

Gallun Tannery Redevelopment Traffic Impact Analysis

City of Milwaukee
Milwaukee County, Wisconsin

April 20, 2015



TRAFFIC IMPACT ANALYSIS FOR:

GALLUN TANNERY REDEVELOPMENT

CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

DATE SUBMITTED: April 20, 2015

PREPARED FOR:

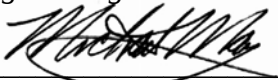
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**Gallun Tannery Redevelopment
Traffic Impact Analysis
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CHAPTER I – INTRODUCTION & EXECUTIVE SUMMARY

PART A – PURPOSE OF REPORT AND STUDY OBJECTIVES

The Gallun Tannery site is located along the northwest side of Water Street between Pearson Street and the Astor Street crosswalk in the City of Milwaukee, Wisconsin. A plan is being assembled for the potential redevelopment of the site with 450 apartment units. TADI has been retained by Atlantic Realty Partners to determine the weekday morning and weekday evening peak hour traffic operations, and to identify recommendations, at the identified study area intersections both without and with the proposed development.

This report documents the procedures, findings and conclusions of the analysis. The analysis identifies recommended improvements based on existing roadway conditions, existing traffic volumes, and additional traffic expected to be generated by the proposed Gallun Tannery redevelopment.

PART B – EXECUTIVE SUMMARY

The executive summary includes a description of the study area, description of the development and conclusions based on the findings of the TIA.

B1. Study Area

A map illustrating the location of the proposed Gallun Tannery redevelopment site is shown in [Exhibit 1-1a](#). A conceptual site plan is illustrated in [Exhibit 1-1b](#). The study area includes the following intersections. The node number corresponds to the intersection as modeled in the capacity analysis. The intersection control type is listed after each intersection.

- *Node 100:* Humboldt Avenue & Water Street/Kane Place (traffic signal control);
- *Node 120:* Water Street & Hamilton Street/Cass Street (one-way stop control);
- *Node 140:* Water Street & Brady Street (one-way stop control); and
- *Node 150:* Water Street & Pleasant Street (traffic signal control).

Development driveways are discussed under *B5. Proposed Access*.

B2. On-Site Development Description

The Gallun Tannery redevelopment is expected to consist of 450 apartment units. The development was assumed for the purpose of this study to be built out in Year 2015, though the actual timeline for completion of the development may differ.

B3. Off-Site Development Description

No off-site development has been included in this traffic study.

B4. Site Generated Traffic

To address any potential future traffic impacts at the study area intersections, it is necessary to identify the hourly volume of traffic generated by the redevelopment. The traffic volumes expected to be generated by the Gallun Tannery redevelopment are estimated based on the size and type of the proposed uses and on trip rates as published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, Ninth Edition, 2012*. A 20-percent reduction in the total trip generation was applied to account for the location of the proposed apartments in a walkable, bikeable, and transit-accessible area of the City of Milwaukee.

The Gallun Tannery redevelopment is expected to result in approximately 185 new trips (35 in/150 out) during a typical weekday morning peak hour and 225 new trips (145 in/80 out)

during a typical weekday evening peak hour. The on-site redevelopment is expected to generate approximately 2,390 new trips (1,195 in/1,195 out) during a typical 24-hour weekday period.

B5. Proposed Access

As shown in [Exhibit 1-1b](#), the Gallun Tannery redevelopment is proposed to have two access points to the existing roadway network.

- *Node 110: Water Street & North Driveway* – The north driveway is proposed to be located approximately 330-feet (centerline-to-centerline) north of Hamilton Street.
- *Node 130: Water Street & South Driveway* – The south driveway is proposed to be located approximately 135-feet (centerline-to-centerline) south of Hamilton Street.

Pedestrian/multi-modal accommodations with connectivity to the roadway network are encouraged to promote alternative modes of transportation and relieve motorized-vehicle demands on the roadway network.

B6. Analysis of Existing Crashes

Crash data was obtained from the City of Milwaukee for the study area intersections and the Water Street corridor. TADI's safety engineer, John Campbell, P.E., notes the following:

The 0.6 mile Water Street corridor from Pleasant Street to Humboldt Avenue has an above average crash history observing 102 crashes in the past five years. The Statewide Average crash rate for Urban Streets in Year 2012 was 333 crashes per 100 million vehicle miles (MVM). Comparatively, the crash rate along Water Street was 824 crashes per 100 MVM, or 148 percent higher. Crash rates for injury crashes (A-Level and B-Level) were also higher than statewide averages.

When compared to Year 2012 crash statistics for all crashes in Wisconsin, the Water Street corridor yielded the following observations:

1. High percentage of *night-time* crashes (56.9). Statewide average is 26.5 percent.
2. High percentage of *late-night* crashes (10pm – 2am); 26.5 percent versus statewide average of 9.2 percent.
3. High percentage of crashes on *wet pavement* (24.5). Statewide average is 9.7 percent.
4. *Bicycle* crashes (7.8 percent) were higher than the statewide average of 0.8 percent.
5. *Pedestrian* crashes (2.0 percent) were higher than the statewide average of 1.1 percent.
6. High percentage of non-fixed object crashes (22.5 percent) versus statewide average of 7.1 percent. Most non-fixed object crashes were collisions with *parked vehicles*.
7. High percentage of *sideswipe opposite* crashes (7.8 percent). Statewide average is 2.7 percent.
8. *Alcohol related* crashes (6.9 percent) were higher than the statewide average of 4.6 percent.
9. Twenty two percent of *late-night* crashes (10pm – 2am) were *alcohol related*.
10. *Horizontal* and *vertical curve* crashes were much higher than statewide averages, which is a consequence of the topography.

Overall, the corridor observed patterns of crashes consistent with an urban setting that contains late-night entertainment establishments.

From an engineering standpoint, potentially addressable crash patterns are the high percentages of wet pavement, bicycle, and parked vehicle crashes.

B7. Recommended Improvements

The study area intersections were analyzed based on the procedures set forth in the 2010 *Highway Capacity Manual* (HCM). Intersection operation is defined by “level of service”. Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A’, to very poor, represented by LOS ‘F’. For the purpose of this study, LOS D or better was used to define desirable peak hour operating conditions.

The following improvements, shown in [Exhibit 1-2](#), are recommended. These improvements are in addition to conditions as they currently exist. Improvements are split into two categories:

- “Others” – These improvements are recommended to mitigate an existing deficiency and are *not* Gallun Tannery responsibility. These improvements should be made by a party other than Gallun Tannery regardless of whether or not the Gallun Tannery redevelopment occurs.
- “Gallun Tannery” – These improvements are recommended to mitigate an impact created by the Gallun Tannery redevelopment and are, therefore, the responsibility of the Gallun Tannery redevelopers.

Improvements are for jurisdictional consideration and are not legally binding. The City of Milwaukee reserves the right to determine alternative solutions.

Node 100: Humboldt Avenue & Water Street/Kane Place

- *Others:* The Water Street eastbound approach currently operates at LOS F conditions during the weekday morning and evening peak hours. To provide space for eastbound through and right-turn motorists to maneuver around the eastbound left-turn movement, and therefore increase the capacity of the approach, consider prohibiting parking on the south side of Water Street within 150-feet of Humboldt from 7am to 6pm. Note parking is already prohibited due to driveways or a loading-only zone from approximately 150-feet to 325-feet west of Humboldt.
- *Gallun Tannery:* No additional improvements are expected to be necessary.

Node 110: Water Street & North Driveway (Proposed)

- *Others:* No improvements are expected to be necessary.
- *Gallun Tannery:* Construct the proposed North Driveway to allow for all movements to/from the Gallun Tannery redevelopment site. Exclusive turn-lanes are not necessary. Consider prohibiting parking along the northwest side of Water Street within 30- to 50-feet of the driveway to improve lines of sight towards oncoming vehicles.
- *Gallun Tannery:* Install a stop sign to control the proposed driveway approach to Water Street.

Node 120: Water Street & Hamilton Street/Cass Street

- *Others:* Consider prohibiting parking along the southeast side of Water Street within 30- to 50-feet of Hamilton Street/Cass Street to improve lines of sight towards oncoming vehicles.
- *Gallun Tannery:* No additional improvements are expected to be necessary.

Node 130: Water Street & South Driveway (Proposed)

- *Others:* No improvements are expected to be necessary.
- *Gallun Tannery:* Construct the proposed South Driveway to allow for all movements to/from the Gallun Tannery redevelopment site. Exclusive turn-lanes are not necessary. Consider prohibiting parking along the northwest side of Water Street within 30- to 50-feet of the driveway to improve lines of sight towards oncoming vehicles.
- *Gallun Tannery:* Install a stop sign to control the proposed driveway approach to Water Street.

Node 140: Water Street & Brady Street

- *Others:* Restripe the Water Street eastbound approach to include a left-turn lane and a through lane.
- *Others:* Restripe the Brady Street westbound approach to include a through lane and a right-turn lane.
- *Others:* Widen the Water Street southbound approach to include a left-turn lane and a right-turn lane. Note that the southbound left-turn movement is expected to continue to operate at LOS F conditions for 5 vehicles per hour during the weekday evening peak hour. Consideration may be given to prohibiting the southbound left-turn movement during the weekday evening peak hour. Impacted traffic would be expected to divert to Pearson Street or Hamilton Street, to Marshall Street, to Brady Street.
- *Others:* A high volume of westbound two-wheeled crashes (5 bicycles, 1 moped, 1 motorcycle) have occurred across the north leg of the intersection in the five-year crash study window. The crashes involved eastbound left-turn vehicles (5), a westbound right-turn vehicle (1) and a postal van that exited 621 East Brady and attempted to cross northbound onto Water Street (1). Restripe the bicycle lanes from Van Buren Street/Holton Street, through the Water Street intersection, to west of the Jefferson Street curve to improve visibility. A green bicycle lane through the Water Street & Brady Street intersection is recommended to raise awareness to motorists that a live bicycle lane crosses the intersection. Examples of green bicycle lanes across intersections may be found on North Avenue, east of Wauwatosa Avenue, in the City of Wauwatosa.
- *Gallun Tannery:* No additional improvements are expected to be necessary.

Node 150: Water Street & Pleasant Street

- *Others:* The Water Street southbound approach to Pleasant Street currently includes a left-turn lane, a through lane, and a right-turn lane. The southbound through lane currently operates at LOS F during the weekday morning and evening peak hours and has a long queue. Restripe the southbound approach to include a left-turn lane, a through lane, and a shared through/right-turn lane.
- *Gallun Tannery:* No additional improvements are expected to be necessary.

Other Improvements

- *Others:* A total of fourteen (14) crashes with parked vehicles occurred on the Water Street curve located west of Humboldt Avenue in the five-year crash study window. Additionally, three (3) out-of-control crashes related to snow/ice

occurred on the curve. Consideration should be given to prohibiting parking along one or both sides of Water Street on this curve. Consideration may also be given to improving the pavement friction through diamond grooving the pavement.

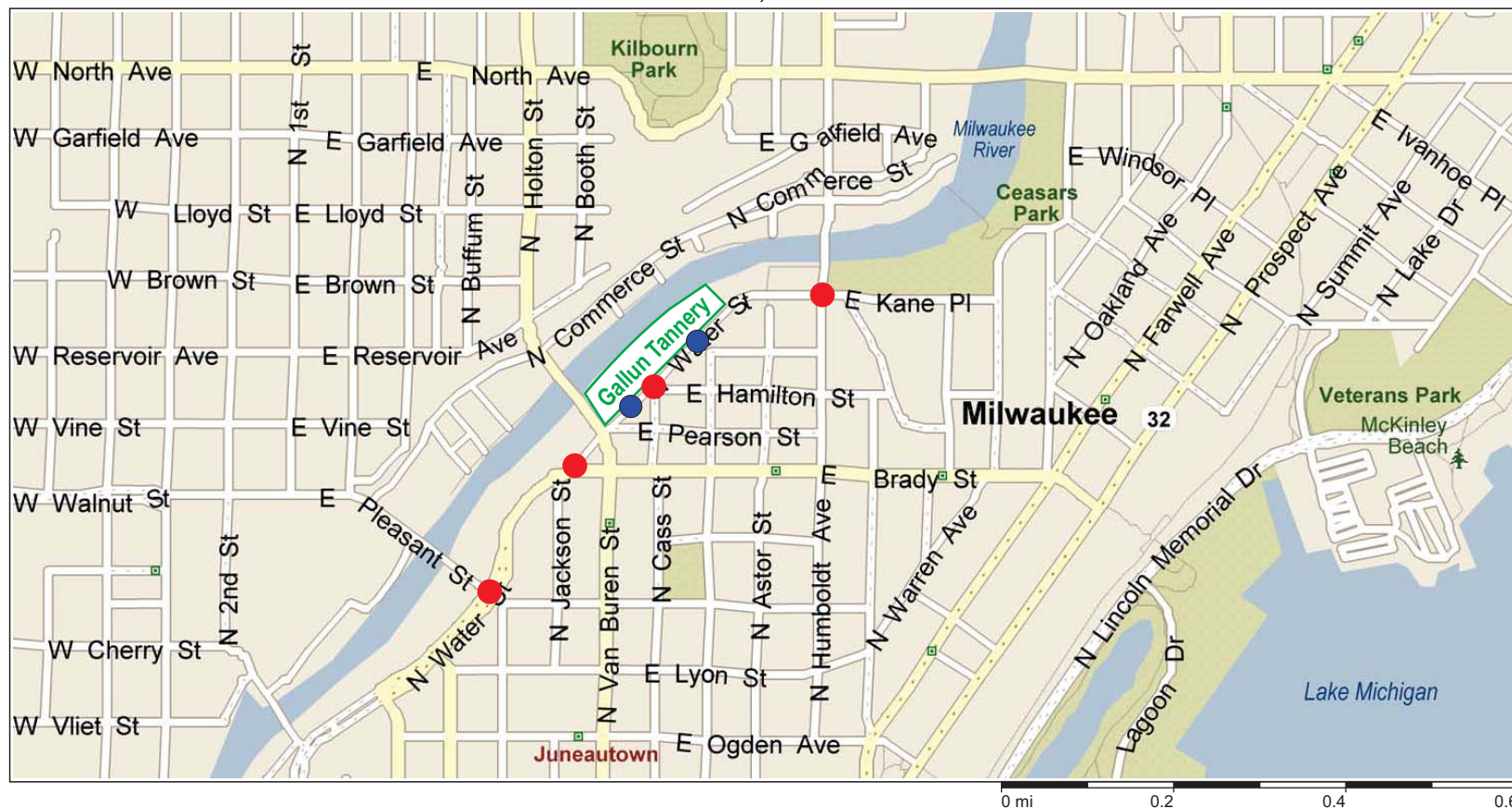
- *Gallun Tannery*: No additional improvements are expected to be necessary.

B8. Conclusion

A number of safety and operational deficiencies currently exist within the study area. Mitigating these existing deficiencies is not the responsibility of the Gallun Tannery. Improvements to correct the existing deficiencies should be made by a party other than Gallun Tannery regardless of whether or not the Gallun Tannery redevelopment occurs.

With the identified recommended improvements, the Water Street corridor is expected to operate both safer and more efficiently than currently exists.

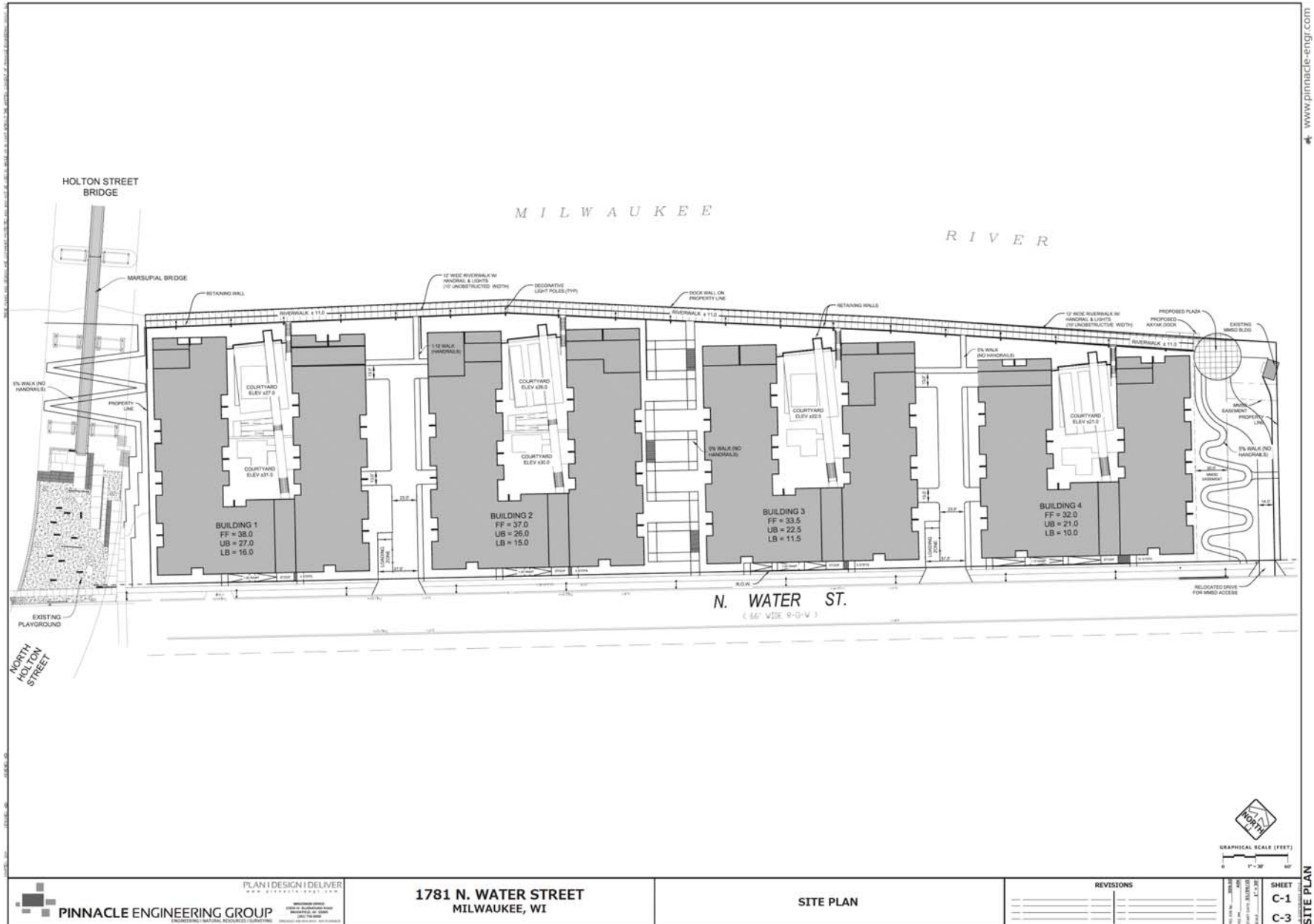
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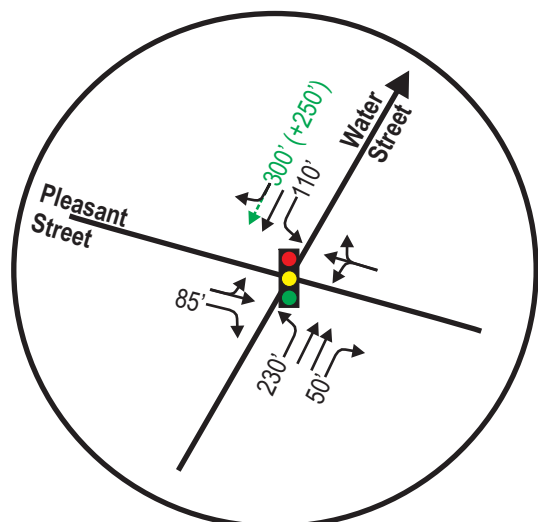
- Study Area Intersection (Existing)
- Study Area Driveway (Planned)

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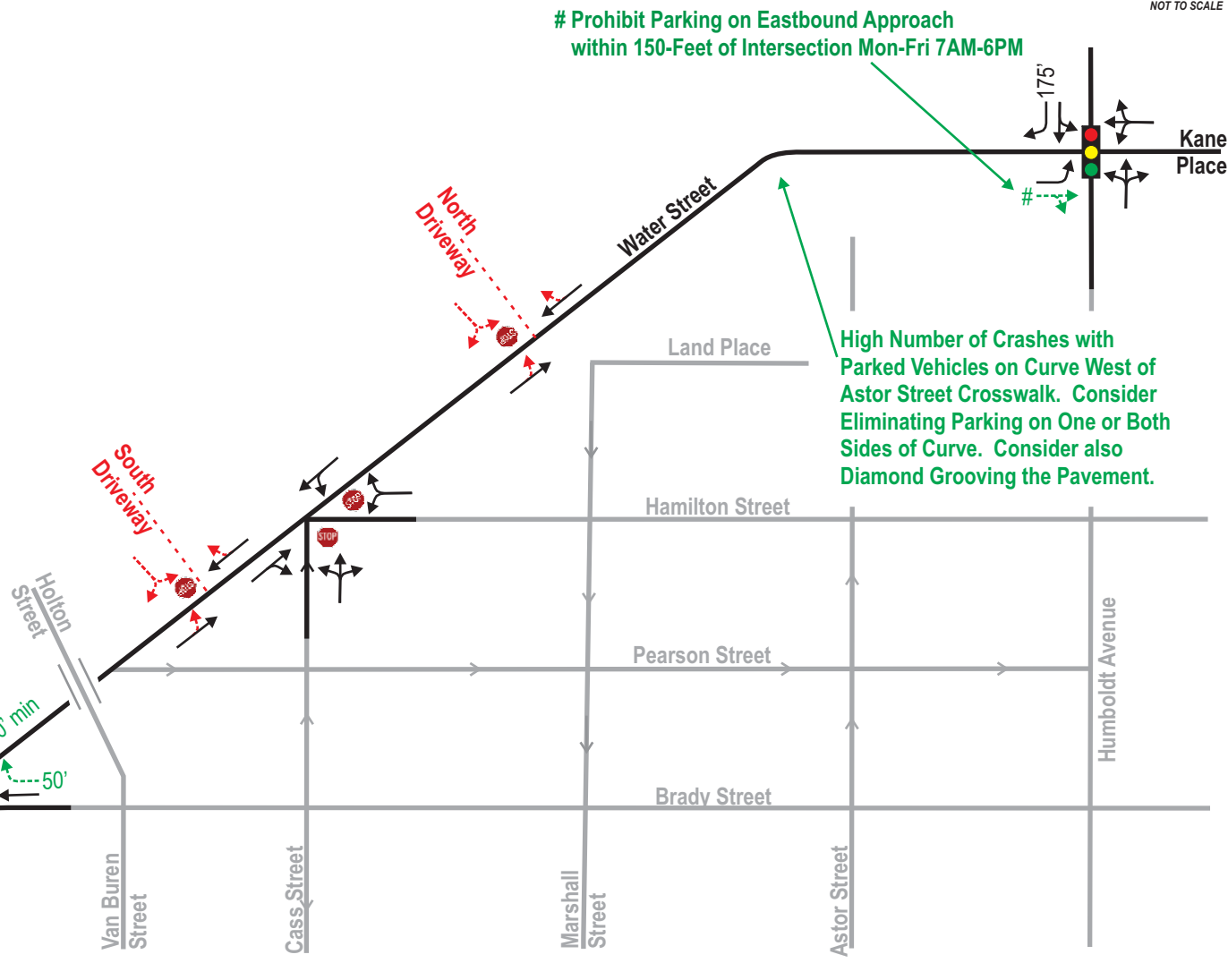
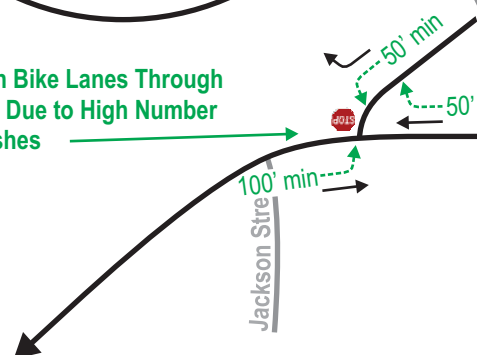


LEGEND

-  Traffic Signal
-  Stop Sign
- Proposed Driveway
- Existing Lane Configuration
- > Recommended Lane Configuration
- XX' Storage Length (in Feet)
- (+XX') Increase in Storage over Existing (in Feet)
- GREEN Improvements by Others
- RED Improvements by Gallun Tannery



Stripe Green Bike Lanes Through Intersection Due to High Number of Bike Crashes



CHAPTER II – PROPOSED DEVELOPMENT

PART A – ON-SITE DEVELOPMENT

A1. Development Description and Site Location

The Gallun Tannery site is located along the northwest side of Water Street between Pearson Street and the Astor Street crosswalk in the City of Milwaukee, Wisconsin. A map illustrating the location of proposed Gallun Tannery redevelopment is shown in [Exhibit 2-1](#). A conceptual site plan is illustrated in [Exhibit 2-2](#).

