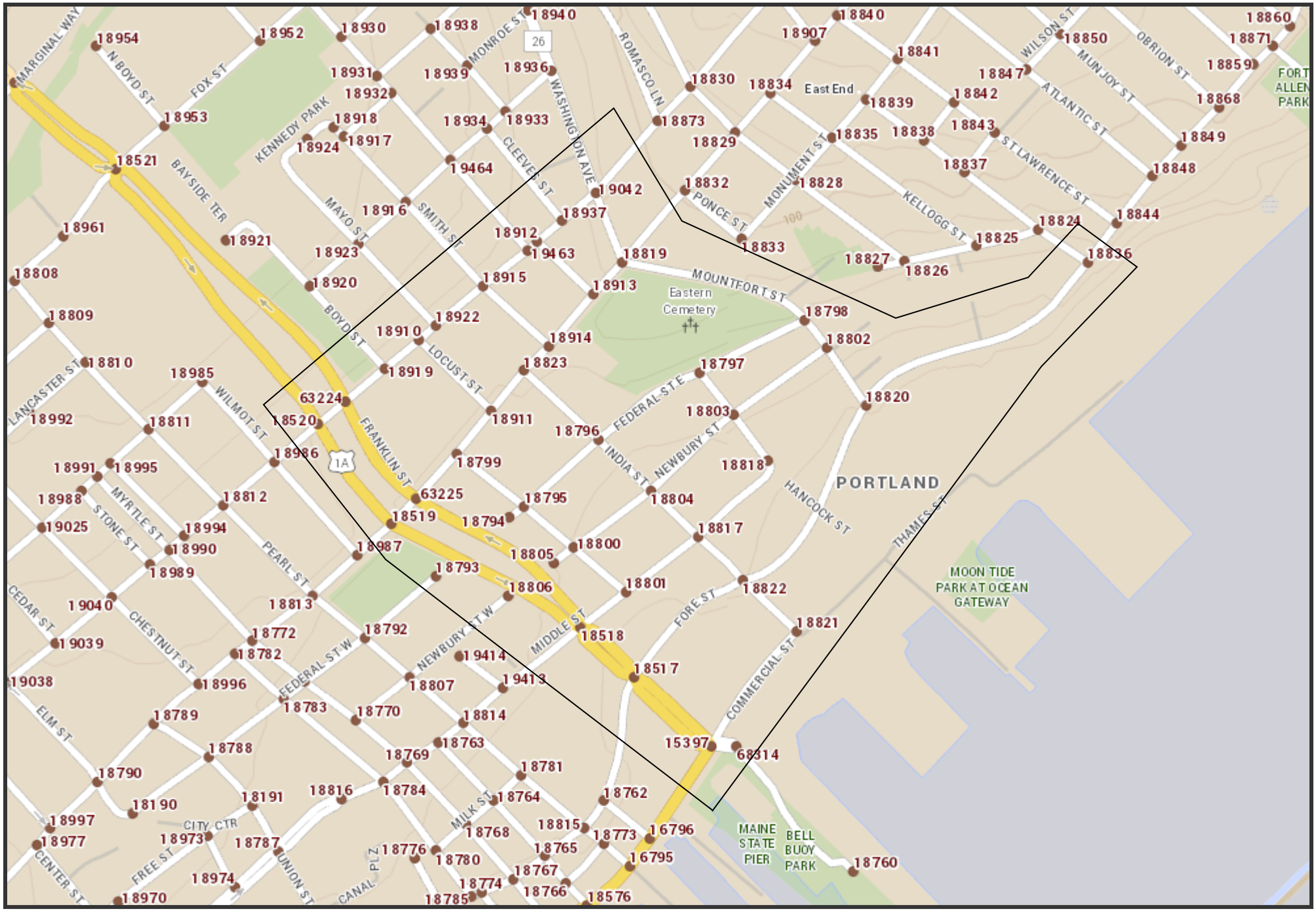
Appendix D

Node Map

Crash Report

Collision Diagrams

NODE MAP



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0.15 Miles

1 inch = 0.13 miles

Date: 8/23/2016
Time: 9:58:43 AM

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ **Crash Summary I** ☑ **Section Detail** ☑ **Crash Summary II** ☐ **1320 Public** ☐ **1320 Private** ☑ **1320 Summary**

REPORT DESCRIPTION

Franklin St area in Portland

REPORT PARAMETERS

Year 2013, Start Month 1 through Year 2015 End Month: 12

Route: **0561238**	Start Node: **18520**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **19042**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560160**	Start Node: **18819**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18519**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561110**	Start Node: **18794**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **18798**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560531**	Start Node: **18805**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **18802**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560505**	Start Node: **18518**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18818**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560286**	Start Node: **18836**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **18517**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561001**	Start Node: **15397**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **18821**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0001A**	Start Node: **15397**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **63225**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0001A**	Start Node: **63225**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **63224**	End Offset: **0**	☑ **Exclude Last Node**
Route: **001AS**	Start Node: **18520**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18518**	End Offset: **0**	☑ **Exclude Last Node**

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ **Crash Summary I** ☑ **Section Detail** ☑ **Crash Summary II** ☐ **1320 Public** ☐ **1320 Private** ☑ **1320 Summary**

REPORT DESCRIPTION

Franklin St area in Portland

REPORT PARAMETERS

Year 2013, Start Month 1 through Year 2015 End Month: 12

Route: **001AS**	Start Node: **18518**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18517**	End Offset: **0**	☑ **Exclude Last Node**
Route: **001AS**	Start Node: **18517**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **15397**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561002**	Start Node: **18819**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **19042**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560524**	Start Node: **18819**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18820**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560510**	Start Node: **18912**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18913**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560666**	Start Node: **18914**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18915**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560451**	Start Node: **18910**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18911**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560342**	Start Node: **18795**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18799**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560342**	Start Node: **18800**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18795**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560342**	Start Node: **18801**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18800**	End Offset: **0**	☑ **Exclude Last Node**

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ **Crash Summary I** ☑ **Section Detail** ☑ **Crash Summary II** ☐ **1320 Public** ☐ **1320 Private** ☑ **1320 Summary**

REPORT DESCRIPTION

Franklin St area in Portland

REPORT PARAMETERS

Year 2013, Start Month 1 through Year 2015 End Month: 12

Route: **0561000**	Start Node: **18822**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18821**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561000**	Start Node: **18817**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18822**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561000**	Start Node: **18804**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18817**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561000**	Start Node: **18796**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18804**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561000**	Start Node: **18823**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18796**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560344**	Start Node: **18803**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18818**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560344**	Start Node: **18797**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18803**	End Offset: **0**	☑ **Exclude Last Node**

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
18520	0561238 - 0.77	Int of CUMBERLAND AV FRANKLIN ST	9	18	0	0	1	2	15	16.7	7.178	0.84	1.10	0.00
												Statewide Crash Rate:	0.67	
63224	0561238 - 0.80	Int of CUMBERLAND AV FRANKLIN ST	9	13	0	0	1	4	8	38.5	6.653	0.65	1.12	0.00
												Statewide Crash Rate:	0.67	
18919	0561238 - 0.84	Int of BOYD ST CUMBERLAND AV	2	2	0	0	0	0	2	0.0	2.692	0.25	0.44	0.00
												Statewide Crash Rate:	0.15	
18910	0561238 - 0.87	Int of CUMBERLAND AV, LOCUST ST	2	2	0	0	0	0	2	0.0	2.636	0.25	0.44	0.00
												Statewide Crash Rate:	0.15	
18922	0561238 - 0.89	Int of CUMBERLAND AV MAYO ST	2	1	0	0	0	0	1	0.0	2.475	0.13	0.45	0.00
												Statewide Crash Rate:	0.15	
18915	0561238 - 0.94	Int of CUMBERLAND AV, SMITH ST	2	2	0	0	0	0	2	0.0	2.450	0.27	0.45	0.00
												Statewide Crash Rate:	0.15	
19463	0561238 - 0.98	Int of ANDERSON ST CUMBERLAND AV	2	2	0	0	0	0	2	0.0	2.195	0.30	0.46	0.00
												Statewide Crash Rate:	0.15	
18912	0561238 - 0.99	Int of CUMBERLAND AV, MONTGOMERY ST	2	0	0	0	0	0	0	0.0	2.043	0.00	0.47	0.00
												Statewide Crash Rate:	0.15	
18937	0561238 - 1.01	Int of CLEEVE ST CUMBERLAND AV	2	0	0	0	0	0	0	0.0	2.011	0.00	0.47	0.00
												Statewide Crash Rate:	0.15	
19042	0561238 - 1.04	Int of CUMBERLAND AV WASHINGTON AV	9	10	0	0	1	1	8	20.0	4.911	0.68	1.19	0.00
												Statewide Crash Rate:	0.67	
18913	0560160 - 0.55	Int of CONGRESS ST MONTGOMERY ST	2	0	0	0	0	0	0	0.0	3.833	0.00	0.40	0.00
												Statewide Crash Rate:	0.15	
18914	0560160 - 0.60	Int of CONGRESS ST SMITH ST	2	4	0	0	1	0	3	25.0	3.932	0.34	0.40	0.00
												Statewide Crash Rate:	0.15	
18823	0560160 - 0.63	Int of CONGRESS ST INDIA ST	9	7	0	0	1	3	3	57.1	4.581	0.51	1.20	0.00
												Statewide Crash Rate:	0.67	
18911	0560160 - 0.67	Int of CONGRESS ST LOCUST ST	2	0	0	0	0	0	0	0.0	2.943	0.00	0.43	0.00
												Statewide Crash Rate:	0.15	
18799	0560160 - 0.71	Int of CONGRESS ST HAMPSHIRE ST	2	0	0	0	0	0	0	0.0	3.235	0.00	0.42	0.00
												Statewide Crash Rate:	0.15	
63225	0560160 - 0.76	Int of CONGRESS ST FRANKLIN ST	9	12	0	1	0	4	7	41.7	5.974	0.67	1.14	0.00
												Statewide Crash Rate:	0.67	
18794	0561110 - 0	End of FEDERAL ST E	2	0	0	0	0	0	0	0.0	0.007	0.00	-17.21	0.00
												Statewide Crash Rate:	0.14	
18795	0561110 - 0.02	Int of FEDERAL ST E HAMPSHIRE ST	2	0	0	0	0	0	0	0.0	0.274	0.00	0.59	0.00
												Statewide Crash Rate:	0.14	
18796	0561110 - 0.10	Int of FEDERAL ST E INDIA ST	2	1	0	0	0	0	1	0.0	2.510	0.13	0.45	0.00
												Statewide Crash Rate:	0.15	
18797	0561110 - 0.20	Int of FEDERAL ST E HANCOCK ST	2	0	0	0	0	0	0	0.0	0.154	0.00	0.48	0.00
												Statewide Crash Rate:	0.14	
18805	0560531 - 0	End of NEWBURY ST	2	0	0	0	0	0	0	0.0	0.006	0.00	-20.36	0.00
												Statewide Crash Rate:	0.14	
18800	0560531 - 0.03	Int of HAMPSHIRE ST NEWBURY ST	2	0	0	0	0	0	0	0.0	0.296	0.00	0.60	0.00
												Statewide Crash Rate:	0.14	

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
18804	0560531 - 0.11	Int of INDIA ST NEWBURY ST	2	2	0	0	0	0	2	0.0	2.235	0.30	0.46	0.00
												Statewide Crash Rate:	0.15	
18803	0560531 - 0.19	Int of HANCOCK ST NEWBURY ST	2	1	0	0	0	0	1	0.0	0.249	1.34	0.59	2.28
												Statewide Crash Rate:	0.14	
18801	0560505 - 0.33	0509221 POR,MIDDLE,HAMPSHIRE ST	2	1	0	0	0	0	1	0.0	0.968	0.34	0.53	0.00
												Statewide Crash Rate:	0.14	
18817	0560505 - 0.39	Int of INDIA ST MIDDLE ST	2	4	0	0	1	2	1	75.0	2.212	0.60	0.46	1.30
												Statewide Crash Rate:	0.15	
18818	0560505 - 0.47	0509238 POR,HANCOCK,MIDDLE ST.	2	0	0	0	0	0	0	0.0	0.272	0.00	0.59	0.00
												Statewide Crash Rate:	0.14	
18836	0560286 - 0.08	Int of FORE ST WATERVILLE ST	2	0	0	0	0	0	0	0.0	1.748	0.00	0.44	0.00
												Statewide Crash Rate:	0.13	
18820	0560286 - 0.28	Int of FORE ST, MOUNTFORT ST	2	1	0	0	1	0	0	100.0	1.976	0.17	0.43	0.00
												Statewide Crash Rate:	0.13	
18822	0560286 - 0.45	Int of FORE ST INDIA ST	2	7	0	0	0	3	4	42.9	3.565	0.65	0.41	1.60
												Statewide Crash Rate:	0.15	
15397	0561001 - 0	Int of COMMERCIAL ST FRANKLIN ST MAINE STATE PIER	9	8	0	0	0	3	5	37.5	4.896	0.54	1.19	0.00
												Statewide Crash Rate:	0.67	
18821	0561001 - 0.11	Int of COMMERCIAL ST INDIA ST	2	0	0	0	0	0	0	0.0	2.210	0.00	0.46	0.00
												Statewide Crash Rate:	0.15	
18517	0001A - 11.88	Int of FORE ST FRANKLIN ST	9	8	0	0	1	3	4	50.0	3.590	0.74	1.27	0.00
												Statewide Crash Rate:	0.67	
18518	0001A - 11.94	Int of FRANKLIN ST MIDDLE ST	9	20	0	0	1	5	14	30.0	5.287	1.26	1.17	1.08
												Statewide Crash Rate:	0.67	
18519	001AS - 1.91	Int of CONGRESS ST, FRANKLIN ST	9	11	0	1	1	2	7	36.4	7.631	0.48	1.09	0.00
												Statewide Crash Rate:	0.67	
18819	0561002 - 0	Int of CONGRESS ST, MOUNTFORT ST, WASHINGTON AV	9	11	0	0	1	0	10	9.1	4.593	0.80	1.20	0.00
												Statewide Crash Rate:	0.67	
18798	0560524 - 0.14	Int of FEDERAL ST E MOUNTFORT ST	2	2	0	0	0	0	2	0.0	0.513	1.30	0.59	2.19
												Statewide Crash Rate:	0.14	
18802	0560524 - 0.17	Int of MOUNTFORT ST NEWBURY ST	2	0	0	0	0	0	0	0.0	0.449	0.00	0.60	0.00
												Statewide Crash Rate:	0.14	
Study Years:	3.00	**NODE TOTALS:**		150	0	2	11	32	105	30.0	105.383	0.47	0.51	0.92

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18520	63224	3118814	0 - 0.03	0561238 - 0.77	0.03	2	1	0	0	0	0	1	0.0	0.00107	312.57	683.74	0.00
Int of CUMBERLAND AV FRANKLIN ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
63224	18919	3115972	0 - 0.04	0561238 - 0.80	0.04	2	3	0	0	0	0	3	0.0	0.00106	940.32	684.19	1.37
Int of CUMBERLAND AV FRANKLIN ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
18910	18919	3129300	0 - 0.03	0561238 - 0.84	0.03	2	7	0	0	0	2	5	28.6	0.00077	3047.62	737.95	4.13
Int of CUMBERLAND AV, LOCUST ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
18910	18922	3118713	0 - 0.02	0561238 - 0.87	0.02	2	1	0	0	0	0	1	0.0	0.00049	678.28	804.41	0.00
Int of CUMBERLAND AV, LOCUST ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
18915	18922	3117967	0 - 0.05	0561238 - 0.89	0.05	2	5	0	0	0	0	5	0.0	0.00120	1394.48	665.03	2.10
Int of CUMBERLAND AV, SMITH ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
18915	19463	3131702	0 - 0.04	0561238 - 0.94	0.04	2	0	0	0	0	0	0	0.0	0.00088	0.00	715.17	0.00
Int of CUMBERLAND AV, SMITH ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
18912	19463	194577	0 - 0.01	0561238 - 0.98	0.01	2	0	0	0	0	0	0	0.0	0.00021	0.00	850.21	0.00
Int of CUMBERLAND AV, MONTGOMERY ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
18912	18937	3130202	0 - 0.02	0561238 - 0.99	0.02	2	1	0	0	0	0	1	0.0	0.00040	835.08	829.57	1.01
Int of CUMBERLAND AV, MONTGOMERY ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
18937	19042	3131703	0 - 0.03	0561238 - 1.01	0.03	2	3	0	0	0	0	3	0.0	0.00059	1686.50	777.77	2.17
Int of CLEEVE ST CUMBERLAND AV				RD INV 05 61238											Statewide Crash Rate: 198.45		
18819	18913	3131697	0 - 0.03	0560160 - 0.52	0.03	2	1	0	0	0	0	1	0.0	0.00111	300.18	677.09	0.00
Int of CONGRESS ST, MOUNTFORT ST, WASHINGTON AV				RD INV 05 60160											Statewide Crash Rate: 198.45		
18913	18914	194578	0 - 0.05	0560160 - 0.55	0.05	2	4	0	0	0	1	2	33.3	0.00189	706.78	592.48	1.19
Int of CONGRESS ST MONTGOMERY ST				RD INV 05 60160											Statewide Crash Rate: 198.45		
18823	18914	3118711	0 - 0.03	0560160 - 0.60	0.03	2	1	0	0	0	0	1	0.0	0.00117	284.21	668.12	0.00
Int of CONGRESS ST INDIA ST				RD INV 05 60160											Statewide Crash Rate: 198.45		
18823	18911	3120757	0 - 0.04	0560160 - 0.63	0.04	2	4	0	0	1	2	1	75.0	0.00116	1150.76	670.11	1.72
Int of CONGRESS ST INDIA ST				RD INV 05 60160											Statewide Crash Rate: 198.45		
18799	18911	3123999	0 - 0.04	0560160 - 0.67	0.04	2	2	0	0	0	0	2	0.0	0.00120	557.40	664.91	0.00
Int of CONGRESS ST HAMPSHIRE ST				RD INV 05 60160											Statewide Crash Rate: 198.45		
63225	18799	3115974	0 - 0.05	0560160 - 0.71	0.05	2	1	0	0	0	1	0	100.0	0.00174	191.54	604.90	0.00
Int of CONGRESS ST FRANKLIN ST				RD INV 05 60160											Statewide Crash Rate: 198.45		
18519	63225	3115973	0 - 0.03	0560160 - 0.76	0.03	2	0	0	0	0	0	0	0.0	0.00128	0.00	654.44	0.00
Int of CONGRESS ST, FRANKLIN ST				RD INV 05 60160											Statewide Crash Rate: 198.45		
18794	18795	194384	0 - 0.02	0561110 - 0	0.02	2	0	0	0	0	0	0	0.0	0.00000	0.00	-	0.00
End of FEDERAL ST E				RD INV 05 61110											Statewide Crash Rate: 384.19	421194.82	
18795	18796	194385	0 - 0.08	0561110 - 0.02	0.08	2	1	0	0	0	0	1	0.0	0.00024	1372.06	1568.43	0.00
Int of FEDERAL ST E HAMPSHIRE ST				RD INV 05 61110											Statewide Crash Rate: 384.19		
18796	18797	194388	0 - 0.10	0561110 - 0.10	0.10	2	1	0	0	0	0	1	0.0	0.00011	2936.47	1652.05	1.78
Int of FEDERAL ST E INDIA ST				RD INV 05 61110											Statewide Crash Rate: 384.19		
18797	18798	194391	0 - 0.10	0561110 - 0.20	0.10	2	1	0	0	0	0	0	0.0	0.00006	5930.14	1307.34	4.54
Int of FEDERAL ST E HANCOCK ST				RD INV 05 61110											Statewide Crash Rate: 384.19		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18800	18805	194398	0 - 0.03	0560531 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00000	0.00	-	0.00
Int of HAMPSHIRE ST NEWBURY ST				RD INV 05 60531											Statewide Crash Rate: 384.17	30403.77	
18800	18804	194397	0 - 0.08	0560531 - 0.03	0.08	2	4	0	0	0	0	4	0.0	0.00008	15800.03	1582.54	9.98
Int of HAMPSHIRE ST NEWBURY ST				RD INV 05 60531											Statewide Crash Rate: 384.19		
18803	18804	194402	0 - 0.08	0560531 - 0.11	0.08	2	1	0	0	0	0	1	0.0	0.00011	3119.00	1644.54	1.90
Int of HANCOCK ST NEWBURY ST				RD INV 05 60531											Statewide Crash Rate: 384.19		
18802	18803	194400	0 - 0.08	0560531 - 0.19	0.08	2	1	0	0	0	0	1	0.0	0.00006	5212.57	1423.30	3.66
Int of MOUNTFORT ST NEWBURY ST				RD INV 05 60531											Statewide Crash Rate: 384.19		
18518	18801	194025	0 - 0.06	0560505 - 0.27	0.06	2	2	0	0	0	1	1	50.0	0.00075	885.18	1225.13	0.00
Int of FRANKLIN ST MIDDLE ST				RD INV 05 60505											Statewide Crash Rate: 384.19		
18801	18817	194399	0 - 0.06	0560505 - 0.33	0.06	2	3	0	0	1	0	2	33.3	0.00017	5854.12	1638.94	3.57
0509221 POR,MIDDLE,HAMPSHIRE ST				RD INV 05 60505											Statewide Crash Rate: 384.19		
18817	18818	194423	0 - 0.08	0560505 - 0.39	0.08	2	0	0	0	0	0	0	0.0	0.00032	0.00	1495.09	0.00
Int of INDIA ST MIDDLE ST				RD INV 05 60505											Statewide Crash Rate: 384.19		
18820	18836	3131698	0 - 0.20	0560286 - 0.08	0.20	2	5	0	0	2	0	3	40.0	0.00336	495.47	433.67	1.14
Int of FORE ST, MOUNTFORT ST				RD INV 05 60286											Statewide Crash Rate: 159.43		
18820	18822	3106815	0 - 0.17	0560286 - 0.28	0.17	2	9	0	0	1	1	7	22.2	0.00323	929.24	438.31	2.12
Int of FORE ST, MOUNTFORT ST				RD INV 05 60286											Statewide Crash Rate: 159.43		
18517	18822	3106667	0 - 0.11	0560286 - 0.45	0.11	2	2	0	0	0	0	2	0.0	0.00155	429.61	528.74	0.00
Int of FORE ST FRANKLIN ST				RD INV 05 60286											Statewide Crash Rate: 159.43		
15397	18821	3106035	0 - 0.11	0561001 - 0	0.11	2	3	0	0	0	0	2	0.0	0.00260	385.13	545.43	0.00
Int of COMMERCIAL ST FRANKLIN ST MAINE STATE PIER				RD INV 05 61001											Statewide Crash Rate: 198.45		
15397	18517	3123025	0 - 0.08	0001A - 11.80	0.08	2	1	0	0	0	1	0	100.0	0.00076	439.06	739.30	0.00
Int of COMMERCIAL ST FRANKLIN ST MAINE STATE PIER				US 1A											Statewide Crash Rate: 198.45		
18517	18518	3118954	0 - 0.06	0001A - 11.88	0.06	2	0	0	0	0	0	0	0.0	0.00078	0.00	734.26	0.00
Int of FORE ST FRANKLIN ST				US 1A											Statewide Crash Rate: 198.45		
18518	63225	3121455	0 - 0.16	0001A - 11.94	0.16	2	0	0	0	0	0	0	0.0	0.00337	0.00	509.80	0.00
Int of FRANKLIN ST MIDDLE ST				US 1A											Statewide Crash Rate: 198.45		
63225	63224	2566764	0 - 0.09	0001A - 12.10	0.09	2	2	0	0	0	1	1	50.0	0.00319	208.87	517.08	0.00
Int of CONGRESS ST FRANKLIN ST				US 1A											Statewide Crash Rate: 198.45		
18519	18520	3106670	0 - 0.09	001AS - 1.82	0.09	2	3	0	0	0	0	3	0.0	0.00326	306.28	514.07	0.00
Int of CONGRESS ST, FRANKLIN ST				US 1AS											Statewide Crash Rate: 198.45		
18518	18519	3106668	0 - 0.16	001AS - 1.91	0.16	2	1	0	0	1	0	0	100.0	0.00358	93.20	502.19	0.00
Int of FRANKLIN ST MIDDLE ST				US 1AS											Statewide Crash Rate: 198.45		
18517	18518	3118912	0 - 0.06	001AS - 2.07	0.06	2	2	0	0	1	0	1	50.0	0.00078	853.42	734.71	1.16
Int of FORE ST FRANKLIN ST				US 1AS											Statewide Crash Rate: 198.45		
15397	18517	3100256	0 - 0.08	001AS - 2.13	0.08	2	1	0	0	0	0	1	0.0	0.00107	312.58	683.74	0.00
Int of COMMERCIAL ST FRANKLIN ST MAINE STATE PIER				US 1AS											Statewide Crash Rate: 198.45		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18819	19042	3106814	0 - 0.06	0561002 - 0	0.06	2	4	0	0	0	0	4	0.0	0.00174	764.28	604.53	1.26
Int of CONGRESS ST, MOUNTFORT ST, WASHINGTON AV				RD INV 05 61002											Statewide Crash Rate: 198.45		
18798	18819	194394	0 - 0.14	0560524 - 0	0.14	2	1	0	0	0	0	1	0.0	0.00073	455.85	1234.29	0.00
Int of FEDERAL ST E MOUNTFORT ST				RD INV 05 60524											Statewide Crash Rate: 384.19		
18798	18802	194393	0 - 0.03	0560524 - 0.14	0.03	2	0	0	0	0	0	0	0.0	0.00013	0.00	1658.64	0.00
Int of FEDERAL ST E MOUNTFORT ST				RD INV 05 60524											Statewide Crash Rate: 384.19		
18802	18820	194401	0 - 0.05	0560524 - 0.17	0.05	2	6	0	0	0	0	5	0.0	0.00019	10807.60	1626.49	6.64
Int of MOUNTFORT ST NEWBURY ST				RD INV 05 60524											Statewide Crash Rate: 384.19		
18912	18913	194575	0 - 0.05	0560510 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00005	0.00	1109.01	0.00
Int of CUMBERLAND AV, MONTGOMERY ST				RD INV 05 60510											Statewide Crash Rate: 384.19		
18914	18915	194579	0 - 0.06	0560666 - 0	0.06	2	1	0	0	0	1	0	100.0	0.00011	3074.89	1646.59	1.87
Int of CONGRESS ST SMITH ST				RD INV 05 60666											Statewide Crash Rate: 384.19		
18910	18911	194572	0 - 0.07	0560451 - 0	0.07	2	3	0	0	0	0	3	0.0	0.00009	10902.21	1610.95	6.77
Int of CUMBERLAND AV, LOCUST ST				RD INV 05 60451											Statewide Crash Rate: 384.19		
18795	18799	194386	0 - 0.06	0560342 - 0.10	0.06	2	0	0	0	0	0	0	0.0	0.00007	0.00	1482.15	0.00
Int of FEDERAL ST E HAMPSHIRE ST				RD INV 05 60342											Statewide Crash Rate: 384.19		
18795	18800	194387	0 - 0.05	0560342 - 0.05	0.05	2	1	0	0	0	0	1	0.0	0.00012	2805.66	1655.82	1.69
Int of FEDERAL ST E HAMPSHIRE ST				RD INV 05 60342											Statewide Crash Rate: 384.19		
18800	18801	194396	0 - 0.05	0560342 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00010	0.00	1630.72	0.00
Int of HAMPSHIRE ST NEWBURY ST				RD INV 05 60342											Statewide Crash Rate: 384.19		
18821	18822	3106816	0 - 0.06	0561000 - 0.23	0.06	2	0	0	0	0	0	0	0.0	0.00124	0.00	659.57	0.00
Int of COMMERCIAL ST INDIA ST				RD INV 05 61000											Statewide Crash Rate: 198.45		
18817	18822	3106813	0 - 0.05	0561000 - 0.18	0.05	2	1	0	0	0	0	1	0.0	0.00088	378.86	715.36	0.00
Int of INDIA ST MIDDLE ST				RD INV 05 61000											Statewide Crash Rate: 198.45		
18804	18817	3122291	0 - 0.05	0561000 - 0.13	0.05	2	3	0	0	1	0	1	50.0	0.00099	1008.74	695.75	1.45
Int of INDIA ST NEWBURY ST				RD INV 05 61000											Statewide Crash Rate: 198.45		
18796	18804	3130049	0 - 0.05	0561000 - 0.08	0.05	2	3	0	0	0	0	3	0.0	0.00112	889.95	675.15	1.32
Int of FEDERAL ST E INDIA ST				RD INV 05 61000											Statewide Crash Rate: 198.45		
18796	18823	3106811	0 - 0.08	0561000 - 0	0.08	2	2	0	0	0	0	2	0.0	0.00189	353.64	592.58	0.00
Int of FEDERAL ST E INDIA ST				RD INV 05 61000											Statewide Crash Rate: 198.45		
18803	18818	194403	0 - 0.05	0560344 - 0.04	0.05	2	0	0	0	0	0	0	0.0	0.00007	0.00	1518.66	0.00
Int of HANCOCK ST NEWBURY ST				RD INV 05 60344											Statewide Crash Rate: 384.19		
18797	18803	194392	0 - 0.04	0560344 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00006	0.00	1288.27	0.00
Int of FEDERAL ST E HANCOCK ST				RD INV 05 60344											Statewide Crash Rate: 384.19		
Study Years: 3.00				**Section Totals:**	3.68		102	0	0	8	11	78	18.6	0.05523	615.59	292.48	2.10
				Grand Totals:	3.68		252	0	2	19	43	183	25.4	0.05523	1520.87	412.47	3.69

