

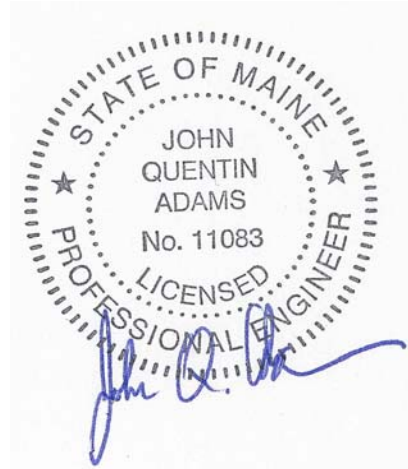
TRAFFIC ANALYSIS MEMORANDUM

TO: Ms. Jean Fraser
Planner
City of Portland

FROM: John Q. Adams, P.E., PTOE
Senior Transportation Engineer
Milone & MacBroom, Inc.

DATE: November 30, 2012

RE: Response to Traffic Movement Permit
(TMP) Scoping Meeting
JB Brown & Sons
Proposed Hotel, Restaurant, and
Residences
321 Commercial Street, Portland, Maine
MMI #5002-01-3



Introduction

The purpose of this memo is to respond to the requests for additional information and traffic analysis that were determined at the Traffic Movement Permit Scoping Meeting held at the City of Portland's Department of Planning on November 7, 2012. The following items were requested:

1. Traffic operations and queuing analysis should be performed during both the weekday AM and PM peak hours for the intersections of:
 - Maple Street at Commercial Street
 - Proposed site entrance on Commercial Street
 - Proposed site entrance on Maple Street
2. Other development trips to be included in the traffic analysis should include the proposed school located at the intersection of Maple Street and York Street and the Canal Plaza Hotel development located at the intersection of Union Street and York Street.
3. The intersection of High Street at Commercial Street was identified as a high crash location with eight crashes and a critical rate factor of 1.50. Of the eight crashes, four were rear-ends on the High Street approach. An accident diagram of the intersection and an analysis of contributing factors to the rear-end accident pattern were requested.

Proposed Development

The requested response to the scoping meeting was for the proposed mixed-use development, including a 131-room hotel, 7,000-square-foot (sf) restaurant, and 14 residences. The development is located at the corner of Commercial Street and Maple Street in Portland. Figure 1 at the end of this memorandum shows the project site and area extents. The site will be served by a full-access site entrance on Commercial Street located approximately 300 feet north of Maple Street and a full-access site entrance located 250 feet west of Commercial Street.

During the weekday AM and PM peak hours, the proposed development is expected to generate the following trip ends:

- Weekday AM Peak Hour (of Site) – 109 trip ends
- Weekday AM Peak Hour (of Roadway 7-9 AM) – 108 trip ends
- Weekday PM Peak Hour (of Site) – 137 trip ends
- Weekday PM Peak Hour (of Roadway 4-6 PM) – 111 trip ends

Traffic Operations and Queuing Analysis

Traffic operations analysis was performed for the requested study intersections, including Maple Street at Commercial Street, site entrance at Commercial Street, and the site entrance at Maple Street.

Assignment of Site-Generated Trips

In performing the analysis, we first distributed the site-generated trip ends to the area roadway networks as follows:

- Generally 75% of trip ends entering and exiting the site utilized Commercial Street, and 25% utilized York Street.
- For trips utilizing Commercial Street, 2/3 generally entered/exited from the south and 1/3 to/from the north.
- We also assumed that the hotel trips that utilize the York Street valet parking areas would utilize the Maple Street site entrance via a right turn out of the site and a left turn into the site. These movements have been adjusted (increased) to reflect these activities.

The site-generated trip ends are shown in Figure 2 located at the end of this memorandum. The "Other Development Trips" for developments in the permitting process but not yet approved or built are shown in Figure 3. The other development trips include the proposed school at the intersection of Maple Street and Commercial Street and the One Canal Plaza Hotel development at the corner of Union Street and Fore Street.

Traffic Counts and Adjustments

We performed traffic counts at the intersection of Maple Street and Commercial Street on Wednesday, November 14, 2012. Traffic count data sheets are included in the appendix. These traffic volumes are shown in Figure 4. These traffic counts were adjusted both seasonally and annually to account for the 2014 build year. The seasonal adjustment was based on Commercial Street being classified as a Type 1 urban commuter/roadway. The seasonal adjustment to the sixth highest week resulted in a 10% increase. Based on a flattening and decreasing trend in Maine Department of Transportation (DOT) annual average daily traffic counts in the area, the annual adjustment applied was 0.5% per year for a 1% increase total. The adjusted traffic volumes are shown in Figure 5. The other development trips shown in Figure 3 were combined with adjusted traffic volumes shown in Figure 5 to compile the 2014 background traffic volumes shown in Figure 6.

The background traffic volumes in Figure 6 were combined with the site-generated trips shown in Figure 2 to arrive at the 2014 Post Development Traffic Volumes shown in Figure 7.

Weekday AM and PM Peak-Hour Traffic Operations Analysis

We have performed traffic operations analysis at the study intersections, including Maple Street at Commercial Street, site entrance at Commercial Street, and the site entrance at Maple Street. The analysis was completed for unsignalized intersections utilizing *SimTraffic* traffic modeling software with data inputs utilizing *Synchro 7*.

Commercial Street was modeled as having enough width for through vehicles to bypass left-turning vehicles at Maple Street and at the site entrance on Commercial Street. This was based on both field observations of traffic operations and on roadway widths in each direction on Commercial Street at Maple Street (approximate widths of 30 feet northbound half section, 24 feet southbound half section) and at the site entrance on Commercial Street (approximate widths of 24 to 30 feet northbound half section).

Tables 1, 2, and 3 summarize the results of the traffic operations analysis under the 2014 weekday AM and PM peak hours for the background and postdevelopment conditions.

Synchro traffic data input sheets along with *SimTraffic* analysis outputs are enclosed in the appendix.

TABLE 1
Maple Street at Commercial Street
Traffic Operations Analysis
SimTraffic

| | 2014 AM Peak Hour | | 2014 PM Peak Hour | |
|------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| | Background | Postdevelopment | Background | Postdevelopment |
| | LOS/Delay/95 th Q | LOS/Delay/95 th Q | LOS/Delay/95 th Q | LOS/Delay/95 th Q |
| Overall | A / 3.6 s | A / 3.9 s | A / 4.1 s | A / 3.6 s |
| Commercial NB | A / 4.4 s / 49 ft | A / 4.8 s / 50 ft | A / 3.2 s / 62 ft | A / 3.0 s / 59 ft |
| Commercial SB | A / 0.9 s / 6 ft | A / 0.6 s / 6 ft | A / 2.7 s / 8 ft | A / 1.2 s / 8 ft |
| Maple Street EB | A / 6.1 s / 48 ft | A / 7.2 s / 52 ft | C / 24.6 s / 92 ft | C / 23.0 s / 108 ft |
| Browns Wharf WB | B / 14.6 s / 32 ft | D / 25.2 s / 36 ft | D / 32.8 s / 37 ft | E / 37.7 s / 48 ft |

Notes: LOS = Level of Service
 Q = queue
 s = seconds
 ft = feet
 NB = northbound, SB = southbound, EB = eastbound, WB = westbound

TABLE 2
Site Entrance at Maple Street
Traffic Operations Analysis
SimTraffic

| | 2014 AM Peak Hour | | 2014 PM Peak Hour | |
|--------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| | Background | Postdevelopment | Background | Postdevelopment |
| | LOS/Delay/95 th Q | LOS/Delay/95 th Q | LOS/Delay/95 th Q | LOS/Delay/95 th Q |
| Overall | - | A / 1.0 s | - | A / 1.0 s |
| Maple St EB | - | A / 0.5 s / 23 ft | - | A / 0.4 s / 21 ft |
| Maple St WB | - | A / 0.4 s / - | - | A / 0.6 s / - |
| Site SB | - | A / 2.7 s / 51 ft | - | A / 2.8 s / 5 ft |

Notes: LOS = Level of Service
 Q = queue
 s = seconds
 ft = feet
 NB = northbound, SB = southbound, EB = eastbound, WB = westbound

TABLE 3
Site Entrance at Commercial Street
Traffic Operations Analysis
SimTraffic

| | 2014 AM Peak Hour | | 2014 PM Peak Hour | |
|----------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| | Background | Postdevelopment | Background | Postdevelopment |
| | LOS/Delay/95 th Q | LOS/Delay/95 th Q | LOS/Delay/95 th Q | LOS/Delay/95 th Q |
| Overall | - | A / 0.9 s | - | A / 1.6 s |
| Commercial NB | - | A / 0.9 s / 26 ft | - | A / 0.5 s / 25 ft |
| Commercial SB | - | A / 0.6 s / - | - | A / 1.5 s / 3 ft |
| Site EB | - | A / 5.6 s / 33 ft | - | C / 18.7 s / 65 ft |

Notes: LOS = Level of Service
 Q = queue
 s = seconds
 ft = feet
 NB = northbound, SB = southbound, EB = eastbound, WB = westbound

The results of the *SimTraffic* analysis indicate that all of the intersections will function satisfactorily under the weekday AM and PM peak-hour postdevelopment conditions. At the intersection of Maple Street at Commercial Street, the Browns Wharf approach will experience some delay but will operate at Levels of Service (LOS) D and E in the AM and PM peak hours, respectively.

Accident Analysis – High Street at Commercial Street

Accident data from the Maine DOT was reviewed for the latest three-year period (2009 – 2011). We have prepared an accident diagram for the eight accidents recorded at the intersection. The diagram is located in the appendix to this memorandum. A review of the accident reports indicates that there is an accident pattern on the High Street approach to the intersection. We have reviewed the accident reports for the rear-end accident pattern on the High Street approach to the intersection and concluded the following:

Rear-end Accidents on High Street

- Two of the accidents occurred at night and two in daylight.
- Weather did not appear to be a factor as the accident reports indicated that they all occurred in clear and dry conditions.
- All were due to "driver following too closely."

The one factor common to all of the accidents was the steep grade of the High Street approach. The grade based on initial measurements from Google Earth maps is approximately -7%. This is likely a contributing factor in this rear-end accident pattern.

Conclusions

We have performed the requested analysis and offer the following conclusions:

- The proposed development will include a 131-room hotel, 7,000-sf restaurant, and 14 residences.
- Traffic operations have been analyzed for the weekday AM and PM peak hours at the following requested study intersections:
 - Maple Street at Commercial Street
 - Proposed site entrance on Commercial Street
 - Proposed site entrance on Maple Street
- Traffic operations from a LOS and delay standpoint will function satisfactory at the study intersections.
- There was no excessive queuing noted in the analysis.
- There is an accident pattern on the High Street approach to Commercial Street, including four rear-end type accidents over a three-year period (2009 – 2011). The excessive grade on the High Street approach (-7%) appears to be a contributing factor.

Overall, it is our opinion that we do not expect the proposed development to have a significant impact on existing traffic operations at the study intersections. We trust that the above analysis has addressed the concerns of the City of Portland. Please let us know if you need any further information.