A2. Land Use and Intensity

The proposed redevelopment site was once home to the Gallun Tannery and is now a vacant site. The Gallun Tannery redevelopment is expected to consist of 450 apartment units.

A3. Site Plan

The Gallun Tannery redevelopment is proposed to have two access points to the existing roadway network.

- *Node 110: Water Street & North Driveway* – The north driveway is proposed to be located approximately 330-feet (centerline-to-centerline) north of Hamilton Street.
- *Node 130: Water Street & South Driveway* – The south driveway is proposed to be located approximately 135-feet (centerline-to-centerline) south of Hamilton Street.

A4. Development Phasing and Timing

The development was assumed for the purpose of this study to be built out in Year 2015, though the actual timeline for completion of the development may differ.

PART B – STUDY AREA

B1. Influence Area

The primary influence area for this traffic study includes the Downtown and Northeast (“East Side”) Areas of the City. Commuters and to other City of Milwaukee Areas and surrounding communities may also influence traffic to/from the development site.

B2. Area of Significant Traffic Impact

The study area includes the following intersections. The node number corresponds to the intersection as modeled in the capacity analysis. The intersection control type is listed after each intersection.

- *Node 100: Humboldt Avenue & Water Street/Kane Place* (traffic signal control);
- *Node 120: Water Street & Hamilton Street/Cass Street* (one-way stop control);
- *Node 140: Water Street & Brady Street* (one-way stop control); and
- *Node 150: Water Street & Pleasant Street* (traffic signal control).

Development access, previously discussed, is also included in the study area.

PART C – OFF-SITE LAND USE AND DEVELOPMENT

No off-site development has been included in this traffic study.

PART D – SITE ACCESSIBILITY

D1. Study Area Roadways

The study area roadways are discussed below:

Water Street is a four-lane divided north/south street with a posted speed limit of 30 miles per hour (mph) to the south of Pleasant Street, and a two-lane undivided primarily northeast/southwest street with a speed limit of 25 mph north of Pleasant Street. According to the Wisconsin Department of Transportation (WisDOT), the annual average daily traffic (AADT) volumes were approximately 16,100 vehicles per day (vpd) south of Pleasant Street (Year 2009), 16,800 vpd north of Pleasant Street (Year 2006), 7,800 vpd north of Brady Street (Year 2012), and 9,000 vpd west of Humboldt Avenue (Year 2013). Water Street intersects Humboldt Avenue opposite Kane Place.

Kane Place is a two-lane undivided east/west street with a speed limit of 25 mph east of Humboldt Avenue. According to WisDOT, the AADT volume was approximately 2,200 vpd east of Pulaski Street (Year 2012). Kane Place intersects Humboldt Avenue opposite Water Street.

Humboldt Avenue is a two-lane undivided north/south street with a speed limit of 25 mph. According to WisDOT, the AADT volumes were approximately 11,700 vpd north of Water Street/Kane Place (Year 2014) and 2,400 vpd north of Brady Street (Year 2013).

Hamilton Street is a two-lane undivided east/west street with a speed limit of 25 mph. Hamilton Street intersects Water Street and Cass Street as a tee-intersection from the west, and is the only two-way street between Water Street and Humboldt Avenue north of Brady Street. No AADT volumes are recorded, though TADI estimates the AADT to be approximately 650 vpd.

Cass Street is a one-lane one-way northbound street with a speed limit of 25 mph. Cass Street intersects Water Street and Hamilton Street as a tee-intersection from the south. Between Water Street and Humboldt Street, Cass Street is one-way northbound, Mineral Street (one block east) is one-way southbound, and Astor Street (two blocks east) is one-way northbound. No AADT volumes are recorded, though TADI estimates the AADT to be approximately 130 vpd.

Brady Street is a two-lane undivided east-west street with a speed limit of 25 mph. Brady Street intersects Water Street from the east where Water Street transitions from east/west to north/south. The WisDOT AADT volume on Brady Street was approximately 9,000 vpd east of Water Street.

Pleasant Street is a two-lane undivided east/west street with a speed limit of 25 mph. According to WisDOT, the AADT volumes were approximately 6,900 vpd west of Water Street (Year 2013) and 940 vpd east of Water Street (Year 2013).

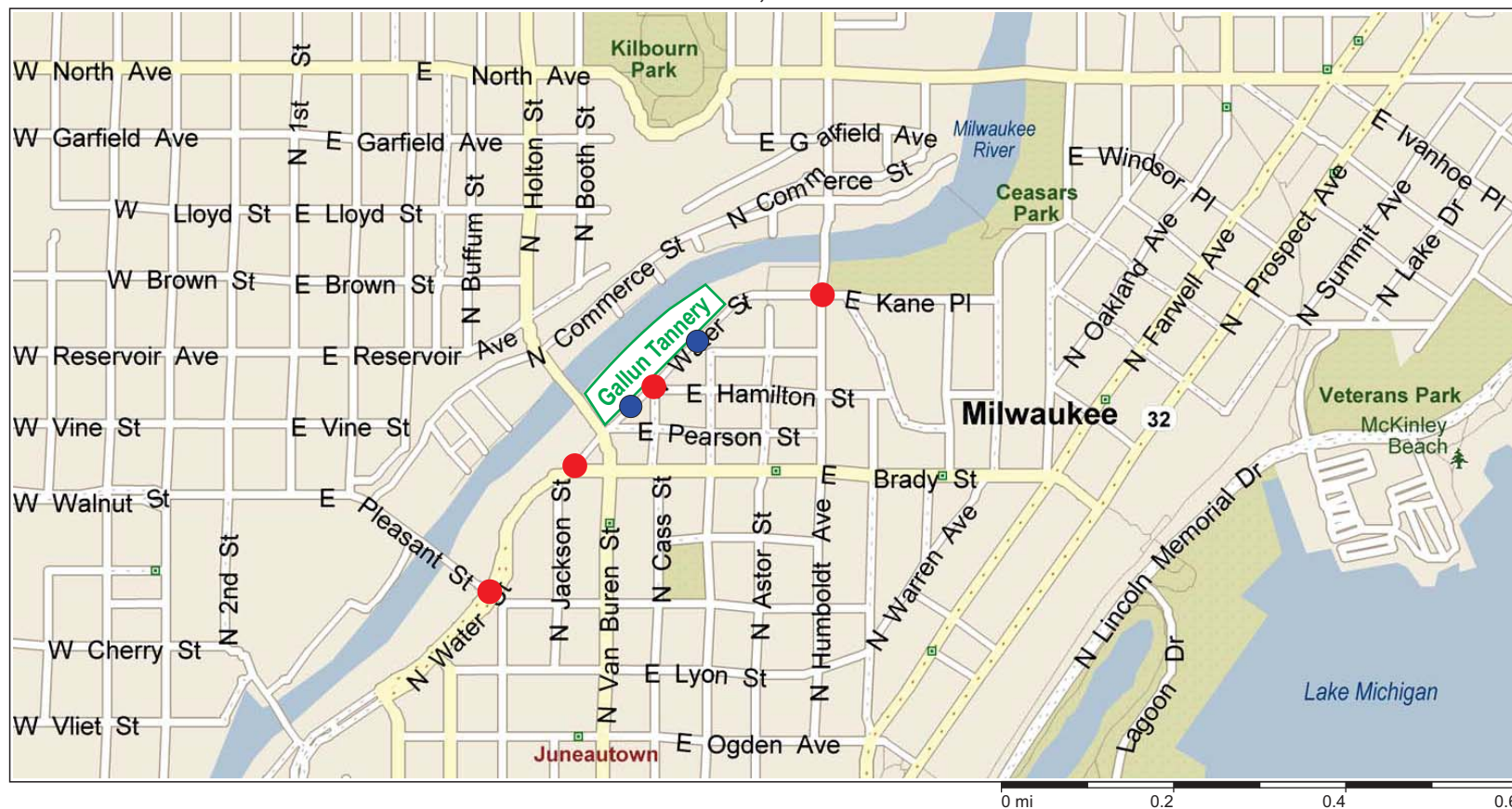
D2. Pedestrian & Bicycle Accommodations

Pedestrian sidewalk is currently provided on both sides of all streets within the study area. On-street bicycle lanes are provided on Water Street west of Brady Street, and on Brady Street between Water Street and Van Buren Street/Holton Street. The area was observed to have a vibrant walking/biking community.

D3. Transit Accommodations

Regularly scheduled transit is available along Water Street/Brady Street (Green Line), Humboldt Avenue (Route 14: Humboldt-Forest Home) and Van Buren Street/Holton Street (Route 15: Holton-Kinnickinnic). Transit does not utilize the segment of Water Street between Brady Street and Humboldt Avenue.

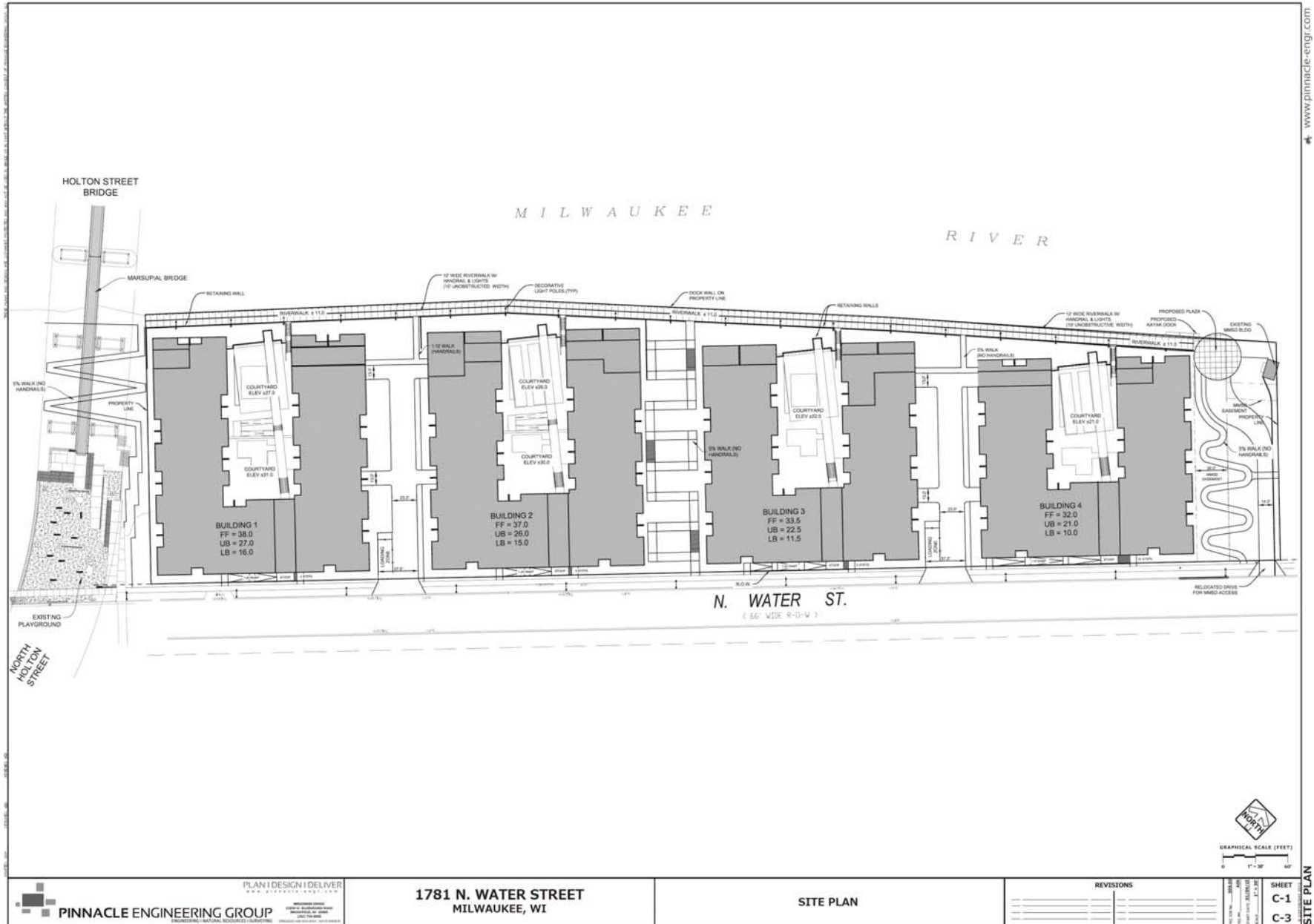
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LEGEND

- Study Area Intersection (Existing)
- Study Area Driveway (Planned)

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CHAPTER III – ANALYSIS OF EXISTING CONDITIONS

PART A – PHYSICAL CHARACTERISTICS

An existing transportation detail showing intersection lane configurations, traffic control, posted speed limits, and approximate intersection spacing is included in [Exhibit 3-1](#).

PART B – EXISTING TRAFFIC VOLUMES

Weekday morning (6:00 to 9:00am) and evening (3:00 to 6:00pm) turning movement counts were collected at the study area intersections on Wednesday, March 18th and Thursday, March 19th of 2015.

Based on the turning movement counts, the weekday morning and weekday evening peak hours were identified as being 7:15 to 8:15am and 4:45 to 5:45pm. The Year 2015 existing traffic volumes are shown in [Exhibit 3-2](#). The traffic counts used to determine peak hour factors and truck percentages have been included in the [appendix](#) of this study.

PART C – CAPACITY LEVEL OF SERVICE

C1. Level of Service Definitions

The study area intersections were analyzed based on the procedures set forth in the *2010 Highway Capacity Manual* (HCM). Intersection operation is defined by “level of service”. Level of service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A’, to very poor, represented by LOS ‘F’. For the purpose of this study, LOS D was used to define desirable peak hour operating conditions. Descriptions of the various levels of service are as follows:

LOS A is the highest level of service that can be achieved. Under this condition, intersection approaches appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation. At signalized and unsignalized intersections, average delays are less than [10](#) seconds.

LOS B represents stable operation. At signalized intersections, average vehicle delays are [10 to 20](#) seconds. At unsignalized intersections, average delays are [10 to 15](#) seconds.

LOS C still represents stable operation, but periodic backups of a few vehicles may develop behind turning vehicles. Most drivers begin to feel restricted, but not objectionably so. At signalized intersections, average vehicle delays are [20 to 35](#) seconds. At unsignalized intersections, average delays are [15 to 25](#) seconds.

LOS D represents increasing traffic restrictions as the intersection approaches instability. Delays to approaching vehicles may be substantial during short peaks within the peak period, but periodic clearance of long lines occurs, thus preventing excessive backups. At signalized intersections, average vehicle delays are [35 to 55](#) seconds. At unsignalized intersections, average delays are [25 to 35](#) seconds.

LOS E represents the capacity of the intersection. At signalized intersections, average vehicle delays are [55 to 80](#) seconds. At unsignalized intersections, average delays are [35 to 50](#) seconds.

LOS F represents jammed conditions where the intersection is over capacity and acceptable gaps for unsignalized intersections in the mainline traffic flow are minimal. At signalized intersections, average vehicle delays exceed [80](#) seconds. At unsignalized intersections, average delays exceed [50](#) seconds.

C2. Year 2015 Existing Traffic Operations

[Exhibit 3-3a](#) shows the Year 2015 existing traffic (no Gallun Tannery redevelopment) peak hour operating conditions at the study area intersections, and the existing traffic queues are shown in [Exhibit 3-3b](#). The Year 2015 existing traffic analysis was conducted using the existing intersection geometrics ([Exhibit 3-1](#)) and existing traffic signal phasing/timing (see [Appendix A](#)).

As shown, select movements at the Humboldt Street & Water Street/Kane Place, Water Street & Brady Street, and Water Street & Brady Street intersection currently operate at LOS F conditions. Improvement operations are summarized in *Chapter V – Traffic and Improvement Analysis*.

PART D – CRASH ANALYSIS

The crash history for Water Street and for the study area intersections, for years 2010 through 2015, was investigated by TADI to identify crash patterns for the study area. The crash data was obtained from the City of Milwaukee. Corridor crash histories are shown in [Exhibits 3-4a and 3-4b](#). The intersection crash histories are shown in [Exhibit 3-5a through 3-5d](#). Crash statistics and additional data are included in [Appendix A](#). TADI's safety engineer, John Campbell, P.E., notes the following:

The 0.6 mile Water Street corridor from Pleasant Street to Humboldt Avenue has an above average crash history observing 102 crashes in the past five years. The Statewide Average crash rate for Urban Streets in Year 2012 was 333 crashes per 100 million vehicle miles (MVM). Comparatively, the crash rate along Water Street was 824 crashes per 100 MVM, or 148 percent higher. Crash rates for injury crashes (A-Level and B-Level) were also higher than statewide averages.

When compared to Year 2012 crash statistics for all crashes in Wisconsin, the Water Street corridor yielded the following observations:

1. High percentage of *night-time* crashes (56.9). Statewide average is 26.5 percent.
2. High percentage of *late-night* crashes (10pm – 2am); 26.5 percent versus statewide average of 9.2 percent.
3. High percentage of crashes on *wet pavement* (24.5). Statewide average is 9.7 percent.
4. *Bicycle* crashes (7.8 percent) were higher than the statewide average of 0.8 percent.
5. *Pedestrian* crashes (2.0 percent) were higher than the statewide average of 1.1 percent.
6. High percentage of non-fixed object crashes (22.5 percent) versus statewide average of 7.1 percent. Most non-fixed object crashes were collisions with *parked vehicles*.
7. High percentage of *sideswipe opposite* crashes (7.8 percent). Statewide average is 2.7 percent.
8. *Alcohol related* crashes (6.9 percent) were higher than the statewide average of 4.6 percent.
9. Twenty two percent of *late-night* crashes (10pm – 2am) were *alcohol related*.
10. *Horizontal* and *vertical curve* crashes were much higher than statewide averages, which is a consequence of the topography.

Overall, the corridor observed patterns of crashes consistent with an urban setting that contains late-night entertainment establishments.

From an engineering standpoint, some potentially addressable crash patterns are the high percentages of wet pavement, bicycle, and parked vehicle crashes.