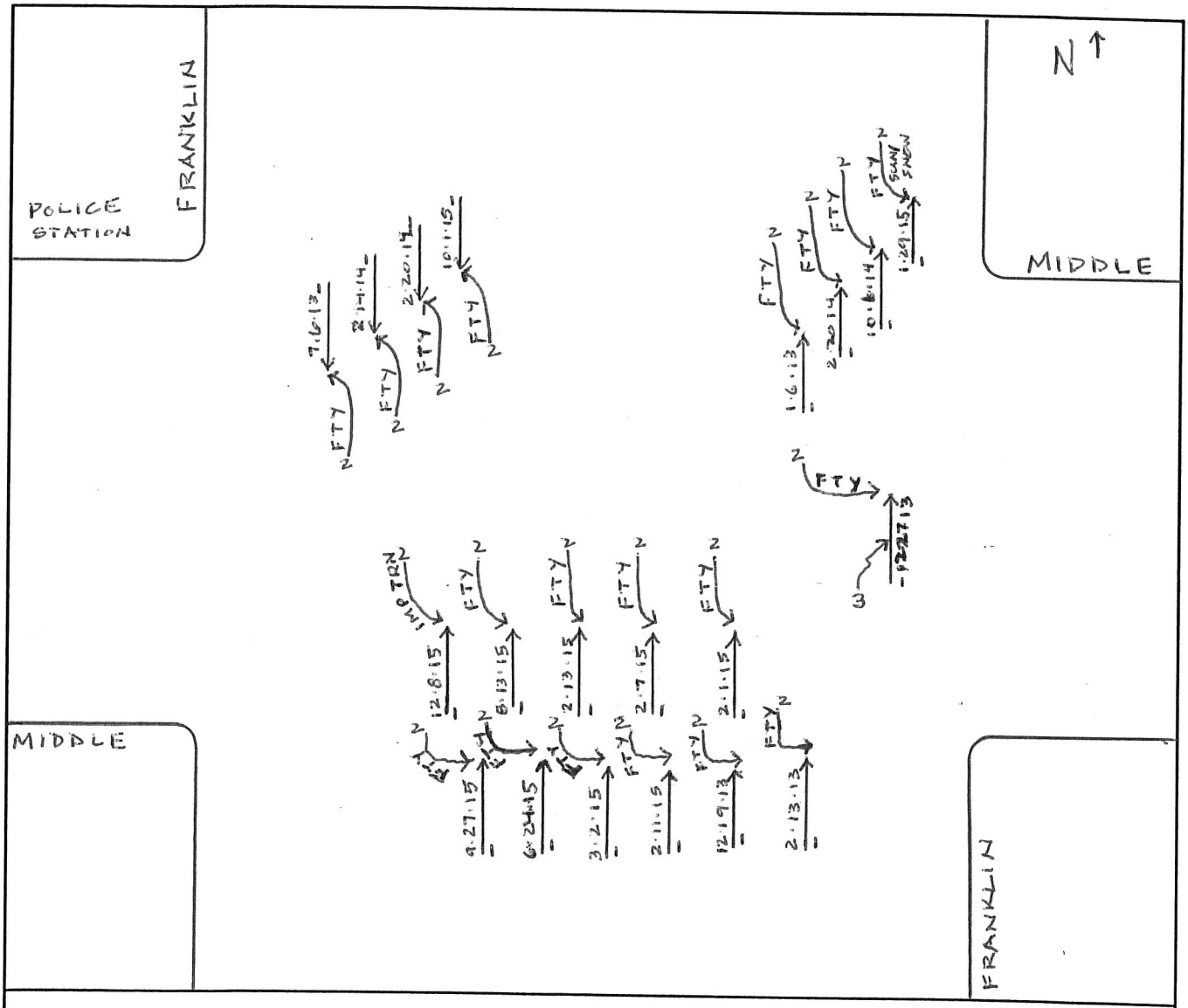
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION Intersection of Franklin & Middle Streets

TOWN Portland, Maine NODE NO(S) 18518

YEARS REVIEWED 2013 - 2015 DATE PREPARED 08.29.2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE-PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER-NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION-DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED-WINDSHIELD GLASS
19. VISION OBSCURED-SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

- VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
OR FACTOR 51. UNKNOWN

SYMBOLS

ANGLE	PEDESTRIAN	P	FATAL ACCIDENT
BACKING	REAR END		
FIXED OBJECT	SIDE SWIPE		VEHICLE (MOVING)
HEAD ON	TURNING MOVE		BICYCLE — B
OVERTURN	CHANGE LANE		ANIMAL — A
PARKED VEHICLE	OUT OF CONTROL		SLED — S

WEATHER
C = CLEAR F = FOG R = RAIN
SL = SLEET S = SNOW CL = CLOUDY
XW = CROSS WINDS

INJURIES
K = FATAL B = NON-INCAPACITATING
A = INCAPACITATING C = POSSIBLE INJURY

S:/SHEETS/COLLISION DIAGRAM.DWG

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION Intersection of Franklin & Middle Streets

TOWN Portland, ME NODE NO(S) 18518

YEARS REVIEWED 2013 - 2015 DATE PREPARED 08·29·2016

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
00076	01·06·13	08:55	-	-	-	1	1	2	2	
000535	02·13·13	06:41	-	-	-	-	1	2	2	
001912	07·06·13	13:08	-	-	-	-	1	1	2	
003722	12·19·13	19:47	-	-	-	-	4	2	2	
003801	12·27·13	08:55	-	-	-	-	2	3	2	
000570	02·14·14	07:56	-	-	-	1	2	3	2	
000702	02·20·14	12:46	-	-	-	-	2	2	2	
000703	02·20·14	12:50	-	-	-	-	2	2	2	
002950	10·06·14	18:10	-	-	-	-	2	1	2	
000362	01·29·15	07:48	-	-	-	1	2	3	2/19	
000442	02·01·15	16:15	-	-	-	1	2	3	2	
000617	02·07·15	14:49	-	-	-	-	2	2	2	
000724	02·11·15	13:04	-	-	-	-	2	2	2	
000769	02·13·15	08:22	-	-	-	-	2	2	2	
001020	03·02·15	14:59	-	-	-	-	2	1	2	
002165	06·24·15	09:30	-	-	-	1	2	1	2	
002716	08·13·15	08:15	-	-	-	-	2	1	2	
003242	09·27·15	10:32	-	-	1	-	2	1	2	
003298	10·01·15	08:45	-	-	-	-	2	1	2	
004095	12·08·15	10:31	-	-	-	-	2	1	10	

S:/SHEETS/COLLISION DIAGRAM.DWG

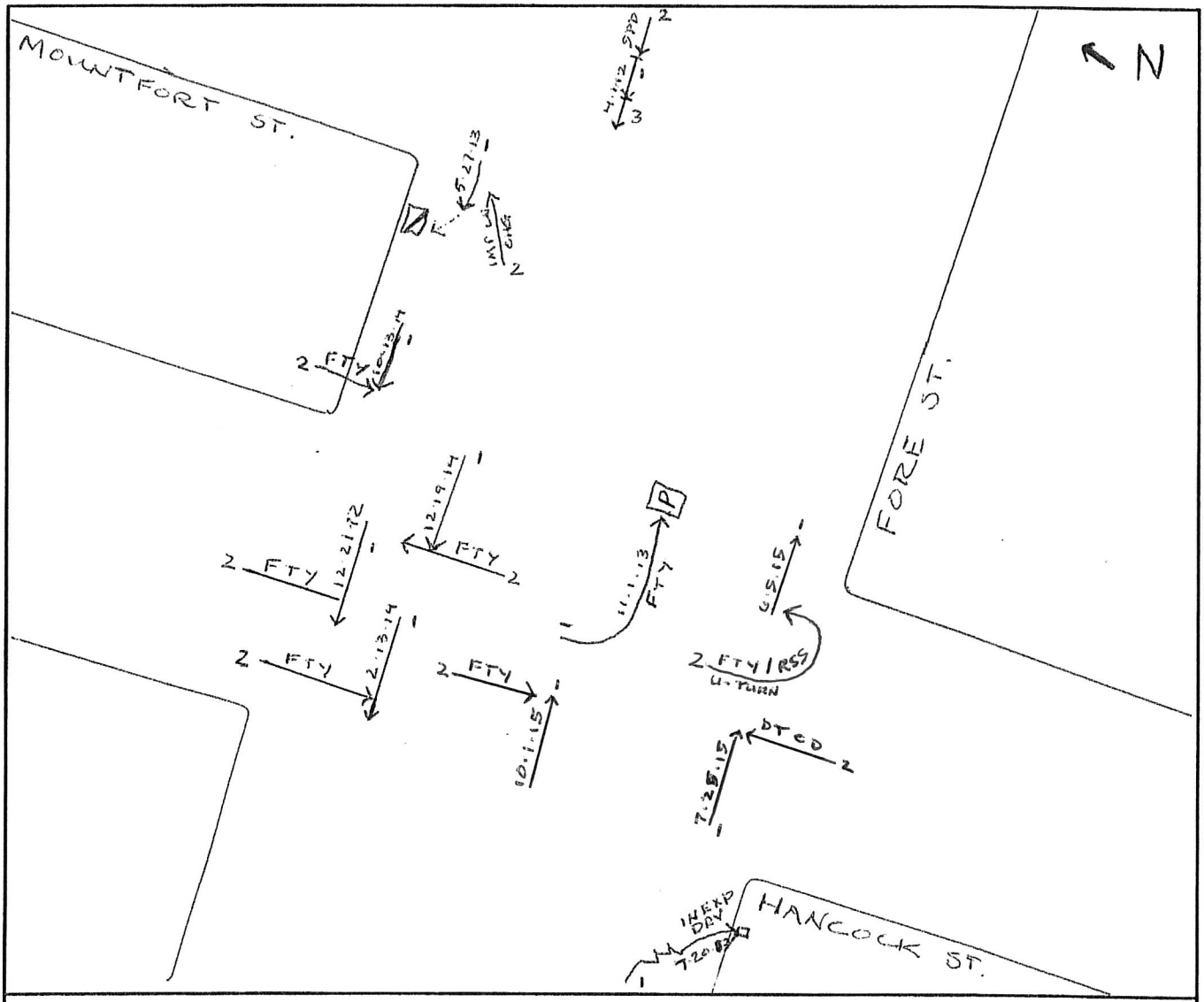
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION Intersection of Fore Street & Hancock Street

TOWN Portland, Maine NODE NO(S) 18820 to 18822

YEARS REVIEWED 2012 - 2015 DATE PREPARED 08.29.2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE-PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER-NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION-DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED-WINDSHIELD GLASS
19. VISION OBSCURED-SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

- VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION OR FACTOR 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
51. UNKNOWN

SYMBOLS
ANGLE, BACKING, FIXED OBJECT, HEAD ON, OVERTURN, PARKED VEHICLE
PEDESTRIAN, REAR END, SIDE SWIPE, TURNING MOVE, CHANGE LANE, OUT OF CONTROL
FATAL ACCIDENT, VEHICLE (MOVING), BICYCLE (B), ANIMAL (A), SLED (S)

WEATHER
C = CLEAR F = FOG R = RAIN
SL = SLEET S = SNOW CL = CLOUDY
XW = CROSS WINDS

INJURIES
K = FATAL B = NON-INCAPACITATING
A = INCAPACITATING C = POSSIBLE INJURY

S:\SHEETS\COLLISION DIAGRAM.DWG

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION Intersection of Fore Street & Hancock Street

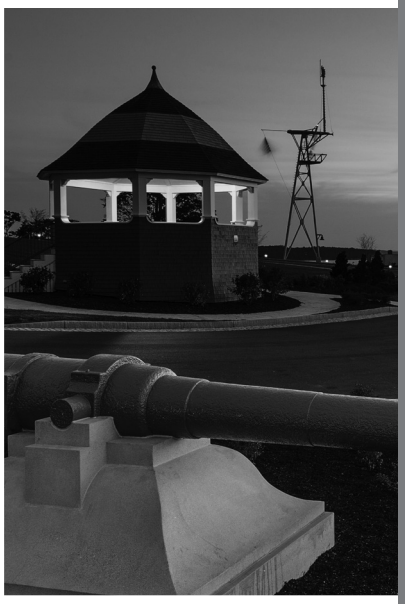
TOWN Portland NODE NO(S) 18820 to 18822

YEARS REVIEWED 2012 - 2015 DATE PREPARED 08.29.2016

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
00781	04.01.12	02:55	-	-	-	1	4	1	3	
003253	12.21.12	16:53	-	-	-	2	4	2	2	
001534	05.27.13	12:40	-	-	-	1	2	1	8	
002062	07.20.13	10:29	-	-	-	-	2	1	15	Student Driver
003090	11.01.13	15:30	-	1	-	-	2	1	2	
000550	02.18.14	10:03	-	-	-	-	2	2	2	
003007	10.13.14	10:09	-	-	-	-	2	1	2	
003756	12.19.14	15:09	-	-	-	-	2	1	2	
001962	06.05.15	10:35	-	-	-	-	2	1	2/5	U-Turn
002518	07.25.15	17:59	-	-	-	-	2	1	5	
003289	10.01.15	13:11	-	-	-	-	2	2	2	

S:/SHEETS/COLLISION DIAGRAM.DWG

Relationships.
Responsiveness.
Results.



Traffic Permit Application Request for Scoping Meeting 58 Fore Street Redevelopment Portland, Maine

PREPARED FOR:
CPB2
PO Box 7987
Portland, ME 04112

September 2016

SUBMITTED BY:
Gorrill Palmer
707 Sable Oaks Drive
Suite 30
So. Portland, ME 04106
207.772.2515

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

September 16, 2016

Ms. Christine Grimando
City of Portland Planning Division
389 Congress Street, 4th Floor
Portland, Maine 04101

RE: Application for Traffic Movement Permit
58 Fore Street Redevelopment
Portland, Maine

Dear Ms. Grimando,

Gorrill Palmer (GP) has been retained by CPB2 LLC to prepare this Traffic Movement Permit Application for the proposed 58 Fore Street redevelopment project located at the site of the Portland Company in Portland, Maine.

We have attached the following information in support of this application:

- Sections 1-6
- Signed application form
- Notice of intent to file
- List of abutters (under separate cover)
- $1,500 application fee (under separate cover)

Section 7 (Traffic Impact Study) of the application is also being submitted under separate cover. Please contact our office with any questions regarding this application.

Sincerely,

Gorrill Palmer

Randy Dunton, PE, PTOE
Project Manager

Copy: Jim Brady, CPB2 Management LLC
David Senus, Woodard & Curran
Timothy Soucie, MaineDOT Region 1 Traffic Engineer

Department of Transportation
Traffic Engineering Division
16 State House Station
Augusta, Maine 04333
Telephone: 207-287-3775

FOR MDOT USE 12/99
ID#_____

Total Fees:_____
Date Received: _____

****

PERMIT APPLICATION – TRAFFIC
TRAFFIC MOVEMENT PERMIT, 23 M.R.S.A. §704-A

Please type or print:

This application is for (check all that apply): Traffic 100-200 PCE's ☐
Traffic 200 + PCE's ☒

Name of Applicant: **CPB2 LLC Attn: Mr. James Brady**

Address: PO Box 7987 Portland, ME 04112 Telephone: (207) 558-3704

Name of local contact or agent: **Randy Dunton – Gorrill Palmer**

Address: **707 Sable Oaks Drive, Suite 30, South Portland, ME 04106**

Telephone: **(207) 772-2515**

Name and type of development: 58 Fore Street mixed use development. Total of approximately 960,000 sf of building area consisting of office space, hotel, residential units, retail, restaurant space, and a marina.

Location of development including road, street, or nearest route number: **The site is located at 58 Fore Street at the Portland Company site on the Portland Waterfront.**

City/~~Town/Plantation~~: **Portland** County: **Cumberland** Tax Maps: **018** Lots: **A001, A003**

Do you want a consolidated review with DEP pursuant to 23 M.R.S.A. § 704-A (7)? **No**

Was this development started prior to obtaining a traffic permit? **No**

Is the project located in an area designated as a growth area (as defined in M.R.S.A. title 30-A, chapter 187)?
Yes X No _____

Is this project located within a compact area of an urban compact municipality? Yes X No _____

Is this development or any portion of the site currently subject to state or municipal enforcement action?

None Known

Existing DEP or MDOT permit number (if applicable): Delegated review is to the City

Name(s) DOT staff person(s) contacted concerning this application **None**

Name(s) of DOT staff person(s) present at the scoping meeting for 200+ applicants:

N/A

Department of Transportation
Traffic Engineering Division
16 State House Station
Augusta, Maine 04333
Telephone: 207-287-3775

FOR MDOT USE 12/99
ID#_____

Total Fees:_____
Date Received: _____

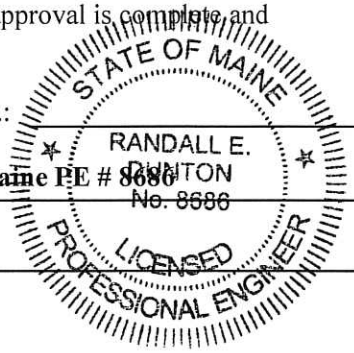
CERTIFICATION

This person responsible for preparing this application and/or attaching pertinent site and traffic information hereto, by signing below, certifies that the applicant for traffic approval is complete and accurate to the best of his/her knowledge.

Signature: _____ Re/Cert/Lic No.: _____

Name (print): **Randall E. Dunton** Engineer: **Maine PE # 8686**

Date: 9/12/16 Other: _____



If the signature below is not the applicant's signature, attach letter of agent authorization signed by applicant.

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

_____ 9/9/16

Signature of applicant Date

Form C 7/97

NOTICE OF INTENT TO FILE

Please take notice that:

CPB2 LLC (Attn: Mr. James Brady)
PO Box 7987
Portland, ME 04112

is intending to file a MaineDOT Traffic Permit application with the City of Portland (Delegated Review Authority) pursuant to the provisions of 23 M.R.S.A. §704 – A on or about September 16, 2016.

This application is for:

The development of the 58 Fore Street in Portland, Maine. The proposed development is to include 123,917 sf of office space, 50,273 sf of retail, 3,800 sf of restaurant, 638 residential units, a 132 room hotel, and a 2,600 marina with 220 slips. The project is forecast to generate 424 and 474 AM and PM weekday peak hour trip ends respectively. The project is expected to open in 2027.

At the following location:

The site is located at 58 Fore Street, at the site of the historic Portland Company.

A request for a public hearing must be received by the City, in writing no later than 20 days after the application is found by the department to be complete and is accepted for processing. Public comment on the application will be accepted throughout the processing of the application.

The application will be filed for public inspection at the Department of Transportation's office in Scarborough (Region 1) during normal working hours. A copy of the application may also be seen at the municipal offices in Portland, Maine.

Written public comments may be sent to the following address: Attention Christine Grimando, Planning Division, 389 Congress Street, Portland, Maine 04101.

Randy Dunton

Randall Dunton, P.E., PTOE
Gorrill-Palmer Consulting Engineers, Inc.

Section 1
Site and Traffic Information

1.A. Site Description and Site Plan

The site is located at 58 Fore Street, at the site of the historic Portland Company along Portland's Eastern Waterfront. The site is identified on City Tax Map 18, Lots A001 and A003. A proposed site plan is included in Attachment 1A.

1.B. Existing and Proposed Site Uses

The existing site has several buildings that were part of the Portland Company site. The proposed mixed-use project consists of a total of 958,679 sf of building area divided into seven Development Blocks (B1-B7) with varying uses. The following table summarizes the proposed site uses by Development Block:

Proposed Site Summary

Development Block	Use	Size
B1		
	Retail	7,878 SF
	Residential	91 Dwelling Units
	Office	79,000 SF
B2		
	Retail	26,895 SF
	Residential	19 Dwelling Units
	Office	25,617 SF
B3		
	Retail	11,500 SF
	Office	19,300 SF
B4		
	Residential	275 Dwelling Units
	Retail	4,000 SF
B5		
	Residential	108 Dwelling Units
	Hotel	132 Rooms
	Restaurant	3,800 SF
	Function Space	5,800 SF
B6		
	Residential (Condos)	131 Dwelling Units
	Residential (Apartments)	14 Dwelling Units
B7		
	Marina Facilities	2,600 SF, 220 Slips

The new marina facilities on B7 are proposed to be three times the size of the existing marina. It will be a new, modern facility with 220 slips proposed; 140 for seasonal boaters and 80 for transient vessels. The facility will service residents of Portland (including Islanders commuting to work on the Portland Peninsula), residents of the 58 Fore Street site, and transient boaters.

Vehicular access to the site will be via Thames Street Extension into the site, a full movement driveway onto Fore Street across from Waterville Street, primarily for residential units, and a new public road connecting Fore Street to Thames Street Extension. On-site parking will be provided with a below grade parking garage and on-street parking through the site.

1.C. Site Vicinity and Boundaries

The site is bordered by Fore Street, the Portland Waterfront, a small residential area to the northeast, and a commercial area to the southwest. A site location map showing the development area is included in Attachment 1B.

1.D. Proposed Uses in the Vicinity of the Proposed Development

Approved projects that are not yet opened as well as projects for which applications have been filed are required to be included in the predevelopment volumes for this project. Based on conversations with City Staff, traffic from the following developments should be included in the background traffic:

- A – 158 Fore Street: 180 room hotel
- B – 1 India Street: office and bank
- C – 185 Fore Street: 4,085 sf of office or retail and 8 residential units
- D – 16 Middle Street: 5,305 sf of retail and 39,526 of office
- E – 113 Newbury Street: 39 condominium units
- F – 48 Hancock Street: 2 residential units
- G – 49 Hancock Street: 2 residential units
- H – 62 India Street: 5,409 sf of retail and 29 condominium units
- I – 169 Newbury Street: 24 condominium units
- J – 273 Congress Street: 2,290 sf of retail and 10 condominium units
- K – 31 Fore Street: 4 condominium units

The locations, sizes, and uses of these developments are shown on the attached Other Development Figure (Attachment 1C).

I.E. Trip Generation

The trip generation for the site was calculated separately for Development Blocks 1-6 (B1-B6) and for Development Block 7 (B7), then combined to yield the total site trip generation. This is due to the unique nature of the marina on B7. The following is a summary of the methods, assumptions, and results of the trip generation calculations for the site.

Development Blocks 1-6

The Institute of Transportation Engineers' publication, *Trip Generation*, Seventh Edition, was used to forecast the traffic to be generated by B1-B6. The Ninth Edition is available, but has not yet been accepted by the MaineDOT. The following table summarizes the trip generation for B1-B6.

Development Blocks 1-6 ITE Trip Generation Summary

Development Block	LUC	Size	AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
B1								
	814 – Specialty Retail	7,878 SF	4	2	6	9	12	21
	220 – Apartment	91 Units	9	37	46	36	20	56
	710 – General Office	79,000 SF	140	15	155	22	127	149
B2								
	814 – Specialty Retail	26,895 SF	12	8	20	33	40	73
	220 – Apartment	19 Units	2	8	10	8	4	12
	710 – General Office	25,617 SF	57	6	63	9	52	61
B3								
	814 – Specialty Retail	11,500 SF	5	4	9	14	17	31
	710 – General Office	19,300 SF	45	5	50	7	41	48
B4								
	220 – Apartment	275 Units	28	112	140	111	60	171
	814 – Specialty Retail	4,000 SF	2	1	3	5	6	11
B5								
	230 – Residential Condominium / Townhouse	108 Units	7	41	48	36	20	56
	310 – Hotel	132 Rooms	44	30	74	43	35	78
	932 – High Turnover Sit-Down Restaurant	3,800 SF	22	22	44	25	16	41
	Function Space*	5,800 SF	0	0	0	0	0	0
B6								
	230 – Residential Condominium / Townhouse	131 Units	9	49	58	44	24	68
	220 - Apartment	14 Units	1	6	7	6	3	9
Total Development Blocks 1-6			**387**	**346**	**387**	**346**	**733**	**408**

*It was assumed that the function space would be ancillary to the other uses in the Development Block and would not generate additional traffic.

Due to the variety of uses and the site's location within a downtown area, two reductions can be applied to refine the trip generation for B1-B6. These reductions are summarized as follows:

Shared Use Adjustment

Due to the close proximity of the mixed uses and the sharing of people between uses, simply adding the trip generation of each use as if they were isolated would result in an overestimate of trip generation. To estimate the traffic that will visit more than one destination without leaving the site, GP utilized the National Cooperative Highway Research Program (NCHRP) 684 Internal Trip Capture Estimation Tool. The NCHRP 684 spreadsheet uses the ITE forecast trip generation for each type of land use (office, retail, restaurant, residential, hotel, and other) and estimates the trips that will travel between two uses without leaving the site. This yields an internal trip capture percentage, which is the percentage of trip ends that will travel between two uses. The following tables summarize the AM and PM peak hour internal trip capture percentages respectively.

AM Peak Hour NCHRP 684 Internal Trip Capture

Land Use	ITE Trip Generation		Internal Capture %		Internal Capture Trip Ends		
	Enter	Exit	Enter	Exit	Enter	Exit	Total
Office	242	26	10%	46%	23	12	35
Retail	23	15	57%	47%	13	7	20
Restaurant	22	22	55%	50%	12	11	23
Residential	56	253	4%	5%	2	12	14
Hotel	44	30	2%	30%	1	9	10
Total	387	346	13%	15%	51	51	102

*These values are taken directly from the NCHRP spreadsheets (Attachment 1D), which may not match exact calculations due to rounding in the spreadsheet.

PM Peak Hour NCHRP 684 Internal Trip Capture

Land Use	ITE Trip Generation		Internal Capture %		Internal Capture Trip Ends		
	Enter	Exit	Enter	Exit	Enter	Exit	Total
Office	38	220	18%	5%	7	10	17
Retail	61	75	31%	44%	19	33	52
Restaurant	25	16	52%	69%	13	11	24
Residential	241	131	11%	15%	27	19	46
Hotel	43	35	21%	6%	9	2	11
Total	408	477	18%	16%	75	75	150

*These values are taken directly from the NCHRP spreadsheets (Attachment 1D), which may not match exact calculations due to rounding in the spreadsheet.

As shown in the tables, the NCHRP 684 Internal Trip Capture Estimation Tool results in a reduction of 102 trip ends during the AM peak hour and 150 trip ends during the PM peak hour.

Other Modes of Transportation Reduction

It can be expected for a site in a downtown area that other modes of transportation will be used to go to and from the site. These other modes could include things such as transit, bicycle, or walking. This site is adjacent to an existing bus route, as well as located on a pedestrian and bicycle path. The other modes reduction for B1-B6 is based on information from the 2009-2013 American Community Survey (ACS) Five-Year Estimate by Census Tract for the City of Portland. Rick Harbison, Planner and GIS Specialist for the Greater Portland Council of Governments, used this data to create maps (Attachment 1D) that show the estimated percentage of workers living in each Portland Census Tract that use each mode of transportation to travel to work. The site is located on the east side of Census Tract 3, which is a predominantly commercial area. Census Tracts 2 and 5 border the site and consist of primarily residential areas. Since the site is proposed to have a significant number of residential units as well as commercial space, the data from the combination of the three tracts is expected to be more representative of the actual conditions on the site than the data from the individual tracts. The reduction was calculated by dividing the estimated number of people walking, bicycling, and taking the bus to work in the three Census Tracts by the estimated total number of working people in the same three Census Tracts. This calculation yields a reduction of 35.8%, which appears reasonable for this area. The detailed calculation is described in the "Site Parking Demand" memo included in Attachment 1D.