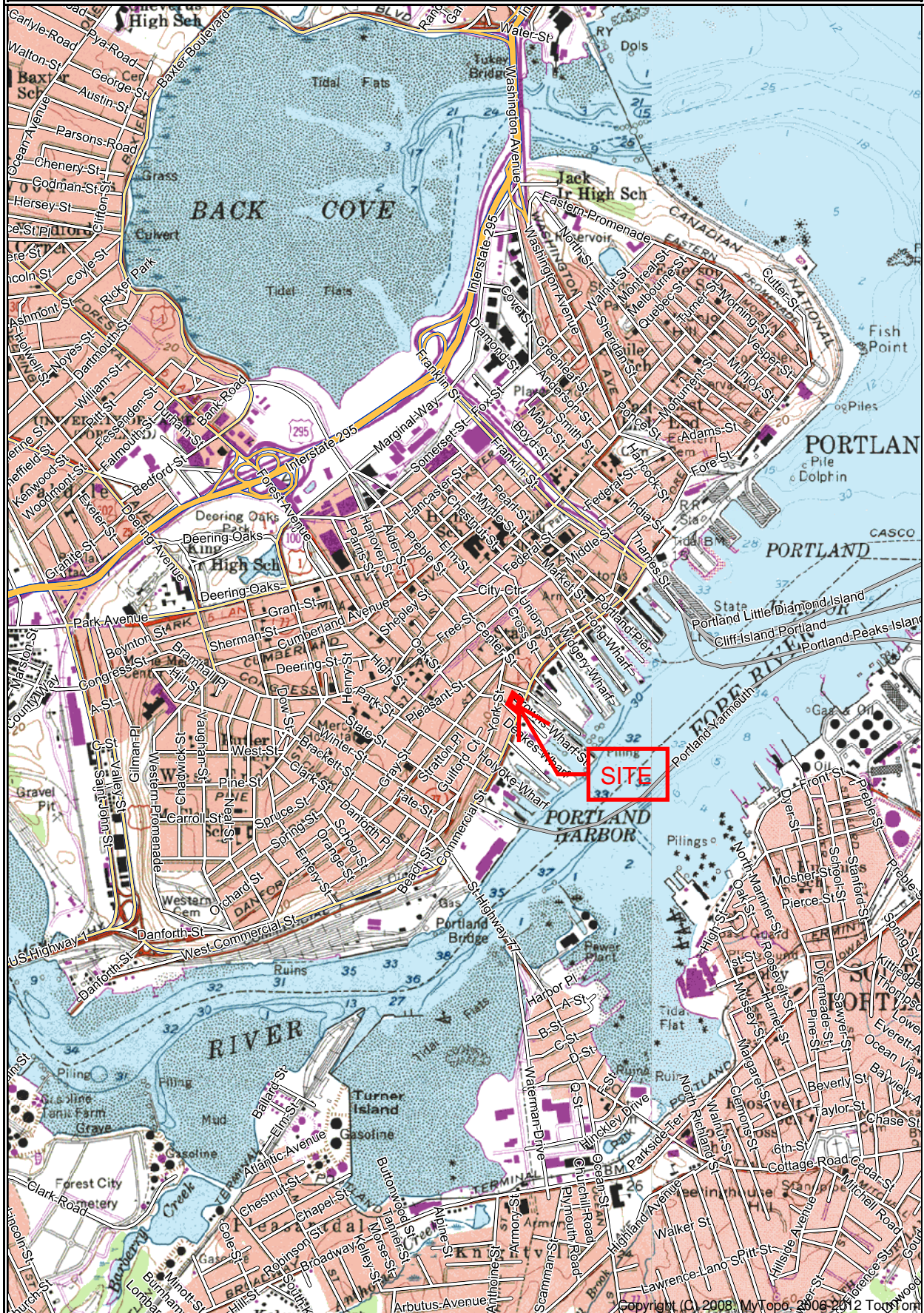
cc: Tom Errico, City Traffic Engineer
Opechee Construction Corp., LLC
Derek Olson, Region Traffic Engineer, MDOT Scarborough

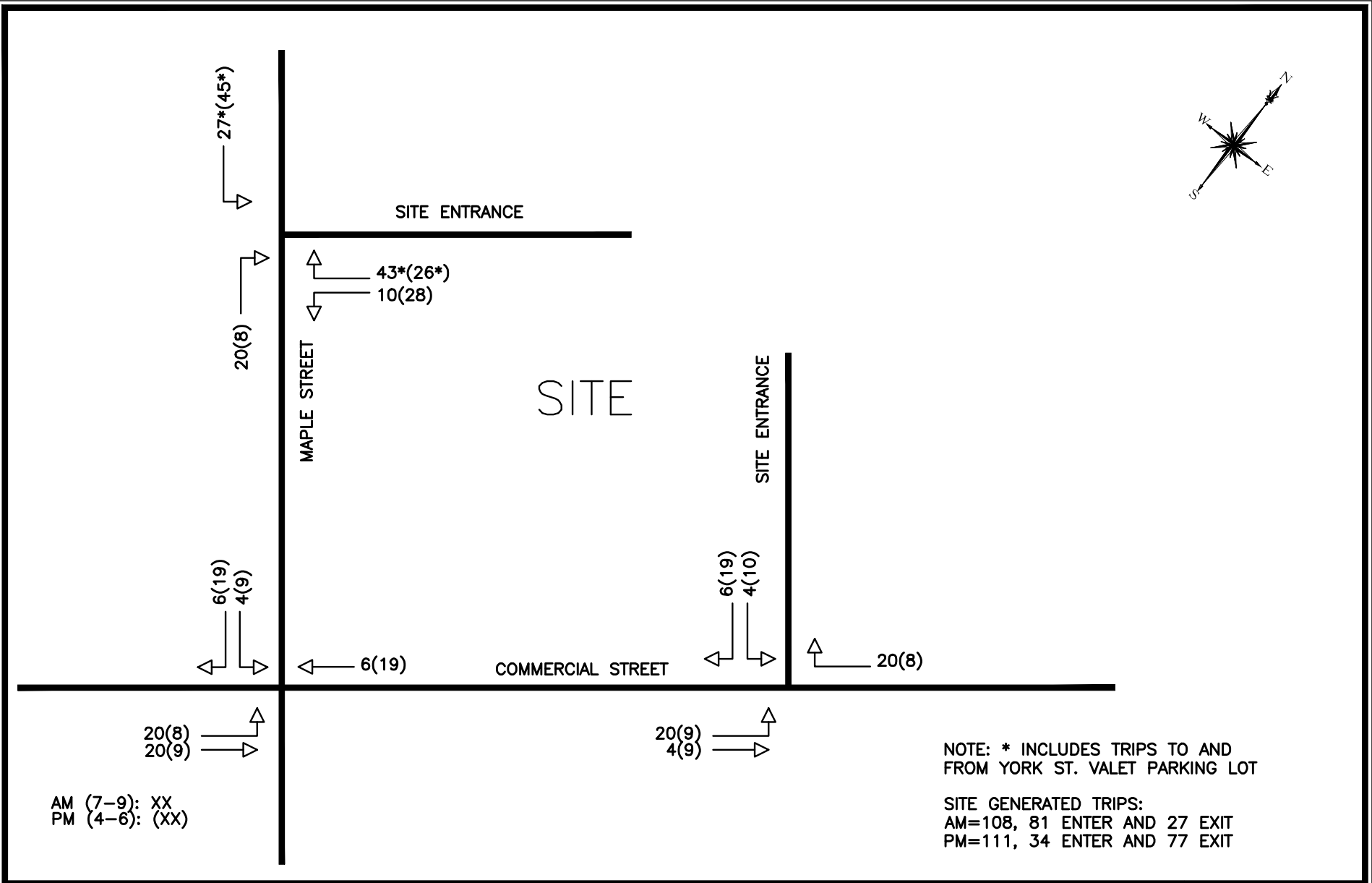
5002-01-3-n2912-memo.doc

Map Name: PORTLAND WEST
Print Date: 09/12/12

Scale: 1 inch = 2,000 ft.
Map Center: 043° 39' 20.98" N 0

Horizontal Datum: NAD83





NOTE: * INCLUDES TRIPS TO AND FROM YORK ST. VALET PARKING LOT

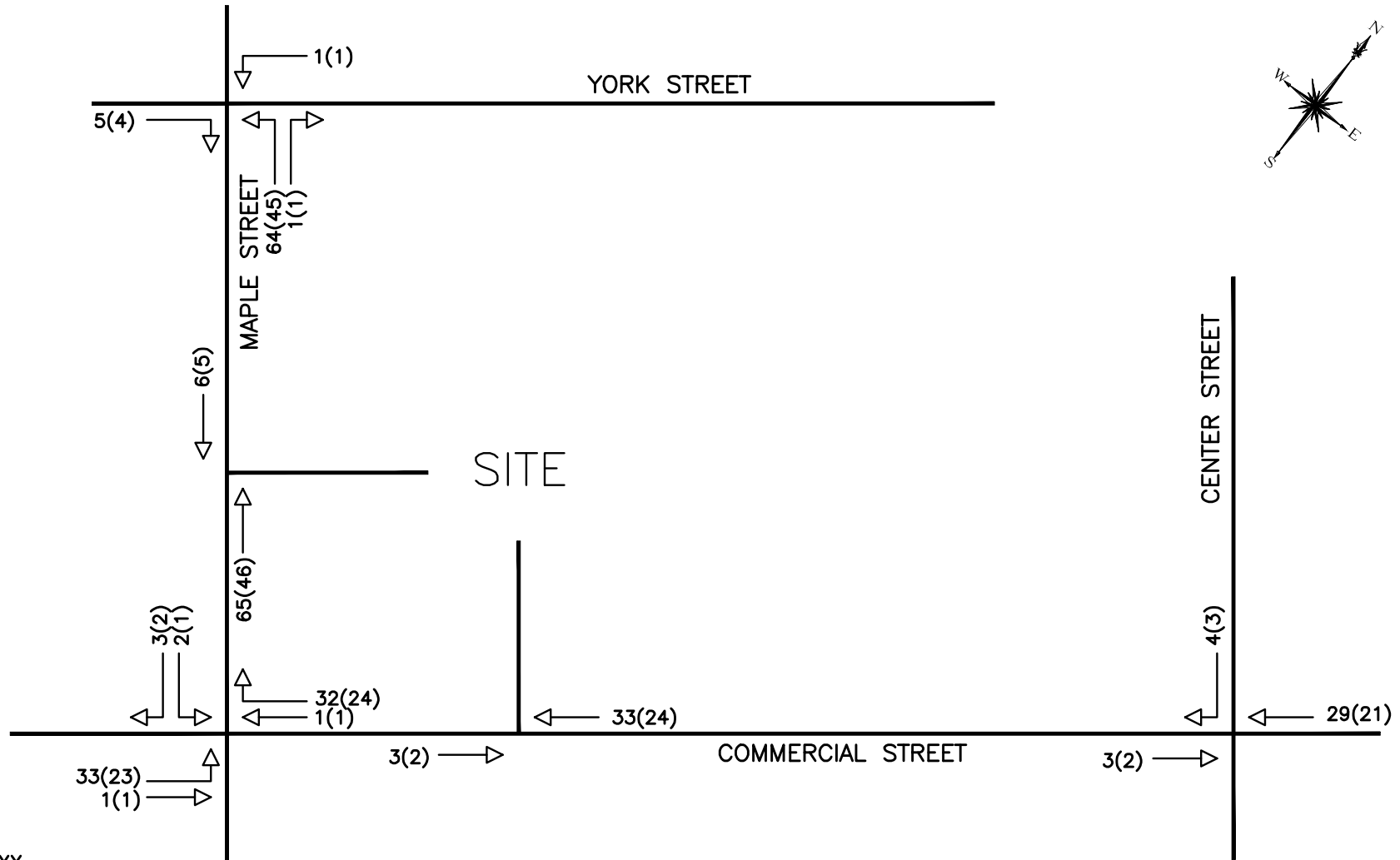
SITE GENERATED TRIPS:
 AM=108, 81 ENTER AND 27 EXIT
 PM=111, 34 ENTER AND 77 EXIT