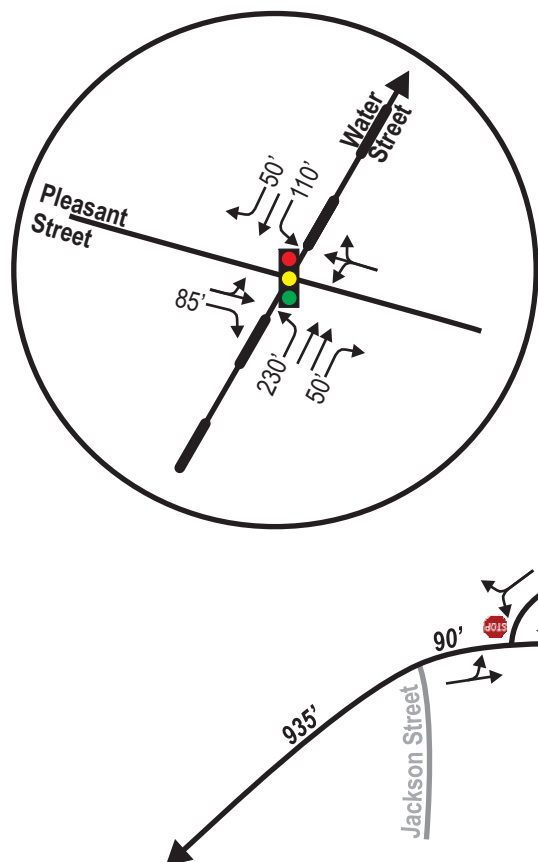
PART E – SOURCES OF DATA

The following sources of data were obtained for use in conducting this traffic study:

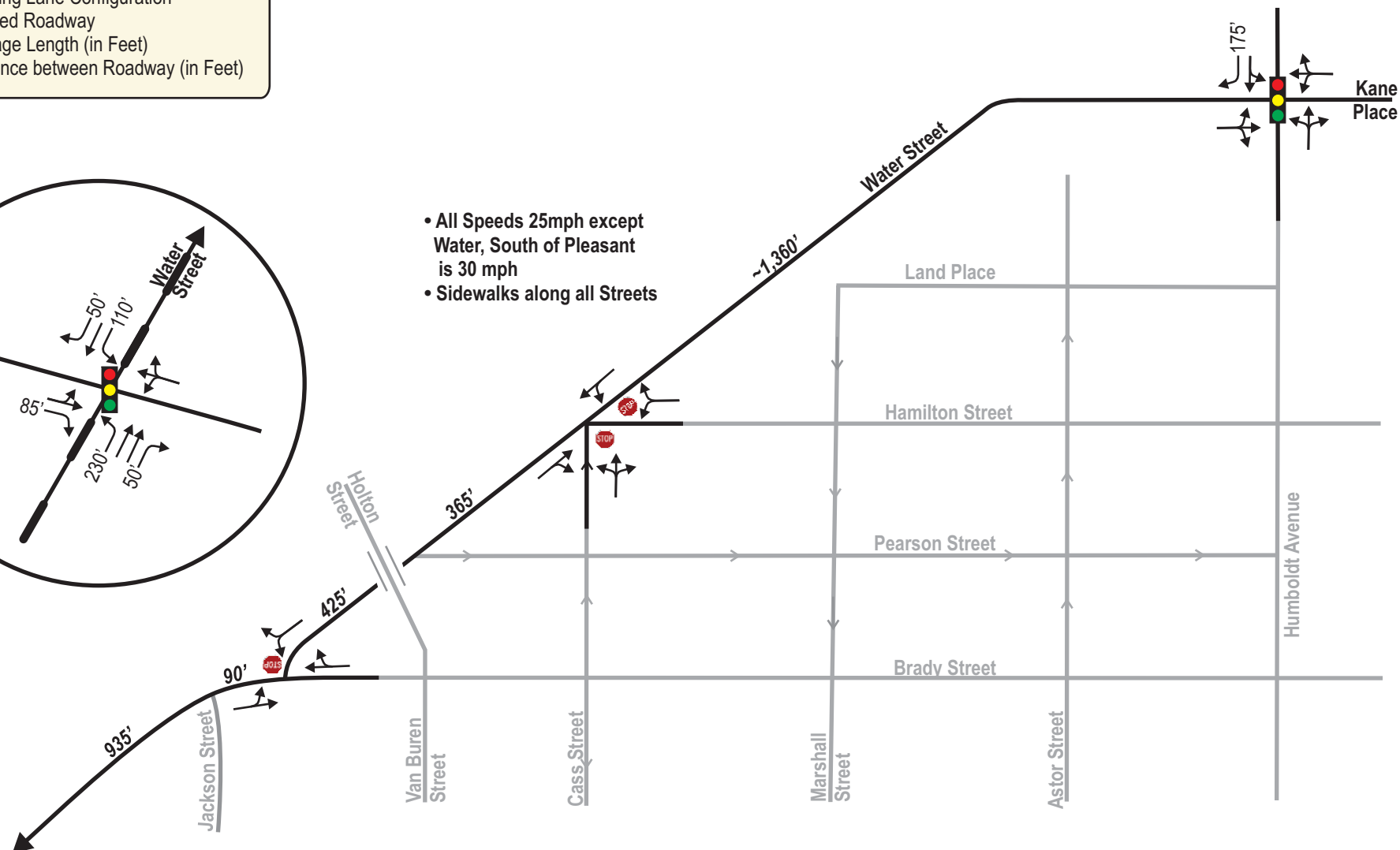
- AADT counts – WisDOT;
- Turning movement traffic counts – TADI;
- Existing transportation detail – TADI;
- Traffic signal phasing/timing – City of Milwaukee;
- Crash data – City of Milwaukee;
- On-site development information – Atlantic Realty Partners;

LEGEND

-  Traffic Signal
-  Stop Sign
-  Existing Lane Configuration
-  Divided Roadway
-  XX' Storage Length (in Feet)
-  XX' Distance between Roadway (in Feet)

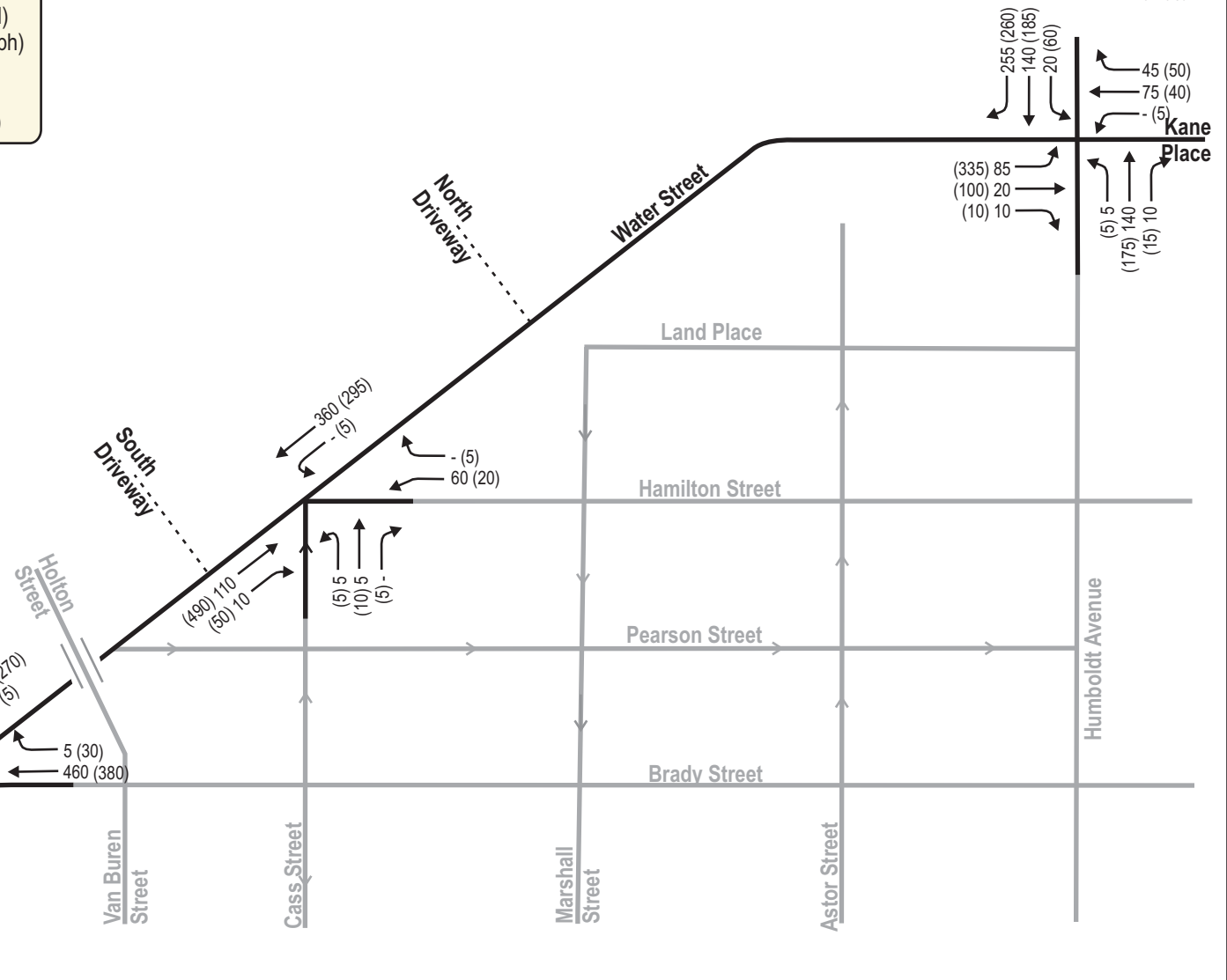
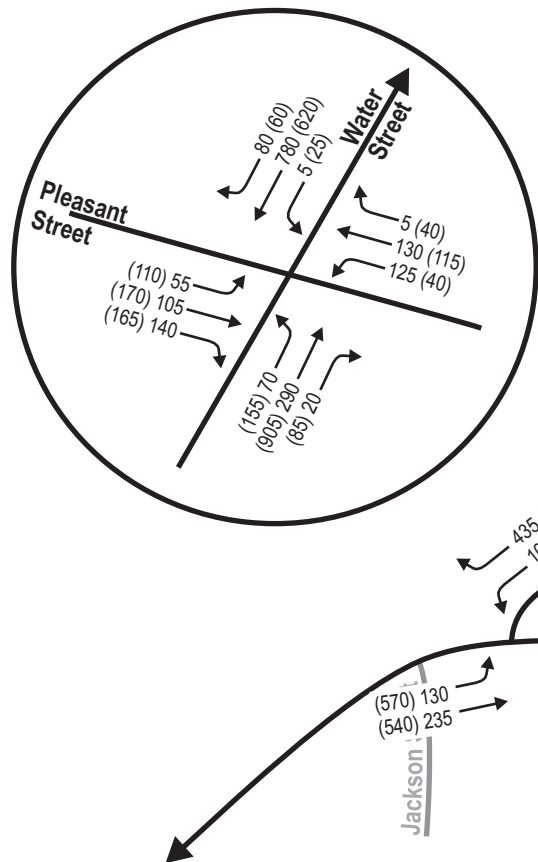


- All Speeds 25mph except Water, South of Pleasant is 30 mph
- Sidewalks along all Streets



LEGEND

- XX AM Peak Hour Volumes (9:00-10:00 AM)
- (XX) PM Peak Hour Volumes (4:30 PM-5:30 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)
- Proposed Driveway
- X,XXX** 2013 Annual Average Daily Traffic (AADT)
- *2010 Annual Average Daily Traffic (AADT)





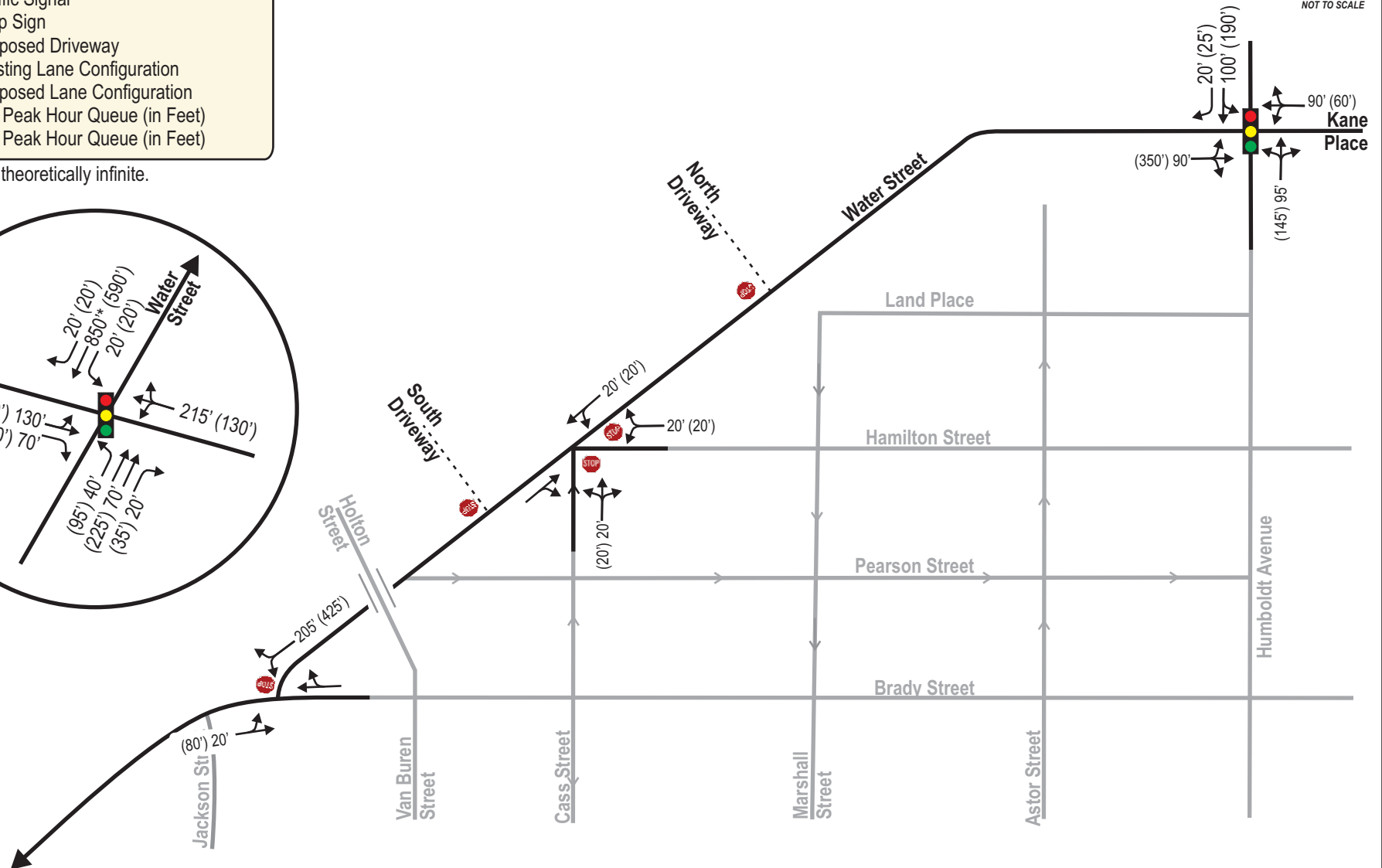
**Year 2015 Existing Traffic Operations
No Improvements**

Intersection	Traffic Control	Peak Hour	Level of Service per Movement by Approach											
			Eastbound			Westbound			Northbound			Southbound		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Humboldt Avenue & Water Street/Kane Place	Traffic Signal	AM	F	F	F	B	B	B	B	B	B	B	B	C
		PM	F	F	F	B	B	B	C	C	C	C	C	C
Water Street & Hamilton Street/Cass Street	One-Way Stop	AM	-	-	-	B	-	B	-	*	*	A	*	-
		PM	-	-	-	C	-	C	-	*	*	A	*	-
Water Street/Brady Street & Water Street	One-Way Stop	AM	A	*	-	-	*	*	-	-	-	D	-	D
		PM	B	*	-	-	*	*	-	-	-	F	-	F
Water Street & Pleasant Street	Traffic Signal	AM	C	C	B	C	C	C	C	A	A	B	F	B
		PM	C	C	B	C	C	C	C	B	B	C	D	B

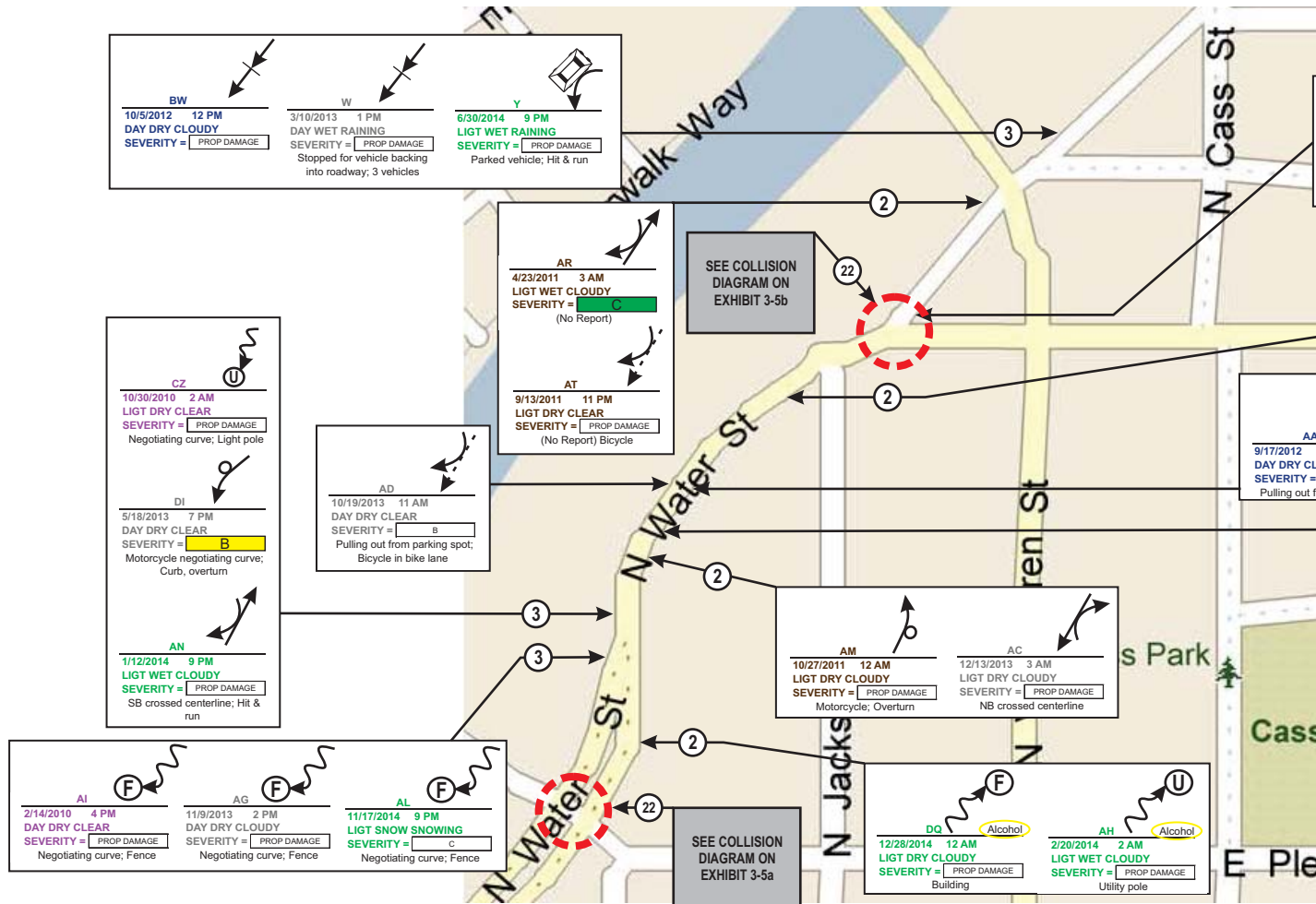
Notes: (-) indicates a movement that is not possible or is prohibited. (*) indicates uncontrolled or free-flow movement.

 Traffic Signal
 Stop Sign
 Proposed Driveway
 Existing Lane Configuration
 Proposed Lane Configuration
XX' AM Peak Hour Queue (in Feet)
(XX') PM Peak Hour Queue (in Feet)

The diagram shows a four-way intersection with a roundabout design. The intersection is circular with a central island. The streets are Pleasant Street and Water Street. The intersection is controlled by a traffic light with a red light for the main street (Pleasant Street) and a green light for the roundabout. The roundabout has a 20-foot radius. The main street has a 220-foot radius. The roundabout has a 20-foot radius. The main street has a 220-foot radius. The roundabout has a 20-foot radius. The main street has a 220-foot radius. The roundabout has a 20-foot radius.



MILWAUKEE, WISCONSIN



→ Moving Vehicle

↔ Backing Vehicle

--- Pedestrian

----- Bicyclist

🚗 Parked Vehicle

NOTE: DEER CRASHES NOT INCLUDED

🚦 Traffic Signal

🛑 Stop/Yield Sign

🌳 Tree

🚰 Utility Pole

🚧 Fixed Object

🚧 Non-Fixed Object

🔄 = STUDY INTERSECTION WITH SEPARATE COLLISION DIAGRAM

LEGEND

↗ Angle (Right Angle)

↖ Angle (Left Turn)

↘ Angle (Right Turn)

↔ Sideswipe-Same

↔ Sideswipe-Opposite

➡ Head-On

➡ Rear-End

🌀 Out of Control

➡ Overtake

➡ Overtake

= CRASH FREQUENCY (if > 1)

"REFERENCE" ALCOHOL/DRUG INVOLVEMENT: AL/DG

DATE OF CRASH, MILITARY TIME

LIGHT, ROAD, WEATHER CONDITIONS

SEVERITY - SEE SEVERITY DEFINITIONS (NOTES)