The Census data is based on residents of the Census Tracts commuting to work, so it is applicable to the residential units, office space, and retail uses on the site, but not necessarily the proposed restaurant and hotel. The restaurants and hotel were further researched to find studies that included information on other modes of transportation for restaurants and hotels. The studies found indicated that 40%-65% of restaurant customers may be using alternative modes of transportation. Since the studies were not specific to Portland, Maine, the local data is expected to be closer to actual conditions that would be seen at the 58 Fore Street development, so the 35.8% reduction was applied to the restaurants. There was limited data available for hotels, so a conservative reduction of 10% was used for the hotel. The studies are discussed in more detail in the "Site Parking Demand" memo in Attachment 1D. The following table summarizes the other modes of transportation reduction for the site trip generation:

Other Modes of Transportation Reduction Summary

Trip Generation	AM Peak Hour			PM Peak Hour		
	Entering	Exiting	Total	Entering	Exiting	Total
B1-B6 Trip Generation	387	346	733	408	477	885
Hotel Trip Generation	44	30	74	43	35	78
B1-B6 Trip Generation w/o Hotel	343	316	659	365	442	807
Other Modes Reduction (35.8% of B1-B6 Trip Generation w/o Hotel)	123	113	236	131	158	289
Hotel Other Modes Reduction (10% of Hotel Trip Generation)	4	3	7	4	4	8
Total Other Modes Reduction	**127**	**116**	**243**	**135**	**162**	**297**

Development Block 7 (Marina)

Although the ITE does have a Marina category, the number of studies (2) is limited. Therefore, the trip generation for B7 was not determined using the ITE trip generation rates. Since a marina is such a unique facility, the trip generation was forecast based on the characteristics of this specific 220 slip marina. Applied Technology & Management (ATM), experts in marine and coastal engineering, provided the following information and assumptions:

- Peak weekday usage of the marina is approximately 10% of the slips, but possibly more since Maine's peak boating season is shorter than other areas
- Approximately 36% of daily users are transient boaters (80 transient boater slips out of 220 total slips)
- 10% of daily users who are not transient boaters are on-site residents
- 90% of daily users who are not transient boaters are off-site Portland residents
- 30% of off-site Portland residents are Islanders commuting to and from the Peninsula
- 9 marina employees
- 4 mega-yacht slips

Based on the information from ATM, the following assumptions were made:

- Peak weekday usage will be 15% of the slips (33 slips) to be conservative
- Transient boaters will not have a car on site since they arrive and depart using their boat, so they will not generate trip ends
- On-site residents will not enter or exit the site to visit the marina, so they will not generate any trip ends
- Each slip used by an off-site Portland resident who is not an islander will generate one trip end in during the AM peak hour and one trip end out during the PM peak hour
- Each slip used by an Islander commuting to work will generate one trip end out during the AM peak hour and one trip end in during the PM peak hour
- Each employee will generate one trip end in during the AM peak hour and one trip end out during the PM peak hour
- Each mega-yacht slip would be visited by a provisioning vehicle during both peak hour and the provisioning vehicles would enter and exit the site during the peak hour

Based on these assumptions, the forecast weekday peak hour trip generation for the marina is as follows:

- AM Peak Hour: 36 trip ends (26 in / 10 out)
- PM Peak Hour: 36 trip ends (10 in / 26 out)

The detailed trip generation calculations are in Attachment 1D.

Two reductions were applied to the trip generation for B1-B6, however those reductions were not applied to the marina trip generation. Although it is possible for marina visitors to eat at the restaurant or visit the shops on the site, to be conservative it was assumed that the marina would be a primary destination and would have very few shared trips. Additionally, there is a possibility that marina users would use alternative modes of transportation to get to or from the site, but it is more conservative to assume that most visitors would use cars and not another mode of transportation.

Total Site Trip Generation

The following table summarizes the adjusted site trip generation starting with the ITE trip generation and subtracting the shared use reduction as well as the other modes of transportation reduction and lastly adding the marina trip generation:

Adjusted Trip Generation Summary

Trip Generation	AM Peak Hour			PM Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
B1-B6 ITE Subtotal	387	346	733	408	477	885
Shared Use Adjustment	-51	-51	-102	-75	-75	-150
Other Modes Adjustment	-127	-116	-243	-135	-162	-297
B1-B6 Total	**209**	**179**	**388**	**198**	**240**	**438**
B7 Trip Generation	26	10	36	10	26	36
Site Total	**235**	**189**	**424**	**208**	**266**	**474**

As shown in the table, the proposed development is forecast to generate 424 trip ends during the AM weekday peak hour and 474 trip ends during the PM weekday peak hour. To be conservative, this trip generation does not include any credit for existing on-site uses. This level of trip generation does require a MaineDOT Traffic Movement Permit because it is over 99 trip ends during the peak hour. The Traffic Movement Permit Application can be reviewed and issued by the City since they have delegated review authority.

A trip end is defined as a trip into or out of the site; thus a round trip is equal to two trip ends. Since the forecast traffic exceeds 99 trip ends during a peak hour, a Traffic Movement Permit is required. The Traffic Movement Permit Application can be reviewed and issued by the City since they have delegated review authority. A copy of the trip generation calculations are included in Attachment 1D.

1.F. Trip Distribution

Based on ITE's *Trip Generation*, the NCHRP 684 Internal Capture, the other modes reduction, and the marina information the following trip distribution is anticipated:

- AM Peak Hour Adjacent Street: 235 in / 189 out
- PM Peak Hour Adjacent Street: 208 in / 266 out

1.G. Trip Composition and Assignment

GP has assumed that all trips are primary in nature and made for the sole purpose of going to and from the site. The trip assignment has been based on the proposed driveway locations, the site uses, and the traffic counts completed at the study area intersections. The trip assignment has been separated into Residential and Non-Residential trip distributions. The trip assignments are categorized into Residential, Non-Residential, and Marina. The residential trip assignment assumes that the residents of the site know the neighborhood better than the non-residential site visitors, which would lead residents to use side streets more frequently, while the non-residents would use more major roads

and posted routes. The marina trip assignment is assumed to follow the non-residential trip distribution. The trip distribution and assignment is shown on the attached Figures 6-11 in Attachment 1B.

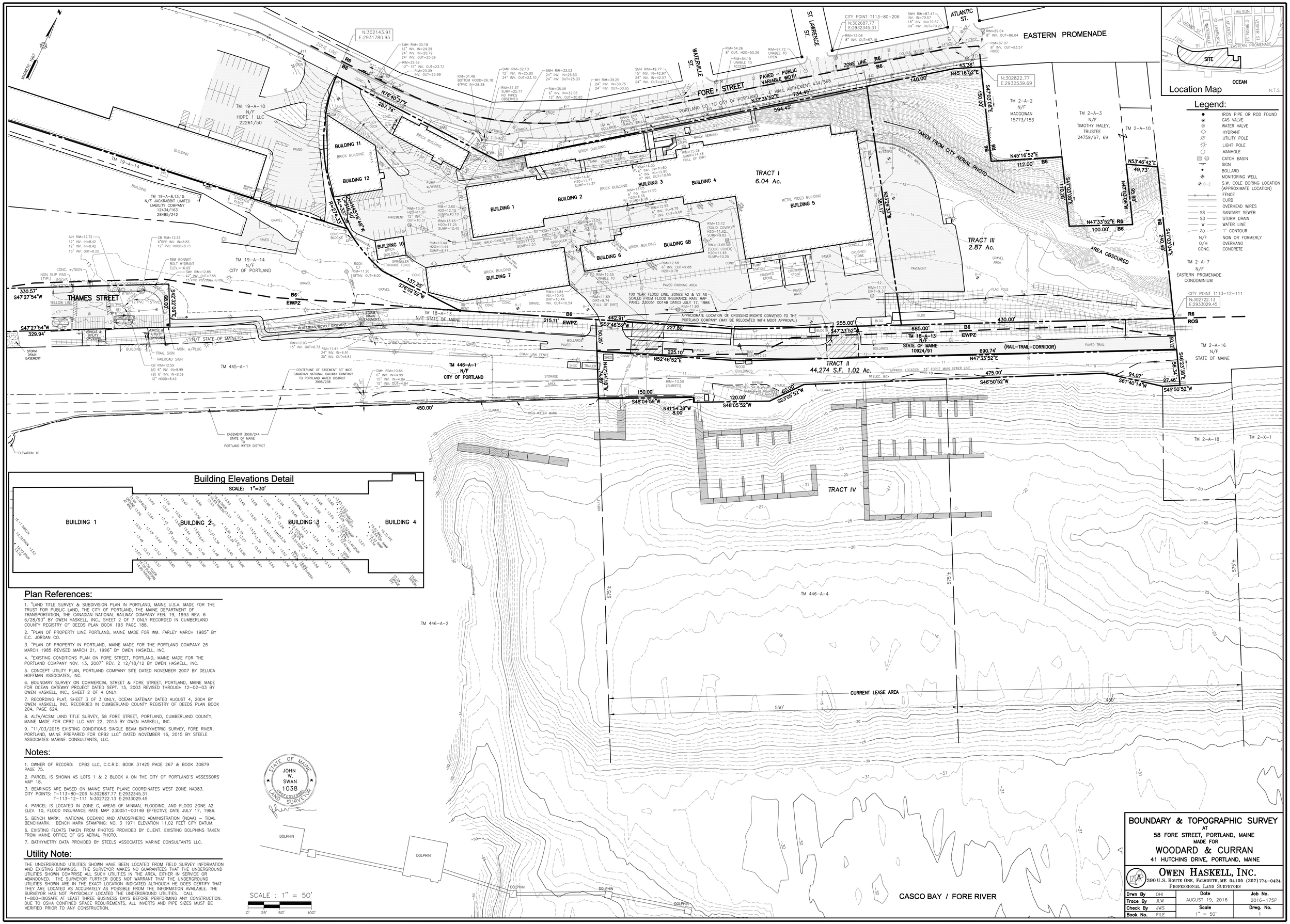
1.H. Attachments

Attachment 1A – Site Survey, Proposed Site Plan
Attachment 1B – Site Location Map, Trip Assignment Diagrams
Attachment 1C – Other Development Map
Attachment 1D – ITE Trip Generation Calculations, NCHRP 684 Spreadsheets, Commute Data Maps, *Site Parking Demand* Memo, Marina Trip Generation Calculations

Attachment 1A

Site Survey

Proposed Site Plan



Building Elevations Detail

SCALE: 1"=30'

Plan References:

1. "LAND TITLE SURVEY & SUBDIVISION PLAN IN PORTLAND, MAINE U.S.A. MADE FOR THE TRUST FOR PUBLIC LAND, THE CITY OF PORTLAND, THE MAINE DEPARTMENT OF TRANSPORTATION, THE CANADIAN NATIONAL RAILWAY COMPANY FEB. 19, 1993 REV. 6 6/28/93" BY OWEN HASKELL, INC., SHEET 2 OF 7 ONLY RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS PLAN BOOK 193 PAGE 188.
2. "PLAN OF PROPERTY LINE PORTLAND, MAINE MADE FOR WM. FARLEY MARCH 1985" BY E.C. JORDAN CO.
3. "PLAN OF PROPERTY IN PORTLAND, MAINE MADE FOR THE PORTLAND COMPANY 26 MARCH 1985 REVISED MARCH 21, 1996" BY OWEN HASKELL, INC.
4. "EXISTING CONDITIONS PLAN ON FORE STREET, PORTLAND, MAINE MADE FOR THE PORTLAND COMPANY NOV. 13, 2007" REV. 2 12/18/12 BY OWEN HASKELL, INC.
5. CONCEPT UTILITY PLAN, PORTLAND COMPANY SITE DATED NOVEMBER 2007 BY DELUCA HOFFMAN ASSOCIATES, INC.
6. BOUNDARY SURVEY ON COMMERCIAL STREET & FORE STREET, PORTLAND, MAINE MADE FOR OCEAN GATEWAY PROJECT DATED SEPT. 15, 2003 REVISED THROUGH 12-02-03 BY OWEN HASKELL, INC., SHEET 2 OF 4 ONLY.
7. RECORDING PLAT, SHEET 3 OF 3 ONLY, OCEAN GATEWAY DATED AUGUST 4, 2004 BY OWEN HASKELL, INC. RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS PLAN BOOK 204, PAGE 624.
8. ALTA/ACSM LAND TITLE SURVEY, 58 FORE STREET, PORTLAND, CUMBERLAND COUNTY, MAINE MADE FOR CPB2 LLC MAY 22, 2013 BY OWEN HASKELL, INC.
9. "11/03/2015 EXISTING CONDITIONS SINGLE BEAM BATHYMETRIC SURVEY, FORE RIVER, PORTLAND, MAINE PREPARED FOR CPB2 LLC" DATED NOVEMBER 16, 2015 BY STEELE ASSOCIATES MARINE CONSULTANTS, LLC.

Notes:

1. OWNER OF RECORD: CPB2 LLC, C.C.R.D. BOOK 31425 PAGE 267 & BOOK 30879 PAGE 75.
2. PARCEL IS SHOWN AS LOTS 1 & 2 BLOCK A ON THE CITY OF PORTLAND'S ASSESSORS MAP 18.
3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83. CITY POINTS: T-113-80-206 N:302687.77 E:2932345.31
   T-113-12-111 N:302722.13 E:2933029.45
4. PARCEL IS LOCATED IN ZONE C, AREAS OF MINIMAL FLOODING, AND FLOOD ZONE A2 ELEV. 10, FLOOD INSURANCE RATE MAP 230051-0014B EFFECTIVE DATE JULY 17, 1986.
5. BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) – TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET CITY DATUM.
6. EXISTING FLOATS TAKEN FROM PHOTOS PROVIDED BY CLIENT. EXISTING DOLPHINS TAKEN FROM MAINE OFFICE OF GIS AERIAL PHOTO.
7. BATHYMETRY DATA PROVIDED BY STEELS ASSOCIATES MARINE CONSULTANTS LLC.

Utility Note:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-800-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

STATE OF MAINE
JOHN W. SWAN
1038
PROFESSIONAL LAND SURVEYOR

BOUNDARY & TOPOGRAPHIC SURVEY

AT

58 FORE STREET, PORTLAND, MAINE

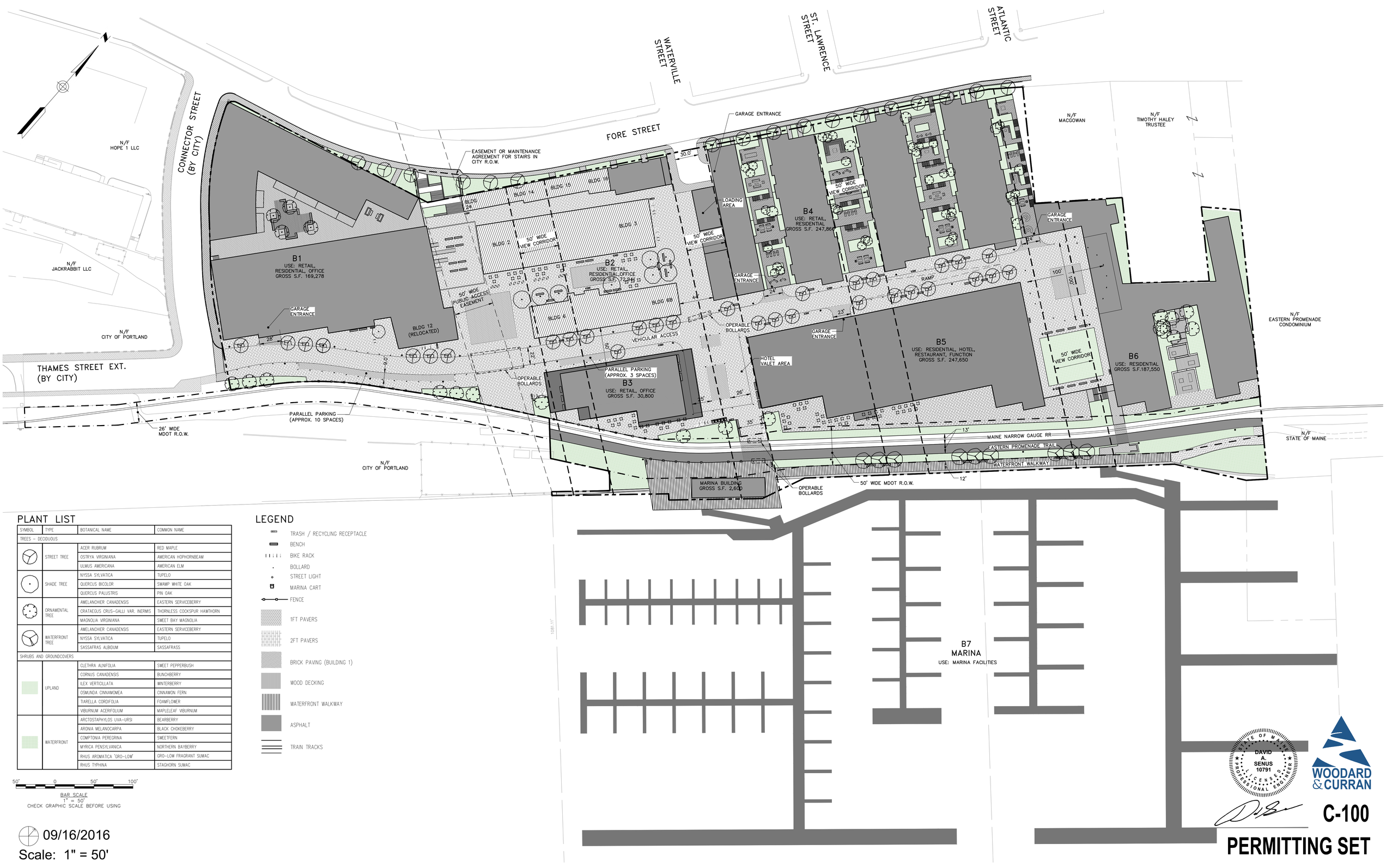
MADE FOR

WOODARD & CURRAN

41 HUTCHINS DRIVE, PORTLAND, MAINE

OWEN HASKELL, INC.
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207) 774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	OHI	Date	Job No.
Trace By	JLW	AUGUST 19, 2016	2016-175P
Check By	JWS	Scale	Drwg. No.
Book No.	FILE	1" = 50'	1



PLANT LIST

SYMBOL	TYPE	BOTANICAL NAME	COMMON NAME
TREES – DECIDUOUS			
	STREET TREE	ACER RUBRUM	RED MAPLE
		OSTRYA VIRGINIANA	AMERICAN HOPHORNBEAM
		ULMUS AMERICANA	AMERICAN ELM
	SHADE TREE	NYSSA SYLVATICA	TUPELO
		QUERCUS BICOLOR	SWAMP WHITE OAK
		QUERCUS PALUSTRIS	PIN OAK
	ORNAMENTAL TREE	AMELANCHIER CANADENSIS	EASTERN SERVICEBERRY
		CRATAEGUS CRUS–GALLI VAR. INERMIS	THORNLESS COCKSPUR HAWTHORN
		MAGNOLIA VIRGINIANA	SWEET BAY MAGNOLIA
	WATERFRONT TREE	AMELANCHIER CANADENSIS	EASTERN SERVICEBERRY
		NYSSA SYLVATICA	TUPELO
		SASSAFRAS ALBIDUM	SASSAFRASS
SHRUBS AND GROUNDCOVERS			
	UPLAND	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH
		CORNUS CANADENSIS	BUNCHBERRY
		ILEX VERTICILLATA	WINTERBERRY
		OSMUNDA CINNAMOMEA	CINNAMON FERN
		TIARELLA CORDIFOLIA	FOAMFLOWER
		VIBURNUM ACERIFOLIUM	MAPLELEAF VIBURNUM
	WATERFRONT	ARCTOSTAPHYLOS UVA–URSI	BEARBERRY
		ARONIA MELANOCARPA	BLACK CHOKEBERRY
		COMPTONIA PEREGRINA	SWEETFERN
		MYRICA PENSYLVANICA	NORTHERN BAYBERRY
		RHUS AROMATICA 'GRO–LOW'	GRO–LOW FRAGRANT SUMAC
		RHUS TYPHINA	STAGHORN SUMAC

LEGEND

- TRASH / RECYCLING RECEPTACLE
- BENCH
- BIKE RACK
- BOLLARD
- STREET LIGHT
- MARINA CART
- FENCE
- 1FT PAVERS
- 2FT PAVERS
- BRICK PAVING (BUILDING 1)
- WOOD DECKING
- WATERFRONT WALKWAY
- ASPHALT
- TRAIN TRACKS

50' 0 50' 100'

BAR SCALE
1" = 50'
CHECK GRAPHIC SCALE BEFORE USING

09/16/2016
Scale: 1" = 50'

STATE OF MAINE
DAVID A. SENUS 10791
LICENSED PROFESSIONAL ENGINEER

WOODARD & CURRAN

C-100

PERMITTING SET

CPB2 LLC
EASTERN WATERFRONT DEVELOPMENT PORTLAND, MAINE

OVERALL SITE MASTER PLAN
58 FORE STREET MASTER PLAN

SCOTT SIMONS ARCHITECTS | MICHAEL BOUCHER LANDSCAPE ARCHITECTURE | WOODARD & CURRAN | THORNTON TOMASETTI | THE BOULOS COMPANY | MASON ARCHITECTS | APPLIED TECHNOLOGY MANAGEMENT | PERKINS+WILL

Attachment 1C

Other Development Map

Other Development

A: 180 Room Hotel
B: Office and Bank
C: 4,085 sf Office/Retail, 8 Residential Units
D: 5,305 sf Retail, 39,526 sf Office
E: 39 Condominium Units
F: 2 Residential Units
G: 2 Residential Units
H: 5,409 sf Retail, 29 Condominium Units
I: 24 Condominium Units
J: 2,290 sf Retail, 10 Residential Units
K: 4 Condominium Units

PORTLAND COMPANY
PORTLAND, MAINE

Design:	EAT	Scale:	NONE
Draft:	LAN	Date:	JULY 2016
Checked:	RED	File Name:	3138-Aerial.dwg

GORRILL PALMER
Relationships. Responsiveness. Results.
www.gorrillpalmer.com
207.772.2515

Attachment 1D

Trip Generation Calculations
NCHRP 684 Spreadsheets
Commute Data Maps
Site Parking Demand Memo
Marina Trip Generation Calculations

58 Fore Street Trip Generation Summary
Portland, Maine
September 2, 2016

Development Block	Use	Land Use Code	Size	Units		AM Trip Generation	% In AM	% Out AM	AM Trips In	AM Trips Out	PM Trip Generation	% In PM	% Out PM	PM Trips In	PM Trips Out
B1															
	Retail	814 - Specialty Retail	7,878	SF		6	60%	40%	4	2	21	45%	55%	9	12
	Residential	220 - Apartment	91	Dwelling Units		46	20%	80%	9	37	56	65%	35%	36	20
	Office	710 - General Office Building	79,000	SF		155	90%	10%	140	15	149	15%	85%	22	127
					B1 Total:	**207**	**74%**	**26%**	**153**	**54**	**226**	**30%**	**70%**	**67**	**159**
B2															
	Retail	814 - Specialty Retail	26,895	SF		20	60%	40%	12	8	73	45%	55%	33	40
	Residential	220 - Apartment	19	Dwelling Units		10	20%	80%	2	8	12	65%	35%	8	4
	Office	710 - General Office Building	25,617	SF		63	90%	10%	57	6	61	15%	85%	9	52
					B2 Total:	**93**	**76%**	**24%**	**71**	**22**	**146**	**34%**	**66%**	**50**	**96**
B3															
	Retail	814 - Specialty Retail	11,500	SF		9	60%	40%	5	4	31	45%	55%	14	17
	Office	710 - General Office Building	19,300	SF		50	90%	10%	45	5	48	15%	85%	7	41
					B3 Total:	**59**	**85%**	**15%**	**50**	**9**	**79**	**27%**	**73%**	**21**	**58**
B4															
	Residential	220 - Apartment	275	Dwelling Units		140	20%	80%	28	112	171	65%	35%	111	60
	Retail	814 - Specialty Retail	4,000	SF		3	60%	40%	2	1	11	45%	55%	5	6
					B4 Total:	**143**	**21%**	**79%**	**30**	**113**	**182**	**64%**	**36%**	**116**	**66**
B5															
	Residential	230 - Residential Condominium/Townhouse	108	Dwelling Units		48	15%	85%	7	41	56	65%	35%	36	20
	Hotel	310 - Hotel	132	Rooms		74	60%	40%	44	30	78	55%	45%	43	35
	Restaurant	932 - High Turnover (Sit Down) Restaurant	3,800	SF		44	50%	50%	22	22	41	60%	40%	25	16
					B5 Total:	**166**	**44%**	**56%**	**73**	**93**	**175**	**59%**	**41%**	**104**	**71**
B6															
	Residential	230 - Residential Condominium/Townhouse	131	Dwelling Units		58	15%	85%	9	49	68	65%	35%	44	24
	Residential	220 - Apartment	14	Dwelling Units		7	20%	80%	1	6	9	65%	35%	6	3
					B6 Total:	**65**	**15%**	**85%**	**10**	**55**	**77**	**65%**	**35%**	**50**	**27**
B7															
	Marina Facilities	N/A	2,600	SF		36	72%	28%	26	10	36	28%	72%	10	26
					B7 Total:	36	72%	28%	26	10	36	28%	72%	10	26
					Site Total:	**769**	**54%**	**46%**	**413**	**356**	**921**	**45%**	**55%**	**418**	**503**

			AM Trip Generation	% In AM	% Out AM	AM Trips In	AM Trips Out	PM Trip Generation	% In PM	% Out PM	PM Trips In	PM Trips Out
		B1-B6 Subtotal:	733	53%	47%	387	346	885	46%	54%	408	477
		NCHRP 684 Reduction:	102	12%	14%	51	51	150	18%	15%	75	75
	35.8%	Other Modes Reduction:	236	35.8%	35.8%	123	113	289	35.8%	35.8%	131	158
	10%	Hotel Other Modes Reduction:	7	57%	43%	4	3	8	50%	50%	4	4
		B1-B6 Total:	**388**	**54%**	**46%**	**209**	**179**	**438**	**45%**	**55%**	**198**	**240**
		Marina Total	36	72%	28%	26	10	36	28%	72%	10	26
		Site Total	**424**	**55%**	**45%**	**235**	**189**	**474**	**44%**	**56%**	**208**	**266**

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	58 Fore Street	**Organization:**	Gorrill Palmer
Project Location:	Portland, Maine	**Performed By:**	ET
Scenario Description:	Max Build Out	**Date:**	2-Sep
Analysis Year:	2016	**Checked By:**	RED
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	123,917	SF	268	242	26
Retail	814	50,273	SF	38	23	15
Restaurant	932	3,800	SF	44	22	22
Cinema/Entertainment		-	SF	0	0	0
Residential	220/230	638	Units	309	56	253
Hotel	310	132	Rooms	74	44	30
All Other Land Uses[2]	N/A	2,600	SF	36	26	10
Total				769	413	356

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	5	0	0	0
Retail	4		2	0	1	0
Restaurant	7	2		0	1	1
Cinema/Entertainment	0	0	0		0	0
Residential	5	3	4	0		0
Hotel	7	1	1	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	769	413	356
Internal Capture Percentage	13%	12%	14%
External Vehicle-Trips[3]	667	362	305
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	10%	46%
Retail	57%	47%
Restaurant	55%	50%
Cinema/Entertainment	N/A	N/A
Residential	4%	5%
Hotel	2%	30%

[1]Land Use Codes (LUCs) from *Trip Generation Manual* , published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute

Project Name:	58 Fore Street
Analysis Period:	**Scenario 1 - AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	242	242	1.00	26	26
Retail	1.00	23	23	1.00	15	15
Restaurant	1.00	22	22	1.00	22	22
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	56	56	1.00	253	253
Hotel	1.00	44	44	1.00	30	30

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	16	0	0	0
Retail	4		2	0	2	0
Restaurant	7	3		0	1	1
Cinema/Entertainment	0	0	0		0	0
Residential	5	3	51	0		0
Hotel	23	4	3	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	5	0	0	0
Retail	10		11	0	1	0
Restaurant	34	2		0	3	2
Cinema/Entertainment	0	0	0		0	0
Residential	7	4	4	0		0
Hotel	7	1	1	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	23	219	242	219	0	0
Retail	13	10	23	10	0	0
Restaurant	12	10	22	10	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	54	56	54	0	0
Hotel	1	43	44	43	0	0
All Other Land Uses[3]	0	26	26	26	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	12	14	26	14	0	0
Retail	7	8	15	8	0	0
Restaurant	11	11	22	11	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	12	241	253	241	0	0
Hotel	9	21	30	21	0	0
All Other Land Uses[3]	0	10	10	10	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	58 Fore Street	**Organization:**	Gorrill Palmer
Project Location:	Portland, Maine	**Performed By:**	ET
Scenario Description:	Max Build Out	**Date:**	2-Sep
Analysis Year:	2016	**Checked By:**	RED
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	123,917	SF	258	38	220
Retail	814	50,273	SF	136	61	75
Restaurant	932	3,800	SF	41	25	16
Cinema/Entertainment		-	SF	0	0	0
Residential	220/230	638	Units	372	241	131
Hotel	310	132	Rooms	78	43	35
All Other Land Uses[2]	N/A	2,600	SF	36	10	26
Total				921	418	503