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 Portland, Maine 04101
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 www.miloneandmacbroom.com

| | |
|-----------|---------------|
| DATE | OCT. 10, 2012 |
| SCALE | NTS |
| PROJ. NO. | 5002-01 |
| DESIGNED | JQA |
| DRAWN | DMR |
| CHECKED | JQA |

SITE GENERATED TRAFFIC VOLUMES
HOTEL, RESTAURANT AND RESIDENCES
PORTLAND, MAINE
J.B. BROWN & SONS
36 DANFORTH ST., PORTLAND, ME 04101

| | |
|----------------|---------------|
| PROJECT PHASE: | PERMITTING |
| DRAWING NAME: | FIG. 2 |
| REVISED: | 11-28-12 |



AM: XX
PM: (XX)

NOTE: TRAFFIC VOLUMES FROM PROPOSED 300 STUDENT HIGH SCHOOL AND CANAL PLAZA HOTEL APPLICATIONS

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| | |
|-----------|---------------|
| DATE | OCT. 10, 2012 |
| SCALE | NTS |
| PROJ. NO. | 5002-01 |
| DESIGNED | JQA |
| DRAWN | DMR |
| CHECKED | JQA |

OTHER DEVELOPMENT TRAFFIC VOLUMES

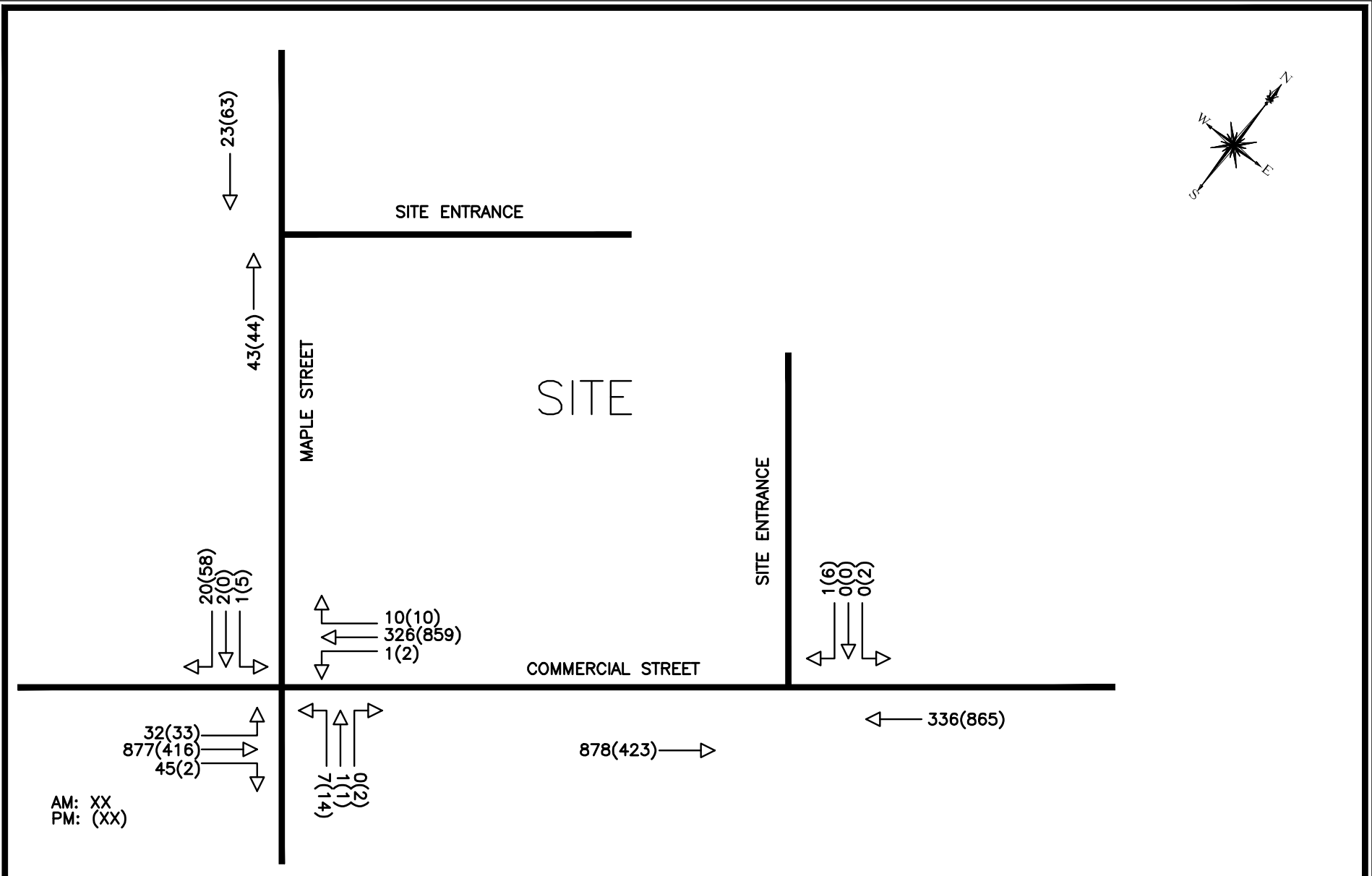
**HOTEL, RESTAURANT AND RESIDENCES
 PORTLAND, MAINE**