CRASH SEVERITY DEFINITIONS

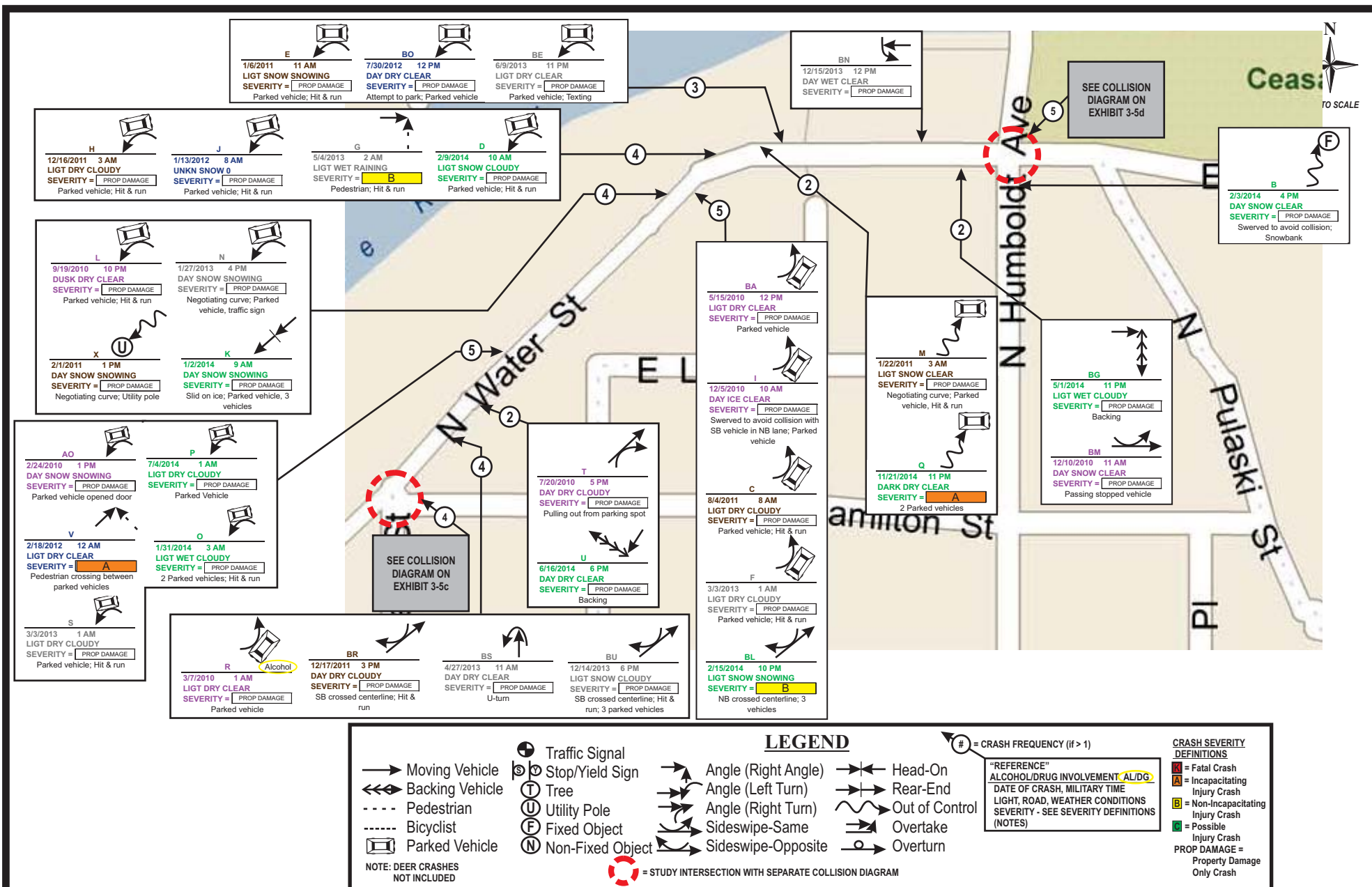
F = Fatal Crash

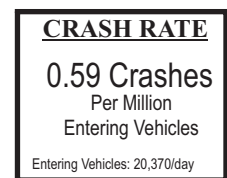
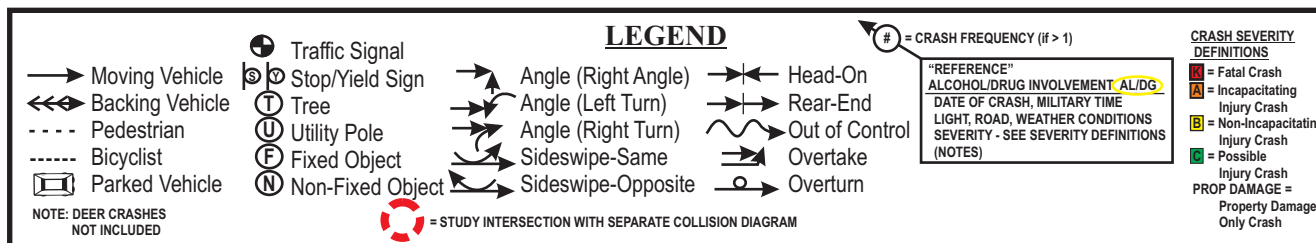
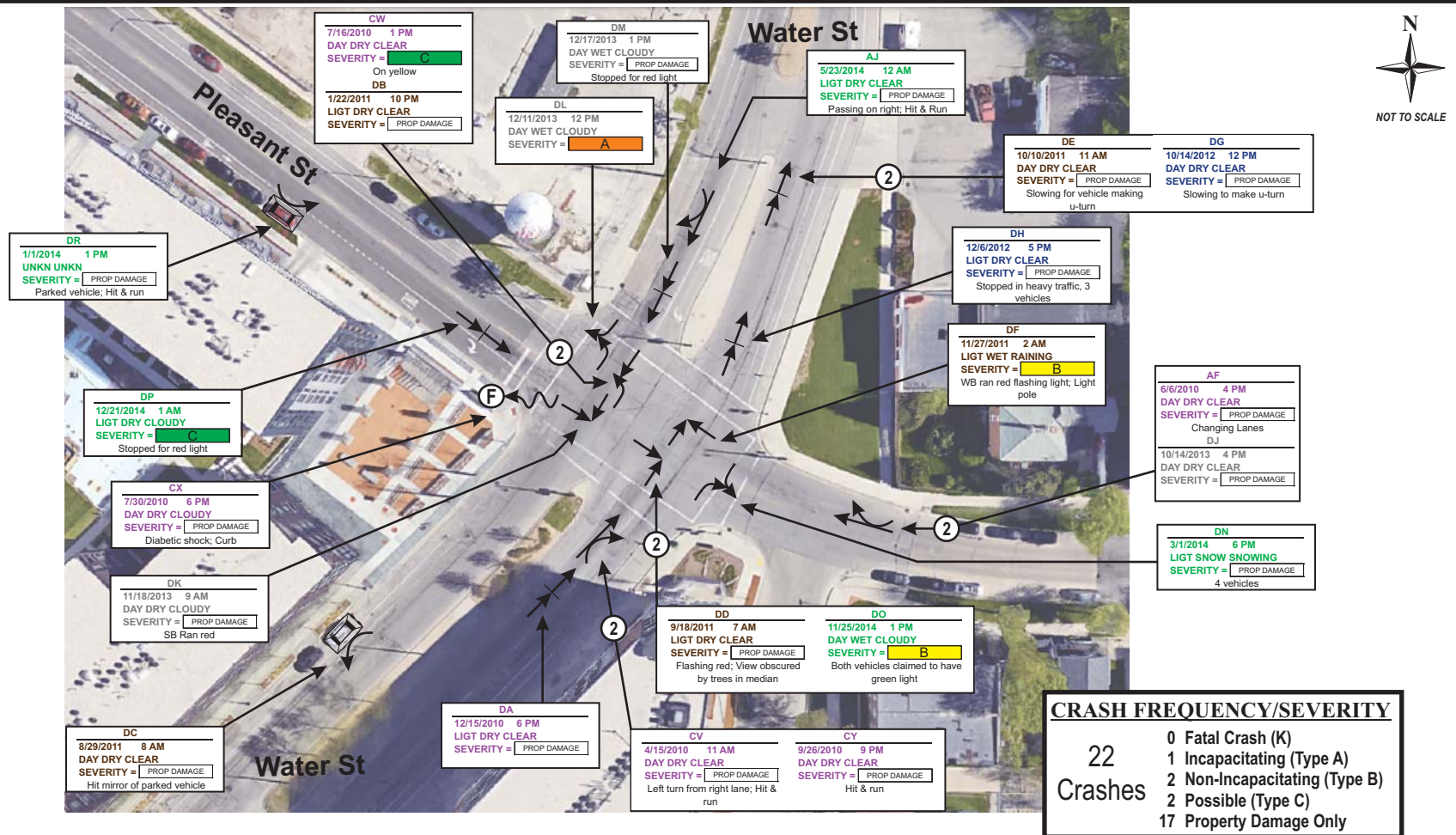
A = Incapacitating Injury Crash

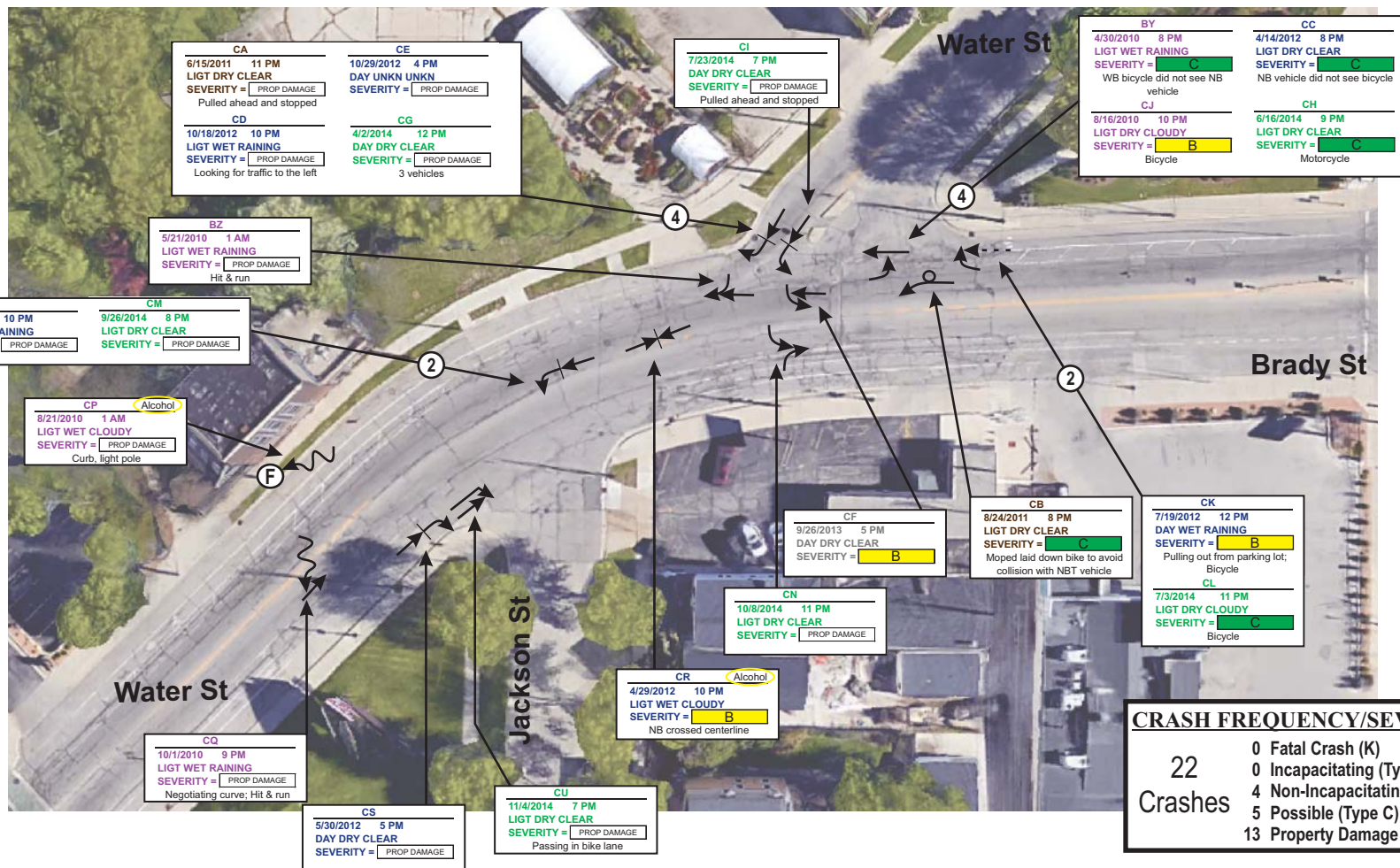
B = Non-Incapacitating Injury Crash

C = Possible Injury Crash

PROP DAMAGE = Property Damage Only Crash







CRASH FREQUENCY/SEVERITY	
22 Crashes	0 Fatal Crash (K)
	0 Incapacitating (Type A)
	4 Non-Incapacitating (Type B)
	5 Possible (Type C)
	13 Property Damage Only

NOTE: DEER CRASHES NOT INCLUDED

- Moving Vehicle
- ↔ Backing Vehicle
- Pedestrian
- Bicyclist
- ⊞ Parked Vehicle
- ⊙ Traffic Signal
- ⊙ Stop/Yield Sign
- ⊙ Tree
- ⊙ Utility Pole
- ⊙ Fixed Object
- ⊙ Non-Fixed Object

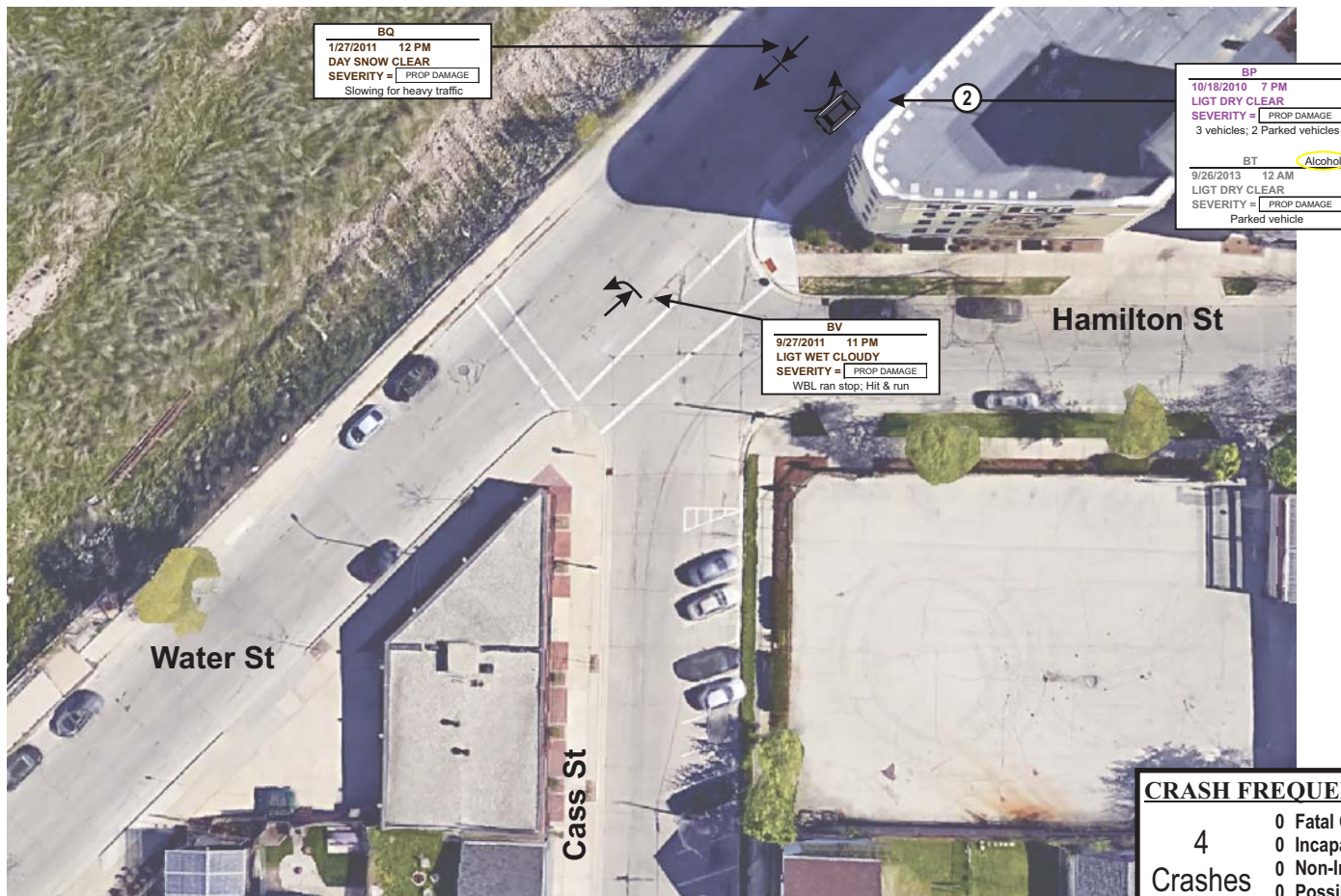
LEGEND

- ↗ Angle (Right Angle)
- ↖ Angle (Left Turn)
- ↘ Angle (Right Turn)
- ↔ Sideswipe-Same
- ↔ Sideswipe-Opposite
- ↔ Head-On
- ↔ Rear-End
- ~ Out of Control
- ↔ Overtake
- ↔ Overtake

REFERENCE:
ALCOHOL/DRUG INVOLVEMENT: AL/DG
DATE OF CRASH, MILITARY TIME
LIGHT, ROAD, WEATHER CONDITIONS
SEVERITY - SEE SEVERITY DEFINITIONS (NOTES)

CRASH SEVERITY DEFINITIONS	
K	Fatal Crash
A	Incapacitating Injury Crash
B	Non-Incapacitating Injury Crash
C	Possible Injury Crash
PROP DAMAGE	Property Damage Only Crash

CRASH RATE	
0.72 Crashes	Per Million
	Entering Vehicles
Entering Vehicles: 16,800/day	



CRASH FREQUENCY/SEVERITY	
4	0 Fatal Crash (K)
Crashes	0 Incapacitating (Type A)
	0 Non-Incapacitating (Type B)
	0 Possible (Type C)
	4 Property Damage Only

LEGEND

→ Moving Vehicle	⊙ Traffic Signal	↘ Angle (Right Angle)	↔ Head-On
↔ Backing Vehicle	⊙ Stop/Yield Sign	↙ Angle (Left Turn)	↔ Rear-End
--- Pedestrian	⊙ Tree	↘ Angle (Right Turn)	~ Out of Control
--- Bicyclist	⊙ Utility Pole	↔ Sideswipe-Same	↔ Overtake
⊙ Parked Vehicle	⊙ Fixed Object	↔ Sideswipe-Opposite	↔ Overtake
	⊙ Non-Fixed Object		

NOTE: DEER CRASHES NOT INCLUDED

⊙ = STUDY INTERSECTION WITH SEPARATE COLLISION DIAGRAM

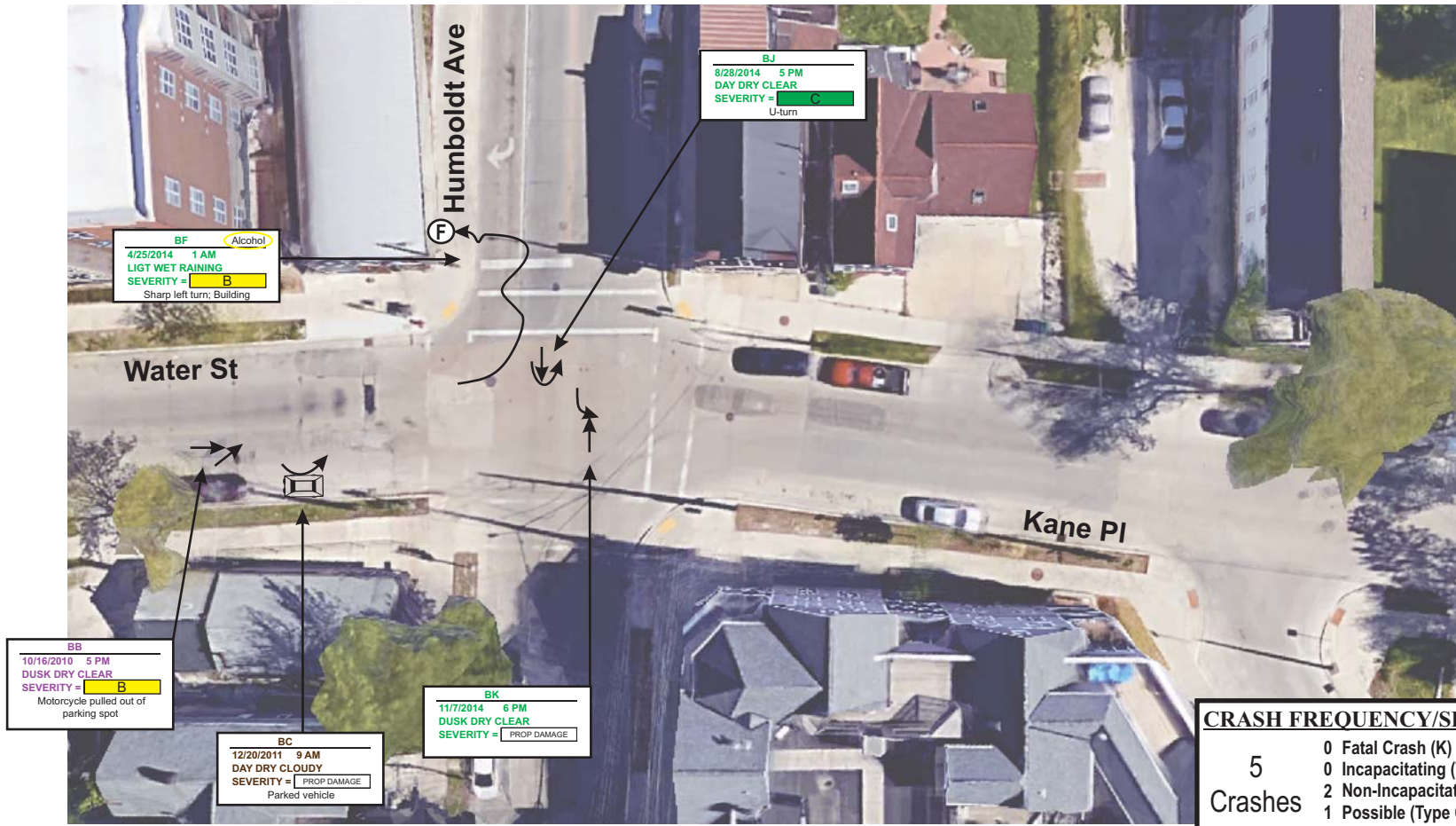
= CRASH FREQUENCY (if > 1)

"REFERENCE"
ALCOHOL/DRUG INVOLVEMENT: AL/DG
DATE OF CRASH, MILITARY TIME
LIGHT, ROAD, WEATHER CONDITIONS
SEVERITY - SEE SEVERITY DEFINITIONS
(NOTES)

CRASH SEVERITY DEFINITIONS

K = Fatal Crash
A = Incapacitating Injury Crash
B = Non-Incapacitating Injury Crash
C = Possible Injury Crash
PROP DAMAGE = Property Damage Only Crash

CRASH RATE
0.26 Crashes
Per Million
Entering Vehicles
Entering Vehicles: 8,400/day



CRASH FREQUENCY/SEVERITY	
5 Crashes	0 Fatal Crash (K) 0 Incapacitating (Type A) 2 Non-Incapacitating (Type B) 1 Possible (Type C) 2 Property Damage Only

→ Moving Vehicle

↔ Backing Vehicle

--- Pedestrian

----- Bicyclist

▭ Parked Vehicle

⬤ Traffic Signal

Ⓢ Stop/Yield Sign

Ⓣ Tree

Ⓤ Utility Pole

ⓕ Fixed Object

Ⓝ Non-Fixed Object

↘ Angle (Right Angle)

↙ Angle (Left Turn)

↷ Angle (Right Turn)

↔ Sideswipe-Same

↔ Sideswipe-Opposite

↔ Head-On

↔ Rear-End

~ Out of Control

↗ Overtake

↖ Overtake

= CRASH FREQUENCY (if > 1)

"REFERENCE"
ALCOHOL/DRUG INVOLVEMENT: **AL/DG**
DATE OF CRASH, MILITARY TIME
LIGHT, ROAD, WEATHER CONDITIONS
SEVERITY - SEE SEVERITY DEFINITIONS
(NOTES)

NOTE: DEER CRASHES NOT INCLUDED

⊕ = STUDY INTERSECTION WITH SEPARATE COLLISION DIAGRAM

CRASH SEVERITY DEFINITIONS

K = Fatal Crash

A = Incapacitating Injury Crash

B = Non-Incapacitating Injury Crash

C = Possible Injury Crash

PROP DAMAGE = Property Damage Only Crash

CRASH RATE
0.22 Crashes Per Million Entering Vehicles
Entering Vehicles: 12,650/day

CHAPTER IV – FORECASTED TRAFFIC

PART A – SITE TRAFFIC FORECASTING

To address any potential future traffic impacts at the study area intersections, it is necessary to identify the hourly volume of traffic generated by anticipated development. The traffic volumes expected to be generated by the Gallun Tannery redevelopment are estimated based on the size and type of the proposed uses and on trip rates as published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, Ninth Edition, 2012*.

A1. Trip Generation

The Gallun Tannery redevelopment trip generation is shown in [Exhibit 4-1](#). As shown, the Gallun Tannery redevelopment is expected to result in approximately 185 new trips (35 in/150 out) during a typical weekday morning peak hour and 225 new trips (145 in/80 out) during a typical weekday evening peak hour. The on-site redevelopment is expected to generate approximately 2,390 new trips (1,195 in/1,195 out) during a typical 24-hour weekday period.

A2. Mode Split

A 20-percent reduction in the total trip generation was applied to account for the location of the proposed apartments in a walkable, bikeable, and transit-accessible area of the City of Milwaukee. This reduction is reflected in the trip generation figures summarized above.

A3. Determination of Linked and Pass-By Trip Traffic

A linked trip occurs when a motorist visits more than one tenant within a development area prior to leaving the development area. Only one tenant is planned for the development site and, therefore, no linked trips were assumed to occur.

A pass-by trip occurs when a motorist already on the adjacent roadway network stops at a development prior to continuing on his/her intended route (e.g. a motorist already traveling northbound on Water Street today decides to stop at the redevelopment before continuing northbound). Pass-by trips are not a typical occurrence for residential development and, therefore, no pass-by trips were assumed to occur.