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	1	0	4	0
Retail	2		7	0	20	4
Restaurant	0	7		0	3	1
Cinema/Entertainment	0	0	0		0	0
Residential	5	6	4	0		4
Hotel	0	1	1	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	921	418	503
Internal Capture Percentage	16%	18%	15%
External Vehicle-Trips[3]	771	343	428
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	18%	5%
Retail	31%	44%
Restaurant	52%	69%
Cinema/Entertainment	N/A	N/A
Residential	11%	15%
Hotel	21%	6%

[1]Land Use Codes (LUCs) from *Trip Generation Manual* , published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute

Project Name:	58 Fore Street
Analysis Period:	**Scenario 1 - PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	38	38	1.00	220	220
Retail	1.00	61	61	1.00	75	75
Restaurant	1.00	25	25	1.00	16	16
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	241	241	1.00	131	131
Hotel	1.00	43	43	1.00	35	35

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		44	9	0	4	0
Retail	2		22	3	20	4
Restaurant	0	7		1	3	1
Cinema/Entertainment	0	0	0		0	0
Residential	5	55	28	0		4
Hotel	0	6	24	0	1	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	1	0	10	0
Retail	12		7	0	111	7
Restaurant	11	31		0	39	31
Cinema/Entertainment	2	2	1		10	0
Residential	22	6	4	0		5
Hotel	0	1	1	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	7	31	38	31	0	0
Retail	19	42	61	42	0	0
Restaurant	13	12	25	12	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	27	214	241	214	0	0
Hotel	9	34	43	34	0	0
All Other Land Uses[3]	0	10	10	10	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	10	210	220	210	0	0
Retail	33	42	75	42	0	0
Restaurant	11	5	16	5	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	19	112	131	112	0	0
Hotel	2	33	35	33	0	0
All Other Land Uses[3]	0	26	26	26	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

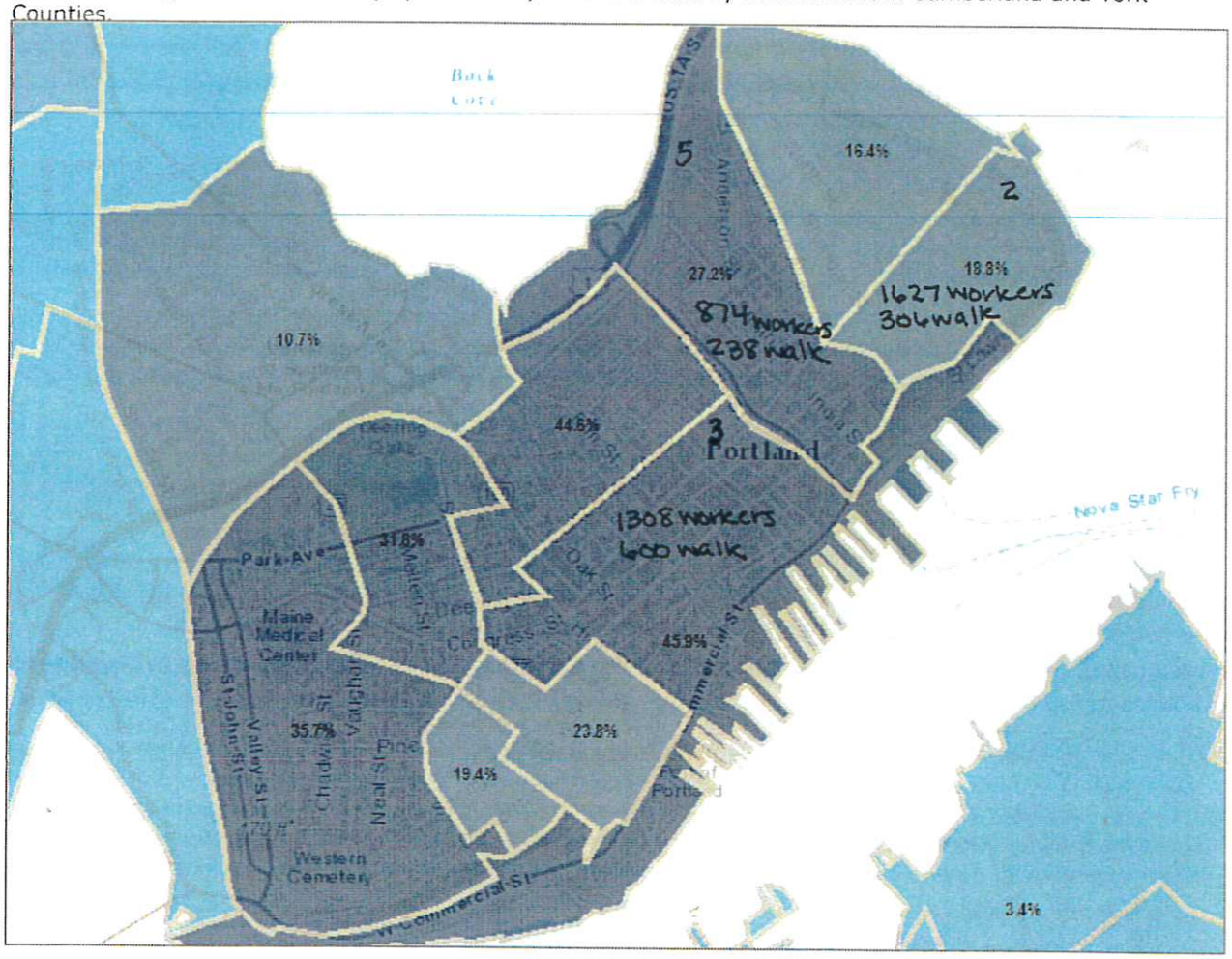
[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Southern Maine Commute Data (ACS 2009-2013, 5-Yr Est. by Census Tract)

Walked

A map showing ACS 2009-2013 (5-yr estimate) commute data by census tract in Cumberland and York Counties.



Esri, HERE, DeLorme, INCREMENT P, USGS, METI/NASA, EPA, USDA

3809 Workers
1144 Walk

30.0% walk

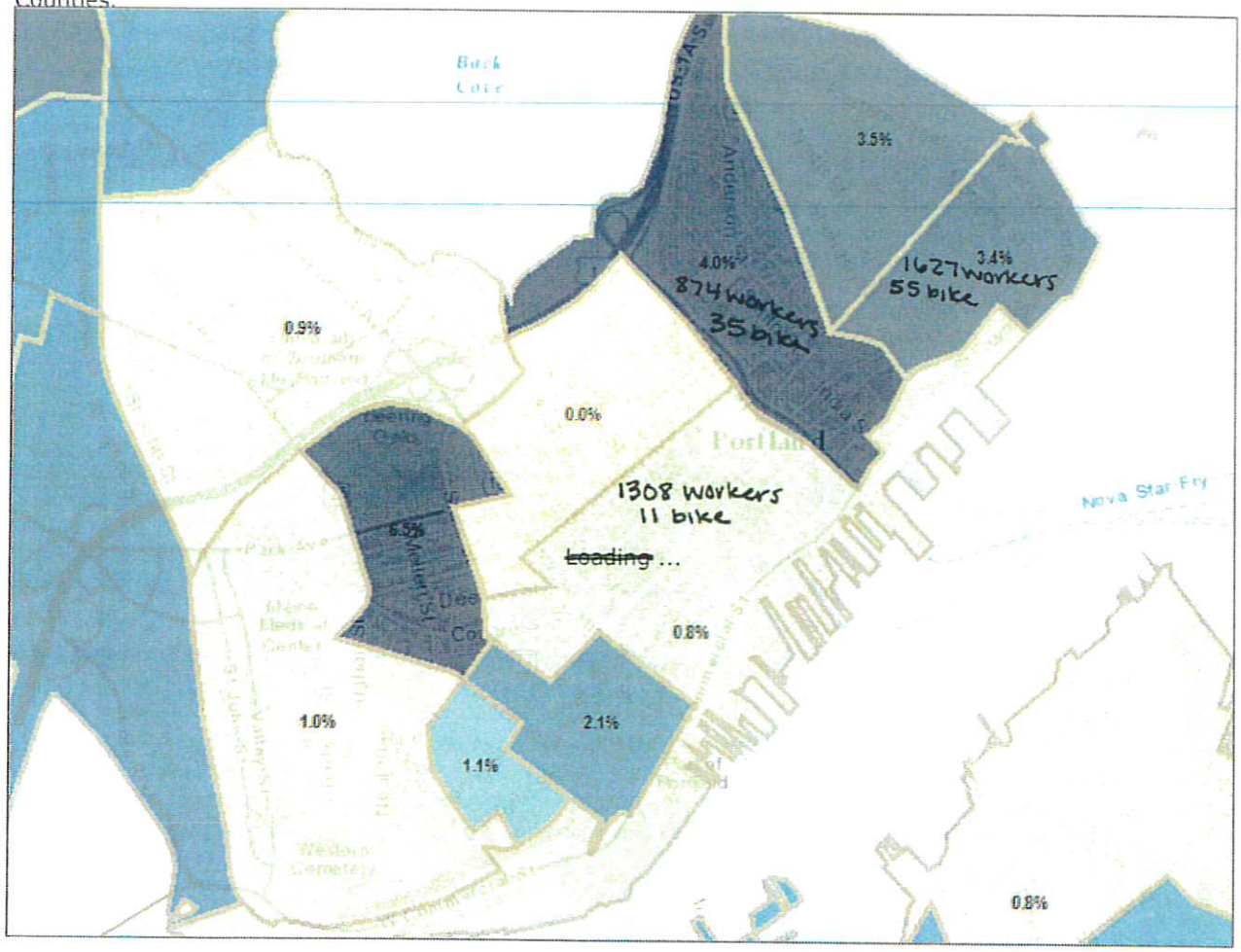
Walk/Bike/Transit

30.0 + 2.7 + 3.1 = 35.8%

Southern Maine Commute Data (ACS 2009-2013, 5-Yr Est. by Census Tract)

Biked

A map showing ACS 2009-2013 (5-yr estimate) commute data by census tract in Cumberland and York Counties.



Esri, HERE, DeLorme, INCREMENT P, USGS, METI/NASA, EPA, USDA

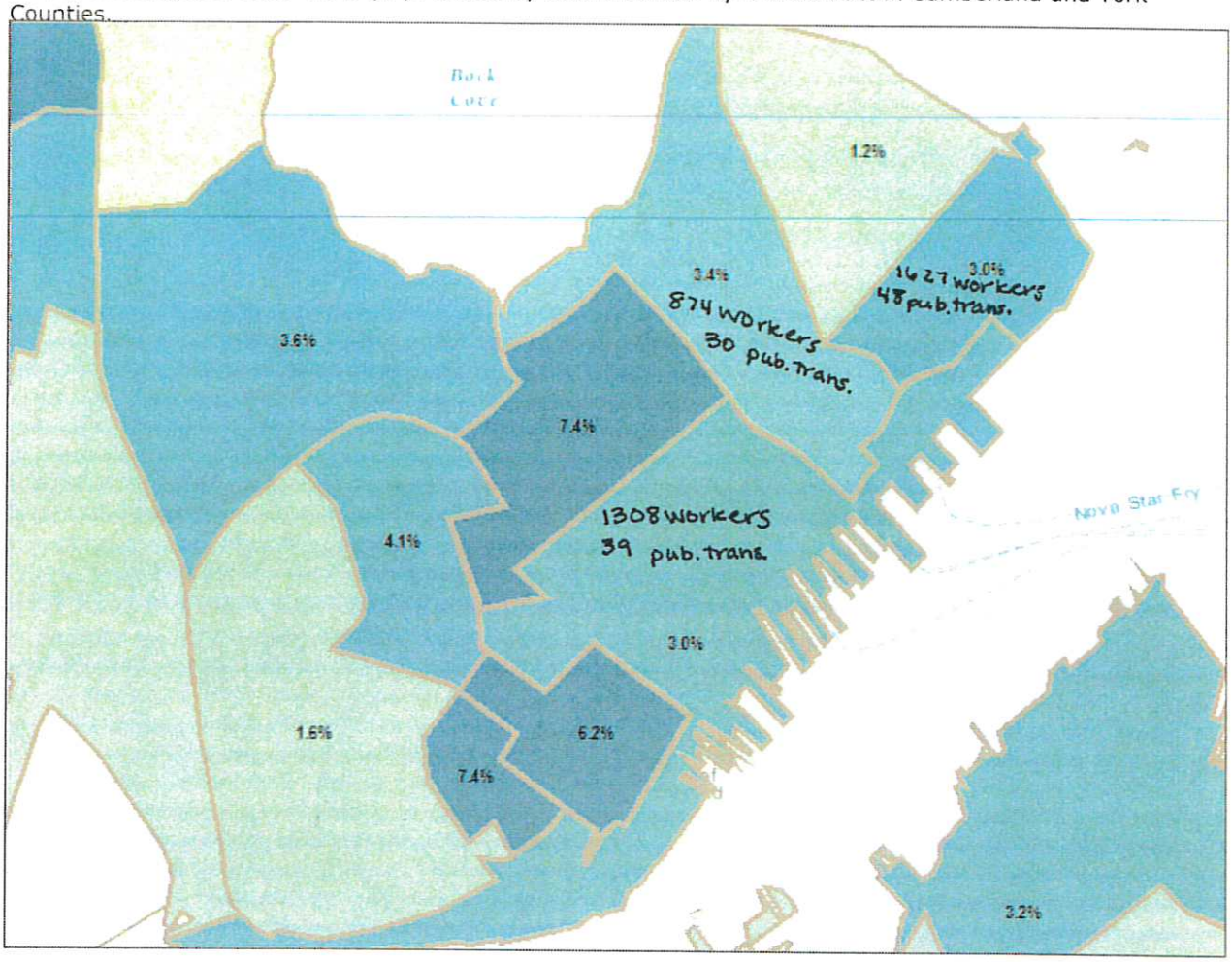
3809 Workers
101 Bike

2.7% Bike

Southern Maine Commute Data (ACS 2009-2013, 5-Yr Est. by Census Tract)

Public Transportation

A map showing ACS 2009-2013 (5-yr estimate) commute data by census tract in Cumberland and York Counties.



Esri, HERE, DeLorme, INCREMENT P, USGS, METI/NASA, EPA, USDA

3809 Workers
117 Public Transportation

3.1% Public Transportation

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207.772.2515

Site Parking Demand
58 Fore Street Mixed Use Development
Portland, Maine
JN 3138

Date: September 16, 2016
Subject: Site Parking Demand
58 Fore Street Mixed Use Development
To: David Senus, Mary McCrann, Jim Brady, Kevin Costello, Casey Prentice
From: Randy Dunton and Emily Tynes, Gorrill Palmer (JN 3138)

The following is a summary of the estimated parking demand for the proposed mixed use development at 58 Fore Street. The following table summarizes the sizes and uses of the proposed development used to calculate the parking demand:

Proposed Site Summary

Development Block	Use	Size
B1		
	Retail	7,878 SF
	Residential	91 Dwelling Units
	Office	79,000 SF
B2		
	Retail	26,895 SF
	Residential	19 Dwelling Units
	Office	25,617 SF
B3		
	Retail	11,500 SF
	Office	19,300 SF
B4		
	Residential	275 Dwelling Units
	Retail	4,000 SF
B5		
	Residential	108 Dwelling Units
	Hotel	132 Rooms
	Restaurant	3,800 SF
	Function	5,800 SF
B6		
	Residential (Condos)	131 Dwelling Units
	Residential (Apartments)	14 Dwelling Units
B7		
	Marina Facilities	2,600 SF, 220 Slips

It should be noted that the retail portions of the proposed site will be multiple smaller shops, not large retail stores.

Parking Demand Calculation Methodologies

The parking demand has been determined using two methodologies: using the City Ordinance requirements and based on a shared parking demand. The following summarizes the methodologies in more detail:

City Ordinance Parking Demand

The Ordinance requirement methodology involves calculating the peak parking demand for each use using the City of Portland Code of Ordinances. This method assumes each use is isolated and then adds the individual demands to determine the parking demand for the site. The supporting calculations for this method are attached. This method results in an overestimate because the peak demands for each use are not expected to occur at the same time. For example, offices require more spaces during the day while employees are in the office, and residential buildings would require more spaces later at night when residents are home from work.

The City Ordinance Ch. 14, Art III, Div. 20, Sec. 14-332.2 (c) states, "where construction is proposed of new structures having a total floor area in excess of fifty thousand (50,000) square feet, the planning board shall establish the parking requirement for such structures. The parking requirement shall be determined based upon a parking analysis submitted by the applicant and upon the recommendation of the city transportation engineer." Since this mixed use development is approximately 958,679 sf of building floor area, it meets the criteria. Therefore, the site parking demand was determined based on the following methodology.

Shared Parking Plan

The shared parking plan methodology is based on a combination of City Ordinance parking demand, the ITE Parking Generation Manual (4th Edition), and published data / engineering judgement and it reflects that the demand for different uses will peak during different times of day. Since different uses do not peak at the same times, parking spaces can be shared between uses. To determine the shared parking demand, the total parking demand was calculated for each use, then distributed throughout the day based on the type of use. This is the same methodology used for the recent Thompson's Point project. The supporting calculations are attached. With a shared parking plan it is recommended that shared parking language be included in the leases, to ensure tenants understand the shared parking.

Parking Demand Reductions

Given the mixed use of the site as well as its downtown location, the following two parking demand reductions were applied to the shared parking spaces:

Shared Use Reduction

When evaluating a mixed use development with complementary uses such as this, the overall parking demand can be reduced due to the expectation that there will be some cross use between the individual facilities. For instance, it can be assumed that some of the people living in the apartments would also be those that visit the retail. Gorrill Palmer (GP) used the NCHRP 684 Internal Trip Capture Estimation Tool to calculate the reduction that can be applied to the trip generation. This calculated an internal trip capture of 14% for the AM peak hour and 17% for the PM peak hour. It can be assumed that parking demand can be reduced proportionally to the reduction in trip generation. To be conservative, GP used a shared use reduction of 14% throughout the day to estimate the parking demand. The following table summarizes the shared use reduction:

Shared Use Reduction Summary

Proposed	Ordinance	Shared Parking
B1-B6 Peak Parking Demand	919	690
Shared Use Reduction (14%)	-129	-97

Other Modes Reduction

The overall parking demand for a development in a downtown area can also be reduced due to the expectation that some people going to or from the site would use other modes of transportation such as transit, bicycle, or walking. The site is adjacent to an existing bus route as well as located on a bicycle and pedestrian path. The other modes reduction is based on information from the 2009-2013 American Community Survey (ACS) Five-Year Estimate by Census Tract. Based on this information Rick Harbison, Planner and GIS Specialist for the Greater Portland Council of Governments, created maps using GIS data that illustrate the estimated percentage of workers living in each Portland Census Tract that use each mode of transportation to commute to work. The site is located on the east side of Census Tract 3, which is a predominantly commercial area. Census Tracts 2 and 5 border the site and consist of primarily residential areas. Since the site is proposed to have a significant number of residential units as well as commercial space, the data from the combination of the three tracts is expected to be more representative of the actual conditions on the site than the data from the individual tracts. This reduction was calculated by dividing the estimated number of people walking, bicycling, and taking the bus to work in the three Census Tracts by the estimated total number

of working people in the same three Census Tracts. This calculation yields a 35.8% use of non-vehicular modes of transportation.

The GPCOG data is based on residents of the Census Tracts commuting to work, so it is applicable to the residential units, office space, and retail uses on the site. It was not clear if the 35.8% reduction would also be applicable to the restaurants and hotel, even though there are hotels and restaurants located within the boundaries of the three Census Tracts. GP searched for studies that included information on other modes of transportation for restaurants and hotels and found two sources that had information that could be compared to the other modes of transportation calculated using the Portland Census data. The following is a more detailed description of the relevant information found in the two studies:

The first study is *Contextual Influences on Trip Generation* (found in the United States Department of Transportation National Transportation Library online database or at the following link: http://ntl.bts.gov/lib/46000/46600/46699/CITG_FinalReport_Draft_10022012.pdf), a study for the Oregon Transportation Research and Education Consortium (OTREC) that compared the ITE predicted trip generation to the actual trip generation of 79 locations in Portland, Oregon, 39 of which were high turnover sit-down restaurants. The study also included surveying the visitors of those sites to determine what mode of transportation the visitors used. The results of the study are divided into different types of areas, ranging from central business district, which is considered the most urban area, to suburban areas, which is considered the least urban type of area surveyed. This study surveyed 12 restaurants in the central business district area and found that 35% of the patrons arrived to the sites using a car, while the remaining 65% walked, biked, or used transit (table attached). This result is higher than the 35.8% use of other modes calculated using the GPCOG information. Because the data is for Portland, Oregon it may not be appropriate to use as a reduction, but it does indicate that in an urban area a large portion of site traffic can be expected to use transit, bike, or walk.

The second source that included restaurant information is the National Cooperative Highway Research Program (NCHRP) Report 758, *Trip Generation Rates for Transportation Impact Analyses of Infill Developments*. This study used information from the Household Travel Survey (HTS) for the San Francisco Bay area and Metropolitan Washington D.C. and counted data and surveys at specific sites in those areas. The Washington D.C. HTS data for restaurants shows that approximately 40.3% of residents use transit, walk, or bicycle to and from high-turnover sit-down restaurants (table attached). The study only included one site that was counted and surveyed, so the HTS data could not be verified, however like the Portland, Oregon study, it is higher than the other modes reduction calculated using the GPCOG Census information. Like the Portland, Oregon study, this data indicates that in an urban area a large portion of site traffic can be expected to use transit, bike, or walk.

Based on these two additional sources that contain information specific to restaurant uses, GP determined that the other modes reduction of 35.8% calculated from the GPCOG Census

information that is based on the existing transit system can be applied to the restaurant parking demand. Although the other two studies showed higher percentages of people using alternative modes of transportation to go to or from restaurants, since they are not specific to Portland, Maine, the local data is expected to be closer to the actual conditions that would be seen at the 58 Fore Street development.

The two studies discussed above included information about restaurants, but did not have any data for hotels. Based on our research there is limited information available about modes of transportation used at hotels. It can be assumed for the 58 Fore Street site that hotel employees may take the bus, bike, or walk to get to and from work and some hotel guests may arrive by boat using the marina. To be conservative, GP only used an "other modes of transportation" reduction of 10% for the hotel.

The following table summarizes the other modes of transportation reduction for the site:

Other Modes of Transportation Reduction Summary

Proposed	Ordinance	Shared Parking
B1-B6 Peak Parking Demand w/o Hotel	886	677
Hotel Peak Parking Demand	33	13
Other Modes Reduction (35.8% of B1-B6 Demand w/o Hotel)	-317	-242
Hotel Other Modes Reduction (10% of Hotel Demand)	-3	-1
Total Other Modes Reduction	**-320**	**-243**

Marina Parking Demand

The City Ordinance does not include a parking requirement for marina facilities. The parking demand for the proposed marina is based on information from Applied Technology & Management (ATM). The new marina is proposed to have 220 slips that will service off-site Portland residents, on-site Portland residents, and transient boaters. ATM provided a range of parking rates from one space for every two slips to one space for every four slips. ITE has limited marina parking information available, however the ATM parking rates appear to be consistent with the ITE data. To be conservative, GP used a requirement of one parking space for every two slips. ATM expects peak usage of the marina to be 10% of the slips, but possibly higher since Maine has a shorter boating season. To be conservative, GP assumed that the peak demand would be 15% of the slips. ATM also stated that there would be approximately 9 employees at this marina, therefore GP included an additional 5% to include spaces for employees, giving a total peak demand estimation of 20% of the slips. Because of the nature of a marina use, the two parking demand reductions that were applied to the rest of the site were not applied to the

marina parking demand. Although it is possible that marina users visit other uses on site or use alternative modes of transportation to get to the site, to be conservative the reductions were not applied.

Dedicated Parking Spaces

Often in large developments, a portion of parking spaces are dedicated to a specific use. For example, residential units may have spaces assigned to each unit or a group of spaces may be reserved for use by only an office. These dedicated spaces would not be shared by any other site uses. The number of dedicated parking spaces is added to the number of shared parking spaces to determine the total site demand. On this site, there are 298 dedicated parking spaces proposed. These spaces include; half of the residential units in B1, all the residential units in B5, and all the residential units in B6. The two parking demand reductions that were applied to the rest of the site were not applied to the dedicated parking spaces, since the spaces will not be shared and will be provided for the peak demand regardless of the expected use of transit, bicycles, or walking.

Parking Demand Summary

The following table summarizes the overall parking demand for the site, including the reductions, based on both the Ordinance and the Shared Parking demand methodologies:

Parking Demand Summary

Proposed	Ordinance	Shared Parking
B1-B6 Shared Parking Demand	919	690
Shared Use Reduction	-129	-97
Other Mode Reduction	-320	-243
B1-B6 Total Shared Parking Demand	**470**	**350**
B7 (Marina) Parking Demand	110	22
B1-B7 Total Parking Demand	**580**	**372**
B1-B7 Dedicated Parking	298	298
Net Parking Demand	**878**	**670**

As shown in the table, the proposed parking demand, including reductions, based on the Ordinance and isolated uses is forecast to be 878 spaces and the parking demand based on shared parking is 670 spaces. The parking demand based on the City Ordinance is higher than the shared parking demand because it assumes all uses will require their peak parking demand concurrently whereas the shared parking demand considers the different uses peaking at different times of day.

It should be noted that a parking facility can be considered full when it is approximately 85% occupied. This is because a driver may not see empty parking spaces when the lot is almost completely occupied, especially in a larger parking area. **To ensure the peak parking demand is satisfied, the recommended number of spaces is 736 (372 spaces / 0.85 + 298 spaces).** This assumes that shared spaces are generally available to all users. The increase is not applied to the dedicated parking spaces because it is assumed that they will be visible and easy for the designated users to find.

The marina may also have additional parking needs, such as temporary parking spaces for visitors to drop off passengers or supplies near their boat before parking their vehicle and for fueling trucks and provisional vehicles that service the mega-yachts. These other parking spaces should be considered in addition to the estimated peak parking demand for the visitors and employees.

Bicycle Parking

Per City Ordinance, new uses are required to provide bicycle accommodations based on the type of use. Residential structures are required to provide 2 bicycle spaces for every 5 dwelling units. Non-residential structures are required to provide 2 bicycle parking spaces for every 10 vehicle parking spaces for the first 100 required spaces, plus one bicycle parking space for every 20 required vehicle parking spaces over the 100 vehicle parking spaces. The following table shows the required bicycle parking for the Ordinance vehicle parking demand and the Shared Parking demand:

Bicycle Parking Summary

	Ordinance	Shared Parking
Parking Variable	409 Spaces, 638 Units	322 Spaces, 638 Units
Residential Bicycle Spaces	256	256
Non-Residential Bicycle Spaces	36	31
Total	**292**	**287**

As shown in the table, the site will require 287-292 bicycle parking spaces to meet the City Ordinance Requirements for bicycle accommodations. The Transportation Demand Management (TDM) plan will outline a more detailed approach to incorporating bicycle parking on site.