**J.B. BROWN & SONS
 36 DANFORTH ST., PORTLAND, ME 04101**

PROJECT PHASE:
PERMITTING

DRAWING NAME:
FIG. 3

REVISED: 11-28-12

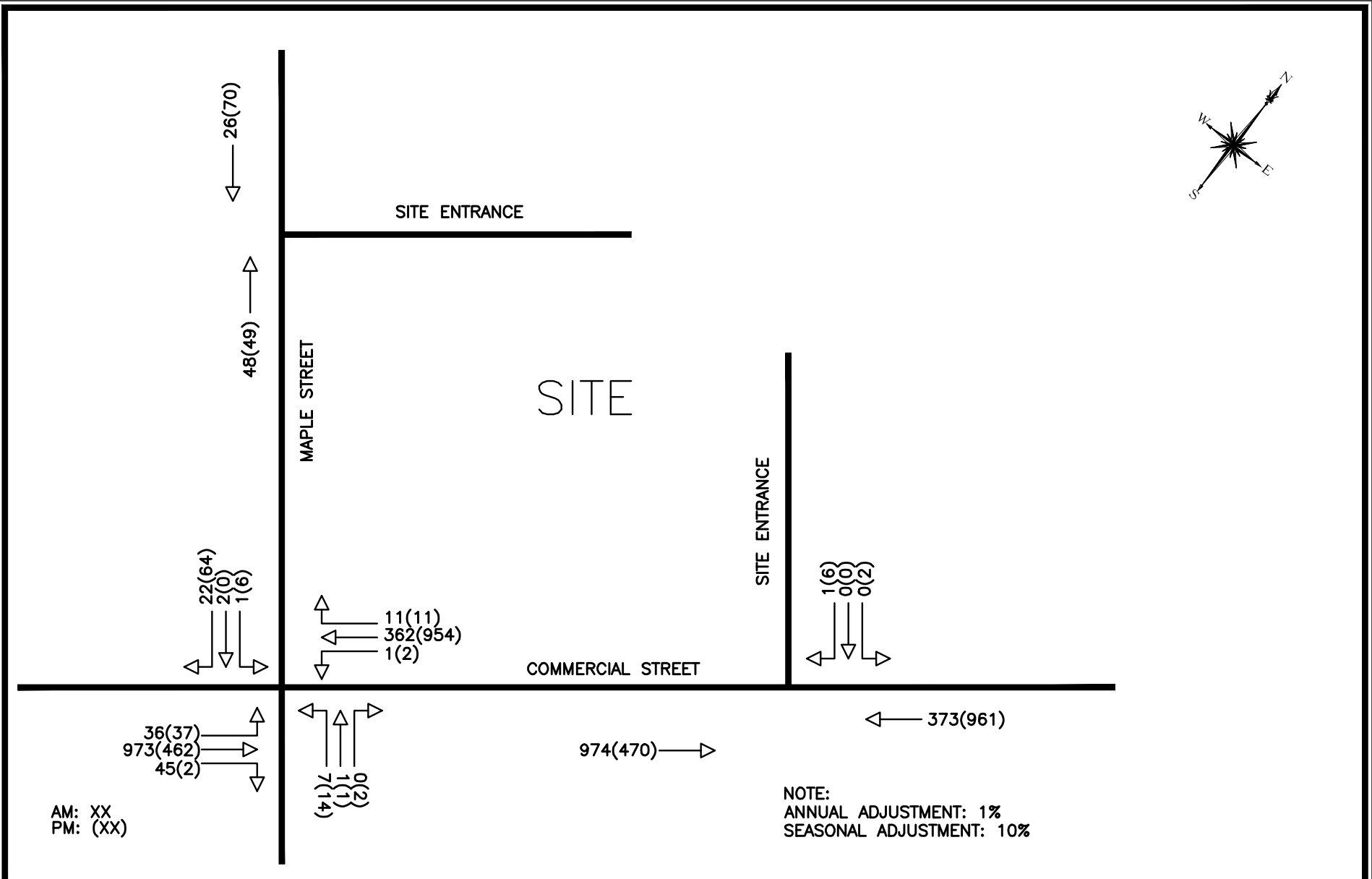


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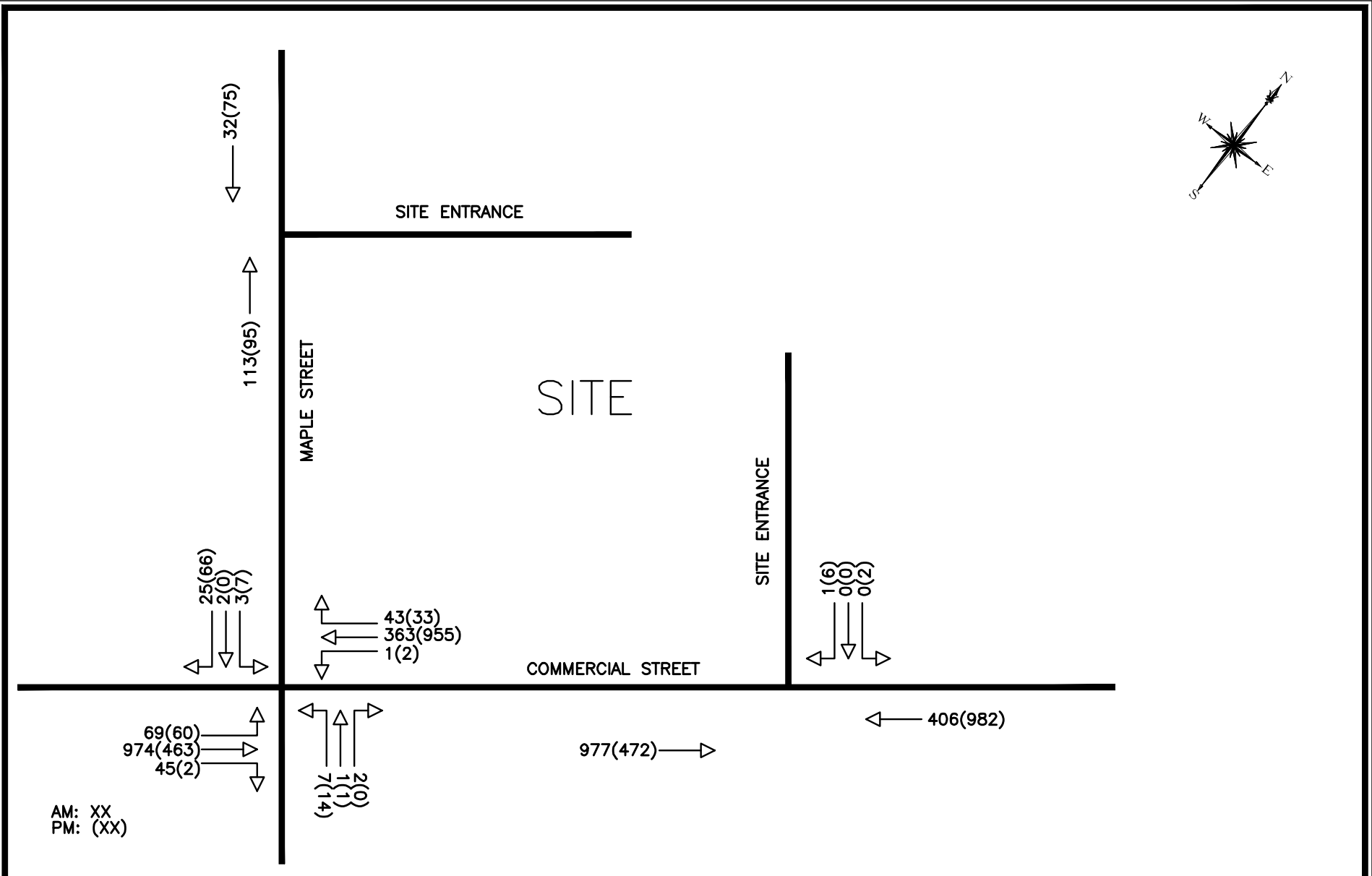
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|-----------|---------------|
| DATE | NOV. 28, 2012 |
| SCALE | NTS |
| PROJ. NO. | 5002-01 |
| DESIGNED | JQA |
| DRAWN | DMR |
| CHECKED | JQA |

RAW 2012 TRAFFIC VOLUMES
HOTEL, RESTAURANT AND RESIDENCES
PORTLAND, MAINE
J.B. BROWN & SONS
36 DANFORTH ST., PORTLAND, ME 04101

| | |
|----------------|---------------|
| PROJECT PHASE: | PERMITTING |
| DRAWING NAME: | FIG. 4 |
| REVISED: | --- |



| | | | | | | |
|---|-----------|---------------|--|----------------|----------------------|-----|
|  <p>MILONE & MACBROOM 100 Commercial Street Suite 417 Portland, Maine 04101 (207) 541-9544 Fax (207) 541-9548 www.miloneandmacbroom.com</p> | DATE | NOV. 28, 2012 | <p>ADJUSTED 2014 TRAFFIC VOLUMES</p> <p>HOTEL, RESTAURANT AND RESIDENCES</p> <p>PORTLAND, MAINE</p> <p>J.B. BROWN & SONS</p> <p>36 DANFORTH ST., PORTLAND, ME 04101</p> | PROJECT PHASE: | PERMITTING | |
| | SCALE | NTS | | DRAWING NAME: | <p>FIG. 5</p> | |
| | PROJ. NO. | 5002-01 | | DESIGNED | | JQA |
| | DRAWN | DMR | | CHECKED | | JQA |
| | REVISIONS | | | REVISIONS | | |
| <p>AM: XX PM: (XX)</p> | | | <p>REVIS: ---</p> | | | |



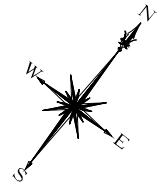
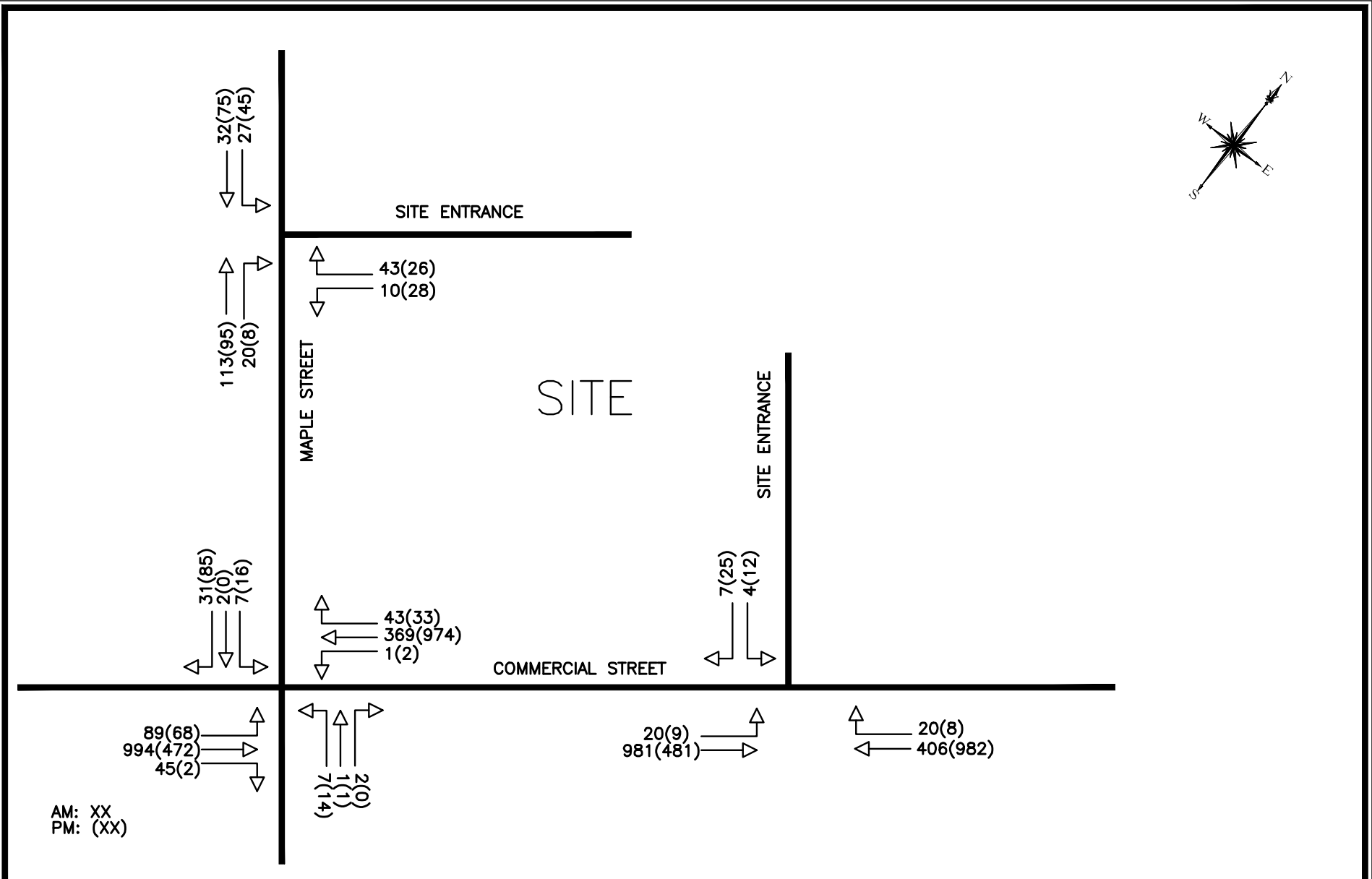
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| | |
|-----------|---------------|
| DATE | NOV. 28, 2012 |
| SCALE | NTS |
| PROJ. NO. | 5002-01 |
| DESIGNED | JQA |
| DRAWN | DMR |
| CHECKED | JQA |

2014 BACKGROUND TRAFFIC VOLUMES
HOTEL, RESTAURANT AND RESIDENCES
PORTLAND, MAINE
J.B. BROWN & SONS
36 DANFORTH ST., PORTLAND, ME 04101

REVISED: ---

| | |
|----------------|---------------|
| PROJECT PHASE: | PERMITTING |
| DRAWING NAME: | FIG. 6 |



| | | | | | | |
|---|-----------|---------------|--|----------------|----------------------|-----|
|  <p>MILONE & MACBROOM 100 Commercial Street Suite 417 Portland, Maine 04101 (207) 541-9544 Fax (207) 541-9548 www.miloneandmacbroom.com</p> | DATE | NOV. 28, 2012 | <p>2014 POST-DEVELOPMENT TRAFFIC VOLUMES</p> <p>HOTEL, RESTAURANT AND RESIDENCES</p> <p>PORTLAND, MAINE</p> <p>J.B. BROWN & SONS</p> <p>36 DANFORTH ST., PORTLAND, ME 04101</p> | PROJECT PHASE: | PERMITTING | |
| | SCALE | NTS | | DRAWING NAME: | <p>FIG. 7</p> | |
| | PROJ. NO. | 5002-01 | | DESIGNED | | JQA |
| | DRAWN | DMR | | CHECKED | | JQA |
| | REVISIONS | | | REVISED: | | --- |

Appendix

- **Traffic Count Data Sheets – Maple Street at Commercial Street**
- ***Synchro SimTraffic* Outputs**
- **Accident Diagram – High Street at Commercial Street**