A4. Trip Distribution

The trip distribution for the Gallun Tannery redevelopment is expected to closely model existing traffic volumes on the adjacent roadway network. The trip distribution was assumed to be as follows:

- 17 percent to/from the north on Humboldt Avenue, north of Water Street/Kane Place;
- 3 percent to/from the east on Kane Place, east of Humboldt Avenue;
- 15 percent to/from the east on Brady Street, east of Humboldt Avenue;
- 5 percent to/from the south on Humboldt Avenue, south of Brady Street;
- 14 percent to/from the north on Holton Street, north of Brady Street;
- 12 percent to/from the south on Van Buren Street, south of Brady Street;
- 10 percent to/from the west on Pleasant Street, west of Water Street;
- 1 percent to/from the east on Pleasant Street, east of Water Street;
- 23 percent to/from the south on Water Street, south of Pleasant Street.

A5. Trip Assignment

The Gallun Tannery on-site new trips were assigned to the study area intersections based on the trip distribution previously discussed. The Gallun Tannery on-site new trips are shown in [Exhibits 4-2a and 4-2b](#).

PART B – BUILD TRAFFIC

The Year 2015 build traffic volumes, shown in [Exhibit 4-3](#), were determined by adding the Year 2015 existing traffic volumes ([Exhibit 3-2](#)) to the Gallun Tannery new trips ([Exhibit 4-2aa](#)).



Gallun Tannery Redevelopment Trip Generation Table

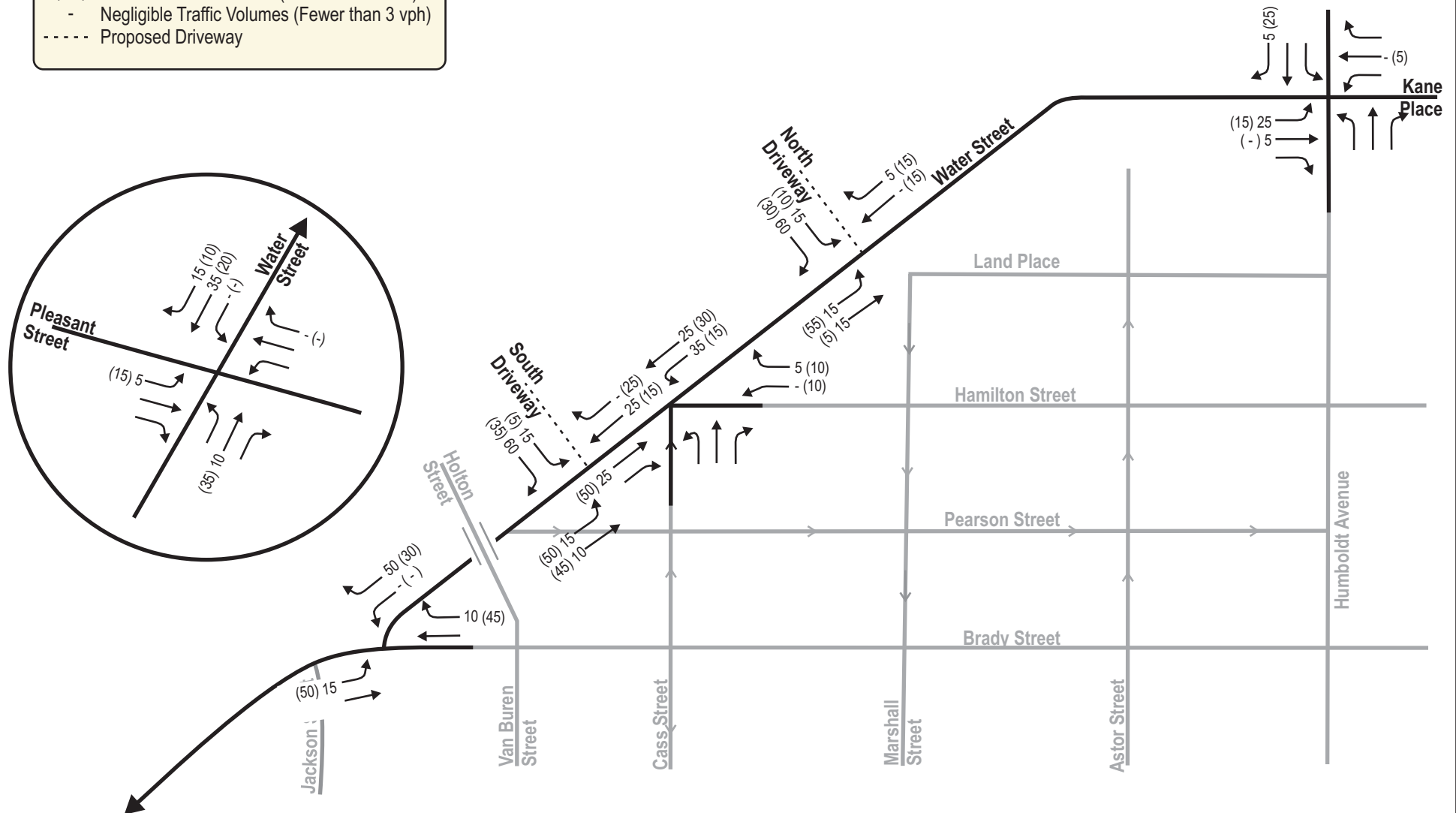
Land Use	ITE Code	Proposed Size	Weekday Daily	AM Peak			PM Peak		
				In	Out	Total	In	Out	Total
Apartments	220	450 Units	2,990 (6.65)	45 (20%)	185 (80%)	230 (0.51)	180 (65%)	100 (35%)	280 (0.62)
Total Trips			2,990	45	185	230	180	100	280
<i>Minus Walk/Bike/Transit</i>		20%	600	10	35	45	35	20	55
Total New Trips			2,390	35	150	185	145	80	225

TRIP DISTRIBUTION

North on Humboldt	17%	410	5	25	25	15
East on Kane	3%	70	0	5	5	0
East on Brady	15%	360	5	25	20	10
South on Humboldt	5%	120	0	5	5	5
North on Holton	14%	330	5	20	20	10
South on Van Buren	12%	290	5	20	20	10
West on Pleasant	10%	240	5	15	15	10
East on Pleasant	1%	20	0	0	0	0
South on Water	23%	550	10	35	35	20
	100%	2390	35	150	145	80

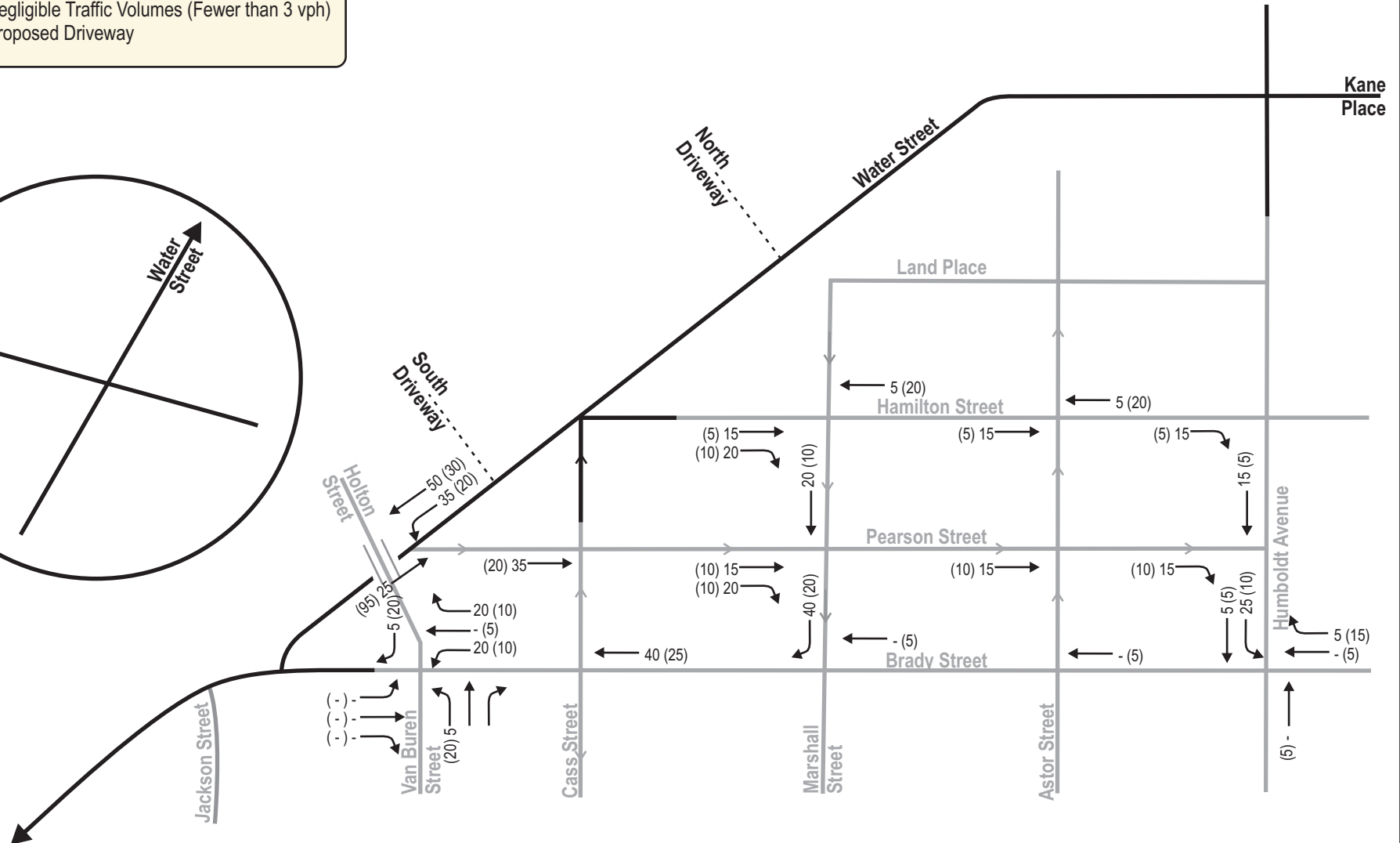
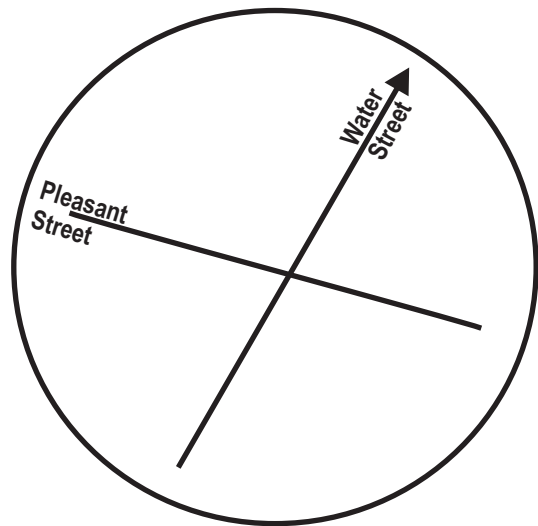
LEGEND

- XX AM Peak Hour Volumes (9:00-10:00 AM)
- (XX) PM Peak Hour Volumes (4:30 PM-5:30 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)
- Proposed Driveway



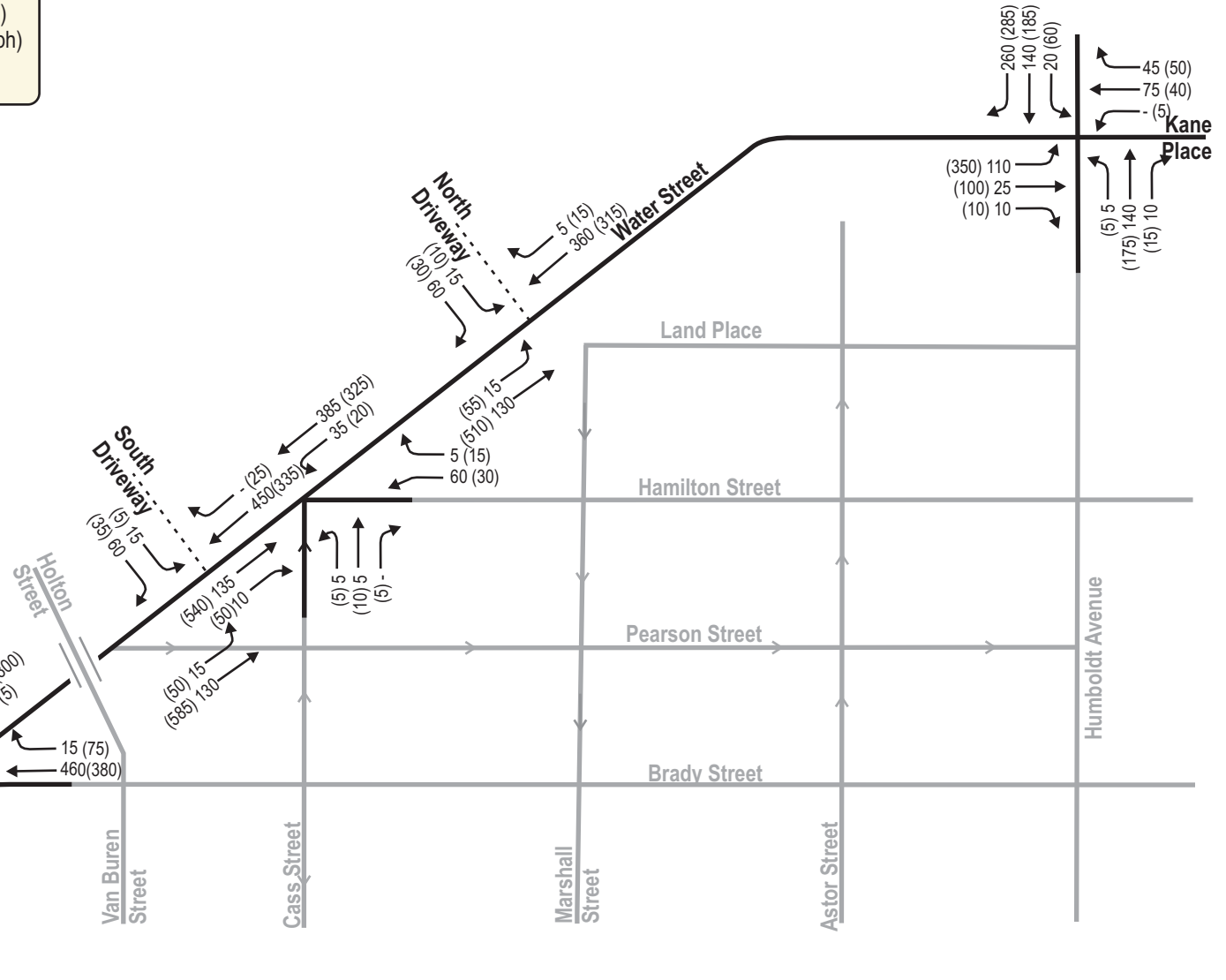
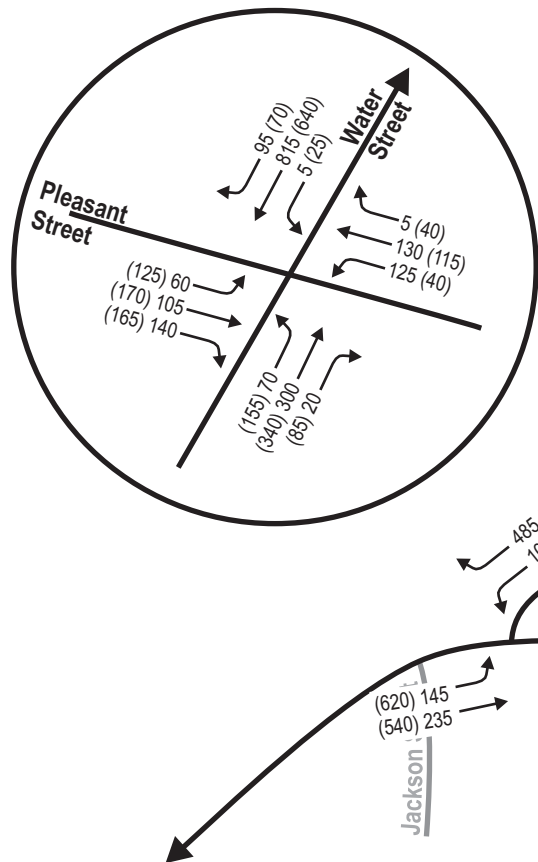
LEGEND

- XX AM Peak Hour Volumes (9:00-10:00 AM)
- (XX) PM Peak Hour Volumes (4:30 PM-5:30 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)
- Proposed Driveway



LEGEND

- XX AM Peak Hour Volumes (9:00-10:00 AM)
- (XX) PM Peak Hour Volumes (4:30 PM-5:30 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)
- Proposed Driveway



CHAPTER V – TRAFFIC AND IMPROVEMENT ANALYSIS

PART A – SITE ACCESS

The Gallun Tannery redevelopment is proposed to have two access points to the existing roadway network.

- *Node 110: Water Street & North Driveway* – The north driveway is proposed to be located approximately 330-feet (centerline-to-centerline) north of Hamilton Street.
- *Node 130: Water Street & South Driveway* – The south driveway is proposed to be located approximately 135-feet (centerline-to-centerline) south of Hamilton Street.

PART B – CAPACITY LEVEL OF SERVICE ANALYSIS

B1. Intersection Operations – No Improvements

The Year 2015 build traffic volumes (with Gallun Tannery redevelopment) were analyzed using the existing transportation detail shown in [Exhibit 3-1](#).

As shown in [Exhibit 5-1](#), select movements at the Humboldt Street & Water Street/Kane Place, Water Street & Brady Street, and Water Street & Brady Street intersection currently operate at LOS E/F conditions.

B2. Intersection Operations – With Improvements

Improvements to mitigate existing traffic deficiencies and the Gallun Tannery redevelopment are summarized in *Chapter VI – Recommendations and Conclusion*.

As shown in [Exhibits 5-2 and 5-3](#), the southbound left-turn movement from Water Street to Brady Street is expected to continue to operate at LOS F conditions for 5 vehicles per hour during the weekday evening peak hour. Consideration may be given to prohibiting the southbound left-turn movement during the weekday evening peak hour. Impacted traffic would be expected to divert to Pearson Street or Hamilton Street, to Marshall Street, to Brady Street.

All other movements are expected to operate desirably at LOS D or better conditions with the identified recommended improvements.

PART C – QUEUEING ANALYSIS

To estimate storage length requirements for turn bays at the study area intersections with improvements, a queuing analysis has been conducted. Note that the 50th percentile and 95th percentile probable queue lengths were used to determine recommended turn bay storage at the intersections.

The Year 2015 existing traffic and Year 2015 build traffic queues with improvements are shown in [Exhibit 5-4 and 5-5](#), respectively.

PART D – PEDESTRIAN, BICYCLE AND MULTI-USE TRAIL CONSIDERATIONS

Pedestrian/multi-modal accommodations with connectivity to the roadway network are encouraged to promote alternative modes of transportation and relieve motorized-vehicle demands on the roadway network.

PART E – SPEED CONSIDERATIONS/SIGHT DISTANCE

The party responsible for designing the intersections will be responsible for cross-checking, verifying and designing for all applicable sight distances. Intersection sight distance (ISD) must be double checked during the permit application stage of the development.

Based on observation of the flat and straight nature of the Water Street in the proximity of the proposed Gallun Tannery redevelopment driveways, ISD is expected to be satisfactory. Consideration should be given to prohibiting parking along the northwest side of Water Street within 30- to 50-feet of the proposed driveways to improve lines of sight towards oncoming vehicles.



**Year 2015 Build Traffic Operations
No Improvements**

Intersection	Traffic Control	Peak Hour	Level of Service per Movement by Approach											
			Eastbound			Westbound			Northbound			Southbound		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Humboldt Avenue & Water Street/Kane Place	Traffic Signal	AM	F	F	F	B	B	B	B	B	B	B	B	C
		PM	F	F	F	B	B	B	C	C	C	C	C	C
Water Street & North Driveway (Proposed)	One-Way Stop	AM	B	-	B	-	-	-	A	*	-	-	*	*
		PM	B	-	B	-	-	-	A	*	-	-	*	*
Water Street & Hamilton Street/Cass Street	One-Way Stop	AM	-	-	-	B	-	B	-	*	*	A	*	-
		PM	-	-	-	C	-	C	-	*	*	A	*	-
Water Street & South Driveway (Proposed)	One-Way Stop	AM	B	-	B	-	-	-	A	*	-	-	*	*
		PM	B	-	B	-	-	-	A	*	-	-	*	*
Water Street/Brady Street & Water Street	One-Way Stop	AM	A	*	-	-	*	*	-	-	-	E	-	E
		PM	B	*	-	-	*	*	-	-	-	F	-	F
Water Street & Pleasant Street	Traffic Signal	AM	C	C	B	C	C	C	C	A	A	B	F	B
		PM	C	C	B	C	C	C	C	B	B	C	F	C

Notes: (-) indicates a movement that is not possible or is prohibited. (*) indicates uncontrolled or free-flow movement.



**Year 2015 Existing Traffic Operations
With Improvements**

Intersection	Traffic Control	Peak Hour	Level of Service per Movement by Approach											
			Eastbound			Westbound			Northbound			Southbound		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Humboldt Avenue & Water Street/Kane Place	Traffic Signal	AM	B	B	B	C	C	C	B	B	B	B	B	B
		PM	B	B	B	C	C	C	C	C	C	C	C	A
Water Street & Hamilton Street/Cass Street	One-Way Stop	AM	-	-	-	B	-	B	-	*	*	A	*	-
		PM	-	-	-	C	-	C	-	*	*	A	*	-
Water Street/Brady Street & Water Street	One-Way Stop	AM	A	*	-	-	*	*	-	-	-	D	-	C
		PM	B	*	-	-	*	*	-	-	-	F	-	B
Water Street & Pleasant Street	Traffic Signal	AM	C	C	B	C	C	C	B	A	A	B	C	C
		PM	C	C	B	C	C	C	B	B	B	C	C	C

Notes: (-) indicates a movement that is not possible or is prohibited. (*) indicates uncontrolled or free-flow movement.