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JOB 3138-58 Fore Street Redevelopment
SHEET NO. _____ OF _____
CALCULATED BY ET DATE 8/26/16
CHECKED BY _____ DATE _____
SCALE _____

Marina Trip Generation

Info from ATM:
- 220 slips → 140 seasonal users, 80 transient boaters
- Daily usage peaks around 10%, maybe more
- 10% of daily non-transient users are on-site residents
- 90% of daily non-transient users are offsite residents
- 30% of off site residents are Islanders commuting to the Peninsula
- 9 marina employees
- 4 mega-yacht slips

Assumptions:
- 15% of slips is peak daily usage to be conservative (33 slips)
- 36% are transient boaters ($^{80}/_{220} = 36\%$ → 12 slips)
- 21 non-transient slips used during peak (33 slips - 12 slips)
- 2 on-site residents used slips during peak ($21 \times 0.10 = 2.1$)
- 19 off-site residents use slips during peak ($21 \times 0.90 = 18.9$)
- 6 Islanders commuting to Peninsula ($19 \times 0.30 = 5.7$)
- 1 provisioning vehicle per mega-yacht slip (conservative)
- Transient boaters = 0 trip ends
- on-site residents = 0 trip ends
- off-site residents = 1 AM trip end, 1 PM trip end
  - Islanders leave during AM and return during PM
  - other off-site enter during AM and exit during PM
- Employees enter during AM and exit during PM
- Provisioning vehicles enter and exit during the peak hour (conservative)

AM Peak Hour
- 9 employees in
- 6 islanders out
- 13 seasonal in
- 4 provisional veh. in
- 4 provisional veh. out

36 trip ends (26 in / 10 out)

PM Peak Hour
- 9 employees out
- 6 Islanders in
- 13 seasonal out
- 4 provisional veh in
- 4 provisional veh out

36 trip ends (10 in / 26 out)

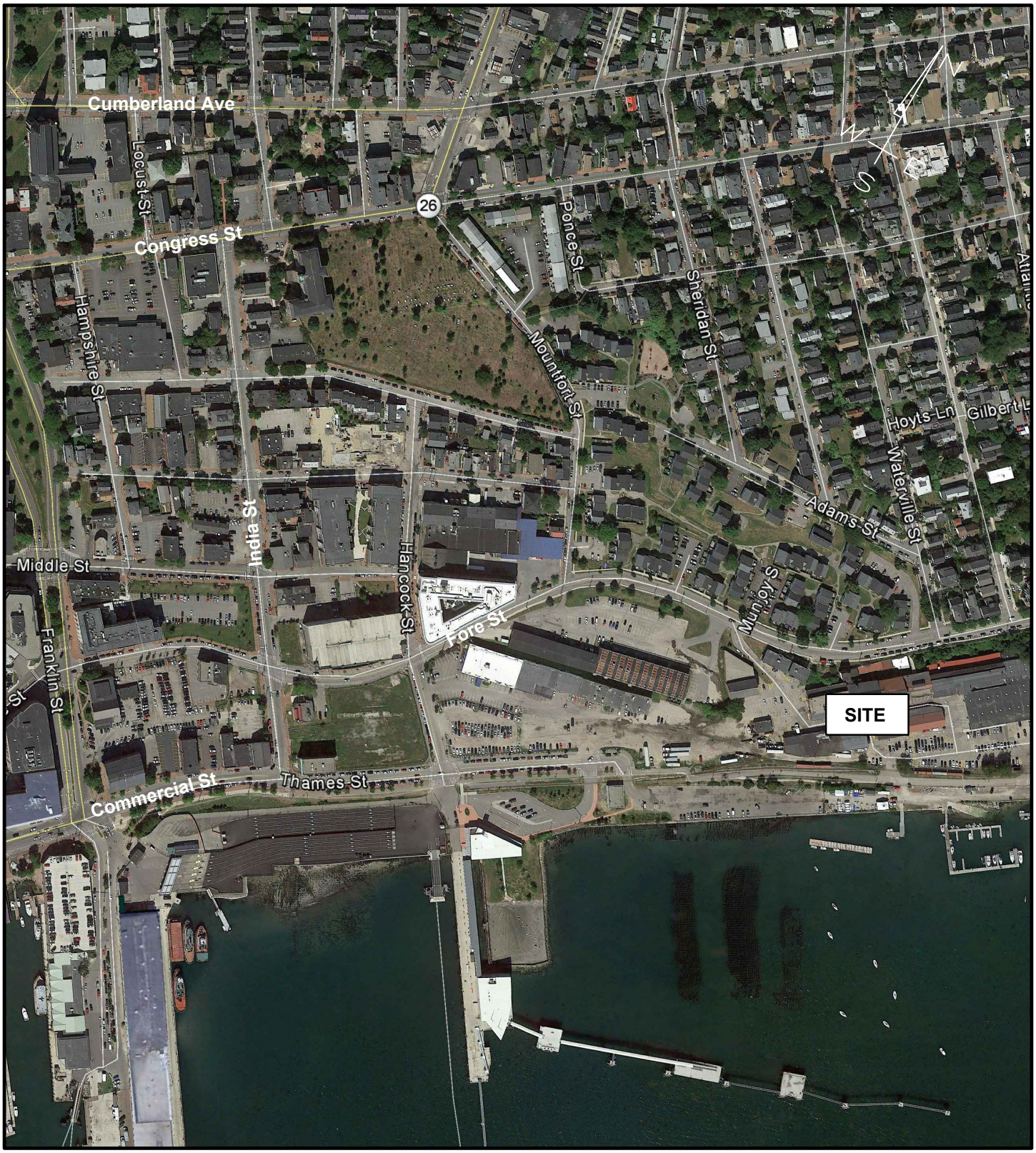
Attachment 1B

Site Location Map

Trip Assignment Diagrams

Location Map

Figure No. 1



58 FORE STREET REDEVELOPMENT
PORTLAND, MAINE

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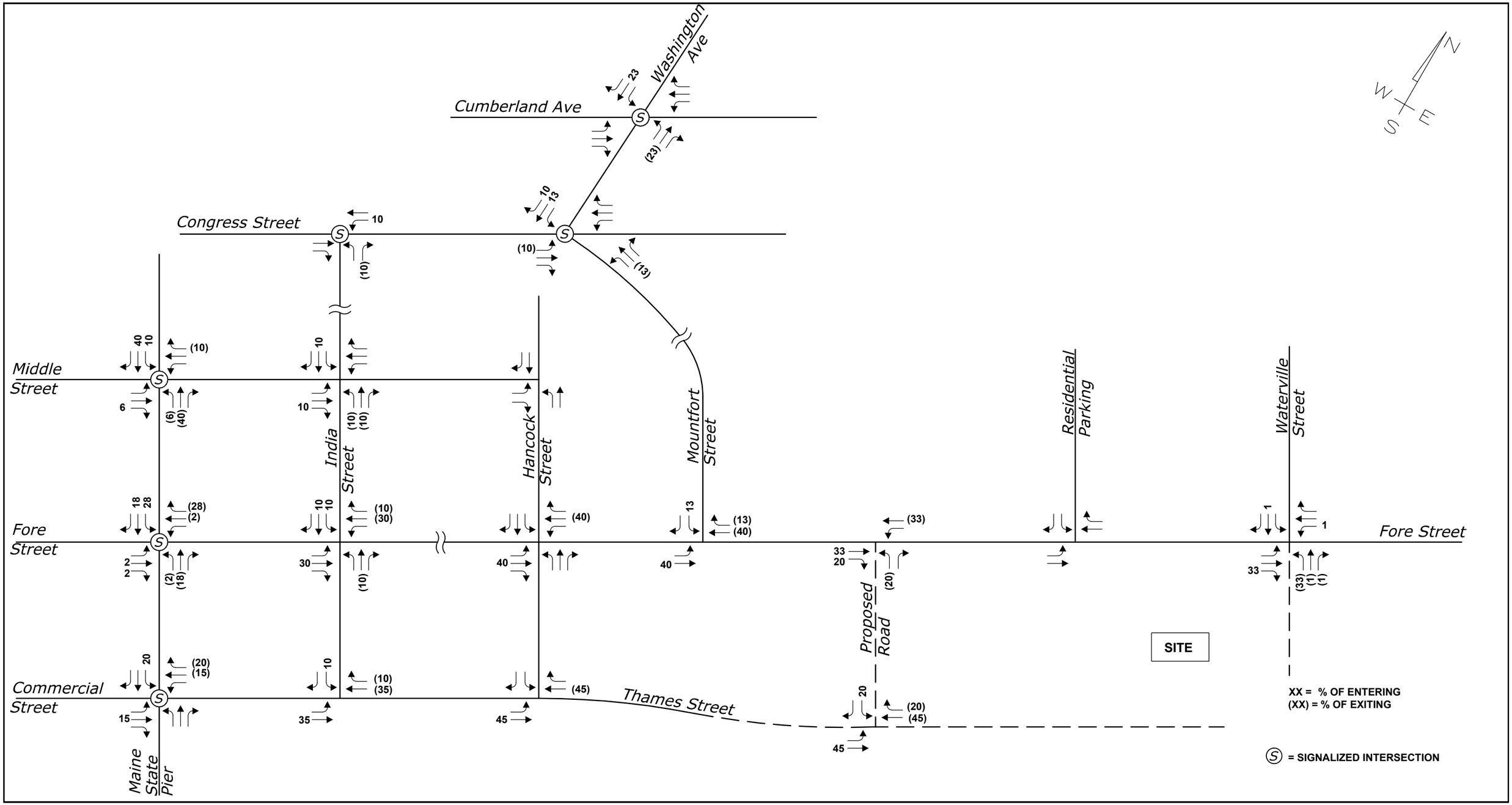
Residential Trip Distribution

Figure No. 6



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Date: AUGUST 2016
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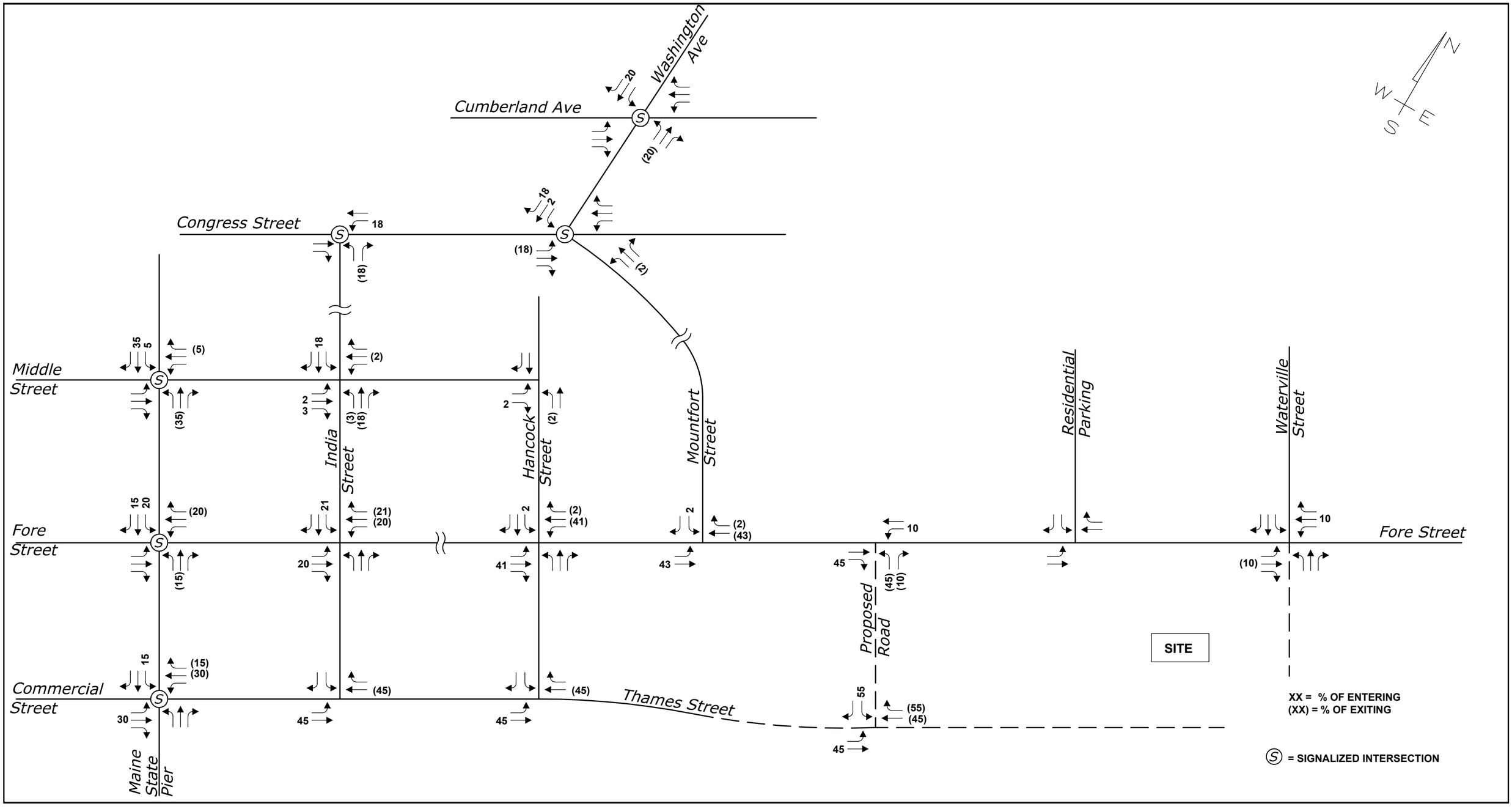
Non-Residential Trip Distribution

Figure No. 7



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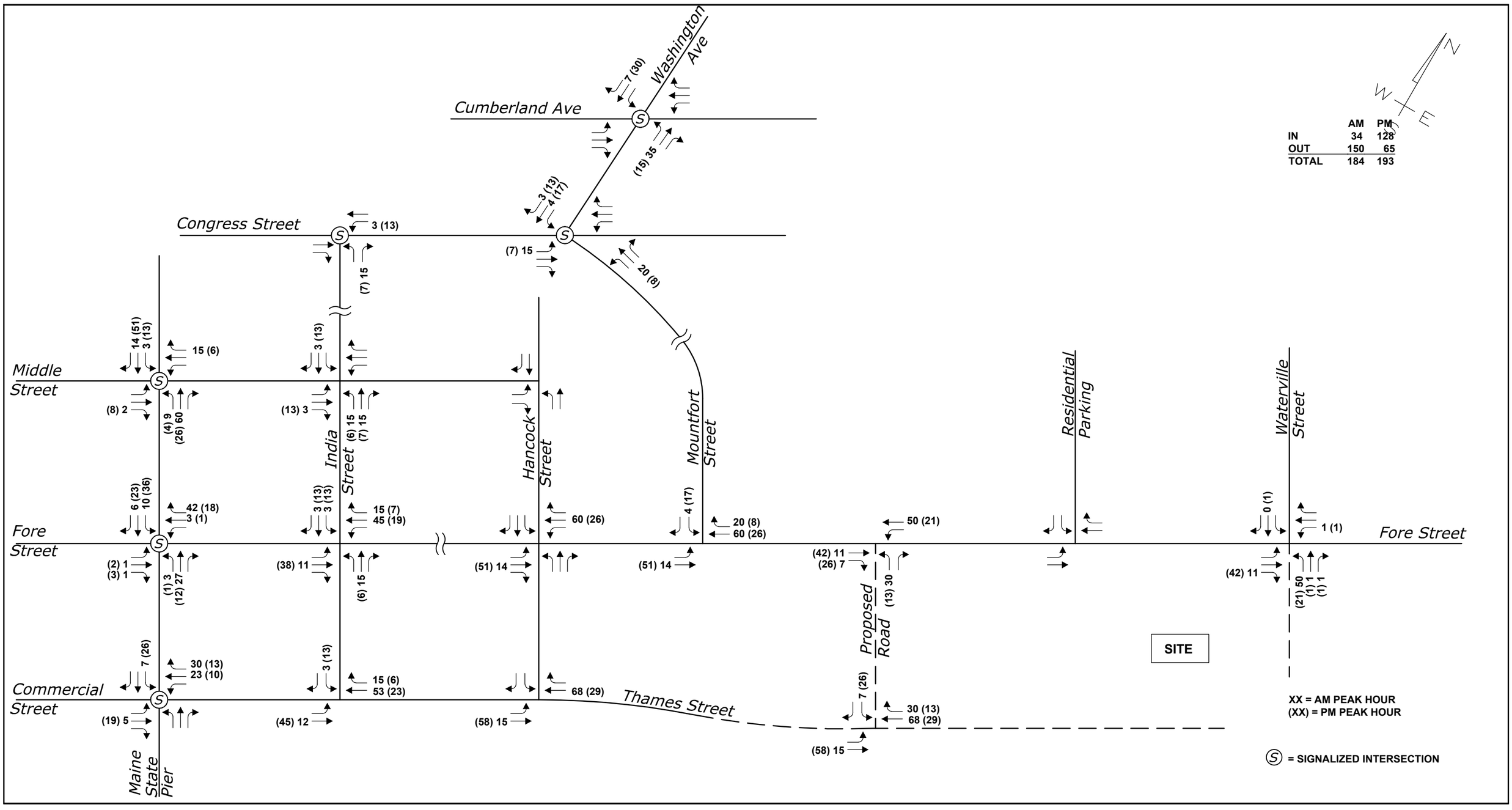
Residential Trip Assignment

Figure No. 8



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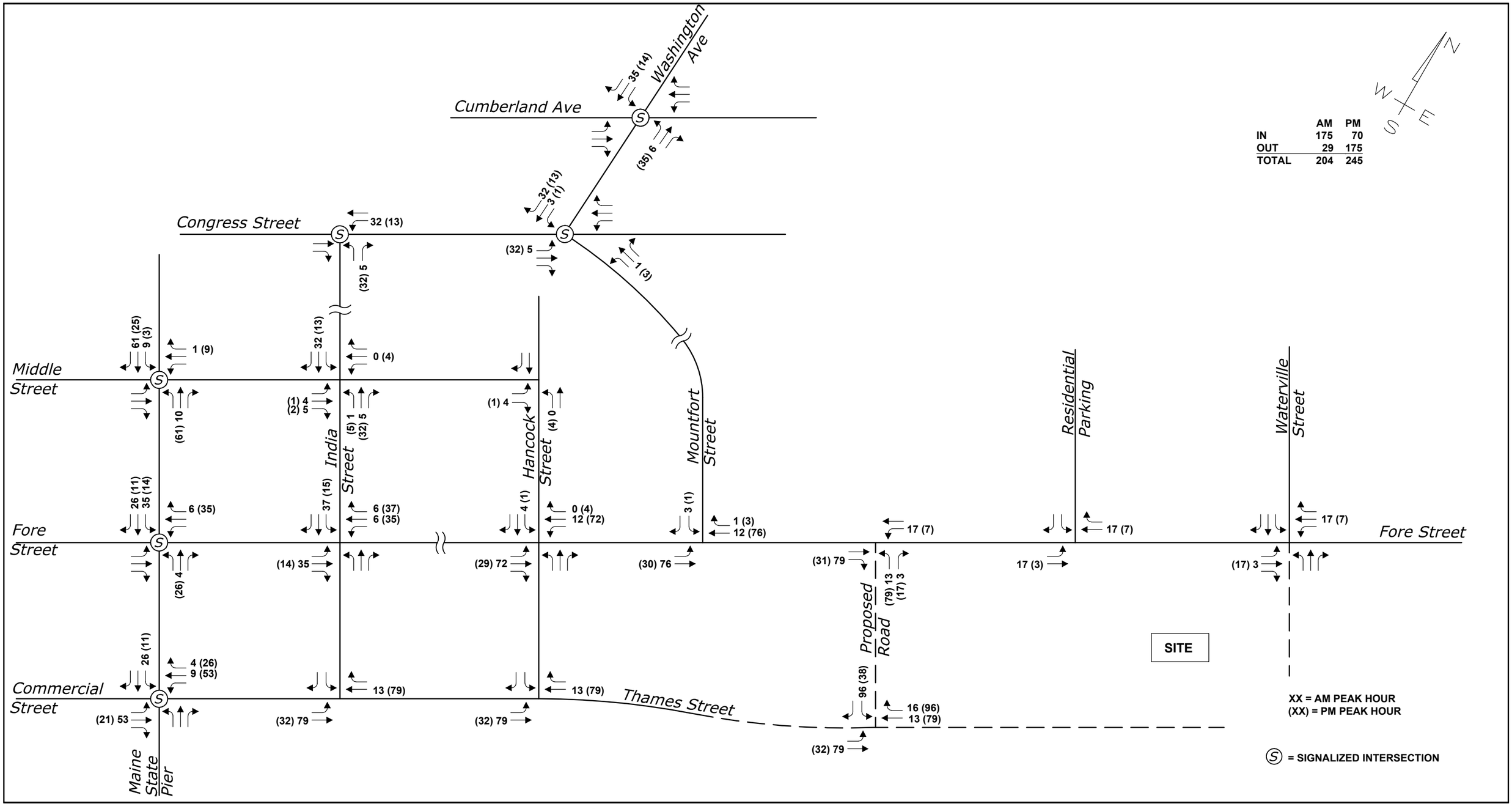
Non-Residential Trip Assignment

Figure No. 9



	AM	PM
IN	175	70
OUT	29	175
TOTAL	204	245

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Scale: NONE
Date: AUGUST 2016
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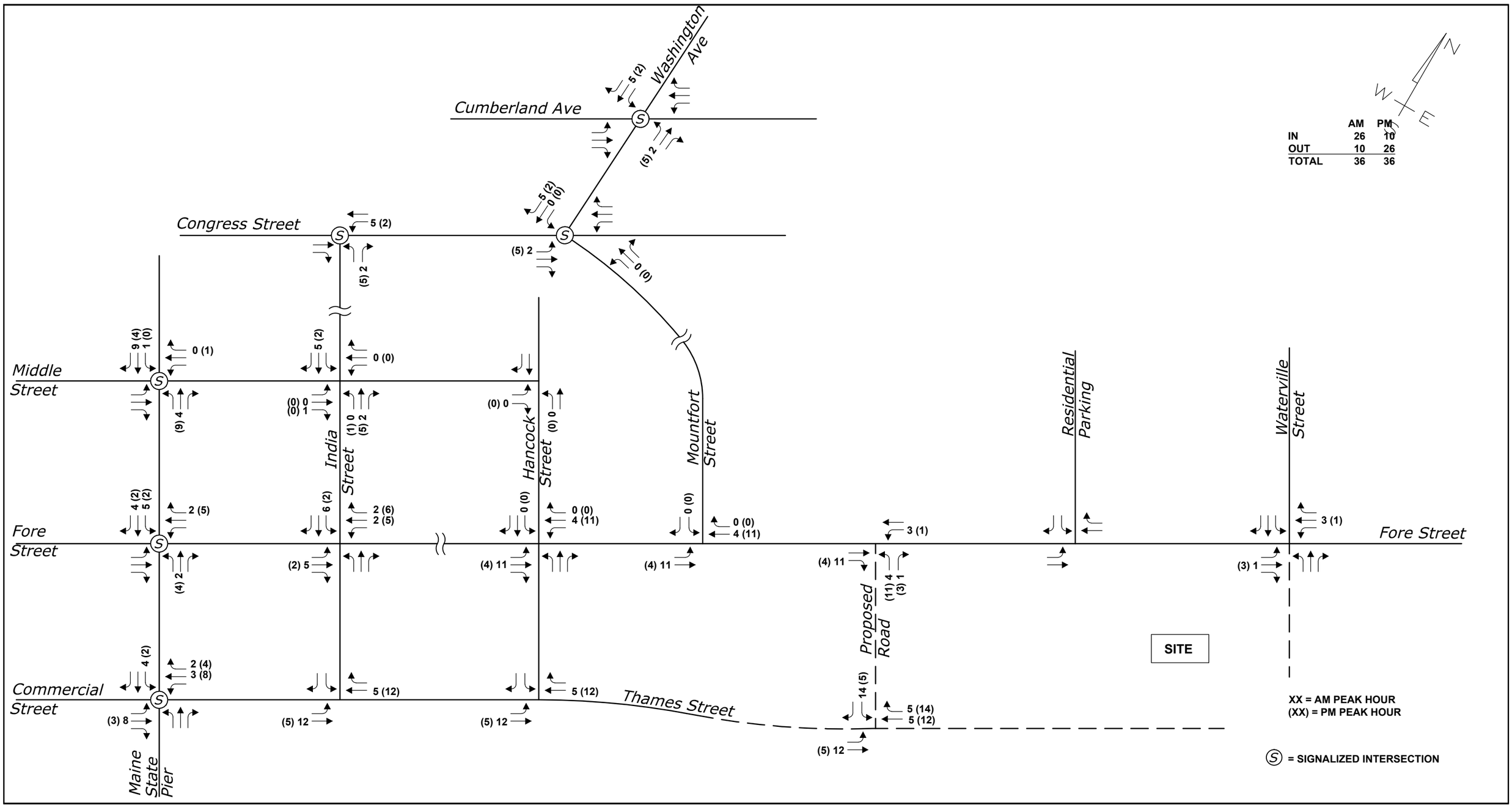
Marina Trip Assignment

Figure No. 10



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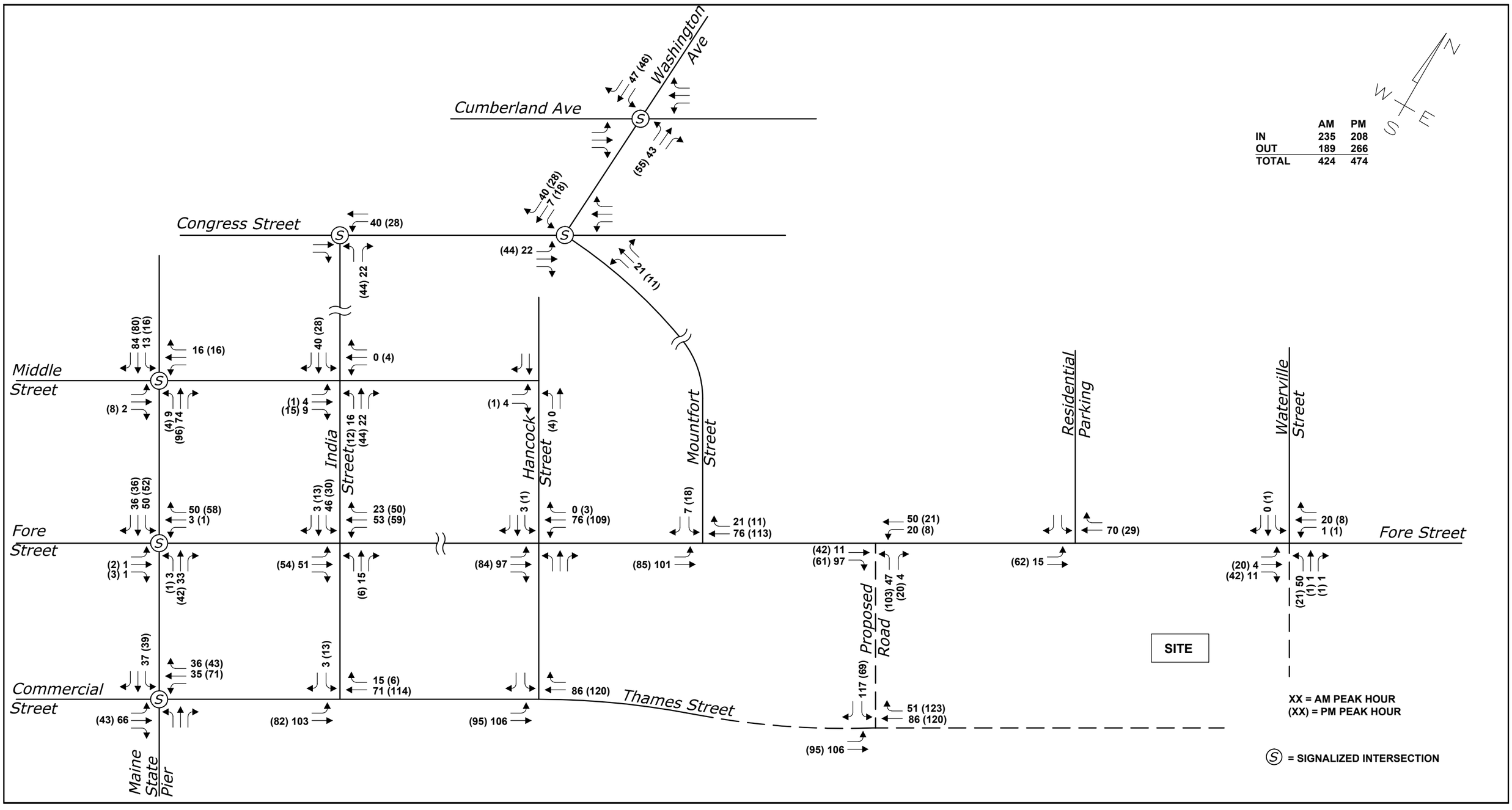
Total Trip Assignment

Figure No. 11



	AM	PM
IN	235	208
OUT	189	266
TOTAL	424	474

58 FORE STREET REDEVELOPMENT
PORTLAND, MAINE

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Section 2
Traffic Crashes

2.A. Crash Summary Data

Gorrill Palmer obtained the crash data from MaineDOT for the period of 2013-2015, the most recent period available (Attachment 2A).

In order to evaluate whether a location has a crash problem, MaineDOT uses two criteria to define a High Crash Location (HCL). Both criteria must be met in order to be classified as an HCL.

1. A critical rate factor of 1.00 or more for a three-year period. (A Critical Rate Factor {CRF} compares the actual crash rate to the rate for similar intersections in the state. A CRF of less than 1.00 indicates a rate of less than average) **and**:
2. A minimum of eight crashes over the same three-year period.

Based on the crash data provided by MaineDOT, there are two high crash locations within the study area; one at the intersection of Franklin Street with Middle Street, and one on Fore Street from its intersection with India Street to its intersection with Mountfort Street. It should be noted that there were also two locations that did not meet the HCL criteria, but were close. The intersection of India Street with Fore Street has a CRF of 1.60 and experienced seven collisions during the most recent-three year period and Cumberland Avenue from Boyd Street to Locust Street has a CRF of 4.13 and experienced seven collisions over the most recent three-year period. The intersection of India Street with Fore Street was previously identified as an HCL based on 2012-2014 crash data, but it experienced fewer crashes during the 2013-2015 period, so it no longer meets both HCL criteria.