DATE LOCATION: 11/14/2012 COMMERCIAL STREET AT MAPLE STREET, PORTLAND, ME
 ~WEEKDAY AM PEAK HOURS~

| TIME | MOVEMENTS | | | | | | | | | | | | | | | | | | | | TOTALS |
|-------------------|--------------------|------|------|------|------------------|--------------------------|------|------|------|------------------|-----------------------|------|------|------|------------------|--------------------------|------|------|------|------------------|--------|
| | MAPLE ST EASTBOUND | | | | | COMMERCIAL ST NORTHBOUND | | | | | BROWNS WARF WESTBOUND | | | | | COMMERCIAL ST SOUTHBOUND | | | | | |
| | 1 | 2 | 3 | Peds | 15 Minute Totals | 4 | 5 | 6 | Peds | 15 Minute Totals | 7 | 8 | 9 | Peds | 15 Minute Totals | 10 | 11 | 12 | Peds | 15 Minute Totals | |
| 700 - 715 | 0 | 1 | 4 | 7 | 5 | 1 | 92 | 4 | 0 | 97 | 1 | 0 | 0 | 5 | 1 | 1 | 57 | 0 | 1 | 58 | 161 |
| 715 - 730 | 1 | 1 | 1 | 4 | 3 | 5 | 146 | 6 | 0 | 157 | 2 | 2 | 0 | 5 | 4 | 0 | 81 | 3 | 0 | 84 | 248 |
| 730 - 745 | 1 | 0 | 6 | 6 | 7 | 7 | 195 | 7 | 0 | 209 | 1 | 0 | 0 | 4 | 1 | 0 | 96 | 1 | 0 | 97 | 314 |
| 745 - 800 | 0 | 0 | 4 | 7 | 4 | 5 | 243 | 10 | 3 | 258 | 1 | 0 | 0 | 4 | 1 | 0 | 79 | 3 | 0 | 82 | 345 |
| 800 - 815 | 0 | 0 | 3 | 2 | 3 | 13 | 222 | 11 | 1 | 246 | 1 | 1 | 0 | 5 | 2 | 1 | 76 | 3 | 1 | 80 | 331 |
| 815 - 830 | 0 | 1 | 8 | 3 | 9 | 6 | 216 | 12 | 0 | 234 | 0 | 0 | 0 | 5 | 0 | 0 | 85 | 0 | 0 | 85 | 328 |
| 830 - 845 | 1 | 1 | 5 | 1 | 7 | 8 | 196 | 12 | 0 | 216 | 5 | 0 | 0 | 4 | 5 | 0 | 86 | 4 | 1 | 90 | 318 |
| 845 - 900 | 3 | 0 | 9 | 6 | 12 | 1 | 187 | 7 | 0 | 195 | 1 | 0 | 1 | 2 | 2 | 2 | 85 | 3 | 0 | 90 | 299 |
| PHF | 0.64 | | | | | 0.92 | | | | | 0.40 | | | | | 0.94 | | | | | |
| PEAK HOUR % Heavy | 1.0% | 1.0% | 1.0% | | | 1.0% | 2.0% | 1.0% | | | 1.0% | 1.0% | 1.0% | | | 1.0% | 5.0% | 1.0% | | | |
| PEAK HOUR TOTALS | 1 | 2 | 20 | 13 | 23 | 32 | 877 | 45 | 4 | 954 | 7 | 1 | 0 | 18 | 8 | 1 | 326 | 10 | 2 | 337 | 1322 |

DATE LOCATION: 11/14/2012 COMMERCIAL STREET AT MAPLE STREET, PORTLAND, ME
~WEEKDAY PM PEAK HOURS~

| TIME | MOVEMENTS | | | | | | | | | | | | | | | | | | | | 15 Minute Totals |
|-------------------|--------------------|------|------|------|------------------|--------------------------|------|------|------|------------------|-----------------------|------|------|------|------------------|--------------------------|------|------|------|------------------|------------------|
| | MAPLE ST EASTBOUND | | | | | COMMERCIAL ST NORTHBOUND | | | | | BROWNS WARF WESTBOUND | | | | | COMMERCIAL ST SOUTHBOUND | | | | | |
| | 1 | 2 | 3 | Peds | 15 Minute Totals | 4 | 5 | 6 | Peds | 15 Minute Totals | 7 | 8 | 9 | Peds | 15 Minute Totals | 10 | 11 | 12 | Peds | 15 Minute Totals | |
| | | | | | 0 | | | | 0 | 0 | | | | | 0 | | | | | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | 0 |
| 430 - 445 PM | 0 | 0 | 17 | 1 | 17 | 2 | 102 | 1 | 2 | 105 | 5 | 0 | 0 | 2 | 5 | 0 | 193 | 1 | 1 | 194 | 321 |
| 445 - 500 PM | 2 | 0 | 17 | 3 | 19 | 8 | 97 | 1 | 3 | 106 | 7 | 0 | 0 | 3 | 7 | 0 | 186 | 2 | 1 | 188 | 320 |
| 500 - 515 PM | 3 | 0 | 16 | 1 | 19 | 9 | 118 | 0 | 1 | 127 | 3 | 0 | 0 | 2 | 3 | 0 | 236 | 2 | 3 | 238 | 387 |
| 515 - 530 PM | 0 | 0 | 12 | 2 | 12 | 7 | 103 | 1 | 1 | 111 | 1 | 0 | 2 | 2 | 3 | 2 | 233 | 2 | 2 | 237 | 363 |
| 530 - 545 PM | 0 | 0 | 13 | 4 | 13 | 9 | 98 | 0 | 1 | 107 | 3 | 1 | 0 | 1 | 4 | 0 | 204 | 4 | 0 | 208 | 332 |
| 545 - 600 PM | 3 | 0 | 20 | 2 | 23 | 3 | 97 | 1 | 0 | 101 | 3 | 0 | 0 | 1 | 3 | 2 | 161 | 4 | 1 | 167 | 294 |
| PHF | 0.83 | | | | | 0.89 | | | | | 0.61 | | | | | 0.91 | | | | | |
| PEAK HOUR % Heavy | 1.0% | 0.0% | 1.0% | | | 1.0% | 4.0% | 1.0% | | | 2.0% | 1.0% | 1.0% | | | 1.0% | 2.0% | 1.0% | | | |
| PEAK HOUR TOTALS | 5 | 0 | 58 | 10 | 63 | 33 | 416 | 2 | 6 | 451 | 14 | 1 | 2 | 8 | 17 | 2 | 859 | 10 | 6 | 871 | 1402 |

PEAK HOUR FACTOR:

$$PHF = \frac{\text{(Addition of the 4 - 15 minute Intervals)}}{\text{(Highest 15 minute Interval) X (4)}}$$

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | Avg |
|----------------------|------|------|------|------|------|------|
| Start Time | 7:40 | 7:40 | 7:40 | 7:40 | 7:40 | 7:40 |
| End Time | 8:45 | 8:45 | 8:45 | 8:45 | 8:45 | 8:45 |
| Total Time (min) | 65 | 65 | 65 | 65 | 65 | 65 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intvls | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 1517 | 1614 | 1501 | 1476 | 1494 | 1522 |
| Vehs Exited | 1523 | 1612 | 1506 | 1483 | 1485 | 1522 |
| Starting Vehs | 15 | 14 | 17 | 14 | 9 | 13 |
| Ending Vehs | 9 | 16 | 12 | 7 | 18 | 12 |
| Denied Entry Before | 0 | 1 | 1 | 1 | 0 | 1 |
| Denied Entry After | 0 | 0 | 0 | 0 | 0 | 0 |
| Travel Distance (mi) | 339 | 363 | 335 | 331 | 335 | 341 |
| Travel Time (hr) | 13.8 | 14.8 | 13.3 | 13.3 | 13.2 | 13.7 |
| Total Delay (hr) | 2.1 | 2.3 | 1.7 | 1.9 | 1.6 | 1.9 |
| Total Stops | 67 | 60 | 79 | 59 | 63 | 66 |
| Fuel Used (gal) | 11.5 | 12.2 | 11.2 | 11.1 | 11.0 | 11.4 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 7:40 |
| End Time | 7:45 |
| Total Time (min) | 5 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|-------------------------------------|------|
| Start Time | 7:45 |
| End Time | 8:45 |
| Total Time (min) | 60 |
| Volumes adjusted by Growth Factors. | |

| Run Number | 1 | 2 | 3 | 4 | 5 | Avg |
|----------------------|------|------|------|------|------|------|
| Vehs Entered | 1517 | 1614 | 1501 | 1476 | 1494 | 1522 |
| Vehs Exited | 1523 | 1612 | 1506 | 1483 | 1485 | 1522 |
| Starting Vehs | 15 | 14 | 17 | 14 | 9 | 13 |
| Ending Vehs | 9 | 16 | 12 | 7 | 18 | 12 |
| Denied Entry Before | 0 | 1 | 1 | 1 | 0 | 1 |
| Denied Entry After | 0 | 0 | 0 | 0 | 0 | 0 |
| Travel Distance (mi) | 339 | 363 | 335 | 331 | 335 | 341 |
| Travel Time (hr) | 13.8 | 14.8 | 13.3 | 13.3 | 13.2 | 13.7 |
| Total Delay (hr) | 2.1 | 2.3 | 1.7 | 1.9 | 1.6 | 1.9 |
| Total Stops | 67 | 60 | 79 | 59 | 63 | 66 |
| Fuel Used (gal) | 11.5 | 12.2 | 11.2 | 11.1 | 11.0 | 11.4 |

3: Maple & Commercial Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------|------|------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|
| Delay / Veh (s) | 16.8 | 16.2 | 4.3 | 20.1 | 12.2 | 7.1 | 9.8 | 4.1 | 3.4 | | 0.9 | 0.7 |

3: Maple & Commercial Performance by movement

| Movement | All |
|-----------------|-----|
| Delay / Veh (s) | 3.6 |

Total Network Performance

| | |
|-----------------|-----|
| Delay / Veh (s) | 4.5 |
|-----------------|-----|