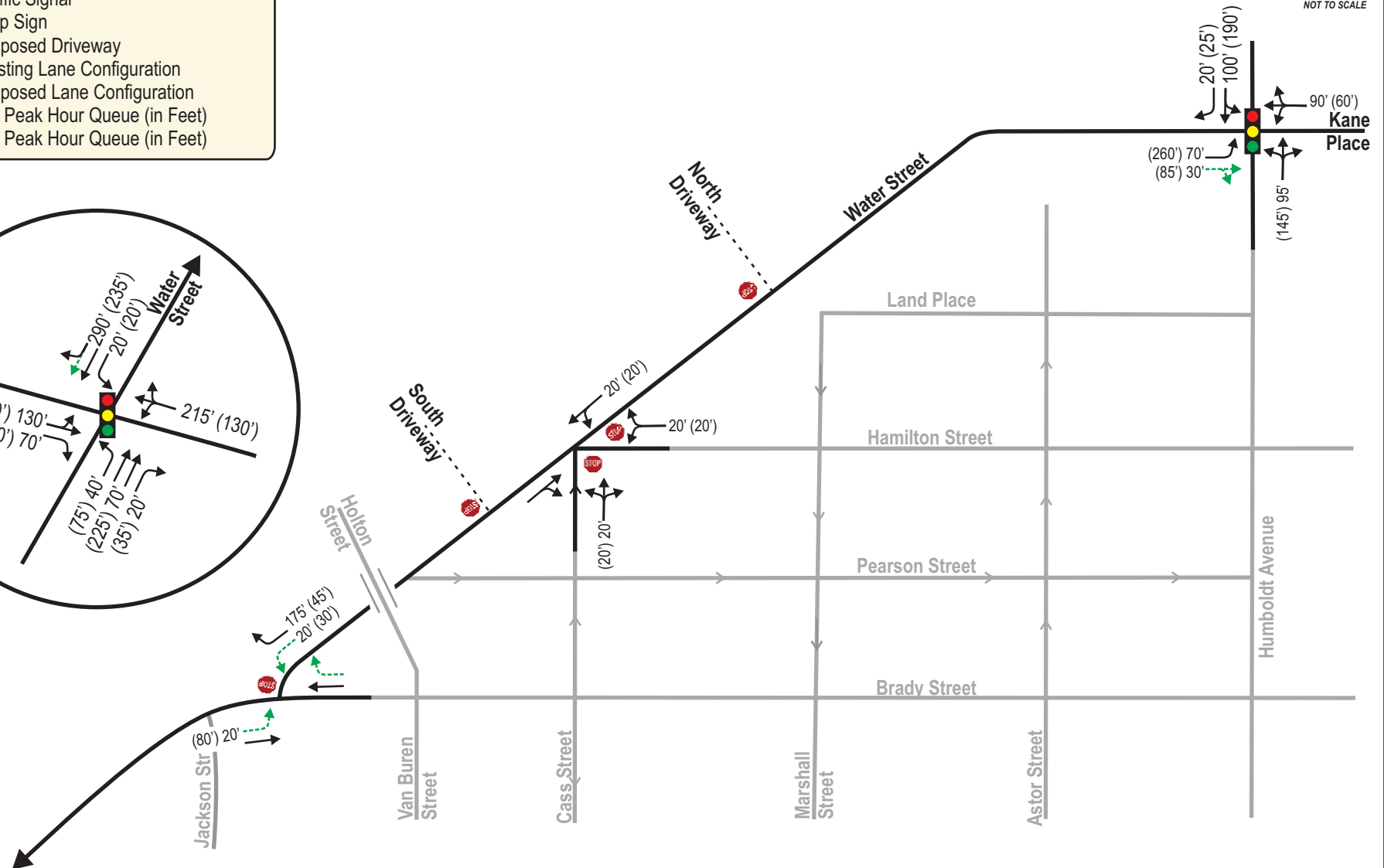
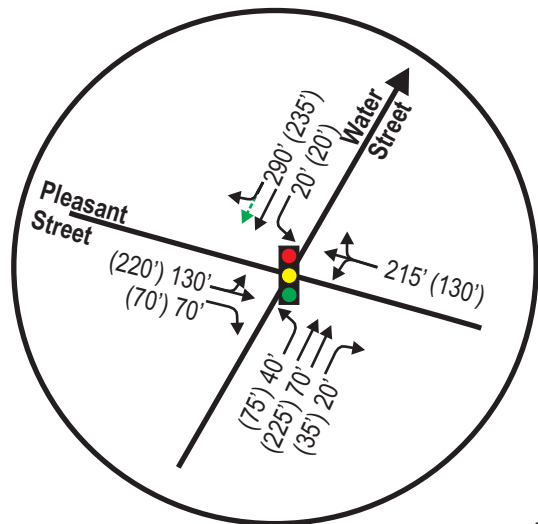
**Year 2015 Build Traffic Operations
With Improvements**

Intersection	Traffic Control	Peak Hour	Level of Service per Movement by Approach											
			Eastbound			Westbound			Northbound			Southbound		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Humboldt Avenue & Water Street/Kane Place	Traffic Signal	AM	B	B	B	C	C	C	B	B	B	B	B	B
		PM	B	B	B	C	C	C	C	C	C	C	C	A
Water Street & North Driveway (Proposed)	One-Way Stop	AM	B	-	B	-	-	-	A	*	-	-	*	*
		PM	B	-	B	-	-	-	A	*	-	-	*	*
Water Street & Hamilton Street/Cass Street	One-Way Stop	AM	-	-	-	B	-	B	-	*	*	A	*	-
		PM	-	-	-	C	-	C	-	*	*	A	*	-
Water Street & South Driveway (Proposed)	One-Way Stop	AM	B	-	B	-	-	-	A	*	-	-	*	*
		PM	B	-	B	-	-	-	A	*	-	-	*	*
Water Street/Brady Street & Water Street	One-Way Stop	AM	A	*	-	-	*	*	-	-	-	D	-	D
		PM	B	*	-	-	*	*	-	-	-	F	-	B
Water Street & Pleasant Street	Traffic Signal	AM	C	C	B	C	C	C	B	A	A	B	C	C
		PM	C	C	B	C	C	C	B	B	B	C	C	C

Notes: (-) indicates a movement that is not possible or is prohibited. (*) indicates uncontrolled or free-flow movement.

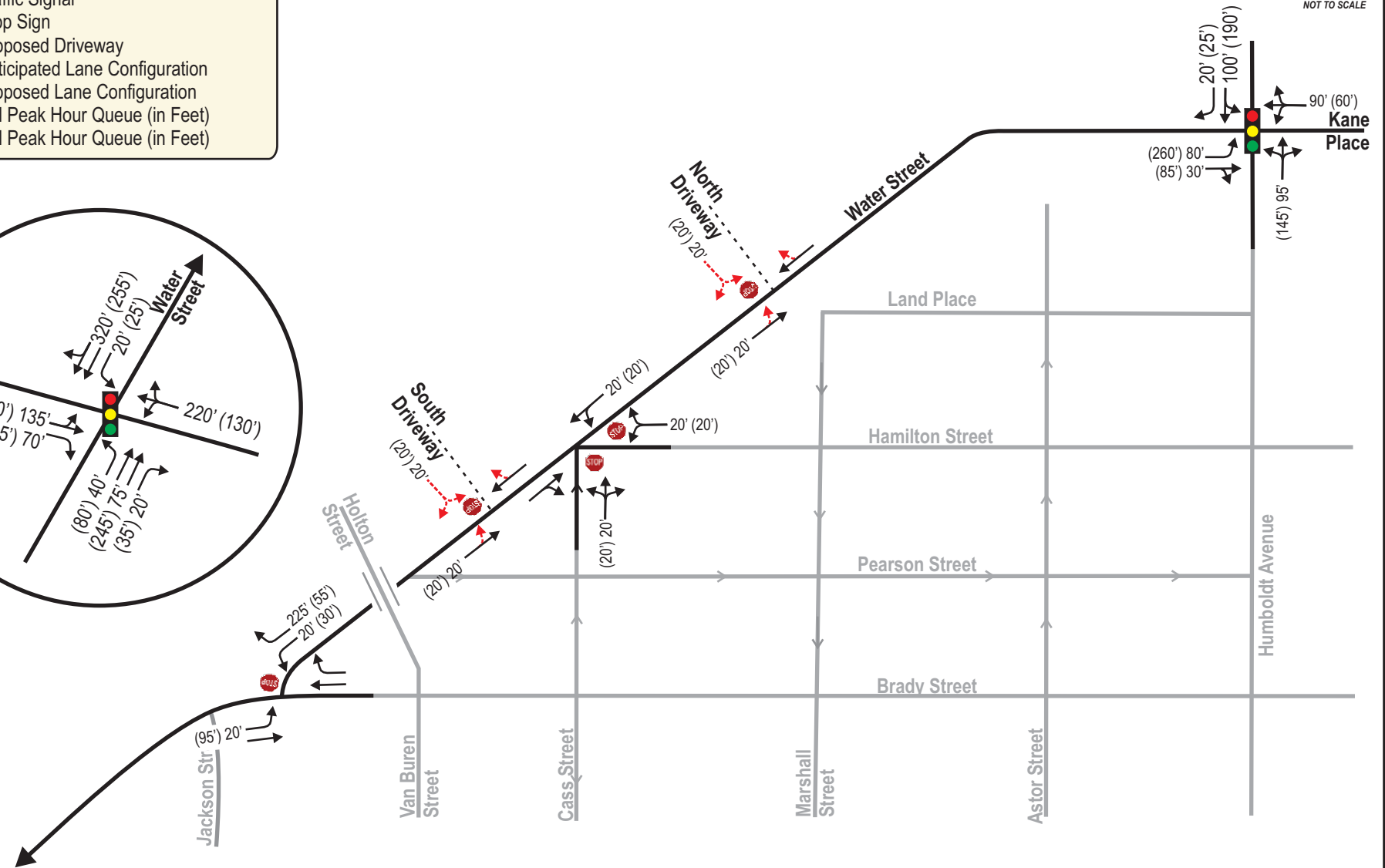
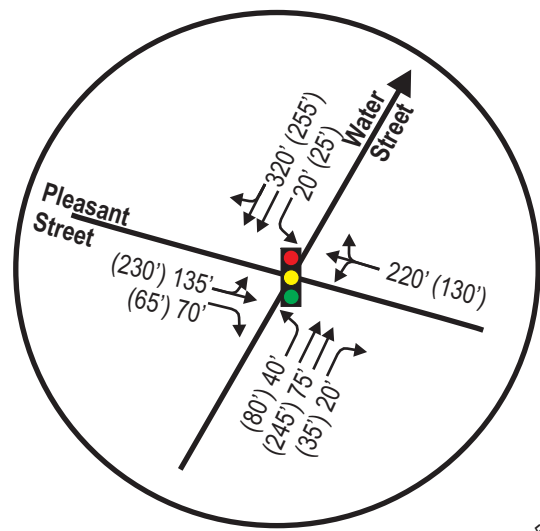
LEGEND

-  Traffic Signal
-  Stop Sign
-  Proposed Driveway
-  Existing Lane Configuration
-  Proposed Lane Configuration
- XX' AM Peak Hour Queue (in Feet)
- (XX') PM Peak Hour Queue (in Feet)



LEGEND

-  Traffic Signal
-  Stop Sign
-  Proposed Driveway
-  Anticipated Lane Configuration
-  Proposed Lane Configuration
- XX' AM Peak Hour Queue (in Feet)
- (XX') PM Peak Hour Queue (in Feet)



CHAPTER VI – RECOMMENDATIONS AND CONCLUSION

PART A – RECOMMENDATIONS

The study area intersections were analyzed based on the procedures set forth in the 2010 *Highway Capacity Manual* (HCM). Intersection operation is defined by “level of service”. Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A’, to very poor, represented by LOS ‘F’. For the purpose of this study, LOS D or better was used to define desirable peak hour operating conditions.

The following improvements, shown in [Exhibit 1-2](#), are recommended. These improvements are in addition to conditions as they currently exist. Improvements are split into two categories:

- “Others” – These improvements are recommended to mitigate an existing deficiency and are *not* Gallun Tannery responsibility. These improvements should be made by a party other than Gallun Tannery regardless of whether or not the Gallun Tannery redevelopment occurs.
- “Gallun Tannery” – These improvements are recommended to mitigate an impact created by the Gallun Tannery redevelopment and are, therefore, the responsibility of the Gallun Tannery redevelopers.

Improvements are for jurisdictional consideration and are not legally binding. The City of Milwaukee reserves the right to determine alternative solutions.

Node 100: Humboldt Avenue & Water Street/Kane Place

- *Others:* The Water Street eastbound approach currently operates at LOS F conditions during the weekday morning and evening peak hours. To provide space for eastbound through and right-turn motorists to maneuver around the eastbound left-turn movement, and therefore increase the capacity of the approach, consider prohibiting parking on the south side of Water Street within 150-feet of Humboldt from 7am to 6pm. Note parking is already prohibited due to driveways or a loading-only zone from approximately 150-feet to 325-feet west of Humboldt.
- *Gallun Tannery:* No additional improvements are expected to be necessary.

Node 110: Water Street & North Driveway (Proposed)

- *Others:* No improvements are expected to be necessary.
- *Gallun Tannery:* Construct the proposed North Driveway to allow for all movements to/from the Gallun Tannery redevelopment site. Exclusive turn-lanes are not necessary. Consider prohibiting parking along the northwest side of Water Street within 30- to 50-feet of the driveway to improve lines of sight towards oncoming vehicles.
- *Gallun Tannery:* Install a stop sign to control the proposed driveway approach to Water Street.

Node 120: Water Street & Hamilton Street/Cass Street

- *Others:* Consider prohibiting parking along the southeast side of Water Street within 30- to 50-feet of Hamilton Street/Cass Street to improve lines of sight towards oncoming vehicles.

- *Gallun Tannery:* No additional improvements are expected to be necessary.

Node 130: Water Street & South Driveway (Proposed)

- *Others:* No improvements are expected to be necessary.
- *Gallun Tannery:* Construct the proposed South Driveway to allow for all movements to/from the Gallun Tannery redevelopment site. Exclusive turn-lanes are not necessary. Consider prohibiting parking along the northwest side of Water Street within 30- to 50-feet of the driveway to improve lines of sight towards oncoming vehicles.
- *Gallun Tannery:* Install a stop sign to control the proposed driveway approach to Water Street.

Node 140: Water Street & Brady Street

- *Others:* Restripe the Water Street eastbound approach to include a left-turn lane and a through lane.
- *Others:* Restripe the Brady Street westbound approach to include a through lane and a right-turn lane.
- *Others:* Widen the Water Street southbound approach to include a left-turn lane and a right-turn lane. Note that the southbound left-turn movement is expected to continue to operate at LOS F conditions for 5 vehicles per hour during the weekday evening peak hour. Consideration may be given to prohibiting the southbound left-turn movement during the weekday evening peak hour. Impacted traffic would be expected to divert to Pearson Street or Hamilton Street, to Marshall Street, to Brady Street.
- *Others:* A high volume of westbound two-wheeled crashes (5 bicycles, 1 moped, 1 motorcycle) have occurred across the north leg of the intersection in the five-year crash study window. The crashes involved eastbound left-turn vehicles (5), a westbound right-turn vehicle (1) and a postal van that exited 621 East Brady and attempted to cross northbound onto Water Street (1). Restripe the bicycle lanes from Van Buren Street/Holton Street, through the Water Street intersection, to west of the Jefferson Street curve to improve visibility. A green bicycle lane through the Water Street & Brady Street intersection is recommended to raise awareness to motorists that a live bicycle lane crosses the intersection. Examples of green bicycle lanes across intersections may be found on North Avenue, east of Wauwatosa Avenue, in the City of Wauwatosa.
- *Gallun Tannery:* No additional improvements are expected to be necessary.

Node 150: Water Street & Pleasant Street

- *Others:* The Water Street southbound approach to Pleasant Street currently includes a left-turn lane, a through lane, and a right-turn lane. The southbound through lane currently operates at LOS F during the weekday morning and evening peak hours and has a long queue. Restripe the southbound approach to include a left-turn lane, a through lane, and a shared through/right-turn lane.
- *Gallun Tannery:* No additional improvements are expected to be necessary.

Other Improvements

- *Others:* A total of fourteen (14) crashes with parked vehicles occurred on the Water Street curve located west of Humboldt Avenue in the five-year crash study window. Additionally, three (3) out-of-control crashes related to snow/ice occurred on the curve. Consideration should be given to prohibiting parking along one or both sides of Water Street on this curve. Consideration may also be given to improving the pavement friction through diamond grooving the pavement.
- *Gallun Tannery:* No additional improvements are expected to be necessary.

PART B – CONCLUSION

A number of safety and operational deficiencies currently exist within the study area. Mitigating these existing deficiencies is not the responsibility of the Gallun Tannery. Improvements to correct the existing deficiencies should be made by a party other than Gallun Tannery regardless of whether or not the Gallun Tannery redevelopment occurs.

With the identified recommended improvements, the Water Street corridor is expected to operate both safer and more efficiently than currently exists.

APPENDIX A

TRAFFIC

APPENDIX A

Existing Traffic Counts

Intersection Traffic Volume Report

Count Basics		Version 2013.J4.1		Page 1 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events	

Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries

Intersection of: **Humboldt Ave and Kane Place**



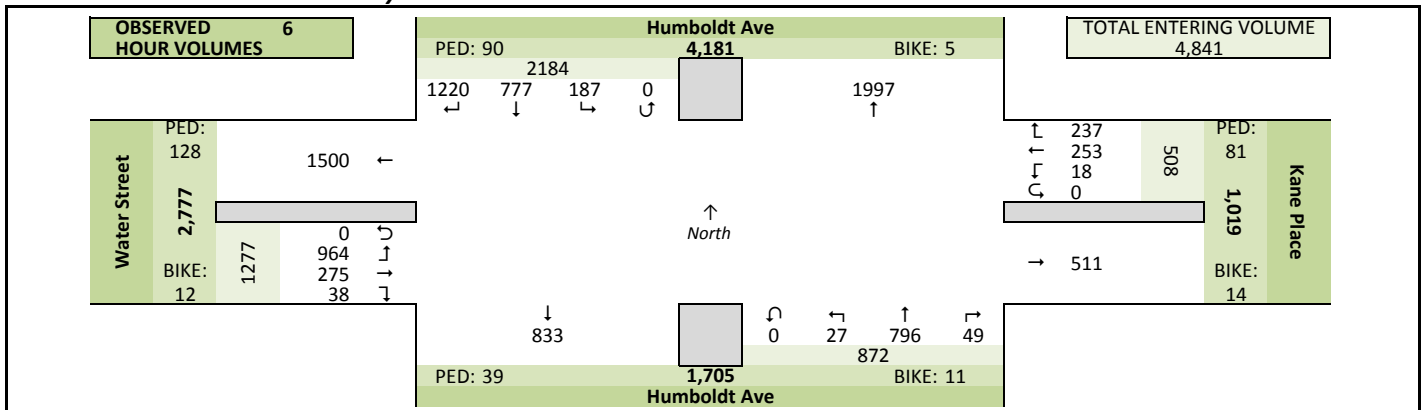
Site Information

Municipality	Milwaukee
County	Milwaukee
WisDOT Region	SE
Traffic Control	Traffic Signal
Roadway Names	North Direction
North Leg	Humboldt Ave
East Leg	Kane Place
South Leg	Humboldt Ave
West Leg	Water Street
Special Considerations	
Schools	In Session
Holidays	None
Special Events	None
Special Pedestrians Observed	
Pre-school children	None
Elementary school age children	None
Visually impaired (white cane/helper dog)	None
Elderly/disabled (except wheelchairs)	None
Wheelchairs/electric scooters	None
Other (describe)	None

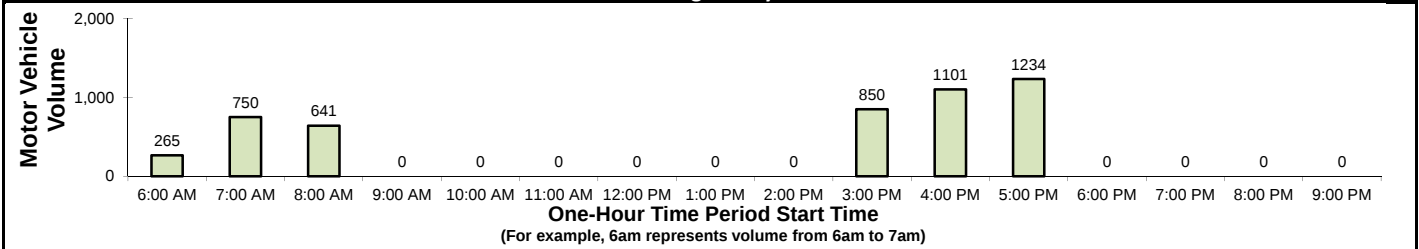
Count Information

Hrs Counted:	6:00 AM-9:00 AM and 3:00 PM-6:00 PM
1st Day of Count	Wednesday, March 18, 2015
AM Peak Period	Thursday, March 19, 2015
Midday Peak Period	Clear & Dry
PM Peak Period	Wednesday, March 18, 2015
Weather	Clear & Dry
Calculated Peak Hours	
AM	7:15-8:15am
MD	
PM	4:45-5:45pm
Peak Hours Selected for Analysis	
AM	7:15-8:15am
MD	
PM	4:45-5:45pm
Daily/Seasonal Adjustment Group	(2) Urban Arterials & Collectors
Count Expansion Group	(2) Urban Arterials & Collectors
Daily/Seasonal Adjustment Factor	0.935
Count Expansion Factor	2.382
Company Name	TADI
Manual Adj.	1.000
Observers	AM Peak Period: Video Count - Amy Scheuerlein
	Midday Peak Period: Video Count - Amy Scheuerlein
	PM Peak Period: Video Count - Amy Scheuerlein
Comments	Version 2011.J4.1
	2013 DOT Factors

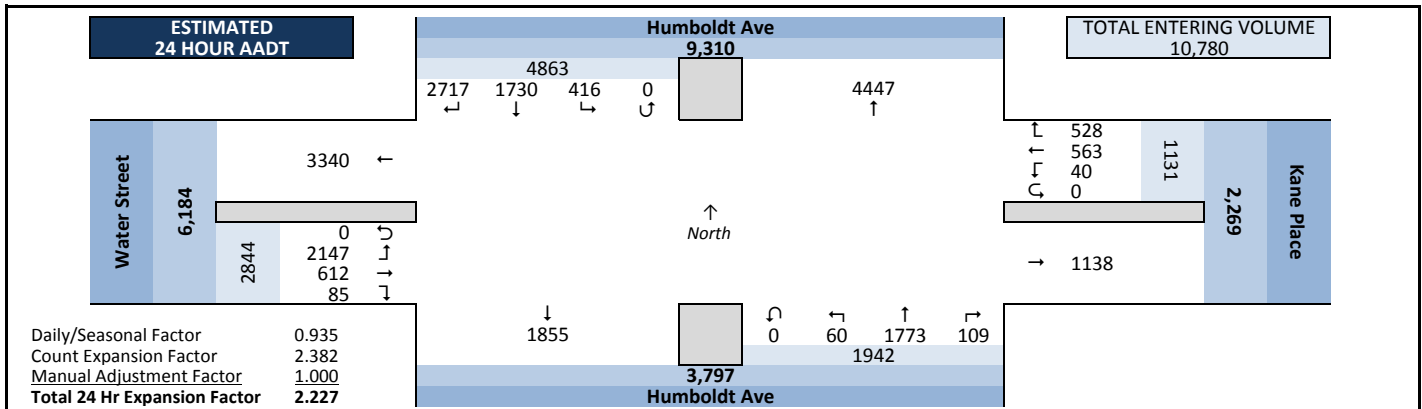
Observed 6 Hour Volume Summary



Total Entering Hourly Volume



Estimated 24 Hour AADT



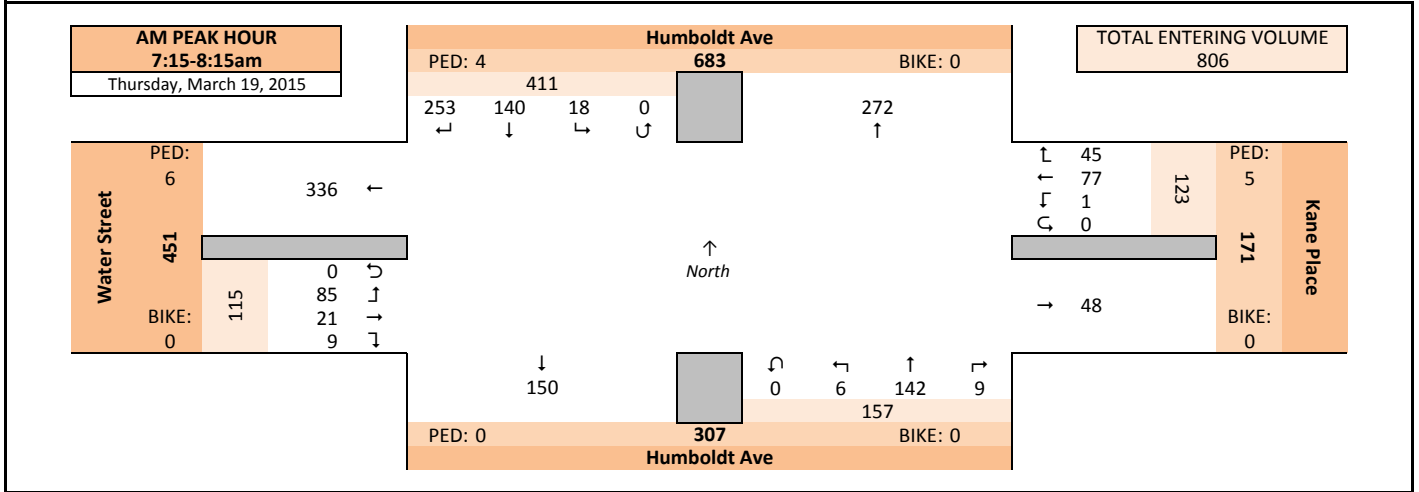
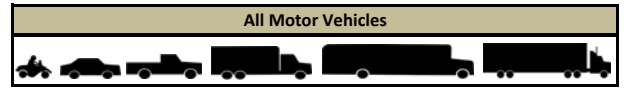
Intersection Traffic Volume Report