To better evaluate the high crash locations and identify correctable crash patterns, the police reports for these locations were provided by MaineDOT and used to create collision diagrams, included as an attachment to this section. The two locations are described in more detail as follows:

Franklin Street / Middle Street

The intersection of Franklin Street with Middle Street has a CRF of 1.08 and experienced 20 crashes during the most recent three-year period. It is a signalized four leg intersection with a median separating the northbound and southbound Franklin Street traffic. Based on a review of the collision diagram, all 20 of the collisions involved vehicles turning left from Franklin Street onto Middle Street colliding with through traffic on Franklin Street in the opposite direction. This type of collision occurred with both Franklin Street

northbound and southbound left-turning traffic, but 16 of the 20 collisions occurred with southbound left-turning vehicles colliding with northbound through vehicles. Of those 16 collisions, six occurred because the left-turning vehicles could not see the northbound through vehicle due to a snowbank in the median blocking sight distance. Increased winter maintenance, specifically snow removal, could increase the sight distance at the intersection during the winter months and provide left-turning vehicles with a clearer view of oncoming traffic.

Fore Street from India Street to Hancock Street

This section of Fore Street has a CRF of 2.12 and experienced nine collisions during the most recent three-year period, seven of which occurred at the intersection of Fore Street with Hancock Street. The intersection of Fore Street with Hancock Street is stop controlled, with stop signs on Hancock Street and free flowing traffic on Fore Street. Based on a review of the collision diagram there does not appear to be a clear and correctable crash pattern. Most of the collisions at the intersection of Hancock Street and Fore Street were caused by a driver failing to yield the right of way.

2.B. Attachments

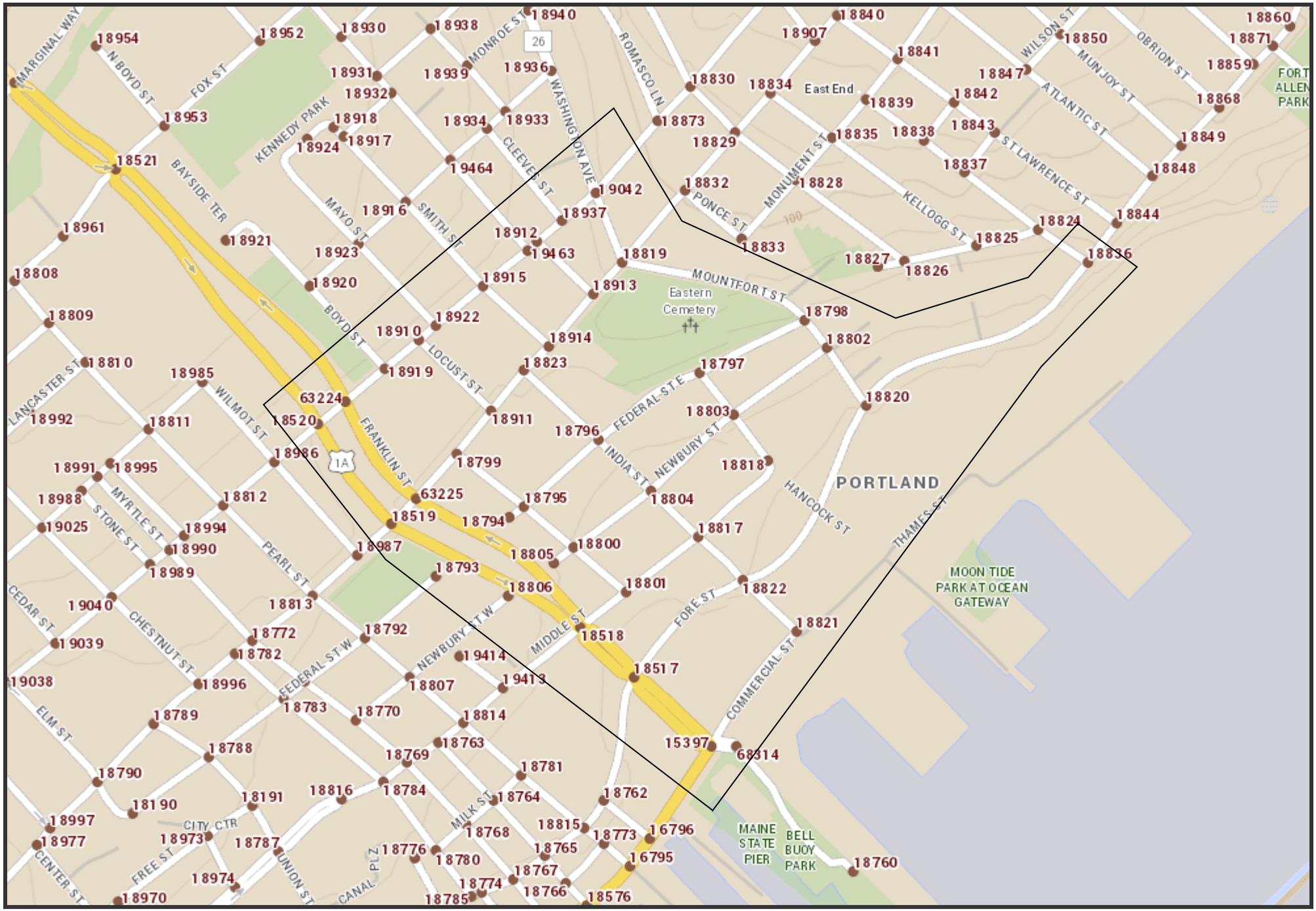
Attachment 2A – Crash Report, Collision Diagrams

Attachment 2A

Crash History

Collision Diagrams

NODE MAP



The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch.

0.15 Miles

1 inch = 0.13 miles

Date: 8/23/2016
Time: 9:58:43 AM

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ **Crash Summary I** ☑ **Section Detail** ☑ **Crash Summary II** ☐ **1320 Public** ☐ **1320 Private** ☑ **1320 Summary**

REPORT DESCRIPTION

Franklin St area in Portland

REPORT PARAMETERS

Year 2013, Start Month 1 through Year 2015 End Month: 12

Route: **0561238**	Start Node: **18520**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **19042**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560160**	Start Node: **18819**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18519**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561110**	Start Node: **18794**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **18798**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560531**	Start Node: **18805**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **18802**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560505**	Start Node: **18518**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18818**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560286**	Start Node: **18836**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **18517**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561001**	Start Node: **15397**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **18821**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0001A**	Start Node: **15397**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **63225**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0001A**	Start Node: **63225**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **63224**	End Offset: **0**	☑ **Exclude Last Node**
Route: **001AS**	Start Node: **18520**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18518**	End Offset: **0**	☑ **Exclude Last Node**

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ **Crash Summary I** ☑ **Section Detail** ☑ **Crash Summary II** ☐ **1320 Public** ☐ **1320 Private** ☑ **1320 Summary**

REPORT DESCRIPTION

Franklin St area in Portland

REPORT PARAMETERS

Year 2013, Start Month 1 through Year 2015 End Month: 12

Route: **001AS**	Start Node: **18518**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18517**	End Offset: **0**	☑ **Exclude Last Node**
Route: **001AS**	Start Node: **18517**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **15397**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561002**	Start Node: **18819**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **19042**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560524**	Start Node: **18819**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18820**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560510**	Start Node: **18912**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18913**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560666**	Start Node: **18914**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18915**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560451**	Start Node: **18910**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18911**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560342**	Start Node: **18795**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18799**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560342**	Start Node: **18800**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18795**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560342**	Start Node: **18801**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18800**	End Offset: **0**	☑ **Exclude Last Node**

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ **Crash Summary I** ☑ **Section Detail** ☑ **Crash Summary II** ☐ **1320 Public** ☐ **1320 Private** ☑ **1320 Summary**

REPORT DESCRIPTION

Franklin St area in Portland

REPORT PARAMETERS

Year 2013, Start Month 1 through Year 2015 End Month: 12

Route: **0561000**	Start Node: **18822**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18821**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561000**	Start Node: **18817**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18822**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561000**	Start Node: **18804**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18817**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561000**	Start Node: **18796**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18804**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561000**	Start Node: **18823**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18796**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560344**	Start Node: **18803**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18818**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560344**	Start Node: **18797**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18803**	End Offset: **0**	☑ **Exclude Last Node**

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
18520	0561238 - 0.77	Int of CUMBERLAND AV FRANKLIN ST	9	18	0	0	1	2	15	16.7	7.178	0.84	1.10	0.00
												Statewide Crash Rate:	0.67	
63224	0561238 - 0.80	Int of CUMBERLAND AV FRANKLIN ST	9	13	0	0	1	4	8	38.5	6.653	0.65	1.12	0.00
												Statewide Crash Rate:	0.67	
18919	0561238 - 0.84	Int of BOYD ST CUMBERLAND AV	2	2	0	0	0	0	2	0.0	2.692	0.25	0.44	0.00
												Statewide Crash Rate:	0.15	
18910	0561238 - 0.87	Int of CUMBERLAND AV, LOCUST ST	2	2	0	0	0	0	2	0.0	2.636	0.25	0.44	0.00
												Statewide Crash Rate:	0.15	
18922	0561238 - 0.89	Int of CUMBERLAND AV MAYO ST	2	1	0	0	0	0	1	0.0	2.475	0.13	0.45	0.00
												Statewide Crash Rate:	0.15	
18915	0561238 - 0.94	Int of CUMBERLAND AV, SMITH ST	2	2	0	0	0	0	2	0.0	2.450	0.27	0.45	0.00
												Statewide Crash Rate:	0.15	
19463	0561238 - 0.98	Int of ANDERSON ST CUMBERLAND AV	2	2	0	0	0	0	2	0.0	2.195	0.30	0.46	0.00
												Statewide Crash Rate:	0.15	
18912	0561238 - 0.99	Int of CUMBERLAND AV, MONTGOMERY ST	2	0	0	0	0	0	0	0.0	2.043	0.00	0.47	0.00
												Statewide Crash Rate:	0.15	
18937	0561238 - 1.01	Int of CLEEVE ST CUMBERLAND AV	2	0	0	0	0	0	0	0.0	2.011	0.00	0.47	0.00
												Statewide Crash Rate:	0.15	
19042	0561238 - 1.04	Int of CUMBERLAND AV WASHINGTON AV	9	10	0	0	1	1	8	20.0	4.911	0.68	1.19	0.00
												Statewide Crash Rate:	0.67	
18913	0560160 - 0.55	Int of CONGRESS ST MONTGOMERY ST	2	0	0	0	0	0	0	0.0	3.833	0.00	0.40	0.00
												Statewide Crash Rate:	0.15	
18914	0560160 - 0.60	Int of CONGRESS ST SMITH ST	2	4	0	0	1	0	3	25.0	3.932	0.34	0.40	0.00
												Statewide Crash Rate:	0.15	
18823	0560160 - 0.63	Int of CONGRESS ST INDIA ST	9	7	0	0	1	3	3	57.1	4.581	0.51	1.20	0.00
												Statewide Crash Rate:	0.67	
18911	0560160 - 0.67	Int of CONGRESS ST LOCUST ST	2	0	0	0	0	0	0	0.0	2.943	0.00	0.43	0.00
												Statewide Crash Rate:	0.15	
18799	0560160 - 0.71	Int of CONGRESS ST HAMPSHIRE ST	2	0	0	0	0	0	0	0.0	3.235	0.00	0.42	0.00
												Statewide Crash Rate:	0.15	
63225	0560160 - 0.76	Int of CONGRESS ST FRANKLIN ST	9	12	0	1	0	4	7	41.7	5.974	0.67	1.14	0.00
												Statewide Crash Rate:	0.67	
18794	0561110 - 0	End of FEDERAL ST E	2	0	0	0	0	0	0	0.0	0.007	0.00	-17.21	0.00
												Statewide Crash Rate:	0.14	
18795	0561110 - 0.02	Int of FEDERAL ST E HAMPSHIRE ST	2	0	0	0	0	0	0	0.0	0.274	0.00	0.59	0.00
												Statewide Crash Rate:	0.14	
18796	0561110 - 0.10	Int of FEDERAL ST E INDIA ST	2	1	0	0	0	0	1	0.0	2.510	0.13	0.45	0.00
												Statewide Crash Rate:	0.15	
18797	0561110 - 0.20	Int of FEDERAL ST E HANCOCK ST	2	0	0	0	0	0	0	0.0	0.154	0.00	0.48	0.00
												Statewide Crash Rate:	0.14	
18805	0560531 - 0	End of NEWBURY ST	2	0	0	0	0	0	0	0.0	0.006	0.00	-20.36	0.00
												Statewide Crash Rate:	0.14	
18800	0560531 - 0.03	Int of HAMPSHIRE ST NEWBURY ST	2	0	0	0	0	0	0	0.0	0.296	0.00	0.60	0.00
												Statewide Crash Rate:	0.14	

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
18804	0560531 - 0.11	Int of INDIA ST NEWBURY ST	2	2	0	0	0	0	2	0.0	2.235	0.30	0.46	0.00
												Statewide Crash Rate:	0.15	
18803	0560531 - 0.19	Int of HANCOCK ST NEWBURY ST	2	1	0	0	0	0	1	0.0	0.249	1.34	0.59	2.28
												Statewide Crash Rate:	0.14	
18801	0560505 - 0.33	0509221 POR,MIDDLE,HAMPSHIRE ST	2	1	0	0	0	0	1	0.0	0.968	0.34	0.53	0.00
												Statewide Crash Rate:	0.14	
18817	0560505 - 0.39	Int of INDIA ST MIDDLE ST	2	4	0	0	1	2	1	75.0	2.212	0.60	0.46	1.30
												Statewide Crash Rate:	0.15	
18818	0560505 - 0.47	0509238 POR,HANCOCK,MIDDLE ST.	2	0	0	0	0	0	0	0.0	0.272	0.00	0.59	0.00
												Statewide Crash Rate:	0.14	
18836	0560286 - 0.08	Int of FORE ST WATERVILLE ST	2	0	0	0	0	0	0	0.0	1.748	0.00	0.44	0.00
												Statewide Crash Rate:	0.13	
18820	0560286 - 0.28	Int of FORE ST, MOUNTFORT ST	2	1	0	0	1	0	0	100.0	1.976	0.17	0.43	0.00
												Statewide Crash Rate:	0.13	
18822	0560286 - 0.45	Int of FORE ST INDIA ST	2	7	0	0	0	3	4	42.9	3.565	0.65	0.41	1.60
												Statewide Crash Rate:	0.15	
15397	0561001 - 0	Int of COMMERCIAL ST FRANKLIN ST MAINE STATE PIER	9	8	0	0	0	3	5	37.5	4.896	0.54	1.19	0.00
												Statewide Crash Rate:	0.67	
18821	0561001 - 0.11	Int of COMMERCIAL ST INDIA ST	2	0	0	0	0	0	0	0.0	2.210	0.00	0.46	0.00
												Statewide Crash Rate:	0.15	
18517	0001A - 11.88	Int of FORE ST FRANKLIN ST	9	8	0	0	1	3	4	50.0	3.590	0.74	1.27	0.00
												Statewide Crash Rate:	0.67	
18518	0001A - 11.94	Int of FRANKLIN ST MIDDLE ST	9	20	0	0	1	5	14	30.0	5.287	1.26	1.17	1.08
												Statewide Crash Rate:	0.67	
18519	001AS - 1.91	Int of CONGRESS ST, FRANKLIN ST	9	11	0	1	1	2	7	36.4	7.631	0.48	1.09	0.00
												Statewide Crash Rate:	0.67	
18819	0561002 - 0	Int of CONGRESS ST, MOUNTFORT ST, WASHINGTON AV	9	11	0	0	1	0	10	9.1	4.593	0.80	1.20	0.00
												Statewide Crash Rate:	0.67	
18798	0560524 - 0.14	Int of FEDERAL ST E MOUNTFORT ST	2	2	0	0	0	0	2	0.0	0.513	1.30	0.59	2.19
												Statewide Crash Rate:	0.14	
18802	0560524 - 0.17	Int of MOUNTFORT ST NEWBURY ST	2	0	0	0	0	0	0	0.0	0.449	0.00	0.60	0.00
												Statewide Crash Rate:	0.14	
Study Years:	3.00	**NODE TOTALS:**		150	0	2	11	32	105	30.0	105.383	0.47	0.51	0.92

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18520	63224	3118814	0 - 0.03	0561238 - 0.77	0.03	2	1	0	0	0	0	1	0.0	0.00107	312.57	683.74	0.00
Int of CUMBERLAND AV FRANKLIN ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
63224	18919	3115972	0 - 0.04	0561238 - 0.80	0.04	2	3	0	0	0	0	3	0.0	0.00106	940.32	684.19	1.37
Int of CUMBERLAND AV FRANKLIN ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
18910	18919	3129300	0 - 0.03	0561238 - 0.84	0.03	2	7	0	0	0	2	5	28.6	0.00077	3047.62	737.95	4.13
Int of CUMBERLAND AV, LOCUST ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
18910	18922	3118713	0 - 0.02	0561238 - 0.87	0.02	2	1	0	0	0	0	1	0.0	0.00049	678.28	804.41	0.00
Int of CUMBERLAND AV, LOCUST ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
18915	18922	3117967	0 - 0.05	0561238 - 0.89	0.05	2	5	0	0	0	0	5	0.0	0.00120	1394.48	665.03	2.10
Int of CUMBERLAND AV, SMITH ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
18915	19463	3131702	0 - 0.04	0561238 - 0.94	0.04	2	0	0	0	0	0	0	0.0	0.00088	0.00	715.17	0.00
Int of CUMBERLAND AV, SMITH ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
18912	19463	194577	0 - 0.01	0561238 - 0.98	0.01	2	0	0	0	0	0	0	0.0	0.00021	0.00	850.21	0.00
Int of CUMBERLAND AV, MONTGOMERY ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
18912	18937	3130202	0 - 0.02	0561238 - 0.99	0.02	2	1	0	0	0	0	1	0.0	0.00040	835.08	829.57	1.01
Int of CUMBERLAND AV, MONTGOMERY ST				RD INV 05 61238											Statewide Crash Rate: 198.45		
18937	19042	3131703	0 - 0.03	0561238 - 1.01	0.03	2	3	0	0	0	0	3	0.0	0.00059	1686.50	777.77	2.17
Int of CLEEVE ST CUMBERLAND AV				RD INV 05 61238											Statewide Crash Rate: 198.45		
18819	18913	3131697	0 - 0.03	0560160 - 0.52	0.03	2	1	0	0	0	0	1	0.0	0.00111	300.18	677.09	0.00
Int of CONGRESS ST, MOUNTFORT ST, WASHINGTON AV				RD INV 05 60160											Statewide Crash Rate: 198.45		
18913	18914	194578	0 - 0.05	0560160 - 0.55	0.05	2	4	0	0	0	1	2	33.3	0.00189	706.78	592.48	1.19
Int of CONGRESS ST MONTGOMERY ST				RD INV 05 60160											Statewide Crash Rate: 198.45		
18823	18914	3118711	0 - 0.03	0560160 - 0.60	0.03	2	1	0	0	0	0	1	0.0	0.00117	284.21	668.12	0.00
Int of CONGRESS ST INDIA ST				RD INV 05 60160											Statewide Crash Rate: 198.45		
18823	18911	3120757	0 - 0.04	0560160 - 0.63	0.04	2	4	0	0	1	2	1	75.0	0.00116	1150.76	670.11	1.72
Int of CONGRESS ST INDIA ST				RD INV 05 60160											Statewide Crash Rate: 198.45		
18799	18911	3123999	0 - 0.04	0560160 - 0.67	0.04	2	2	0	0	0	0	2	0.0	0.00120	557.40	664.91	0.00
Int of CONGRESS ST HAMPSHIRE ST				RD INV 05 60160											Statewide Crash Rate: 198.45		
63225	18799	3115974	0 - 0.05	0560160 - 0.71	0.05	2	1	0	0	0	1	0	100.0	0.00174	191.54	604.90	0.00
Int of CONGRESS ST FRANKLIN ST				RD INV 05 60160											Statewide Crash Rate: 198.45		
18519	63225	3115973	0 - 0.03	0560160 - 0.76	0.03	2	0	0	0	0	0	0	0.0	0.00128	0.00	654.44	0.00
Int of CONGRESS ST, FRANKLIN ST				RD INV 05 60160											Statewide Crash Rate: 198.45		
18794	18795	194384	0 - 0.02	0561110 - 0	0.02	2	0	0	0	0	0	0	0.0	0.00000	0.00	-	0.00
End of FEDERAL ST E				RD INV 05 61110											Statewide Crash Rate: 384.19	421194.82	
18795	18796	194385	0 - 0.08	0561110 - 0.02	0.08	2	1	0	0	0	0	1	0.0	0.00024	1372.06	1568.43	0.00
Int of FEDERAL ST E HAMPSHIRE ST				RD INV 05 61110											Statewide Crash Rate: 384.19		
18796	18797	194388	0 - 0.10	0561110 - 0.10	0.10	2	1	0	0	0	0	1	0.0	0.00011	2936.47	1652.05	1.78
Int of FEDERAL ST E INDIA ST				RD INV 05 61110											Statewide Crash Rate: 384.19		
18797	18798	194391	0 - 0.10	0561110 - 0.20	0.10	2	1	0	0	0	0	0	0.0	0.00006	5930.14	1307.34	4.54
Int of FEDERAL ST E HANCOCK ST				RD INV 05 61110											Statewide Crash Rate: 384.19		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18800	18805	194398	0 - 0.03	0560531 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00000	0.00	-	0.00
Int of HAMPSHIRE ST NEWBURY ST				RD INV 05 60531											Statewide Crash Rate: 384.17	30403.77	
18800	18804	194397	0 - 0.08	0560531 - 0.03	0.08	2	4	0	0	0	0	4	0.0	0.00008	15800.03	1582.54	9.98
Int of HAMPSHIRE ST NEWBURY ST				RD INV 05 60531											Statewide Crash Rate: 384.19		
18803	18804	194402	0 - 0.08	0560531 - 0.11	0.08	2	1	0	0	0	0	1	0.0	0.00011	3119.00	1644.54	1.90
Int of HANCOCK ST NEWBURY ST				RD INV 05 60531											Statewide Crash Rate: 384.19		
18802	18803	194400	0 - 0.08	0560531 - 0.19	0.08	2	1	0	0	0	0	1	0.0	0.00006	5212.57	1423.30	3.66
Int of MOUNTFORT ST NEWBURY ST				RD INV 05 60531											Statewide Crash Rate: 384.19		
18518	18801	194025	0 - 0.06	0560505 - 0.27	0.06	2	2	0	0	0	1	1	50.0	0.00075	885.18	1225.13	0.00
Int of FRANKLIN ST MIDDLE ST				RD INV 05 60505											Statewide Crash Rate: 384.19		
18801	18817	194399	0 - 0.06	0560505 - 0.33	0.06	2	3	0	0	1	0	2	33.3	0.00017	5854.12	1638.94	3.57
0509221 POR,MIDDLE,HAMPSHIRE ST				RD INV 05 60505											Statewide Crash Rate: 384.19		
18817	18818	194423	0 - 0.08	0560505 - 0.39	0.08	2	0	0	0	0	0	0	0.0	0.00032	0.00	1495.09	0.00
Int of INDIA ST MIDDLE ST				RD INV 05 60505											Statewide Crash Rate: 384.19		
18820	18836	3131698	0 - 0.20	0560286 - 0.08	0.20	2	5	0	0	2	0	3	40.0	0.00336	495.47	433.67	1.14
Int of FORE ST, MOUNTFORT ST				RD INV 05 60286											Statewide Crash Rate: 159.43		
18820	18822	3106815	0 - 0.17	0560286 - 0.28	0.17	2	9	0	0	1	1	7	22.2	0.00323	929.24	438.31	2.12
Int of FORE ST, MOUNTFORT ST				RD INV 05 60286											Statewide Crash Rate: 159.43		
18517	18822	3106667	0 - 0.11	0560286 - 0.45	0.11	2	2	0	0	0	0	2	0.0	0.00155	429.61	528.74	0.00
Int of FORE ST FRANKLIN ST				RD INV 05 60286											Statewide Crash Rate: 159.43		
15397	18821	3106035	0 - 0.11	0561001 - 0	0.11	2	3	0	0	0	0	2	0.0	0.00260	385.13	545.43	0.00
Int of COMMERCIAL ST FRANKLIN ST MAINE STATE PIER				RD INV 05 61001											Statewide Crash Rate: 198.45		
15397	18517	3123025	0 - 0.08	0001A - 11.80	0.08	2	1	0	0	0	1	0	100.0	0.00076	439.06	739.30	0.00
Int of COMMERCIAL ST FRANKLIN ST MAINE STATE PIER				US 1A											Statewide Crash Rate: 198.45		
18517	18518	3118954	0 - 0.06	0001A - 11.88	0.06	2	0	0	0	0	0	0	0.0	0.00078	0.00	734.26	0.00
Int of FORE ST FRANKLIN ST				US 1A											Statewide Crash Rate: 198.45		
18518	63225	3121455	0 - 0.16	0001A - 11.94	0.16	2	0	0	0	0	0	0	0.0	0.00337	0.00	509.80	0.00
Int of FRANKLIN ST MIDDLE ST				US 1A											Statewide Crash Rate: 198.45		
63225	63224	2566764	0 - 0.09	0001A - 12.10	0.09	2	2	0	0	0	1	1	50.0	0.00319	208.87	517.08	0.00
Int of CONGRESS ST FRANKLIN ST				US 1A											Statewide Crash Rate: 198.45		
18519	18520	3106670	0 - 0.09	001AS - 1.82	0.09	2	3	0	0	0	0	3	0.0	0.00326	306.28	514.07	0.00
Int of CONGRESS ST, FRANKLIN ST				US 1AS											Statewide Crash Rate: 198.45		
18518	18519	3106668	0 - 0.16	001AS - 1.91	0.16	2	1	0	0	1	0	0	100.0	0.00358	93.20	502.19	0.00
Int of FRANKLIN ST MIDDLE ST				US 1AS											Statewide Crash Rate: 198.45		
18517	18518	3118912	0 - 0.06	001AS - 2.07	0.06	2	2	0	0	1	0	1	50.0	0.00078	853.42	734.71	1.16
Int of FORE ST FRANKLIN ST				US 1AS											Statewide Crash Rate: 198.45		
15397	18517	3100256	0 - 0.08	001AS - 2.13	0.08	2	1	0	0	0	0	1	0.0	0.00107	312.58	683.74	0.00
Int of COMMERCIAL ST FRANKLIN ST MAINE STATE PIER				US 1AS											Statewide Crash Rate: 198.45		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18819	19042	3106814	0 - 0.06	0561002 - 0	0.06	2	4	0	0	0	0	4	0.0	0.00174	764.28	604.53	1.26
Int of CONGRESS ST, MOUNTFORT ST, WASHINGTON AV				RD INV 05 61002											Statewide Crash Rate: 198.45		
18798	18819	194394	0 - 0.14	0560524 - 0	0.14	2	1	0	0	0	0	1	0.0	0.00073	455.85	1234.29	0.00
Int of FEDERAL ST E MOUNTFORT ST				RD INV 05 60524											Statewide Crash Rate: 384.19		
18798	18802	194393	0 - 0.03	0560524 - 0.14	0.03	2	0	0	0	0	0	0	0.0	0.00013	0.00	1658.64	0.00
Int of FEDERAL ST E MOUNTFORT ST				RD INV 05 60524											Statewide Crash Rate: 384.19		
18802	18820	194401	0 - 0.05	0560524 - 0.17	0.05	2	6	0	0	0	0	5	0.0	0.00019	10807.60	1626.49	6.64
Int of MOUNTFORT ST NEWBURY ST				RD INV 05 60524											Statewide Crash Rate: 384.19		
18912	18913	194575	0 - 0.05	0560510 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00005	0.00	1109.01	0.00
Int of CUMBERLAND AV, MONTGOMERY ST				RD INV 05 60510											Statewide Crash Rate: 384.19		
18914	18915	194579	0 - 0.06	0560666 - 0	0.06	2	1	0	0	0	1	0	100.0	0.00011	3074.89	1646.59	1.87
Int of CONGRESS ST SMITH ST				RD INV 05 60666											Statewide Crash Rate: 384.19		
18910	18911	194572	0 - 0.07	0560451 - 0	0.07	2	3	0	0	0	0	3	0.0	0.00009	10902.21	1610.95	6.77
Int of CUMBERLAND AV, LOCUST ST				RD INV 05 60451											Statewide Crash Rate: 384.19		
18795	18799	194386	0 - 0.06	0560342 - 0.10	0.06	2	0	0	0	0	0	0	0.0	0.00007	0.00	1482.15	0.00
Int of FEDERAL ST E HAMPSHIRE ST				RD INV 05 60342											Statewide Crash Rate: 384.19		
18795	18800	194387	0 - 0.05	0560342 - 0.05	0.05	2	1	0	0	0	0	1	0.0	0.00012	2805.66	1655.82	1.69
Int of FEDERAL ST E HAMPSHIRE ST				RD INV 05 60342											Statewide Crash Rate: 384.19		
18800	18801	194396	0 - 0.05	0560342 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00010	0.00	1630.72	0.00
Int of HAMPSHIRE ST NEWBURY ST				RD INV 05 60342											Statewide Crash Rate: 384.19		
18821	18822	3106816	0 - 0.06	0561000 - 0.23	0.06	2	0	0	0	0	0	0	0.0	0.00124	0.00	659.57	0.00
Int of COMMERCIAL ST INDIA ST				RD INV 05 61000											Statewide Crash Rate: 198.45		
18817	18822	3106813	0 - 0.05	0561000 - 0.18	0.05	2	1	0	0	0	0	1	0.0	0.00088	378.86	715.36	0.00
Int of INDIA ST MIDDLE ST				RD INV 05 61000											Statewide Crash Rate: 198.45		
18804	18817	3122291	0 - 0.05	0561000 - 0.13	0.05	2	3	0	0	1	0	1	50.0	0.00099	1008.74	695.75	1.45
Int of INDIA ST NEWBURY ST				RD INV 05 61000											Statewide Crash Rate: 198.45		
18796	18804	3130049	0 - 0.05	0561000 - 0.08	0.05	2	3	0	0	0	0	3	0.0	0.00112	889.95	675.15	1.32
Int of FEDERAL ST E INDIA ST				RD INV 05 61000											Statewide Crash Rate: 198.45		
18796	18823	3106811	0 - 0.08	0561000 - 0	0.08	2	2	0	0	0	0	2	0.0	0.00189	353.64	592.58	0.00
Int of FEDERAL ST E INDIA ST				RD INV 05 61000											Statewide Crash Rate: 198.45		
18803	18818	194403	0 - 0.05	0560344 - 0.04	0.05	2	0	0	0	0	0	0	0.0	0.00007	0.00	1518.66	0.00
Int of HANCOCK ST NEWBURY ST				RD INV 05 60344											Statewide Crash Rate: 384.19		
18797	18803	194392	0 - 0.04	0560344 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00006	0.00	1288.27	0.00
Int of FEDERAL ST E HANCOCK ST				RD INV 05 60344											Statewide Crash Rate: 384.19		
Study Years: 3.00				**Section Totals:**	3.68		102	0	0	8	11	78	18.6	0.05523	615.59	292.48	2.10
				Grand Totals:	3.68		252	0	2	19	43	183	25.4	0.05523	1520.87	412.47	3.69