Intersection: 3: Maple & Commercial

| Movement | EB | WB | NB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|
| Directions Served | LTR | LTR | L | L | TR |
| Maximum Queue (ft) | 54 | 35 | 56 | 12 | 8 |
| Average Queue (ft) | 19 | 9 | 20 | 0 | 0 |
| 95th Queue (ft) | 48 | 32 | 49 | 6 | 4 |
| Link Distance (ft) | 177 | 152 | | | 580 |
| Upstream Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |
| Storage Bay Dist (ft) | | | 100 | 100 | |
| Storage Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | Avg |
|----------------------|------|------|------|------|------|------|
| Start Time | 4:40 | 4:40 | 4:40 | 4:40 | 4:40 | 4:40 |
| End Time | 5:45 | 5:45 | 5:45 | 5:45 | 5:45 | 5:45 |
| Total Time (min) | 65 | 65 | 65 | 65 | 65 | 65 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intvls | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 1576 | 1690 | 1628 | 1597 | 1566 | 1611 |
| Vehs Exited | 1573 | 1687 | 1637 | 1601 | 1563 | 1612 |
| Starting Vehs | 11 | 14 | 18 | 12 | 14 | 13 |
| Ending Vehs | 14 | 17 | 9 | 8 | 17 | 12 |
| Denied Entry Before | 0 | 1 | 0 | 0 | 0 | 0 |
| Denied Entry After | 0 | 0 | 0 | 0 | 0 | 0 |
| Travel Distance (mi) | 354 | 379 | 367 | 358 | 352 | 362 |
| Travel Time (hr) | 14.1 | 16.1 | 15.1 | 14.3 | 14.1 | 14.8 |
| Total Delay (hr) | 1.9 | 3.0 | 2.5 | 2.0 | 2.0 | 2.3 |
| Total Stops | 142 | 154 | 125 | 152 | 122 | 139 |
| Fuel Used (gal) | 11.7 | 12.9 | 12.5 | 11.9 | 11.7 | 12.1 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 4:40 |
| End Time | 4:45 |
| Total Time (min) | 5 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|-------------------------------------|------|
| Start Time | 4:45 |
| End Time | 5:45 |
| Total Time (min) | 60 |
| Volumes adjusted by Growth Factors. | |

| Run Number | 1 | 2 | 3 | 4 | 5 | Avg |
|----------------------|------|------|------|------|------|------|
| Vehs Entered | 1576 | 1690 | 1628 | 1597 | 1566 | 1611 |
| Vehs Exited | 1573 | 1687 | 1637 | 1601 | 1563 | 1612 |
| Starting Vehs | 11 | 14 | 18 | 12 | 14 | 13 |
| Ending Vehs | 14 | 17 | 9 | 8 | 17 | 12 |
| Denied Entry Before | 0 | 1 | 0 | 0 | 0 | 0 |
| Denied Entry After | 0 | 0 | 0 | 0 | 0 | 0 |
| Travel Distance (mi) | 354 | 379 | 367 | 358 | 352 | 362 |
| Travel Time (hr) | 14.1 | 16.1 | 15.1 | 14.3 | 14.1 | 14.8 |
| Total Delay (hr) | 1.9 | 3.0 | 2.5 | 2.0 | 2.0 | 2.3 |
| Total Stops | 142 | 154 | 125 | 152 | 122 | 139 |
| Fuel Used (gal) | 11.7 | 12.9 | 12.5 | 11.9 | 11.7 | 12.1 |

3: Maple & Commercial Performance by movement

| Movement | EBL | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR | All |
|-----------------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|
| Delay / Veh (s) | 41.5 | 22.4 | 33.5 | 29.1 | 16.4 | 1.4 | 1.8 | 7.8 | 2.7 | 2.1 | 4.1 |

Total Network Performance

| | |
|-----------------|-----|
| Delay / Veh (s) | 5.0 |
|-----------------|-----|

Intersection: 3: Maple & Commercial

| Movement | EB | WB | NB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|
| Directions Served | LR | LTR | L | L | TR |
| Maximum Queue (ft) | 132 | 39 | 82 | 12 | 15 |
| Average Queue (ft) | 44 | 12 | 32 | 1 | 1 |
| 95th Queue (ft) | 92 | 37 | 62 | 8 | 9 |
| Link Distance (ft) | 177 | 152 | | | 580 |
| Upstream Blk Time (%) | 0 | | | | |
| Queuing Penalty (veh) | 0 | | | | |
| Storage Bay Dist (ft) | | | 100 | 100 | |
| Storage Blk Time (%) | | | 0 | | |
| Queuing Penalty (veh) | | | 0 | | |

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | Avg |
|----------------------|------|------|------|------|------|------|
| Start Time | 7:40 | 7:40 | 7:40 | 7:40 | 7:40 | 7:40 |
| End Time | 8:45 | 8:45 | 8:45 | 8:45 | 8:45 | 8:45 |
| Total Time (min) | 65 | 65 | 65 | 65 | 65 | 65 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intvls | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 1714 | 1804 | 1684 | 1717 | 1649 | 1712 |
| Vehs Exited | 1715 | 1802 | 1690 | 1716 | 1653 | 1714 |
| Starting Vehs | 12 | 14 | 16 | 16 | 18 | 16 |
| Ending Vehs | 11 | 16 | 10 | 17 | 14 | 12 |
| Denied Entry Before | 2 | 2 | 1 | 2 | 0 | 1 |
| Denied Entry After | 0 | 1 | 2 | 0 | 1 | 1 |
| Travel Distance (mi) | 371 | 388 | 359 | 367 | 354 | 368 |
| Travel Time (hr) | 15.5 | 16.4 | 15.2 | 15.2 | 14.3 | 15.3 |
| Total Delay (hr) | 2.5 | 2.7 | 2.5 | 2.3 | 1.8 | 2.4 |
| Total Stops | 178 | 163 | 179 | 154 | 166 | 166 |
| Fuel Used (gal) | 12.8 | 13.6 | 12.6 | 12.7 | 12.0 | 12.7 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 7:40 |
| End Time | 7:45 |
| Total Time (min) | 5 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|-------------------------------------|------|
| Start Time | 7:45 |
| End Time | 8:45 |
| Total Time (min) | 60 |
| Volumes adjusted by Growth Factors. | |

| Run Number | 1 | 2 | 3 | 4 | 5 | Avg |
|----------------------|------|------|------|------|------|------|
| Vehs Entered | 1714 | 1804 | 1684 | 1717 | 1649 | 1712 |
| Vehs Exited | 1715 | 1802 | 1690 | 1716 | 1653 | 1714 |
| Starting Vehs | 12 | 14 | 16 | 16 | 18 | 16 |
| Ending Vehs | 11 | 16 | 10 | 17 | 14 | 12 |
| Denied Entry Before | 2 | 2 | 1 | 2 | 0 | 1 |
| Denied Entry After | 0 | 1 | 2 | 0 | 1 | 1 |
| Travel Distance (mi) | 371 | 388 | 359 | 367 | 354 | 368 |
| Travel Time (hr) | 15.5 | 16.4 | 15.2 | 15.2 | 14.3 | 15.3 |
| Total Delay (hr) | 2.5 | 2.7 | 2.5 | 2.3 | 1.8 | 2.4 |
| Total Stops | 178 | 163 | 179 | 154 | 166 | 166 |
| Fuel Used (gal) | 12.8 | 13.6 | 12.6 | 12.7 | 12.0 | 12.7 |

3: Maple & Commercial Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBR | NBL | NBT | NBR | SBL | SBT | SBR | All |
|-----------------|------|------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|
| Delay / Veh (s) | 18.6 | 10.4 | 5.5 | 28.5 | 15.3 | 9.7 | 4.4 | 4.1 | 3.6 | 0.7 | 0.3 | 3.9 |

6: Maple & Site Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
|-----------------|-----|-----|-----|-----|-----|-----|-----|
| Delay / Veh (s) | 0.8 | 0.2 | 0.4 | 0.4 | 3.6 | 2.5 | 1.0 |

8: Commercial & Performance by movement

| Movement | EBL | EBR | NBL | NBT | SBT | SBR | All |
|-----------------|------|-----|-----|-----|-----|-----|-----|
| Delay / Veh (s) | 10.3 | 4.2 | 3.6 | 0.9 | 0.6 | 0.5 | 0.9 |

Total Network Performance

| | | | | | | | | | | | | |
|-----------------|-----|--|--|--|--|--|--|--|--|--|--|--|
| Delay / Veh (s) | 5.0 | | | | | | | | | | | |
|-----------------|-----|--|--|--|--|--|--|--|--|--|--|--|

Intersection: 3: Maple & Commercial

| Movement | EB | WB | NB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|
| Directions Served | LTR | LTR | L | L | TR |
| Maximum Queue (ft) | 58 | 43 | 61 | 12 | 4 |
| Average Queue (ft) | 24 | 11 | 22 | 0 | 0 |
| 95th Queue (ft) | 52 | 36 | 50 | 6 | 5 |
| Link Distance (ft) | 206 | 152 | | | 258 |
| Upstream Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |
| Storage Bay Dist (ft) | | | 100 | 100 | |
| Storage Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |

Intersection: 6: Maple & Site

| Movement | EB | SB |
|-----------------------|----|----|
| Directions Served | LT | LR |
| Maximum Queue (ft) | 40 | 54 |
| Average Queue (ft) | 4 | 28 |
| 95th Queue (ft) | 23 | 51 |
| Link Distance (ft) | 91 | 92 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 8: Commercial &

| Movement | EB | NB |
|-----------------------|----|----|
| Directions Served | LR | L |
| Maximum Queue (ft) | 34 | 36 |
| Average Queue (ft) | 10 | 6 |
| 95th Queue (ft) | 33 | 26 |
| Link Distance (ft) | 68 | |
| Upstream Blk Time (%) | 0 | |
| Queuing Penalty (veh) | 0 | |
| Storage Bay Dist (ft) | | 50 |
| Storage Blk Time (%) | | 0 |
| Queuing Penalty (veh) | | 1 |

Network Summary

| |
|---------------------------------|
| Network wide Queuing Penalty: 1 |
|---------------------------------|

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | Avg |
|----------------------|------|------|------|------|------|------|
| Start Time | 4:40 | 4:40 | 4:40 | 4:40 | 4:40 | 4:40 |
| End Time | 5:45 | 5:45 | 5:45 | 5:45 | 5:45 | 5:45 |
| Total Time (min) | 65 | 65 | 65 | 65 | 65 | 65 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intvls | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 1794 | 1763 | 1727 | 1773 | 1672 | 1745 |
| Vehs Exited | 1790 | 1772 | 1723 | 1775 | 1672 | 1747 |
| Starting Vehs | 13 | 20 | 13 | 17 | 10 | 13 |
| Ending Vehs | 17 | 11 | 17 | 15 | 10 | 14 |
| Denied Entry Before | 1 | 1 | 0 | 0 | 0 | 0 |
| Denied Entry After | 0 | 0 | 1 | 0 | 2 | 1 |
| Travel Distance (mi) | 389 | 382 | 374 | 382 | 361 | 378 |
| Travel Time (hr) | 16.7 | 16.7 | 15.6 | 16.4 | 15.3 | 16.1 |
| Total Delay (hr) | 3.0 | 3.2 | 2.4 | 2.9 | 2.5 | 2.8 |
| Total Stops | 269 | 288 | 285 | 290 | 267 | 279 |
| Fuel Used (gal) | 13.7 | 13.4 | 13.0 | 13.4 | 12.6 | 13.2 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 4:40 |
| End Time | 4:45 |
| Total Time (min) | 5 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|-------------------------------------|------|
| Start Time | 4:45 |
| End Time | 5:45 |
| Total Time (min) | 60 |
| Volumes adjusted by Growth Factors. | |

| Run Number | 1 | 2 | 3 | 4 | 5 | Avg |
|----------------------|------|------|------|------|------|------|
| Vehs Entered | 1794 | 1763 | 1727 | 1773 | 1672 | 1745 |
| Vehs Exited | 1790 | 1772 | 1723 | 1775 | 1672 | 1747 |
| Starting Vehs | 13 | 20 | 13 | 17 | 10 | 13 |
| Ending Vehs | 17 | 11 | 17 | 15 | 10 | 14 |
| Denied Entry Before | 1 | 1 | 0 | 0 | 0 | 0 |
| Denied Entry After | 0 | 0 | 1 | 0 | 2 | 1 |
| Travel Distance (mi) | 389 | 382 | 374 | 382 | 361 | 378 |
| Travel Time (hr) | 16.7 | 16.7 | 15.6 | 16.4 | 15.3 | 16.1 |
| Total Delay (hr) | 3.0 | 3.2 | 2.4 | 2.9 | 2.5 | 2.8 |
| Total Stops | 269 | 288 | 285 | 290 | 267 | 279 |
| Fuel Used (gal) | 13.7 | 13.4 | 13.0 | 13.4 | 12.6 | 13.2 |