Count Basics		Page 2 of 11	
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

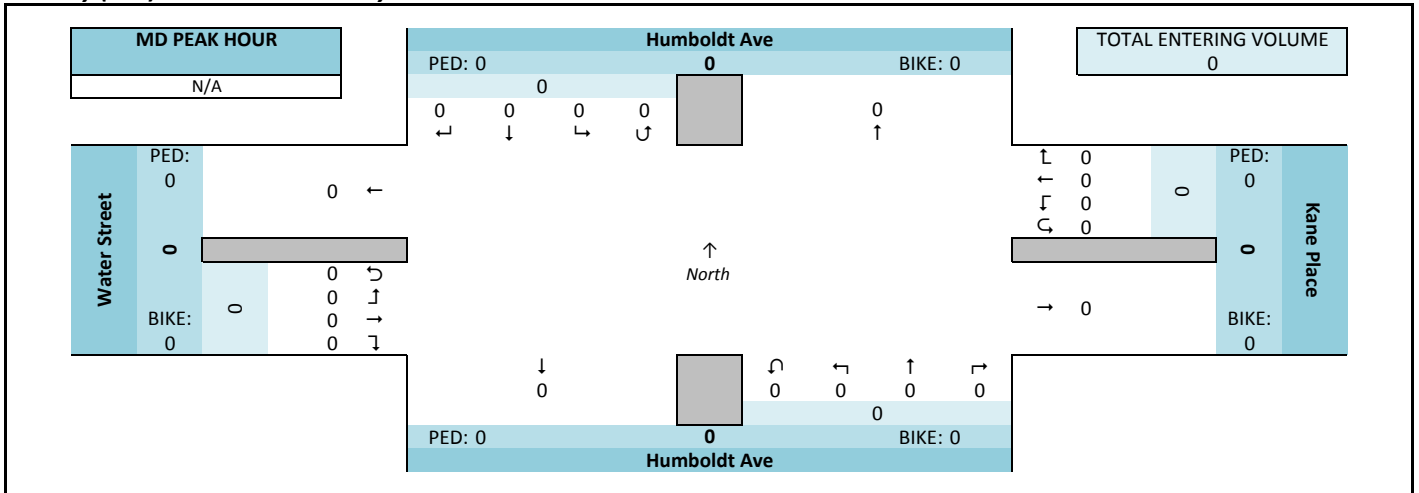
Peak Hour Volume Graphical Summary

Humboldt Ave and Kane Place

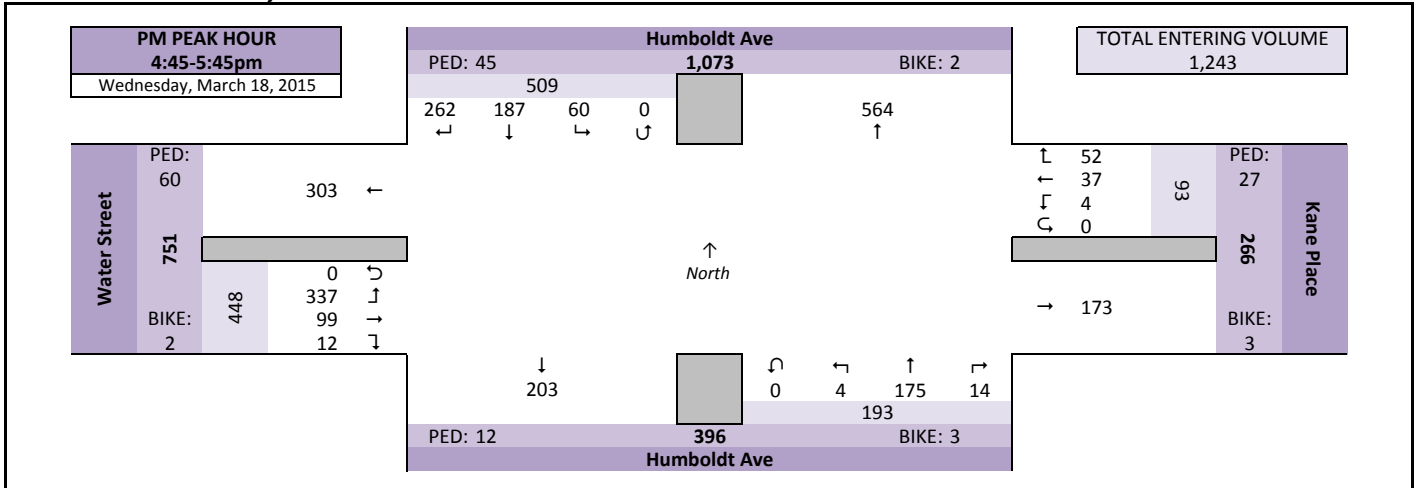
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary

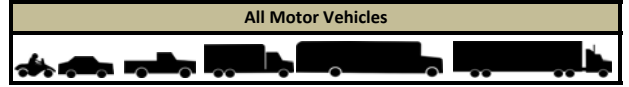


Intersection Traffic Volume Report

Count Basics			Page 3 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Peak Hour Volume Summary

Humboldt Ave and Kane Place



Peak Hour Volumes, Truck Percentages, and PHFs

Thursday, March 19, 2015		From North					From East					From South					From West					
AM Peak Hour	AM Peak Hour	Humboldt Ave					Kane Place					Humboldt Ave					Water Street					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	7:15 AM	61	25	1	0	87	11	20	0	0	31	2	25	0	0	27	2	3	16	0	21	166
	7:30 AM	61	34	4	0	99	13	26	0	0	39	2	24	1	0	27	1	5	26	0	32	197
	7:45 AM	79	61	7	0	147	7	18	0	0	25	4	57	3	0	64	5	7	19	0	31	267
	8:00 AM	52	20	6	0	78	14	13	1	0	28	1	36	2	0	39	1	6	24	0	31	176
	Peak Hour Volume	253	140	18	0	411	45	77	1	0	123	9	142	6	0	157	9	21	85	0	115	806
	Rounded Hourly Volume	255	140	20	0	415	45	75	0	0	120	10	140	5	0	155	10	20	85	0	115	805
	% Single Unit Trucks	0.4	4.3	5.6	0.0	1.9	0.0	0.0	100.0	0.0	0.8	0.0	5.6	0.0	0.0	5.1	0.0	4.8	0.0	0.0	0.9	2.2
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Trucks (Total)	0.4	4.3	5.6	0.0	1.9	0.0	0.0	100.0	0.0	0.8	0.0	5.6	0.0	0.0	5.1	0.0	4.8	0.0	0.0	0.9	2.2
	Peak Hour Factor (PHF)	0.80	0.57	0.64	0.00	0.70	0.80	0.74	0.25	0.00	0.79	0.56	0.62	0.50	0.00	0.61	0.45	0.75	0.82	0.00	0.90	0.75

N/A		From North					From East					From South					From West						
Midday (MD) Peak Hour	MD Peak Hour Start Time	Humboldt Ave					Kane Place					Humboldt Ave					Water Street					Totals	
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Rounded Hourly Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Wednesday, March 18, 2015		↴					↶					↴					↷					
PM Peak Hour	PM Peak Hour	From North					From East					From South					From West					
	Start Time	Humboldt Ave					Kane Place					Humboldt Ave					Water Street					Totals
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	4:45 PM	64	43	17	0	124	15	6	2	0	23	4	36	4	0	44	1	27	86	0	114	305
	5:00 PM	56	45	14	0	115	12	9	0	0	21	3	48	0	0	51	1	21	80	0	102	289
	5:15 PM	68	57	14	0	139	13	11	1	0	25	4	46	0	0	50	6	29	88	0	123	337
	5:30 PM	74	42	15	0	131	12	11	1	0	24	3	45	0	0	48	4	22	83	0	109	312
	Peak Hour Volume	262	187	60	0	509	52	37	4	0	93	14	175	4	0	193	12	99	337	0	448	1243
	Rounded Hourly Volume	260	185	60	0	505	50	35	5	0	90	15	175	5	0	195	10	100	335	0	445	1235
	% Single Unit Trucks	0.0	2.1	0.0	0.0	0.8	1.9	0.0	0.0	0.0	1.1	0.0	2.3	0.0	0.0	2.1	0.0	0.0	0.3	0.0	0.2	0.8
% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
% Trucks (Total)	0.0	2.1	0.0	0.0	0.8	1.9	0.0	0.0	0.0	1.1	0.0	2.3	0.0	0.0	2.1	0.0	0.0	0.3	0.0	0.2	0.8	
Peak Hour Factor (PHF)	0.89	0.82	0.88	0.00	0.92	0.87	0.84	0.50	0.00	0.93	0.87	0.91	0.25	0.00	0.95	0.50	0.85	0.96	0.00	0.91	0.92	

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists		Crossing 			Crossing 			Crossing 			Crossing 			Total Ped & Bike Volume
		North Approach			East Approach			South Approach			West Approach			
15-Minute Start Time		Humboldt Ave			Kane Place			Humboldt Ave			Water Street			
		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	7:15 AM	1	0	1	2	0	2	0	0	0	3	0	3	
	7:30 AM	1	0	1	2	0	2	0	0	0	1	0	1	
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 AM	2	0	2	1	0	1	0	0	0	2	0	2	
	Total	4	0	4	5	0	5	0	0	0	6	0	6	
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	Total	0	0	0	0	0	0	0	0	0	0	0	0	
PM	4:45 PM	6	0	6	6	0	6	1	0	1	18	0	18	
	5:00 PM	8	1	9	6	1	7	0	0	0	8	0	8	
	5:15 PM	18	1	19	5	2	7	5	2	7	27	0	27	
	5:30 PM	13	0	13	10	0	10	6	1	7	7	2	9	
	Total	45	2	47	27	3	30	12	3	15	60	2	62	

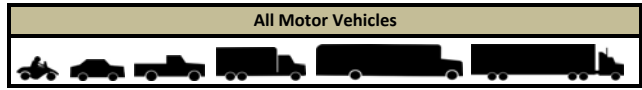
Intersection Traffic Volume Report

Hourly Volume Summary - Motor Vehicle Data

Humboldt Ave and Kane Place

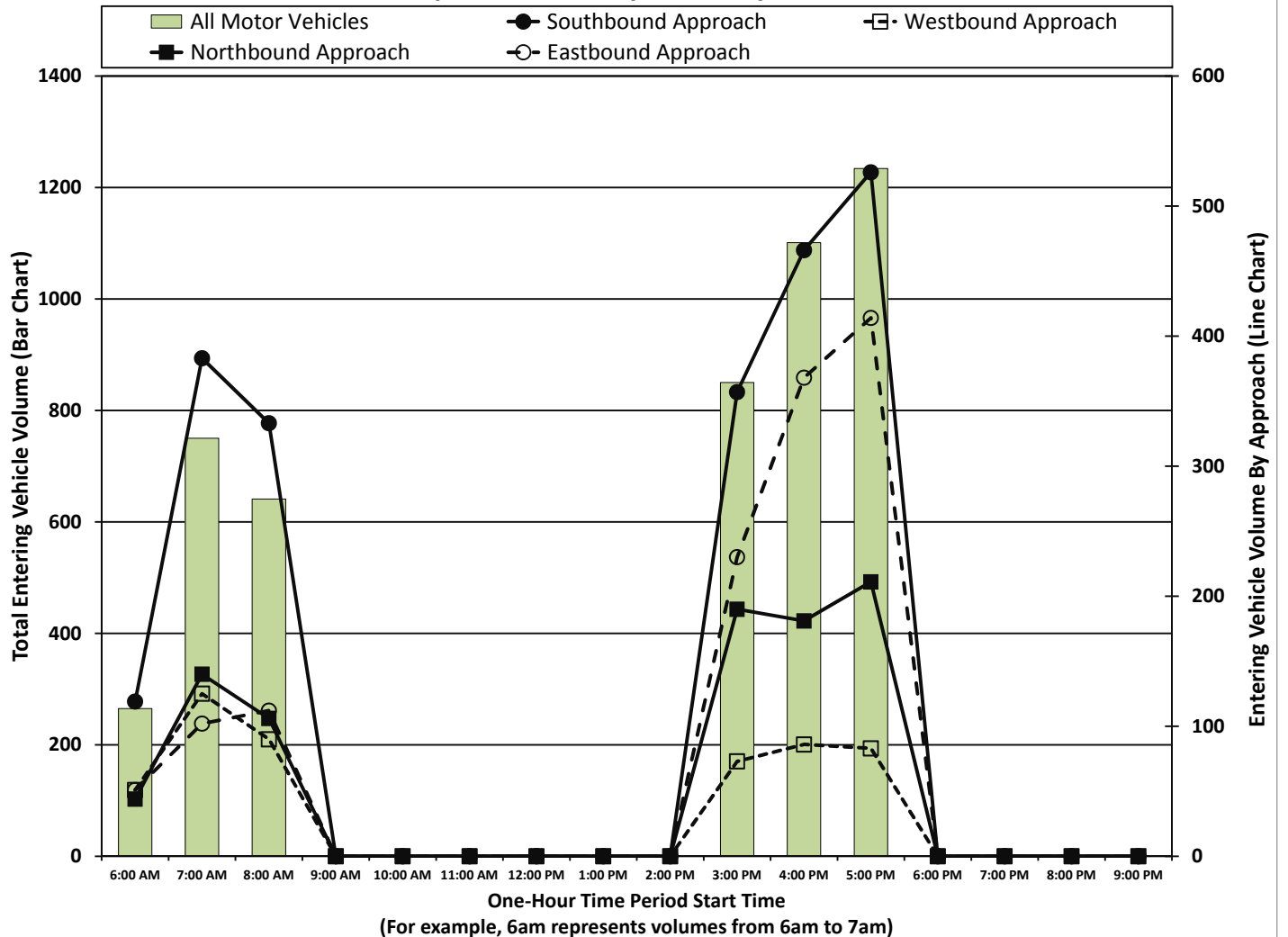
One-Hour Motor Vehicle Data

Count Basics			Page 4 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events



One-Hour Time Period Start Time	From North					From East					From South					From West					Total Vehicle Volume	Directional Volume Totals		
	Humboldt Ave					Kane Place					Humboldt Ave					Water Street								
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		E/W	N/S	
AM	6:00 AM	84	31	4	0	119	25	25	1	0	51	3	39	2	0	44	5	6	40	0	51	265	102	163
	7:00 AM	234	136	13	0	383	47	77	1	0	125	9	126	5	0	140	8	18	76	0	102	750	227	523
	8:00 AM	220	93	20	0	333	36	52	2	0	90	3	96	7	0	106	4	24	84	0	112	641	202	439
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	167	153	37	0	357	36	31	6	0	73	11	175	4	0	190	1	54	175	0	230	850	303	547
	4:00 PM	241	173	52	0	466	49	31	6	0	86	12	162	7	0	181	7	84	277	0	368	1101	454	647
	5:00 PM	274	191	61	0	526	44	37	2	0	83	11	198	2	0	211	13	89	312	0	414	1234	497	737
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	1220	777	187	0	2184	237	253	18	0	508	49	796	27	0	872	38	275	964	0	1277	4841	1785	3056	

Graphical Summary of Hourly Volumes



Intersection Traffic Volume Report

15-Minute Pedestrian and Bicyclist Data

Count Basics			Page 11 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Humboldt Ave and Kane Place



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period Start Time		Crossing 			Crossing 			Crossing 			Crossing 			15-Min Totals	Hourly Sum
		North Approach			East Approach			South Approach			West Approach				
		Humboldt Ave			Kane Place			Humboldt Ave			Water Street				
		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	9
	6:15 AM	0	0	0	1	0	1	0	0	0	1	0	1	2	12
	6:30 AM	0	0	0	2	1	3	2	1	3	0	0	0	6	16
	6:45 AM	0	0	0	1	0	1	0	0	0	0	0	0	1	14
	7:00 AM	0	0	0	0	0	0	1	0	1	2	0	2	3	13
	7:15 AM	1	0	1	2	0	2	0	0	0	3	0	3	6	15
	7:30 AM	1	0	1	2	0	2	0	0	0	1	0	1	4	12
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	14
	8:00 AM	2	0	2	1	0	1	0	0	0	2	0	2	5	22
	8:15 AM	0	0	0	2	0	2	0	0	0	0	1	1	3	
8:30 AM	3	0	3	1	1	2	1	0	1	0	0	0	6		
8:45 AM	5	0	5	1	0	1	0	0	0	1	1	2	8		
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	4	0	4	5	0	5	3	0	3	3	0	3	15	91
	3:15 PM	0	0	0	13	2	15	3	2	5	8	0	8	28	103
	3:30 PM	2	1	3	2	2	4	0	1	1	5	3	8	16	89
	3:45 PM	6	0	6	5	1	6	2	2	4	13	3	16	32	98
	4:00 PM	10	1	11	4	2	6	4	0	4	5	1	6	27	97
	4:15 PM	2	0	2	3	2	5	2	2	4	2	1	3	14	94
	4:30 PM	4	0	4	3	0	3	5	0	5	13	0	13	25	140
	4:45 PM	6	0	6	6	0	6	1	0	1	18	0	18	31	154
	5:00 PM	8	1	9	6	1	7	0	0	0	8	0	8	24	148
	5:15 PM	18	1	19	5	2	7	5	2	7	27	0	27	60	
	5:30 PM	13	0	13	10	0	10	6	1	7	7	2	9	39	
	5:45 PM	5	1	6	6	0	6	4	0	4	9	0	9	25	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals		90	5	95	81	14	95	39	11	50	128	12	140	380	

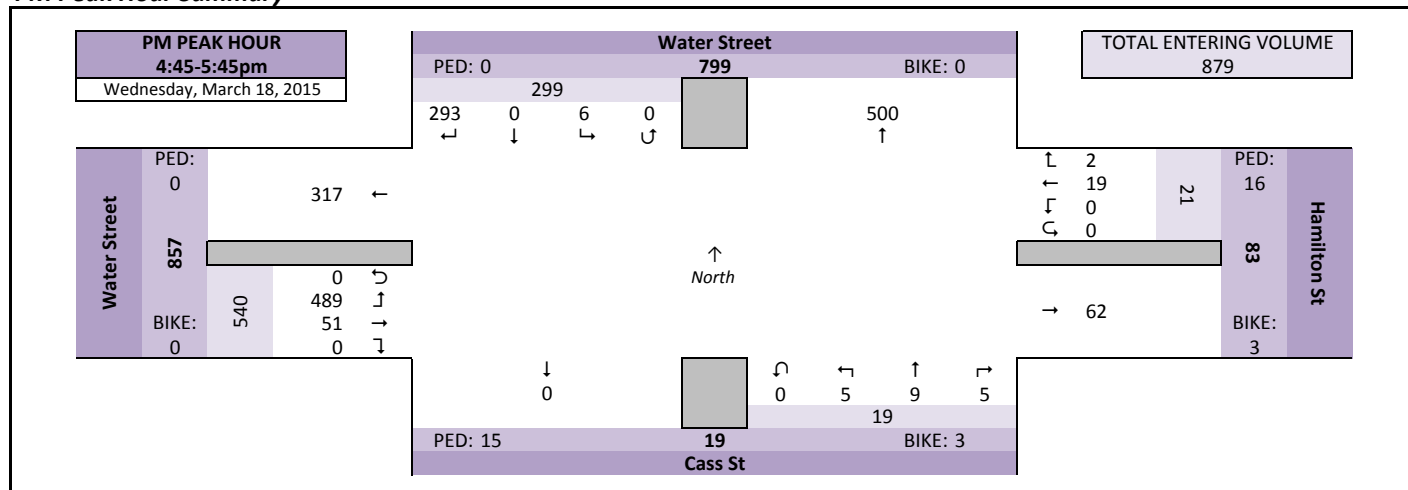
Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/helper dog)	x					
Elderly/Disabled (except wheelchairs)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

Peak Hour Volume Graphical Summary

Water Street and Hamilton St

All Motor Vehicles

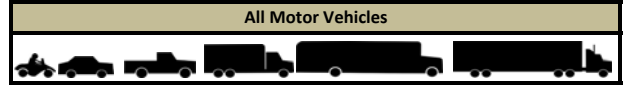


Intersection Traffic Volume Report

Count Basics			Page 3 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Peak Hour Volume Summary

Water Street and Hamilton St



Peak Hour Volumes, Truck Percentages, and PHFs

Wednesday, March 18, 2015		From North					From East					From South					From West					
AM Peak Hour	AM Peak Hour	Water Street					Hamilton St					Cass St					Water Street					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	7:30 AM	86	0	0	0	86	0	22	0	0	22	0	0	1	0	1	0	4	26	0	30	139
	7:45 AM	101	0	0	0	101	0	17	0	0	17	0	0	1	0	1	0	1	30	0	31	150
	8:00 AM	86	0	0	0	86	0	9	0	0	9	0	1	1	0	2	0	2	26	0	28	125
	8:15 AM	86	0	0	0	86	1	13	0	0	14	0	1	1	0	2	0	1	27	0	28	130
	Peak Hour Volume	359	0	0	0	359	1	61	0	0	62	0	2	4	0	6	0	8	109	0	117	544
	Rounded Hourly Volume	360	0	0	0	360	0	60	0	0	60	0	0	5	0	5	0	10	110	0	120	545
	% Single Unit Trucks	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.9	0.4
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% Trucks (Total)	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.9	0.4	
Peak Hour Factor (PHF)	0.89	0.00	0.00	0.00	0.89	0.25	0.69	0.00	0.00	0.70	0.00	0.50	1.00	0.00	0.75	0.00	0.50	0.91	0.00	0.94	0.91	