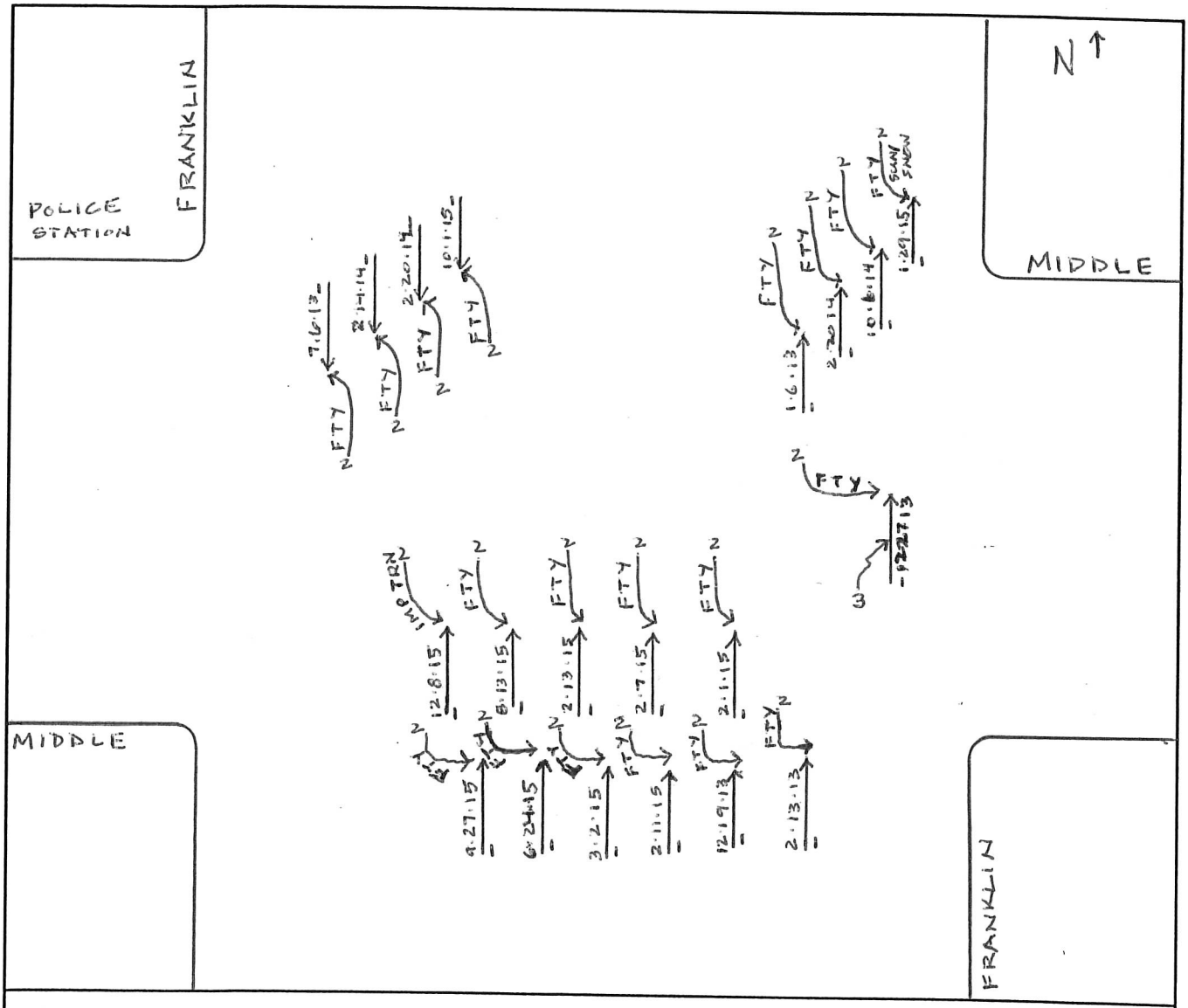
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION Intersection of Franklin & Middle Streets

TOWN Portland, Maine NODE NO(S) 18518

YEARS REVIEWED 2013 - 2015 DATE PREPARED 08.29.2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE-PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER-NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION-DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED-WINDSHIELD GLASS
19. VISION OBSCURED-SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

- VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
OR FACTOR 51. UNKNOWN

SYMBOLS

ANGLE	PEDESTRIAN	P	FATAL ACCIDENT
BACKING	REAR END		
FIXED OBJECT	SIDE SWIPE		VEHICLE (MOVING)
HEAD ON	TURNING MOVE		BICYCLE — B
OVERTURN	CHANGE LANE		ANIMAL — A
PARKED VEHICLE	OUT OF CONTROL		SLED — S

WEATHER
C = CLEAR F = FOG R = RAIN
SL = SLEET S = SNOW CL = CLOUDY
XW = CROSS WINDS

INJURIES
K = FATAL B = NON-INCAPACITATING
A = INCAPACITATING C = POSSIBLE INJURY

S:/SHEETS/COLLISION DIAGRAM.DWG

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION Intersection of Franklin & Middle Streets

TOWN Portland, ME NODE NO(S) 18518

YEARS REVIEWED 2013 - 2015 DATE PREPARED 08·29·2016

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
00076	01·06·13	08:55	-	-	-	1	1	2	2	
000535	02·13·13	06:41	-	-	-	-	1	2	2	
001912	07·06·13	13:08	-	-	-	-	1	1	2	
003722	12·19·13	19:47	-	-	-	-	4	2	2	
003801	12·27·13	08:55	-	-	-	-	2	3	2	
000570	02·14·14	07:56	-	-	-	1	2	3	2	
000702	02·20·14	12:46	-	-	-	-	2	2	2	
000703	02·20·14	12:50	-	-	-	-	2	2	2	
002950	10·06·14	18:10	-	-	-	-	2	1	2	
000362	01·29·15	07:48	-	-	-	1	2	3	2/19	
000442	02·01·15	16:15	-	-	-	1	2	3	2	
000617	02·07·15	14:49	-	-	-	-	2	2	2	
000724	02·11·15	13:04	-	-	-	-	2	2	2	
000769	02·13·15	08:22	-	-	-	-	2	2	2	
001020	03·02·15	14:59	-	-	-	-	2	1	2	
002165	06·24·15	09:30	-	-	-	1	2	1	2	
002716	08·13·15	08:15	-	-	-	-	2	1	2	
003242	09·27·15	10:32	-	-	1	-	2	1	2	
003298	10·01·15	08:45	-	-	-	-	2	1	2	
004095	12·08·15	10:31	-	-	-	-	2	1	10	

S:/SHEETS/COLLISION DIAGRAM.DWG

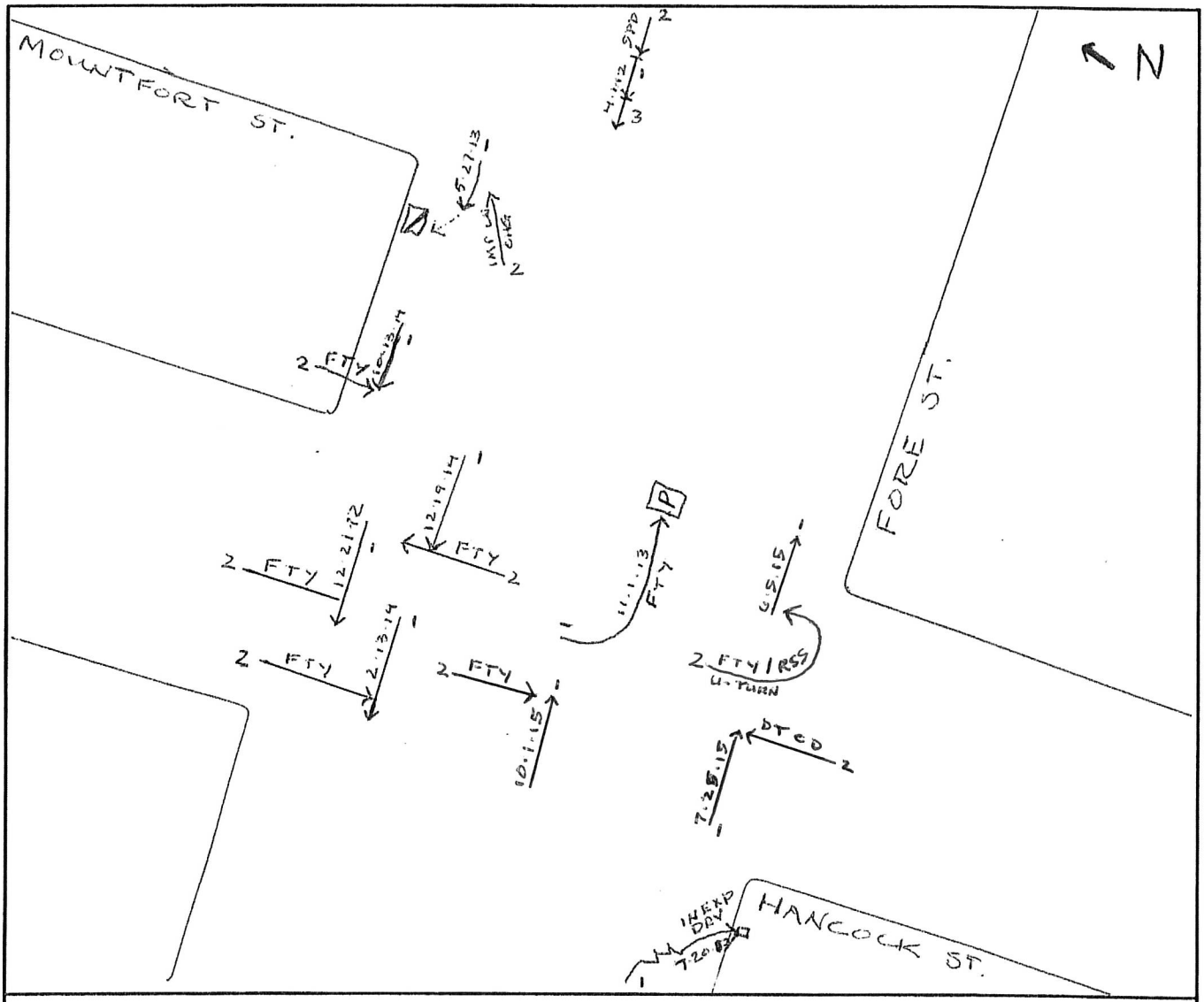
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION Intersection of Fore Street & Hancock Street

TOWN Portland, Maine NODE NO(S) 18820 to 18822

YEARS REVIEWED 2012 - 2015 DATE PREPARED 08.29.2016



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE-PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER-NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION-DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED-WINDSHIELD GLASS
19. VISION OBSCURED-SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

- VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION OR FACTOR 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
51. UNKNOWN

SYMBOLS
ANGLE, BACKING, FIXED OBJECT, HEAD ON, OVERTURN, PARKED VEHICLE
PEDESTRIAN, REAR END, SIDE SWIPE, TURNING MOVE, CHANGE LANE, OUT OF CONTROL
FATAL ACCIDENT, VEHICLE (MOVING), BICYCLE (B), ANIMAL (A), SLED (S)

WEATHER
C = CLEAR F = FOG R = RAIN
SL = SLEET S = SNOW CL = CLOUDY
XW = CROSS WINDS

INJURIES
K = FATAL B = NON-INCAPACITATING
A = INCAPACITATING C = POSSIBLE INJURY

S:\SHEETS\COLLISION DIAGRAM.DWG

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION Intersection of Fore Street & Hancock Street

TOWN Portland NODE NO(S) 18820 to 18822

YEARS REVIEWED 2012 - 2015 DATE PREPARED 08.29.2016

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
00781	04.01.12	02:55	-	-	-	1	4	1	3	
003253	12.21.12	16:53	-	-	-	2	4	2	2	
001534	05.27.13	12:40	-	-	-	1	2	1	8	
002062	07.20.13	10:29	-	-	-	-	2	1	15	Student Driver
003090	11.01.13	15:30	-	1	-	-	2	1	2	
000550	02.18.14	10:03	-	-	-	-	2	2	2	
003007	10.13.14	10:09	-	-	-	-	2	1	2	
003756	12.19.14	15:09	-	-	-	-	2	1	2	
001962	06.05.15	10:35	-	-	-	-	2	1	2/5	U-Turn
002518	07.25.15	17:59	-	-	-	-	2	1	5	
003289	10.01.15	13:11	-	-	-	-	2	2	2	

S:/SHEETS/COLLISION DIAGRAM.DWG

Section 3
Development Entrances and Exits

3.A. Entrance and Exit Locations

Vehicular access to the site is via a full movement site driveway onto Fore Street primarily for the residential units, Thames Street Extension for the non-residential site uses and a proposed new public road connecting Fore Street to Thames Street Extension.

3.B. Plan View

Attachment 1A of Section 1 shows the proposed site plan.

- Frontage Road(s) – Fore Street
- Posted Speed Limit – 25 mph
- Sight Lines – The posted speed limit on Fore Street is 25 mph, which requires a MaineDOT and City available sight distance of 200 feet. The measured available sight distance exiting the site accesses exceeds 200 feet looking left and right from the proposed road connecting Fore Street to Thames Street Extension. The sight distance looking left from the proposed road onto Fore Street could be improved by relocating the Hamilton Marine sign further from the edge of the road. The proposed site driveway across from Waterville Street exceeds the sight distance requirements in both directions, provided that on-street parking spaces within the site triangle on either side of the driveway are removed.

Section 4
Title, Right or Interest

4.A. Evidence of Title, Right, or Interest

A copy of the Deeds are included in Attachment 4A

4.B. Attachments

Attachment 4A – July 2013 Deed, April 2014 Deed

Attachment 4A

July 2013 Deed
April 2014 Deed

TRUSTEES' DEED

Maine Statutory Short Form

KNOW ALL BY THESE PRESENTS THAT **ELIZABETH M. SPRAGUE, ERIC THOMAS SPRAGUE and PHINEAS M. SPRAGUE, as Trustees of THE BUENA VISTA TRUST**, under indenture dated December 20, 2011, with a principal place of business in Cape Elizabeth, Maine, by the power conferred by law, and every other power, for consideration paid, grant to **CPB2 LLC**, a Delaware limited liability company, with a place of business c/o Blue Water Construction, 41 Glendale Place, Gilford, New Hampshire 03249, the land, together with any improvements thereon, situated in the City of Portland, County of Cumberland, State of Maine, described on Exhibit A attached hereto.

MAINE REAL ESTATE TAX PAID

Pursuant to Title 18-B M.R.S. § 1013, we, in our capacities, do hereby certify that (1) we are all of the Trustees of said Trust; (2) the Trust exists as the date of this Agreement; (3) we have power under said Trust to convey any trust asset in our sole discretion and need no consent from any beneficial interests; (4) we are the trustees authorized to execute or otherwise authenticate any and all documents in the exercise of our power; (5) in making this conveyance, we have in all respects acted in pursuance of the authority granted in and by said Trust; and (6) the Trust has not been revoked, modified, amended or terminated in any way that would cause the representations contained in this certificate to be incorrect.

[signatures on next page]

Witness our hands and seals this 19 day of the month of July, 2013.

WITNESS:

THE BUENA VISTA TRUST

_____

By_____
Eric Thomas Sprague, Trustee

_____

By_____
Elizabeth M. Sprague, Trustee

_____

By_____
Phineas M. Sprague, Trustee

STATE OF MAINE
COUNTY OF CUMBERLAND

July __, 2013

Then personally appeared the above named Eric Thomas Sprague, in his said capacity and acknowledged the foregoing instrument to be his free act and deed.

Before me,

_____
Notary Public/Attorney at Law

Witness our hands and seals this 26 day of the month of July, 2013.

WITNESS:

THE BUENA VISTA TRUST

By _____
Eric Thomas Sprague, Trustee

By _____
Elizabeth M. Sprague, Trustee

By _____
Phineas M. Sprague, Trustee

STATE OF MAINE
COUNTY OF CUMBERLAND

July 26, 2013

Then personally appeared the above named Eric Thomas Sprague, in his said capacity and acknowledged the foregoing instrument to be his free act and deed.

Before me,

~~Notary Public~~/Attorney at Law
Drew A. Ardizzi

EXHIBIT A

A certain lot or parcel of land together with the buildings thereon situated on the southerly side of Fore Street in the City of Portland, County of Cumberland and State of Maine bounded and described as follows:

Beginning at a point on the southerly sideline of Fore Street at the northeasterly corner of Tract I as shown on "ALTA/ACSM Land Title Survey 58 Fore Street, Portland, Cumberland County, Maine made for CPB2 LLC" dated May 22, 2013 by Owen Haskell, Inc., thence N53°19'30"E along the southerly sideline of said Fore Street 140.00 feet;

Thence, N 61° 01' 30" E along the southerly sideline of said Fore Street 43.36 feet to land now or formerly of Macgowan as described in the Deed recorded in Cumberland County Registry of Deeds in Book 15773, Page 153;

Thence, S 31° 18' 30" E along land of said Macgowan 150.00 feet;

Thence, N 61° 01' 30" E along land of said Macgowan 112.00 feet to land now or formerly of Timothy Haley, Trustee, as described in the Deed recorded in the said Registry of Deeds in Book 24759, Pages 67 & 69;

Thence, S 31° 18' 30" E along land of said Haley 110.28 feet;

Thence, N 63° 18' 30" E along land of said Haley 100.00 feet;

Thence, N 31° 18' 30" W along land of said Haley 95.88 feet;

Thence, N 69° 31' 20" E along land of said Haley 49.73 feet to land now or formerly of Eastern Promenade Condominium;

Thence, S 31° 18' 26" E along land of said Eastern Promenade Condominium 240.48 feet to an iron rod found and to land now or formerly of the State of Maine as described in the Deed recorded in said Registry of Deeds in Book 10924, Page 91;

Thence, S 63° 18' 30" W along land of said State of Maine 430.00 feet to the easterly line of said Tract I;

Thence, N 33° 29 '33" W along said Tract I 381.17 feet to the point of beginning containing 2.87 acres.

The premises are conveyed together with the right of access and egress running from the existing paved driveway over land now or formerly of The Portland Company to the

premises conveyed herein as described in a deed to Elizabeth M. Sprague, Eric Thomas Sprague and Phineas M. Sprague, Trustees of The Buena Vista Trust by Warranty deed of The Portland Company dated December 30, 1012 and recorded in the Cumberland County Registry of Deeds in Book 30265, Page 32.

Meaning and intending to convey and hereby conveying the same premises conveyed to Elizabeth M. Sprague, Eric Thomas Sprague and Phineas M. Sprague, Trustees of The Buena Vista Trust by Warranty Deed of The Portland Company, dated December 30, 2012 and recorded in the Cumberland County Registry of Deeds in Book 30265, Page 32.

S:\P\POCO14\Prentice Purchase\Sale Documents\Deed of Trustees.doc

Received
Recorded Register of Deeds
Jul 29,2013 03:54:21P
Cumberland County
Pamela E. Lovley

Doc#: 13675 Bk:31425 Pg: 267

QUITCLAIM DEED WITH COVENANT

Maine Statutory Short Form

MAINE REAL ESTATE TAX PAID

KNOW ALL BY THESE PRESENTS, that **THE PORTLAND COMPANY**, a Maine corporation and having a place of business at 58 Fore Street, County of Cumberland, and State of Maine, for consideration paid, grants to **CPB2 LLC**, a Delaware limited liability company, with an address of P.O. Box 7987, Portland, Maine 04112, with **QUITCLAIM COVENANTS,** the land located in Portland, County of Cumberland and State of Maine, and more particularly described in Exhibit "A" attached hereto and made a part hereof.

IN WITNESS WHEREOF, said THE PORTLAND COMPANY has caused this instrument to be signed and sealed this 1st day of April, 2014.

WITNESS:

THE PORTLAND COMPANY

Phineas Sprague Jr

By: Phineas Sprague, Jr.
Its: President

STATE OF MAINE
COUNTY OF CUMBERLAND

April 1, 2014

Personally appeared the above-named Phineas Sprague, Jr. in his said capacity, and acknowledged the foregoing to be his free act and deed and that of said corporation, The Portland Company, before me.

~~Notary Public~~/Attorney at Law

Drew A. Anderson

Printed Name

EXHIBIT A

TRACT I

A certain lot or parcel of land together with the buildings thereon situated on the southerly side of Fore Street, City of Portland, County of Cumberland and State of Maine bounded and described as follows:

Beginning at a point on the southerly sideline of Fore Street at a railroad spike at the northeasterly corner of land now or formerly of Hope 1 LLC as described in deed Book 22261, Page 50, thence S 87° 34' 45" E along the southerly sideline of said Fore Street 287.74 feet;

Thence, N 53° 19' 30" E along the southerly sideline of said Fore Street 594.45 feet to the northwesterly corner of Tract III, as shown on "ALTA/ACSM Land Title Survey, 58 Fore Street, Portland, Cumberland County, Maine made for CPB2 LLC" by Owen Haskell, Inc. dated May 22, 2013.

Thence, S 33° 29' 33" E along the westerly side of said Tract III 381.17 feet to land now or formerly of the State of Maine as described in deed Book 10924, Page 91;

Thence, S 63° 18' 30" W along land of said State of Maine 255.00 feet;

Thence, S 68° 31' 30" W along land of said State of Maine 442.91 feet to an iron rod found (bent) and land now or formerly of City of Portland as described in deed Book 21951, Page 341;

Thence, N 88° 12' 30" W along land of said City of Portland 137.25 feet to a non-tangent curve to the right;

Thence, following the curve to the right, along land of said City of Portland and land of said Hope 1 LLC, having a radius of 274.33 feet, an arc length of 337.36 feet, a chord bearing of N 38° 35' 30" W, and a chord length of 316.50 feet, to the southerly sideline of Fore Street and the point of beginning containing 6.04 acres.

Basis of bearings: Magnetic 1967.

TRACT II

A certain lot or parcel of land together with the buildings thereon situated southerly of but not adjacent to Fore Street, in the City of Portland, County of Cumberland and State of Maine bounded and described as follows:

Commencing at a point on the southerly line of Tract I, at an iron rod found (bent) at the southeasterly corner of land now or formerly of the City of Portland as described in deed Book 21951, Page 341, on the northerly line of land now or formerly of the State of Maine as described in deed Book 10924, Page 91, as shown on "ALTA/ACSM Land Title Survey, 58 Fore Street, Portland, Cumberland County, Maine made for CPB2 LLC" by Owen Haskell, Inc. dated May 22, 2013.

Thence, N 68° 31' 30" E along the northerly line of land of said State of Maine 215.11 feet;

Thence, S 27° 09' 40" E across land of said State of Maine and along the easterly line of land now or formerly of the City of Portland 50.25 feet to the true point of beginning;

Thence, N 68° 31' 30" E along the southerly sideline of land of said State of Maine 225.10 feet;

Thence, N 63° 18' 30" E along the southerly sideline of land of said State of Maine 690.74 feet;

Thence, S 30° 39' 00" E along land of said State of Maine 56.34 feet;

Thence, S 61° 35' 30" W 27.46 feet;

Thence, S 77° 24' 52" W 94.07 feet;

Thence, S 62° 35' 30" W 475.00 feet;

Thence, S 38° 50' 30" W 60.00 feet;

Thence, S 63° 50' 30" W 120.00 feet;

Thence, N 26° 10' 00" W 8.00 feet;

Thence, S 63° 49' 37" W 150.00 feet to land of said City of Portland;

Thence, N 27° 09' 40" W along land of said City of Portland 74.89 feet to the point of beginning containing 44,274 sq. ft.

Basis of bearings: Magnetic 1967.

ALSO CONVEYING two crossings for vehicular, pedestrian and utility access to and from other land now or formerly of Phineas Sprague to the most immediately above described parcel across the area shown on Exhibit B of Indenture Deed by and between the Maine Department of Transportation and Phineas Sprague, dated August 30, 1993 and recorded in Book 10924, Page 97, as the "Rail-Trail Corridor." Each crossing shall be 50 feet in width over the 50 foot wide "Rail-Trail Corridor" plus turning radii, as necessary, at the entrances to the crossings from the above described parcel of land. Such crossings may be moved from time to time by the Grantee at its expense upon proper notice to and approval by the Maine Department of Transportation, provided that the distance between the centerlines of the two crossings shall never be less than 200 feet; and further provided that in the event of any relocation, any former crossing shall be restored to the condition it would have been in had the crossing not been placed in that location.

TOGETHER WITH any upland including the seawall which immediately adjoin the above described premises.

Received
Recorded Register of Deeds
Apr 03,2014 12:25:29P
Cumberland County
Pamela E. Lovley

Section 5
Public or Private Rights-of-Way

5.A. Public or Private Rights-of-Way

The site will have three accesses; Thames Street Extension into the site, a full movement driveway onto Fore Street across from Waterville Street, and a new public road that connects Fore Street to Thames Street Extension.

Section 6
Schedule

6.A. Schedule

The proposed project is anticipated to be completed and occupied by 2027.

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

Site Parking Demand
58 Fore Street Mixed Use Development
Portland, Maine
JN 3138

Date: September 16, 2016
Subject: Site Parking Demand
58 Fore Street Mixed Use Development
To: David Senus, Mary McCrann, Jim Brady, Kevin Costello, Casey Prentice
From: Randy Dunton and Emily Tynes, Gorrill Palmer (JN 3138)

The following is a summary of the estimated parking demand for the proposed mixed use development at 58 Fore Street. The following table summarizes the sizes and uses of the proposed development used to calculate the parking demand:

Proposed Site Summary

Development Block	Use	Size
B1		
	Retail	7,878 SF
	Residential	91 Dwelling Units
	Office	79,000 SF
B2		
	Retail	26,895 SF
	Residential	19 Dwelling Units
	Office	25,617 SF
B3		
	Retail	11,500 SF
	Office	19,300 SF
B4		
	Residential	275 Dwelling Units
	Retail	4,000 SF
B5		
	Residential	108 Dwelling Units
	Hotel	132 Rooms
	Restaurant	3,800 SF
	Function	5,800 SF
B6		
	Residential (Condos)	131 Dwelling Units
	Residential (Apartments)	14 Dwelling Units
B7		
	Marina Facilities	2,600 SF, 220 Slips

It should be noted that the retail portions of the proposed site will be multiple smaller shops, not large retail stores.

Parking Demand Calculation Methodologies

The parking demand has been determined using two methodologies: using the City Ordinance requirements and based on a shared parking demand. The following summarizes the methodologies in more detail:

City Ordinance Parking Demand

The Ordinance requirement methodology involves calculating the peak parking demand for each use using the City of Portland Code of Ordinances. This method assumes each use is isolated and then adds the individual demands to determine the parking demand for the site. The supporting calculations for this method are attached. This method results in an overestimate because the peak demands for each use are not expected to occur at the same time. For example, offices require more spaces during the day while employees are in the office, and residential buildings would require more spaces later at night when residents are home from work.