3: Maple & Commercial Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR | All |
|-----------------|------|-----|------|------|------|------|-----|-----|-----|-----|-----|-----|
| Delay / Veh (s) | 34.4 | 1.0 | 22.1 | 36.4 | 58.5 | 15.2 | 1.4 | 1.5 | 5.8 | 1.2 | 0.6 | 3.6 |

6: Maple & Site Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
|-----------------|-----|-----|-----|-----|-----|-----|-----|
| Delay / Veh (s) | 0.7 | 0.2 | 0.6 | 0.4 | 3.4 | 2.2 | 1.0 |

8: Site & Commercial Performance by movement

| Movement | EBL | EBR | NBL | NBT | SBT | SBR | All |
|-----------------|------|------|-----|-----|-----|-----|-----|
| Delay / Veh (s) | 23.1 | 14.3 | 7.0 | 0.3 | 1.5 | 1.2 | 1.6 |

Total Network Performance

| | |
|-----------------|-----|
| Delay / Veh (s) | 5.8 |
|-----------------|-----|

Intersection: 3: Maple & Commercial

| Movement | EB | WB | NB | SB | SB |
|-----------------------|-----|-----|-----|-----|-----|
| Directions Served | LR | LTR | L | L | TR |
| Maximum Queue (ft) | 132 | 53 | 78 | 18 | 9 |
| Average Queue (ft) | 57 | 18 | 29 | 1 | 0 |
| 95th Queue (ft) | 108 | 48 | 59 | 8 | 4 |
| Link Distance (ft) | 206 | 152 | | | 258 |
| Upstream Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |
| Storage Bay Dist (ft) | | | 100 | 100 | |
| Storage Blk Time (%) | | | 0 | | |
| Queuing Penalty (veh) | | | 0 | | |

Intersection: 6: Maple & Site

| Movement | EB | SB |
|-----------------------|----|----|
| Directions Served | LT | LR |
| Maximum Queue (ft) | 35 | 64 |
| Average Queue (ft) | 4 | 29 |
| 95th Queue (ft) | 21 | 52 |
| Link Distance (ft) | 91 | 92 |
| Upstream Blk Time (%) | | 0 |
| Queuing Penalty (veh) | | 0 |
| Storage Bay Dist (ft) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 8: Site & Commercial

| Movement | EB | NB | SB |
|-----------------------|----|----|-----|
| Directions Served | LR | L | TR |
| Maximum Queue (ft) | 81 | 31 | 4 |
| Average Queue (ft) | 29 | 6 | 0 |
| 95th Queue (ft) | 65 | 25 | 3 |
| Link Distance (ft) | 68 | | 266 |
| Upstream Blk Time (%) | 2 | | |
| Queuing Penalty (veh) | 0 | | |
| Storage Bay Dist (ft) | | 50 | |
| Storage Blk Time (%) | | 0 | |
| Queuing Penalty (veh) | | 0 | |

Network Summary

| |
|---------------------------------|
| Network wide Queuing Penalty: 0 |
|---------------------------------|



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|-------|------|------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↕ | | | ↕ | | ↕ | ↕ | | ↕ | ↕ | |
| Volume (vph) | 3 | 2 | 25 | 7 | 1 | 2 | 69 | 974 | 45 | 1 | 363 | 43 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 | 10 | 12 | 12 | 10 | 12 | 12 |
| Grade (%) | | -5% | | | 0% | | | 0% | | | 0% | |
| Storage Length (ft) | 0 | | 0 | 0 | | 0 | 100 | | 0 | 100 | | 0 |
| Storage Lanes | 0 | | 0 | 0 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | 25 | 25 | | 25 | 25 | | 25 | 25 | | 25 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | |
| Frt | | 0.888 | | | 0.973 | | | 0.993 | | | 0.984 | |
| Flt Protected | | 0.995 | | | 0.965 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1687 | 0 | 0 | 1749 | 0 | 1652 | 1850 | 0 | 1652 | 1786 | 0 |
| Flt Permitted | | 0.995 | | | 0.965 | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 1687 | 0 | 0 | 1749 | 0 | 1652 | 1850 | 0 | 1652 | 1786 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 210 | | | 185 | | | 627 | | | 608 | |
| Travel Time (s) | | 4.8 | | | 4.2 | | | 14.3 | | | 13.8 | |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | | | | | | | | | | |
| Peak Hour Factor | 0.64 | 0.64 | 0.64 | 0.40 | 0.40 | 0.40 | 0.92 | 0.92 | 0.92 | 0.94 | 0.94 | 0.94 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | | | | | | | |
| Mid-Block Traffic (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Adj. Flow (vph) | 5 | 3 | 39 | 18 | 3 | 5 | 75 | 1059 | 49 | 1 | 386 | 46 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 47 | 0 | 0 | 25 | 0 | 75 | 1108 | 0 | 1 | 432 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 67.3% |
| | ICU Level of Service C |
| Analysis Period (min) | 15 |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|-------|------|------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | ↗ | ↘ | | ↗ | ↘ | |
| Volume (vph) | 7 | 0 | 66 | 14 | 1 | 0 | 60 | 463 | 2 | 2 | 955 | 33 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 | 10 | 12 | 12 | 10 | 12 | 12 |
| Grade (%) | | -5% | | | 0% | | | 0% | | | 0% | |
| Storage Length (ft) | 0 | | 0 | 0 | | 0 | 100 | | 0 | 100 | | 0 |
| Storage Lanes | 0 | | 0 | 0 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | 25 | 25 | | 25 | 25 | | 25 | 25 | | 25 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | |
| Frt | | 0.877 | | | | | | 0.999 | | | 0.995 | |
| Flt Protected | | 0.995 | | | 0.956 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1666 | 0 | 0 | 1781 | 0 | 1652 | 1825 | 0 | 1652 | 1853 | 0 |
| Flt Permitted | | 0.995 | | | 0.956 | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 1666 | 0 | 0 | 1781 | 0 | 1652 | 1825 | 0 | 1652 | 1853 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 210 | | | 185 | | | 627 | | | 608 | |
| Travel Time (s) | | 4.8 | | | 4.2 | | | 14.3 | | | 13.8 | |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | | | | | | | | | | |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.61 | 0.61 | 0.61 | 0.84 | 0.84 | 0.84 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 4% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | | | | | | | |
| Mid-Block Traffic (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Adj. Flow (vph) | 8 | 0 | 80 | 23 | 2 | 0 | 71 | 551 | 2 | 2 | 1061 | 37 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 88 | 0 | 0 | 25 | 0 | 71 | 553 | 0 | 2 | 1098 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 63.7% |
| | ICU Level of Service B |
| Analysis Period (min) | 15 |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|-------|------|------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 7 | 2 | 31 | 7 | 1 | 2 | 89 | 994 | 45 | 1 | 369 | 43 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 | 10 | 12 | 12 | 10 | 12 | 12 |
| Grade (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Storage Length (ft) | 0 | | 0 | 0 | | 0 | 100 | | 0 | 100 | | 0 |
| Storage Lanes | 0 | | 0 | 0 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | 25 | 25 | | 25 | 25 | | 25 | 25 | | 25 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | |
| Frt | | 0.895 | | | 0.973 | | | 0.993 | | | 0.984 | |
| Flt Protected | | 0.991 | | | 0.965 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1652 | 0 | 0 | 1749 | 0 | 1652 | 1850 | 0 | 1652 | 1786 | 0 |
| Flt Permitted | | 0.991 | | | 0.965 | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 1652 | 0 | 0 | 1749 | 0 | 1652 | 1850 | 0 | 1652 | 1786 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 273 | | | 185 | | | 627 | | | 308 | |
| Travel Time (s) | | 6.2 | | | 4.2 | | | 14.3 | | | 7.0 | |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | | | | | | | | | | |
| Peak Hour Factor | 0.64 | 0.64 | 0.64 | 0.40 | 0.40 | 0.40 | 0.92 | 0.92 | 0.92 | 0.94 | 0.94 | 0.94 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | | | | | | | |
| Mid-Block Traffic (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Adj. Flow (vph) | 11 | 3 | 48 | 18 | 3 | 5 | 97 | 1080 | 49 | 1 | 393 | 46 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 62 | 0 | 0 | 25 | 0 | 97 | 1129 | 0 | 1 | 439 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

Intersection Summary

| | |
|-----------------------------------|--------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 71.7% |
| ICU Level of Service | C |
| Analysis Period (min) | 15 |



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-----------------------------------|--------------|-------|-------|------------------------|-------|------|
| Lane Configurations | | | | | | |
| Volume (vph) | 27 | 32 | 113 | 20 | 10 | 43 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 |
| Grade (%) | | -5% | 5% | | 0% | |
| Storage Length (ft) | 0 | | | 0 | 0 | 0 |
| Storage Lanes | 0 | | | 0 | 1 | 0 |
| Taper Length (ft) | 25 | | | 25 | 25 | 25 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | | | 0.980 | | 0.891 | |
| Flt Protected | | 0.978 | | | 0.991 | |
| Satd. Flow (prot) | 0 | 1867 | 1780 | 0 | 1645 | 0 |
| Flt Permitted | | 0.978 | | | 0.991 | |
| Satd. Flow (perm) | 0 | 1867 | 1780 | 0 | 1645 | 0 |
| Link Speed (mph) | | 30 | 30 | | 30 | |
| Link Distance (ft) | | 113 | 273 | | 120 | |
| Travel Time (s) | | 2.6 | 6.2 | | 2.7 | |
| Confl. Peds. (#/hr) | | | | | | |
| Confl. Bikes (#/hr) | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | |
| Mid-Block Traffic (%) | | 0% | 0% | | 0% | |
| Adj. Flow (vph) | 29 | 35 | 123 | 22 | 11 | 47 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 64 | 145 | 0 | 58 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Intersection Summary | | | | | | |
| Area Type: | Other | | | | | |
| Control Type: | Unsignalized | | | | | |
| Intersection Capacity Utilization | 23.8% | | | ICU Level of Service A | | |
| Analysis Period (min) | 15 | | | | | |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|-------------------------|-------|------|-------|------|-------|------|
| Lane Configurations | | | | | | |
| Volume (vph) | 4 | 7 | 20 | 981 | 406 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 10 | 12 | 12 | 12 |
| Grade (%) | 0% | | | 0% | 0% | |
| Storage Length (ft) | 0 | 0 | 50 | | | 0 |
| Storage Lanes | 1 | 0 | 1 | | | 0 |
| Taper Length (ft) | 25 | 25 | 25 | | | 25 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.910 | | | | 0.994 | |
| Flt Protected | 0.984 | | 0.950 | | | |
| Satd. Flow (prot) | 1668 | 0 | 1652 | 1863 | 1801 | 0 |
| Flt Permitted | 0.984 | | 0.950 | | | |
| Satd. Flow (perm) | 1668 | 0 | 1652 | 1863 | 1801 | 0 |
| Link Speed (mph) | 30 | | | 30 | 30 | |
| Link Distance (ft) | 101 | | | 308 | 300 | |
| Travel Time (s) | 2.3 | | | 7.0 | 6.8 | |
| Confl. Peds. (#/hr) | | | | | | |
| Confl. Bikes (#/hr) | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 5% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | |
| Mid-Block Traffic (%) | 0% | | | 0% | 0% | |
| Adj. Flow (vph) | 4 | 8 | 22 | 1066 | 441 | 22 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 12 | 0 | 22 | 1066 | 463 | 0 |
| Sign Control | Stop | | | Free | Free | |