The City Ordinance Ch. 14, Art III, Div. 20, Sec. 14-332.2 (c) states, "where construction is proposed of new structures having a total floor area in excess of fifty thousand (50,000) square feet, the planning board shall establish the parking requirement for such structures. The parking requirement shall be determined based upon a parking analysis submitted by the applicant and upon the recommendation of the city transportation engineer." Since this mixed use development is approximately 958,679 sf of building floor area, it meets the criteria. Therefore, the site parking demand was determined based on the following methodology.

Shared Parking Plan

The shared parking plan methodology is based on a combination of City Ordinance parking demand, the ITE Parking Generation Manual (4th Edition), and published data / engineering judgement and it reflects that the demand for different uses will peak during different times of day. Since different uses do not peak at the same times, parking spaces can be shared between uses. To determine the shared parking demand, the total parking demand was calculated for each use, then distributed throughout the day based on the type of use. This is the same methodology used for the recent Thompson's Point project. The supporting calculations are attached. With a shared parking plan it is recommended that shared parking language be included in the leases, to ensure tenants understand the shared parking.

Parking Demand Reductions

Given the mixed use of the site as well as its downtown location, the following two parking demand reductions were applied to the shared parking spaces:

Shared Use Reduction

When evaluating a mixed use development with complementary uses such as this, the overall parking demand can be reduced due to the expectation that there will be some cross use between the individual facilities. For instance, it can be assumed that some of the people living in the apartments would also be those that visit the retail. Gorrill Palmer (GP) used the NCHRP 684 Internal Trip Capture Estimation Tool to calculate the reduction that can be applied to the trip generation. This calculated an internal trip capture of 14% for the AM peak hour and 17% for the PM peak hour. It can be assumed that parking demand can be reduced proportionally to the reduction in trip generation. To be conservative, GP used a shared use reduction of 14% throughout the day to estimate the parking demand. The following table summarizes the shared use reduction:

Shared Use Reduction Summary

Proposed	Ordinance	Shared Parking
B1-B6 Peak Parking Demand	919	690
Shared Use Reduction (14%)	-129	-97

Other Modes Reduction

The overall parking demand for a development in a downtown area can also be reduced due to the expectation that some people going to or from the site would use other modes of transportation such as transit, bicycle, or walking. The site is adjacent to an existing bus route as well as located on a bicycle and pedestrian path. The other modes reduction is based on information from the 2009-2013 American Community Survey (ACS) Five-Year Estimate by Census Tract. Based on this information Rick Harbison, Planner and GIS Specialist for the Greater Portland Council of Governments, created maps using GIS data that illustrate the estimated percentage of workers living in each Portland Census Tract that use each mode of transportation to commute to work. The site is located on the east side of Census Tract 3, which is a predominantly commercial area. Census Tracts 2 and 5 border the site and consist of primarily residential areas. Since the site is proposed to have a significant number of residential units as well as commercial space, the data from the combination of the three tracts is expected to be more representative of the actual conditions on the site than the data from the individual tracts. This reduction was calculated by dividing the estimated number of people walking, bicycling, and taking the bus to work in the three Census Tracts by the estimated total number

of working people in the same three Census Tracts. This calculation yields a 35.8% use of non-vehicular modes of transportation.

The GPCOG data is based on residents of the Census Tracts commuting to work, so it is applicable to the residential units, office space, and retail uses on the site. It was not clear if the 35.8% reduction would also be applicable to the restaurants and hotel, even though there are hotels and restaurants located within the boundaries of the three Census Tracts. GP searched for studies that included information on other modes of transportation for restaurants and hotels and found two sources that had information that could be compared to the other modes of transportation calculated using the Portland Census data. The following is a more detailed description of the relevant information found in the two studies:

The first study is *Contextual Influences on Trip Generation* (found in the United States Department of Transportation National Transportation Library online database or at the following link: http://ntl.bts.gov/lib/46000/46600/46699/CITG_FinalReport_Draft_10022012.pdf), a study for the Oregon Transportation Research and Education Consortium (OTREC) that compared the ITE predicted trip generation to the actual trip generation of 79 locations in Portland, Oregon, 39 of which were high turnover sit-down restaurants. The study also included surveying the visitors of those sites to determine what mode of transportation the visitors used. The results of the study are divided into different types of areas, ranging from central business district, which is considered the most urban area, to suburban areas, which is considered the least urban type of area surveyed. This study surveyed 12 restaurants in the central business district area and found that 35% of the patrons arrived to the sites using a car, while the remaining 65% walked, biked, or used transit (table attached). This result is higher than the 35.8% use of other modes calculated using the GPCOG information. Because the data is for Portland, Oregon it may not be appropriate to use as a reduction, but it does indicate that in an urban area a large portion of site traffic can be expected to use transit, bike, or walk.

The second source that included restaurant information is the National Cooperative Highway Research Program (NCHRP) Report 758, *Trip Generation Rates for Transportation Impact Analyses of Infill Developments*. This study used information from the Household Travel Survey (HTS) for the San Francisco Bay area and Metropolitan Washington D.C. and counted data and surveys at specific sites in those areas. The Washington D.C. HTS data for restaurants shows that approximately 40.3% of residents use transit, walk, or bicycle to and from high-turnover sit-down restaurants (table attached). The study only included one site that was counted and surveyed, so the HTS data could not be verified, however like the Portland, Oregon study, it is higher than the other modes reduction calculated using the GPCOG Census information. Like the Portland, Oregon study, this data indicates that in an urban area a large portion of site traffic can be expected to use transit, bike, or walk.

Based on these two additional sources that contain information specific to restaurant uses, GP determined that the other modes reduction of 35.8% calculated from the GPCOG Census

information that is based on the existing transit system can be applied to the restaurant parking demand. Although the other two studies showed higher percentages of people using alternative modes of transportation to go to or from restaurants, since they are not specific to Portland, Maine, the local data is expected to be closer to the actual conditions that would be seen at the 58 Fore Street development.

The two studies discussed above included information about restaurants, but did not have any data for hotels. Based on our research there is limited information available about modes of transportation used at hotels. It can be assumed for the 58 Fore Street site that hotel employees may take the bus, bike, or walk to get to and from work and some hotel guests may arrive by boat using the marina. To be conservative, GP only used an "other modes of transportation" reduction of 10% for the hotel.

The following table summarizes the other modes of transportation reduction for the site:

Other Modes of Transportation Reduction Summary

Proposed	Ordinance	Shared Parking
B1-B6 Peak Parking Demand w/o Hotel	886	677
Hotel Peak Parking Demand	33	13
Other Modes Reduction (35.8% of B1-B6 Demand w/o Hotel)	-317	-242
Hotel Other Modes Reduction (10% of Hotel Demand)	-3	-1
Total Other Modes Reduction	**-320**	**-243**

Marina Parking Demand

The City Ordinance does not include a parking requirement for marina facilities. The parking demand for the proposed marina is based on information from Applied Technology & Management (ATM). The new marina is proposed to have 220 slips that will service off-site Portland residents, on-site Portland residents, and transient boaters. ATM provided a range of parking rates from one space for every two slips to one space for every four slips. ITE has limited marina parking information available, however the ATM parking rates appear to be consistent with the ITE data. To be conservative, GP used a requirement of one parking space for every two slips. ATM expects peak usage of the marina to be 10% of the slips, but possibly higher since Maine has a shorter boating season. To be conservative, GP assumed that the peak demand would be 15% of the slips. ATM also stated that there would be approximately 9 employees at this marina, therefore GP included an additional 5% to include spaces for employees, giving a total peak demand estimation of 20% of the slips. Because of the nature of a marina use, the two parking demand reductions that were applied to the rest of the site were not applied to the

marina parking demand. Although it is possible that marina users visit other uses on site or use alternative modes of transportation to get to the site, to be conservative the reductions were not applied.

Dedicated Parking Spaces

Often in large developments, a portion of parking spaces are dedicated to a specific use. For example, residential units may have spaces assigned to each unit or a group of spaces may be reserved for use by only an office. These dedicated spaces would not be shared by any other site uses. The number of dedicated parking spaces is added to the number of shared parking spaces to determine the total site demand. On this site, there are 298 dedicated parking spaces proposed. These spaces include; half of the residential units in B1, all the residential units in B5, and all the residential units in B6. The two parking demand reductions that were applied to the rest of the site were not applied to the dedicated parking spaces, since the spaces will not be shared and will be provided for the peak demand regardless of the expected use of transit, bicycles, or walking.

Parking Demand Summary

The following table summarizes the overall parking demand for the site, including the reductions, based on both the Ordinance and the Shared Parking demand methodologies:

Parking Demand Summary

Proposed	Ordinance	Shared Parking
B1-B6 Shared Parking Demand	919	690
Shared Use Reduction	-129	-97
Other Mode Reduction	-320	-243
B1-B6 Total Shared Parking Demand	**470**	**350**
B7 (Marina) Parking Demand	110	22
B1-B7 Total Parking Demand	**580**	**372**
B1-B7 Dedicated Parking	298	298
Net Parking Demand	**878**	**670**

As shown in the table, the proposed parking demand, including reductions, based on the Ordinance and isolated uses is forecast to be 878 spaces and the parking demand based on shared parking is 670 spaces. The parking demand based on the City Ordinance is higher than the shared parking demand because it assumes all uses will require their peak parking demand concurrently whereas the shared parking demand considers the different uses peaking at different times of day.

It should be noted that a parking facility can be considered full when it is approximately 85% occupied. This is because a driver may not see empty parking spaces when the lot is almost completely occupied, especially in a larger parking area. **To ensure the peak parking demand is satisfied, the recommended number of spaces is 736 (372 spaces / 0.85 + 298 spaces).** This assumes that shared spaces are generally available to all users. The increase is not applied to the dedicated parking spaces because it is assumed that they will be visible and easy for the designated users to find.

The marina may also have additional parking needs, such as temporary parking spaces for visitors to drop off passengers or supplies near their boat before parking their vehicle and for fueling trucks and provisional vehicles that service the mega-yachts. These other parking spaces should be considered in addition to the estimated peak parking demand for the visitors and employees.

Bicycle Parking

Per City Ordinance, new uses are required to provide bicycle accommodations based on the type of use. Residential structures are required to provide 2 bicycle spaces for every 5 dwelling units. Non-residential structures are required to provide 2 bicycle parking spaces for every 10 vehicle parking spaces for the first 100 required spaces, plus one bicycle parking space for every 20 required vehicle parking spaces over the 100 vehicle parking spaces. The following table shows the required bicycle parking for the Ordinance vehicle parking demand and the Shared Parking demand:

Bicycle Parking Summary

	Ordinance	Shared Parking
Parking Variable	409 Spaces, 638 Units	322 Spaces, 638 Units
Residential Bicycle Spaces	256	256
Non-Residential Bicycle Spaces	36	31
Total	**292**	**287**

As shown in the table, the site will require 287-292 bicycle parking spaces to meet the City Ordinance Requirements for bicycle accommodations. The Transportation Demand Management (TDM) plan will outline a more detailed approach to incorporating bicycle parking on site.

09-02-16 Ordinance Parking Estimate

Building Letter	P1	P1	P1	P1	P1	P1	P1	P2	P2	P2	P2	P2	P2	P2	P3	P3	P3	P3	P3	P4	P4	P4	P4	P4	P5	P5	P5	P5	P5	P5	P5	P6	P6	P6	P6	P6	P1-P6	P7	P7	
	Specialty Retail	Specialty Retail	Residential	Residential	Office	Office	Total	Specialty Retail	Specialty Retail	Residential	Residential	Office	Office	Total	Specialty Retail	Specialty Retail	Office	Office	Total	Residential	Residential	Specialty Retail	Specialty Retail	Total	Residential	Residential	Hotel	Hotel	Restaurant	Restaurant	Total	Residential	Residential	Residential	Residential	Total	Total	Marina (1)	Marina (1)	**Total**
PGR	200	1 / 200 sf over 2,000 sf	1	1 per Unit	400	1 / 400 sf		200	1 / 200 sf over 2,000 sf	1.00	1 per Unit	400	1 / 400 sf		200	1 / 200 sf over 2,000 sf	400	1 / 400 sf		1	1 per Unit	200	1 / 200 sf over 2,000 sf		1	1 per Unit	1/4	1 per 4 guests	1/150			1	1 per Unit	1	1 per Unit			1/2	1 per 2 slips	
Monthly Adjustment		1		1		1		1.00	1.00	1.00	1	1.00	1		1			1		1	1		1.00		1	1		1	1.0	1			1		1					
SQF or Unit	7,878	7,878 sf	91	91 Units	79,000	79,000 sf		26,895	26,895 sf	19	19 Units	25,617	25,617 sf		11,500	11,500 sf	19,300	19,300 sf		275	275 Units	4,000	4,000 sf		108	108 Units	132	132 rooms	3,800	3,800 sf		131	131 Units	14	14 Units			220	220 slips	
Max Demand	1.000	29	1.00	91	1.00	198	318	1.000	124	1.00	19	1.00	64	208	1.000	48	1.00	48	96	1.00	275	1.000	10	285	1.00	108	1.00	33	1.00	25	166	1.00	131	1.00	14	145	1217	1.00	110	1327
Dedicated Spaces	0.000	0	0.50	45	0.00	0	45	0.000	0	0.00	0	0.00	0	0	0.000	0	0.00	0	0	0.00	0	0.000	0	0	1.00	108	0.00	0	0.00	0	108	1.00	131	1.00	14	145	298	0.00	0	298
Demand w/oDedicated		29		46		198	272		124		19		64	208		48		48	96		275		10	285		0		33		25	58		0		0	0	919		110	1029

(1) The marina parking demand is based on information from ATM. They suggest the peak demand is 10% (possibly higher) of the total number of slips. We used a peak demand of 20% to include 15% of slips (33 slips) and the marina employees. The peak slip usage includes on-site residents and transient boaters that would not require marina parking, as well as the off-site residents that would require parking. It is assumed that most of the off-site slip users arrive at the site during the peak hour, which is reflected in the shared use factors.

09-02-16 Parking Estimate Marina Shared

	45 Dedicated Spaces													
	P1							P2						
Building	P1		P1		P1		Total for P1	P2		P2		P2		Total for P2
	Specialty Retail		Residential		Office			Specialty Retail		Residential		Office		
Rate	200	1 / 200 sf	1	1 per Unit	400	1/400 sf		200	1 / 200 sf	1.00	1 per Unit	400	1/400 sf	
Monthly Adjustment														
SQF or Unit	7,878	7,878 sf	91	91 Units	79,000	79,000 sf		26,895	26,895 sf	19	19 Units	25,617	25,617 sf	
6:00AM	0.00	0	0.84	31	0.00	0	31	0.00	0	0.84	16	0.00	0	16
7:00AM	0.20	8	0.62	11	0.20	40	58	0.20	27	0.62	12	0.20	13	51
8:00AM	0.64	25	0.41	0	0.64	126	151	0.64	86	0.41	8	0.64	41	134
9:00AM	0.93	37	0.34	0	0.93	184	220	0.93	125	0.34	6	0.93	60	191
10:00AM	1.00	39	0.32	0	1.00	197	237	1.00	134	0.32	6	1.00	64	205
11:00AM	1.00	39	0.31	0	1.00	197	237	1.00	134	0.31	6	1.00	64	204
12:00PM	0.90	35	0.30	0	0.90	177	212	0.90	121	0.30	6	0.90	57	184
1:00PM	0.90	35	0.31	0	0.90	177	212	0.90	120	0.31	6	0.90	57	184
2:00PM	1.00	39	0.33	0	1.00	198	237	1.00	134	0.33	6	1.00	64	205
3:00PM	1.00	39	0.37	0	1.00	198	237	1.00	134	0.37	7	1.00	64	206
4:00PM	0.93	37	0.45	0	0.93	184	221	0.93	125	0.45	9	0.93	60	193
5:00PM	0.64	25	0.61	10	0.64	126	161	0.64	86	0.61	12	0.64	41	138
6:00PM	0.20	8	0.69	17	0.20	40	65	0.20	27	0.69	13	0.20	13	53
7:00PM	0.00	0	0.72	20	0.10	20	40	0.00	0	0.72	14	0.10	6	20
8:00PM	0.00	0	0.80	27	0.10	20	47	0.00	0	0.80	15	0.10	6	22
9:00PM	0.00	0	0.89	35	0.10	20	55	0.00	0	0.89	17	0.10	6	23
10:00PM	0.00	0	0.92	38	0.10	20	58	0.00	0	0.92	17	0.10	6	24
Dedicated spaces	0.00	0	0.50	45	0.00	0	45	0.00	0	0.00	0	0.00	0	0

	P3					P4				
Building	P3		P3		Total for P3	P4		P4		Total for P4
	Specialty Retail		Office			Residential		Specialty Retail		
Rate	200	1 / 200 sf	400	1/400 sf		1	1 per Unit	200	1 / 200 sf	
Monthly Adjustment										
SQF or Unit	11,500	11,500 sf	19,300	19,300 sf		275	275 Units	4,000	4,000 sf	
6:00AM	0.00	0	0.00	0	0	0.84	231	0.02	0	231
7:00AM	0.20	12	0.20	10	21	0.62	171	0.20	4	175
8:00AM	0.64	37	0.64	31	67	0.41	113	0.66	13	126
9:00AM	0.93	54	0.93	45	98	0.34	94	0.86	17	111
10:00AM	1.00	57	1.00	48	106	0.32	88	1.00	20	108
11:00AM	1.00	57	1.00	48	106	0.31	85	0.95	19	104
12:00PM	0.90	52	0.90	43	95	0.30	83	0.78	16	98
1:00PM	0.90	52	0.90	43	95	0.31	85	0.83	17	102
2:00PM	1.00	58	1.00	48	106	0.33	91	0.99	20	111
3:00PM	1.00	58	1.00	48	106	0.37	102	0.93	19	120
4:00PM	0.93	54	0.93	45	98	0.45	124	0.77	15	139
5:00PM	0.64	37	0.64	31	67	0.61	168	0.19	4	172
6:00PM	0.20	12	0.20	10	21	0.69	190	0.05	1	191
7:00PM	0.00	0	0.10	5	5	0.72	198	0.02	0	198
8:00PM	0.00	0	0.10	5	5	0.80	220	0.01	0	220
9:00PM	0.00	0	0.10	5	5	0.89	245	0.01	0	245
10:00PM	0.00	0	0.10	5	5	0.92	253	0.01	0	253
Dedicated spaces	0.00	0	0.00	0	0	0.00	0	0.00	0	0

	P5							P6				
Building	P5		P5		P5		Total for P5	P6		P6		Total for P6
	Residential		Hotel		Restaurant			Residential		Residential		
Rate	1	1 per Unit	4	1 per 4 guests	153.8462	6.5/1000 6:00AM-4:00PM		1	1 per Unit	1	1 per Unit	
Monthly Adjustment					100	10/1000 4:00PM-11:00PM						
SQF or Unit	108	108 Units	132	132 Rooms	3,800	3,800 sf		131	131 Units	14	14 Units	
6:00AM	0.84	0	1.00	33	0.00	0	33	0.84	0	0.84	0	0
7:00AM	0.62	0	1.00	33	0.10	2	35	0.62	0	0.62	0	0
8:00AM	0.41	0	1.00	33	0.10	2	35	0.41	0	0.41	0	0
9:00AM	0.34	0	0.75	25	0.20	5	30	0.34	0	0.34	0	0
10:00AM	0.32	0	0.50	17	0.30	7	24	0.32	0	0.32	0	0
11:00AM	0.31	0	0.40	13	0.90	22	35	0.31	0	0.31	0	0
12:00PM	0.30	0	0.35	12	1.00	25	36	0.30	0	0.30	0	0
1:00PM	0.31	0	0.35	12	0.90	22	34	0.31	0	0.31	0	0
2:00PM	0.33	0	0.35	12	0.65	16	28	0.33	0	0.33	0	0
3:00PM	0.37	0	0.40	13	0.35	9	22	0.37	0	0.37	0	0
4:00PM	0.45	0	0.50	17	0.35	13	30	0.45	0	0.45	0	0
5:00PM	0.61	0	0.60	20	0.60	23	43	0.61	0	0.61	0	0
6:00PM	0.69	0	0.70	23	0.90	34	57	0.69	0	0.69	0	0
7:00PM	0.72	0	0.80	26	1.00	38	64	0.72	0	0.72	0	0
8:00PM	0.80	0	0.90	30	1.00	38	68	0.80	0	0.80	0	0
9:00PM	0.89	0	0.95	31	1.00	38	69	0.89	0	0.89	0	0
10:00PM	0.92	0	1.00	33	0.75	29	62	0.92	0	0.92	0	0
Dedicated spaces	1.00	108	0.00	0	0.00	0	108	1.00	131	1.00	14	145

	Shared Spaces								Combined Shared and Dedicated			
	P1-P6					P7			P1-P7		For Bicycle Parking	
Building	P1-P6 Subtotal	Mixed Use Reduction (2)	Other Modes Reduction (Except Hotel) (3)	Hotel Other Modes Reduction (4)	P1-P6 Total	P7		Total for P7	Site Total	Recommended Spaces (4)	Non Residential Required Spaces	Non Residential Required Spaces (reduced)
						Marina (1)						
Rate						2	1 per 2 slips					
Monthly Adjustment		14%	35.8%	10%						85%		
SQF or Unit						220	220 slips					
6:00AM	311	44	100	3	164	0.10	11	11	473	504	44	27
7:00AM	341	48	110	3	180	0.20	22	22	500	536	170	96
8:00AM	514	72	172	3	267	0.20	22	22	587	638	415	219
9:00AM	651	91	224	2	334	0.20	22	22	654	717	573	299
10:00AM	679	95	237	2	345	0.20	22	22	666	731	607	316
11:00AM	687	96	241	1	349	0.20	22	22	669	735	618	322
12:00PM	625	88	220	1	316	0.20	22	22	636	696	559	292
1:00PM	626	88	220	1	317	0.20	22	22	637	697	557	291
2:00PM	686	96	241	1	348	0.20	22	22	668	734	611	318
3:00PM	690	97	242	1	350	0.20	22	22	670	736	603	314
4:00PM	681	95	238	2	346	0.20	22	22	667	732	571	298
5:00PM	581	81	201	2	297	0.20	22	22	618	674	414	219
6:00PM	387	54	130	2	201	0.20	22	22	521	560	189	106
7:00PM	328	46	108	3	171	0.10	11	11	481	513	107	60
8:00PM	361	51	119	3	188	0.05	6	6	492	526	104	55
9:00PM	398	56	131	3	208	0.05	6	6	512	550	106	56
10:00PM	401	56	132	3	210	0.05	6	6	514	552	98	52
Dedicated spaces						0.00	0	0	298	298	0	0

(1) The marina parking demand is based on information from ATM. They suggest the peak demand is 10% (possibly higher) of the total number of slips. We used peak demand of 20% to include 15% of slips (33 slips) and the marina employees. The peak slip usage includes on-site residents and transient boaters that would not require marina parking, as well as the off-site residents that would require parking. It is assumed that most of the off-site slip users arrive at the site during the peak hour, which is reflected in the shared use factors.

(2) Based on the results from the NCHRP 684 Internal Trip Capture Estimation Tool

(3) Based on Commute to Work data from the 2009-2013 ACS by Census Tract for the City of Portland provided by GPCOG

(4) The increase from required to recommended is only applied to the shared spaces, not the dedicated spaces

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Portland State Univ. Study

Table 3-5. Percent Mode Shares by Area Type and Land Use

Area Type & Land Use	Automobile Mode Share	Walk Mode Share	Bicycle Mode Share	Transit Mode Share
Convenience	58%	27%	7%	6%
Central Business District	34%	49%	10%	10%
Urban Core	52%	31%	9%	6%
Regional Centers	60%	26%	7%	5%
Suburban Town Centers	70%	18%	3%	7%
Suburban Areas	72%	14%	8%	3%
High-turnover Restaurant	63%	22%	8%	6%
Central Business District	35%	42%	7%	16%
Urban Core	65%	20%	13%	2%
Regional Centers	70%	24%	6%	1%
Suburban Town Centers	85%	6%	1%	6%
Suburban Areas	86%	5%	0%	8%
Drinking Place	43%	27%	22%	7%
Central Business District	26%	40%	19%	15%
Urban Core	46%	20%	25%	8%
Regional Centers	52%	30%	18%	1%
Suburban Town Centers*	N/A	N/A	N/A	N/A
Suburban Areas*	N/A	N/A	N/A	N/A
Overall	58%	25%	9%	7%
Central Business District	34%	43%	9%	14%
Urban Core	57%	23%	15%	5%
Regional Centers	61%	26%	10%	3%
Suburban Town Centers	79%	11%	2%	7%
Suburban Areas	78%	10%	5%	5%

*Drinking places were not surveyed in suburban area types

Figure 3-2 shows the resulting automobile mode share for all establishments surveyed in a spatial context. As shown, automobile mode shares are generally lower in establishments closer to the city center. There is variation in automobile mode share in the inner east side of Portland where area type varies between Urban Center and Neighborhood/Regional Center. For a more detailed map of mode shares of survey establishments, see Appendix D.

Case study sites were identified using the guidelines presented in Chapter 4, and data were collected consistent with the procedures for deriving the adjustment factors using the minimum data collection variant. Data collected at the case study sites included:

- Vehicle counts at driveways of parking facilities exclusive to the site,
- Vehicle occupancy,
- Person trips entering and exiting the site's building,
- Observation of mode of access, and
- General observation of site conditions and surrounding context.

With empirical data available, the research team was able to compare predicted and surveyed results of the household travel survey method. A secondary objective of the data collection was to refine the data collection protocol for the proxy site method.

5.3.2 Summary of Findings

The following sections contain brief overviews of the results of applying the household travel survey method to the four land use categories used to develop the example adjustment factors from the HTS data presented in Chapter 4.

5.4 Derived Adjustment Factors

Table 5.1 presents the methodology-derived adjustment factors (mode share and vehicle occupancy) for the GU/UC context zones by land use category and proximity to transit. The research team reviewed these findings for reasonableness. The MWCOG has not published a report summarizing the findings of their HTS, so the research team could not compare its findings on mode share and vehicle occupancy with mode-share cross-references to land use, trip purpose, or context prepared by MWCOG.

Table 5.1. Mode share and vehicle occupancy adjustment factors for Washington, D.C.

Infill Adjustment Factors for GU/UC Contexts	Within Walking Distance Of:			
	High-Frequency Bus Stop		Rail Station	
	a.m.	p.m.	a.m.	p.m.
Residential Case Study Sites (ITE LUC 220)				
Transit	27.3%	24.0%	32.5%	27.7%
Walk/bicycle	11.3%	13.4%	12.9%	15.8%
Vehicle occupancy	1.27	1.32	1.30	1.34
General Office Case Study Sites (ITE LUC 710)				
Transit	33.4%	31.0%	38.8%	35.6%
Walk/bicycle	9.8%	10.4%	11.9%	12.5%
Vehicle occupancy	1.13	1.16	1.15	1.17
Retail/Shopping Center Case Study Sites (ITE LUC 820)				
Transit	15.4%	13.5%	19.7%	16.5%
Walk/bicycle	29.6%	19.0%	35.4%	22.8%
Vehicle occupancy	1.20	1.36	1.16	1.36
Restaurant Case Study Sites (ITE LUC 932)				
Transit	10.4%	13.8%	12.2%	16.1%
Walk/bicycle	29.9%	17.6%	38.8%	22.4%
Vehicle occupancy	1.36	1.71	1.35	1.69

Source:
Mode share and vehicle occupancy adjustment factors were extracted from linked trip data records developed from the 2004 MWCOG HTS.

5.4.1 Residential Land Use Category

The results in Table 5.2 show that the method results in substantially higher peak hour trip generation at the three residential infill case study sites when compared to the actual trips. The results range from a factor of two to as high as nearly three and a half times the actual trips. The research team expected that the method would overpredict or underpredict, but did not expect the large differences shown in Table 5.2.

The three residential test sites generate low volumes of traffic, so the percentage difference between the predicted and actual trips can be misleadingly large. For example, the Columbia Uptown residential test site was determined to generate 13 vehicle trips in the a.m. peak hour, while the method predicts the a.m. peak hour to be 25 trips. The absolute difference of 12 trips remains a small number, but the percentage difference of 92% appears large.

The research team considered that magnitude of the difference between predicted and actual vehicle trips might be an anomaly or magnification of error related to the small number of actual trips. But because all of the residential sites had low actual vehicle trips, the research team was unable to confirm a magnification of error.

When compared to trips estimated using ITE trip generation rates, the method predicts about one-third to one-half fewer trips at all three study sites, as the research team expected. The difference between the predicted and ITE trip