Intersection Summary

| | |
|-----------------------------------|--------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 61.6% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|-------|------|------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | ↕ | | | ↕ | | ↗ | ↖ | | ↗ | ↖ | |
| Volume (vph) | 16 | 0 | 85 | 14 | 1 | 0 | 68 | 472 | 2 | 2 | 974 | 33 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 | 10 | 12 | 12 | 10 | 12 | 12 |
| Grade (%) | | -5% | | | 0% | | | 0% | | | 0% | |
| Storage Length (ft) | 0 | | 0 | 0 | | 0 | 100 | | 0 | 100 | | 0 |
| Storage Lanes | 0 | | 0 | 0 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | 25 | 25 | | 25 | 25 | | 25 | 25 | | 25 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | | | | | | | |
| Frt | | 0.886 | | | | | | 0.999 | | | 0.995 | |
| Flt Protected | | 0.992 | | | 0.956 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1678 | 0 | 0 | 1781 | 0 | 1652 | 1825 | 0 | 1652 | 1853 | 0 |
| Flt Permitted | | 0.992 | | | 0.956 | | 0.950 | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 1678 | 0 | 0 | 1781 | 0 | 1652 | 1825 | 0 | 1652 | 1853 | 0 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 273 | | | 185 | | | 627 | | | 308 | |
| Travel Time (s) | | 6.2 | | | 4.2 | | | 14.3 | | | 7.0 | |
| Confl. Peds. (#/hr) | | | | | | | | | | | | |
| Confl. Bikes (#/hr) | | | | | | | | | | | | |
| Peak Hour Factor | 0.83 | 0.83 | 0.83 | 0.61 | 0.61 | 0.61 | 0.84 | 0.84 | 0.84 | 0.90 | 0.90 | 0.90 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 4% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | | | | | | | |
| Mid-Block Traffic (%) | | 0% | | | 0% | | | 0% | | | 0% | |
| Adj. Flow (vph) | 19 | 0 | 102 | 23 | 2 | 0 | 81 | 562 | 2 | 2 | 1082 | 37 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 121 | 0 | 0 | 25 | 0 | 81 | 564 | 0 | 2 | 1119 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 69.0% |
| | ICU Level of Service C |
| Analysis Period (min) | 15 |



| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|------|-------|-------|------|-------|------|
| Lane Configurations | | | | | | |
| Volume (vph) | 45 | 75 | 95 | 8 | 28 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 12 | 12 | 12 | 12 |
| Grade (%) | | -5% | 5% | | 0% | |
| Storage Length (ft) | 0 | | | 0 | 0 | 0 |
| Storage Lanes | 0 | | | 0 | 1 | 0 |
| Taper Length (ft) | 25 | | | 25 | 25 | 25 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | | | 0.989 | | 0.935 | |
| Flt Protected | | 0.982 | | | 0.975 | |
| Satd. Flow (prot) | 0 | 1875 | 1796 | 0 | 1698 | 0 |
| Flt Permitted | | 0.982 | | | 0.975 | |
| Satd. Flow (perm) | 0 | 1875 | 1796 | 0 | 1698 | 0 |
| Link Speed (mph) | | 30 | 30 | | 30 | |
| Link Distance (ft) | | 113 | 273 | | 120 | |
| Travel Time (s) | | 2.6 | 6.2 | | 2.7 | |
| Confl. Peds. (#/hr) | | | | | | |
| Confl. Bikes (#/hr) | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | |
| Mid-Block Traffic (%) | | 0% | 0% | | 0% | |
| Adj. Flow (vph) | 49 | 82 | 103 | 9 | 30 | 28 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 131 | 112 | 0 | 58 | 0 |
| Sign Control | | Free | Free | | Stop | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 23.1% |
| Analysis Period (min) | 15 |
| | ICU Level of Service A |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|-------------------------|-------|------|-------|------|-------|------|
| Lane Configurations | | | | | | |
| Volume (vph) | 21 | 25 | 9 | 481 | 982 | 8 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft) | 12 | 12 | 10 | 12 | 12 | 12 |
| Grade (%) | 0% | | | 0% | 0% | |
| Storage Length (ft) | 0 | 0 | 50 | | | 0 |
| Storage Lanes | 1 | 0 | 1 | | | 0 |
| Taper Length (ft) | 25 | 25 | 25 | | | 25 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | | | | | | |
| Frt | 0.927 | | | | 0.999 | |
| Flt Protected | 0.978 | | 0.950 | | | |
| Satd. Flow (prot) | 1689 | 0 | 1652 | 1827 | 1861 | 0 |
| Flt Permitted | 0.978 | | 0.950 | | | |
| Satd. Flow (perm) | 1689 | 0 | 1652 | 1827 | 1861 | 0 |
| Link Speed (mph) | 30 | | | 30 | 30 | |
| Link Distance (ft) | 101 | | | 308 | 300 | |
| Travel Time (s) | 2.3 | | | 7.0 | 6.8 | |
| Confl. Peds. (#/hr) | | | | | | |
| Confl. Bikes (#/hr) | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Growth Factor | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%) | 2% | 2% | 2% | 4% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 |
| Parking (#/hr) | | | | | | |
| Mid-Block Traffic (%) | 0% | | | 0% | 0% | |
| Adj. Flow (vph) | 23 | 27 | 10 | 523 | 1067 | 9 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 50 | 0 | 10 | 523 | 1076 | 0 |
| Sign Control | Stop | | | Free | Free | |

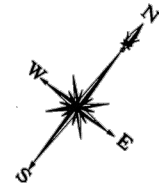
Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Control Type: | Unsignalized |
| Intersection Capacity Utilization | 62.2% |
| Analysis Period (min) | 15 |
| | ICU Level of Service B |

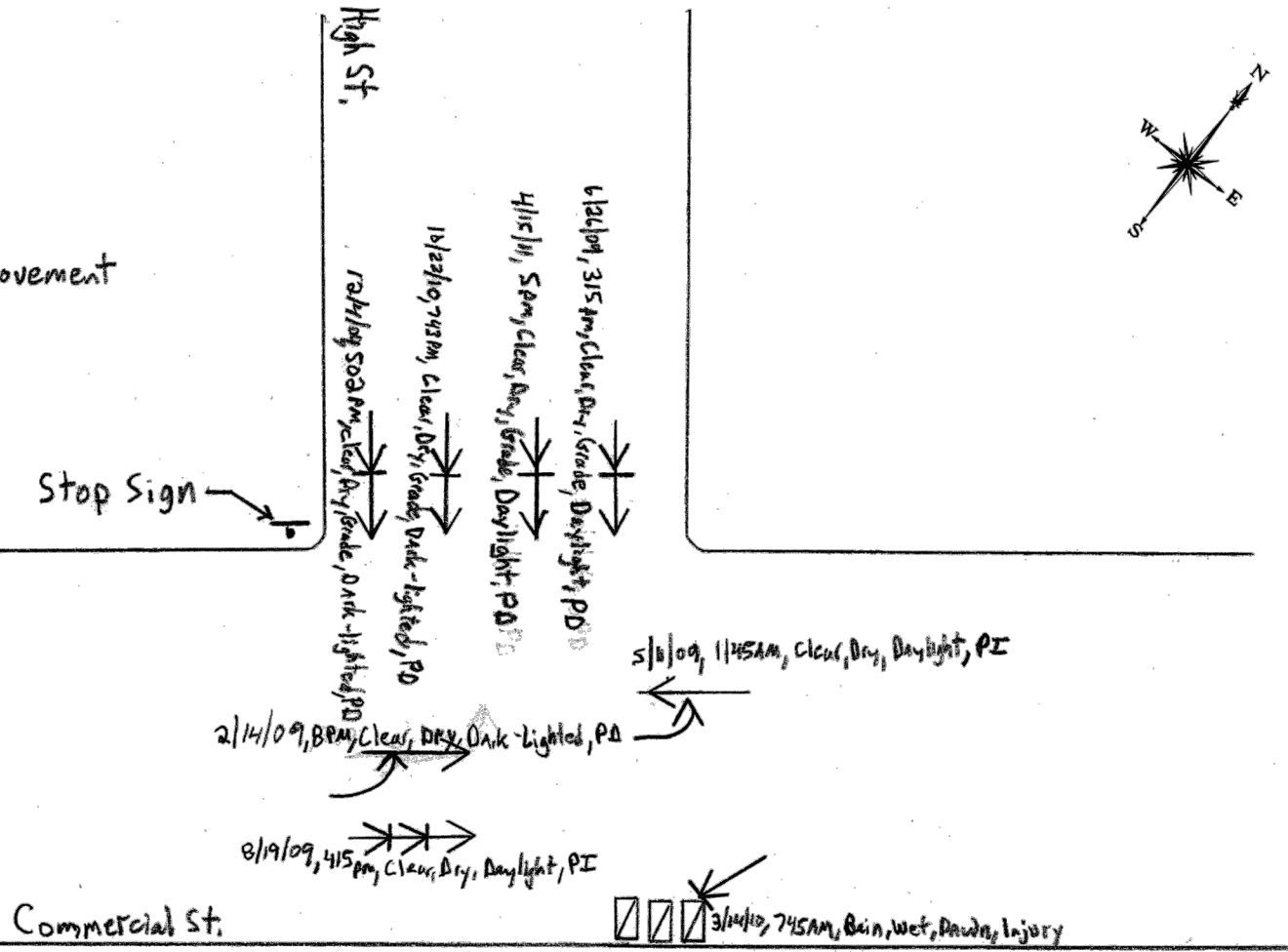
Accidents

- 5- Rear-Ends
- 2- Side swipes
- 1- Intersection Movement

Stop Sign →



High St.



PD = Property Damage
 PI = Possible Injury

BASED ON MDOT ACCIDENT DATA (2009-2011)

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| | |
|-----------|---------------|
| DATE | NOV. 28, 2012 |
| SCALE | NTS |
| PROJ. NO. | 5002-01 |
| DESIGNED | -- |
| DRAWN | JQA |
| CHECKED | -- |

ACCIDENT DIAGRAM
 HIGH STREET AT COMMERCIAL STREET
 PORTLAND, MAINE
 J.B. BROWN & SONS
 36 DANFORTH ST., PORTLAND, ME 04101

| | |
|----------------|---------------|
| PROJECT PHASE: | PERMITTING |
| DRAWING NAME: | FIG. 8 |
| REVISED: | --- |