N/A		From North					From East					From South					From West					
Midday (MD) Peak Hour	MD Peak Hour Start Time	Water Street					Hamilton St					Cass St					Water Street					
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rounded Hourly Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Wednesday, March 18, 2015		From North					From East					From South					From West					Totals
PM Peak Hour	PM Peak Hour	Water Street					Hamilton St					Cass St					Water Street					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	4:45 PM	71	0	0	0	71	0	5	0	0	5	1	2	1	0	4	0	7	130	0	137	
	5:00 PM	64	0	2	0	66	2	6	0	0	8	0	0	2	0	2	0	16	110	0	126	
	5:15 PM	77	0	3	0	80	0	2	0	0	2	2	3	2	0	7	0	12	119	0	131	
	5:30 PM	81	0	1	0	82	0	6	0	0	6	2	4	0	0	6	0	16	130	0	146	
	Peak Hour Volume	293	0	6	0	299	2	19	0	0	21	5	9	5	0	19	0	51	489	0	540	
	Rounded Hourly Volume	295	0	5	0	300	0	20	0	0	20	5	10	5	0	20	0	50	490	0	540	
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	
	Peak Hour Factor (PHF)	0.90	0.00	0.50	0.00	0.91	0.25	0.79	0.00	0.00	0.66	0.62	0.56	0.62	0.00	0.68	0.00	0.80	0.94	0.00	0.92	

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists		Crossing 			Crossing 			Crossing 			Crossing 			Total Ped & Bike Volume
		North Approach			East Approach			South Approach			West Approach			
15-Minute Start Time		Water Street			Hamilton St			Cass St			Water Street			
		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	7:30 AM	0	0	0	2	0	2	1	0	1	0	0	0	3
	7:45 AM	0	0	0	2	0	2	2	0	2	0	0	0	4
	8:00 AM	0	0	0	1	0	1	1	0	1	0	0	0	2
	8:15 AM	0	0	0	4	0	4	2	0	2	0	0	0	6
	Total	0	0	0	9	0	9	6	0	6	0	0	0	15
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:45 PM	0	0	0	7	0	7	7	0	7	0	0	0	14
	5:00 PM	0	0	0	4	0	4	4	0	4	0	0	0	8
	5:15 PM	0	0	0	3	2	5	3	2	5	0	0	0	10
	5:30 PM	0	0	0	2	1	3	1	1	2	0	0	0	5
	Total	0	0	0	16	3	19	15	3	18	0	0	0	37

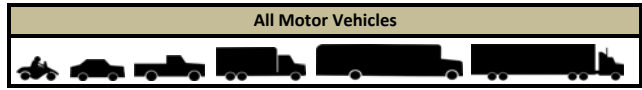
Intersection Traffic Volume Report

Hourly Volume Summary - Motor Vehicle Data

Water Street and Hamilton St

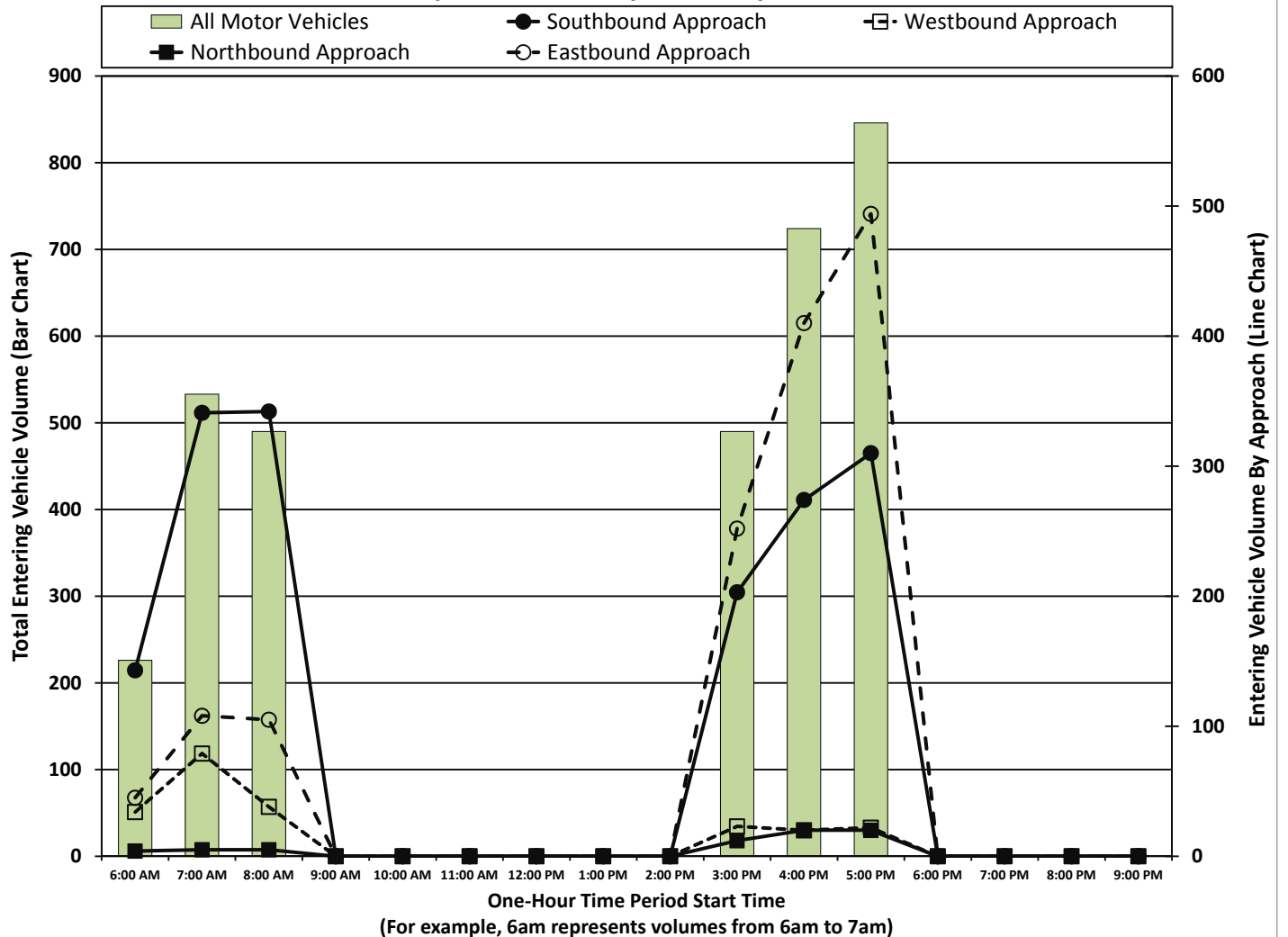
One-Hour Motor Vehicle Data

Count Basics			Page 4 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events



One-Hour Time Period Start Time	From North					From East					From South					From West					Total Vehicle Volume	Directional Volume Totals		
	Water Street					Hamilton St					Cass St					Water Street								
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		E/W	N/S	
AM	6:00 AM	141	0	2	0	143	0	34	0	0	34	0	2	2	0	4	0	1	44	0	45	226	79	147
	7:00 AM	341	0	0	0	341	0	79	0	0	79	0	0	5	0	5	0	8	100	0	108	533	187	346
	8:00 AM	340	0	2	0	342	2	36	0	0	38	0	2	3	0	5	0	4	101	0	105	490	143	347
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	201	0	2	0	203	0	23	0	0	23	2	7	3	0	12	0	24	228	0	252	490	275	215
	4:00 PM	270	0	4	0	274	0	20	0	0	20	4	7	9	0	20	0	32	378	0	410	724	430	294
	5:00 PM	304	0	6	0	310	3	19	0	0	22	4	10	6	0	20	0	57	437	0	494	846	516	330
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	1597	0	16	0	1613	5	211	0	0	216	10	28	28	0	66	0	126	1288	0	1414	3309	1630	1679	

Graphical Summary of Hourly Volumes



Count Basics			Page 7 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Single Unit (SU) Trucks & Buses

15-Minute Single Unit (SU) Truck & Bus Data

[illegible]

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume	
	Water Street					Hamilton St					Cass St					Water Street						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM 7:30 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1

Intersection Traffic Volume Report

Count Basics			Page 9 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

15-Minute Heavy Vehicle Data

Water Street and Hamilton St



15-Minute Heavy Vehicle Data

15-Minute Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					15-Min Totals	Hourly Sum			
	Water Street					Hamilton St					Cass St					Water Street									
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total					
AM Peak Period	6:00 AM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	1	3	4	
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	
	6:45 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	
	7:00 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	2	
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	2	
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
	8:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	6
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	2	2	5
	3:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	1	1	1	3
	4:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							

Peak Hour Heavy Vehicle Volume Summary

Hourly Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					Total Hourly Volume
	Water Street					Hamilton St					Cass St					Water Street					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:30 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	

15-Minute Heavy Vehicle Percentages

Heavy Vehicles (Single-Unit Trucks, Buses & Semi-Trucks)	
%	  

15-Minute Heavy Vehicle Percentages

Peak Hour Heavy Vehicle Percentages Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Hourly Heavy Vehicle Percent
	Water Street					Hamilton St					Cass St					Water Street					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:30 AM	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.9	0.0
MD 12:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PM 4:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0

Intersection Traffic Volume Report

15-Minute Pedestrian and Bicyclist Data

Count Basics			Page 11 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Water Street and Hamilton St



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period Start Time		Crossing 			Crossing 			Crossing 			Crossing 			15-Min Totals	Hourly Sum
		North Approach			East Approach			South Approach			West Approach				
		Water Street			Hamilton St			Cass St			Water Street				
		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	7
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	9
	7:30 AM	0	0	0	2	0	2	1	0	1	0	0	0	3	15
	7:45 AM	0	0	0	2	0	2	2	0	2	0	0	0	4	16
	8:00 AM	0	0	0	1	0	1	1	0	1	0	0	0	2	12
	8:15 AM	0	0	0	4	0	4	2	0	2	0	0	0	6	
	8:30 AM	0	0	0	2	0	2	2	0	2	0	0	0	4	
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	0	0	3	0	3	3	0	3	0	0	0	6	24
	3:15 PM	0	0	0	0	3	3	0	3	3	0	0	0	6	28
	3:30 PM	0	0	0	2	1	3	1	1	2	0	0	0	5	25
	3:45 PM	0	0	0	2	2	4	1	2	3	0	0	0	7	24
	4:00 PM	0	0	0	2	3	5	2	3	5	0	0	0	10	31
	4:15 PM	0	0	0	2	0	2	1	0	1	0	0	0	3	29
	4:30 PM	0	0	0	3	0	3	1	0	1	0	0	0	4	36
	4:45 PM	0	0	0	7	0	7	7	0	7	0	0	0	14	37
	5:00 PM	0	0	0	4	0	4	4	0	4	0	0	0	8	27
	5:15 PM	0	0	0	3	2	5	3	2	5	0	0	0	10	
	5:30 PM	0	0	0	2	1	3	1	1	2	0	0	0	5	
	5:45 PM	0	0	0	2	0	2	2	0	2	0	0	0	4	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		0	0	0	43	12	55	34	12	46	0	0	0	101	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/helper dog)	x					
Elderly/Disabled (except wheelchairs)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

Intersection Traffic Volume Report

Count Basics		Version 2013.J4.1		Page 1 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events	



Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries

Intersection of: **Water Street and Brady Street**

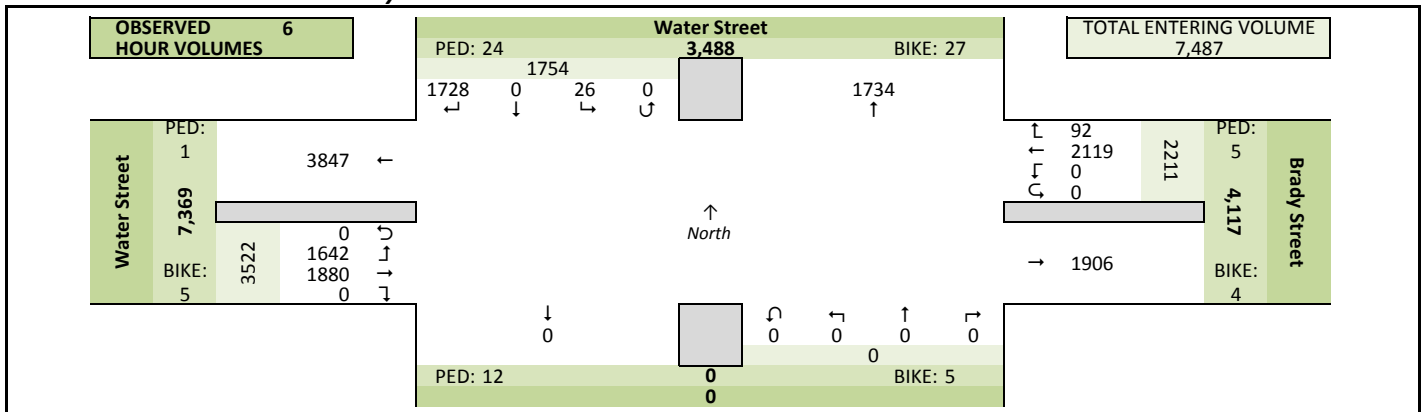
Site Information

Municipality	Milwaukee
County	Milwaukee
WisDOT Region	SE
Traffic Control	Partial Stop Control
Roadway Names	North Direction
North Leg	Water Street
East Leg	Brady Street
South Leg	
West Leg	Water Street
Special Considerations	
Schools	In Session
Holidays	None
Special Events	None
Special Pedestrians Observed	
Pre-school children	None
Elementary school age children	None
Visually impaired (white cane/helper dog)	None
Elderly/disabled (except wheelchairs)	None
Wheelchairs/electric scooters	None
Other (describe)	None

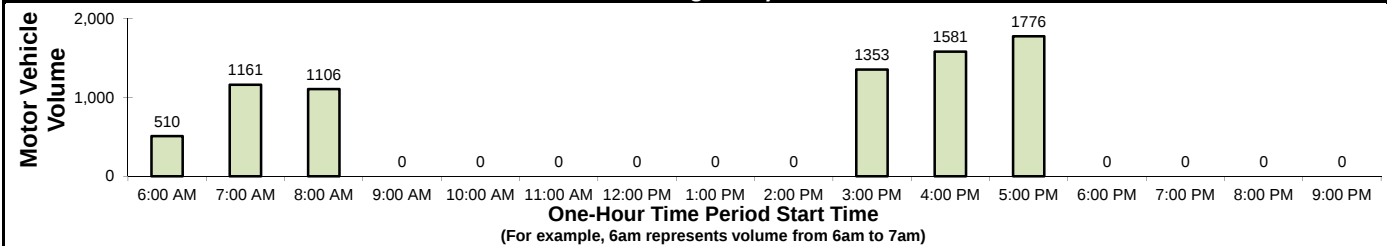
Count Information

Hrs Counted:	6:00 AM-9:00 AM and 3:00 PM-6:00 PM
1st Day of Count	Wednesday, March 18, 2015
Weather	Clear & Dry
AM Peak Period	Wednesday, March 18, 2015
Midday Peak Period	Clear & Dry
PM Peak Period	Wednesday, March 18, 2015
Calculated Peak Hours	
AM	7:30-8:30am
MD	
PM	4:45-5:45pm
Peak Hours Selected for Analysis	
AM	7:30-8:30am
MD	
PM	4:45-5:45pm
Daily/Seasonal Adjustment Group	(2) Urban Arterials & Collectors
Count Expansion Group	(2) Urban Arterials & Collectors
Daily/Seasonal Adjustment Factor	0.947
Count Expansion Factor	2.382
Company Name	TADI
Manual Adj.	1.000
Observers	AM Peak Period: Carrie Obradovich
	Midday Peak Period:
	PM Peak Period: Larry Numerich
Comments	Version 2011.J4.1 2013 DOT Factors

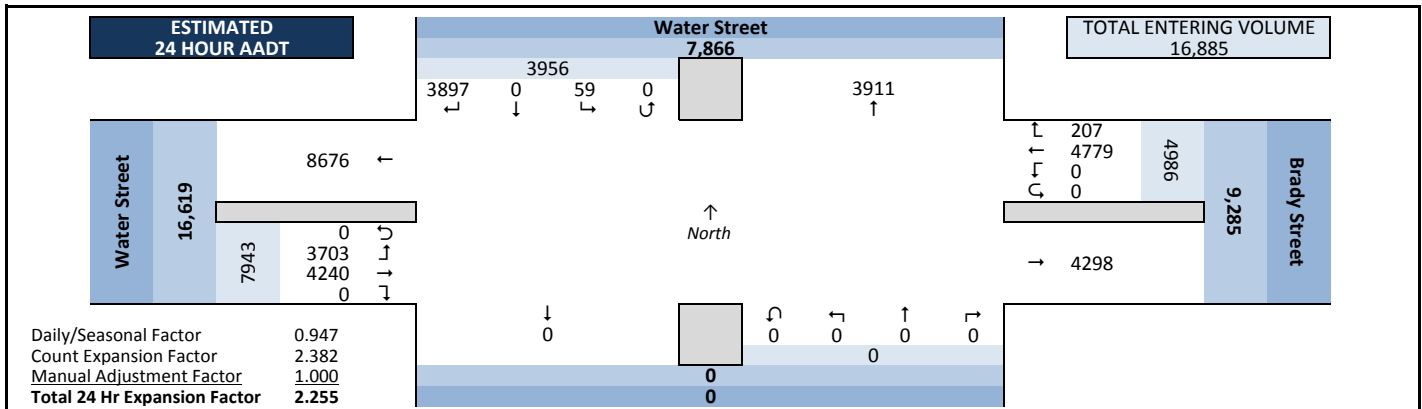
Observed 6 Hour Volume Summary



Total Entering Hourly Volume



Estimated 24 Hour AADT



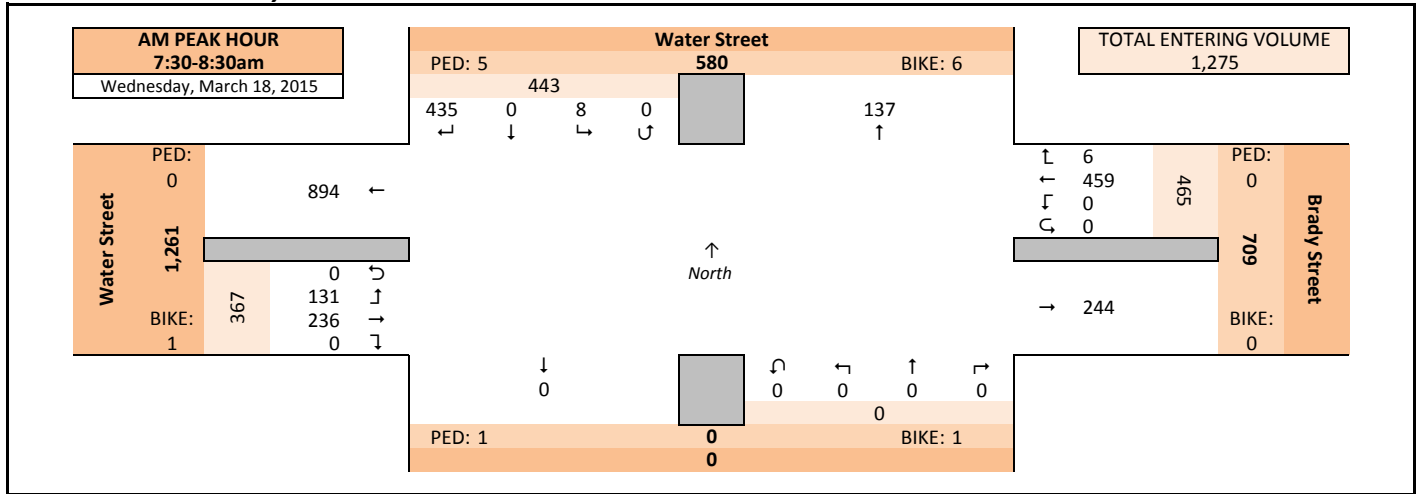
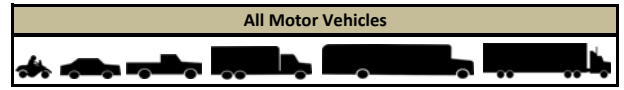
Intersection Traffic Volume Report

Peak Hour Volume Graphical Summary

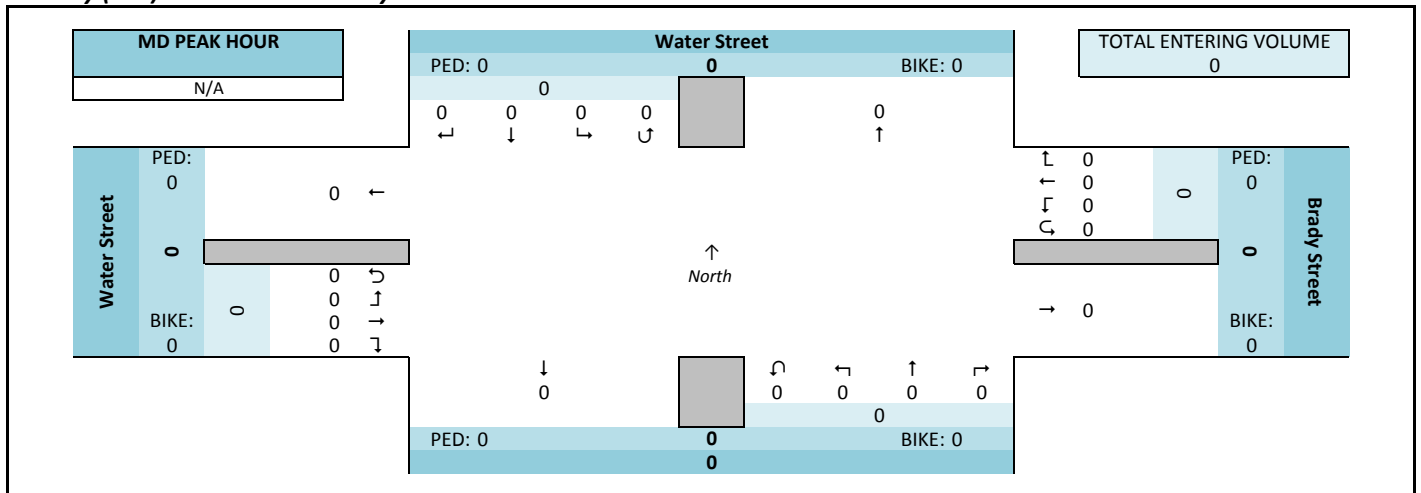
Water Street and Brady Street

AM Peak Hour Summary

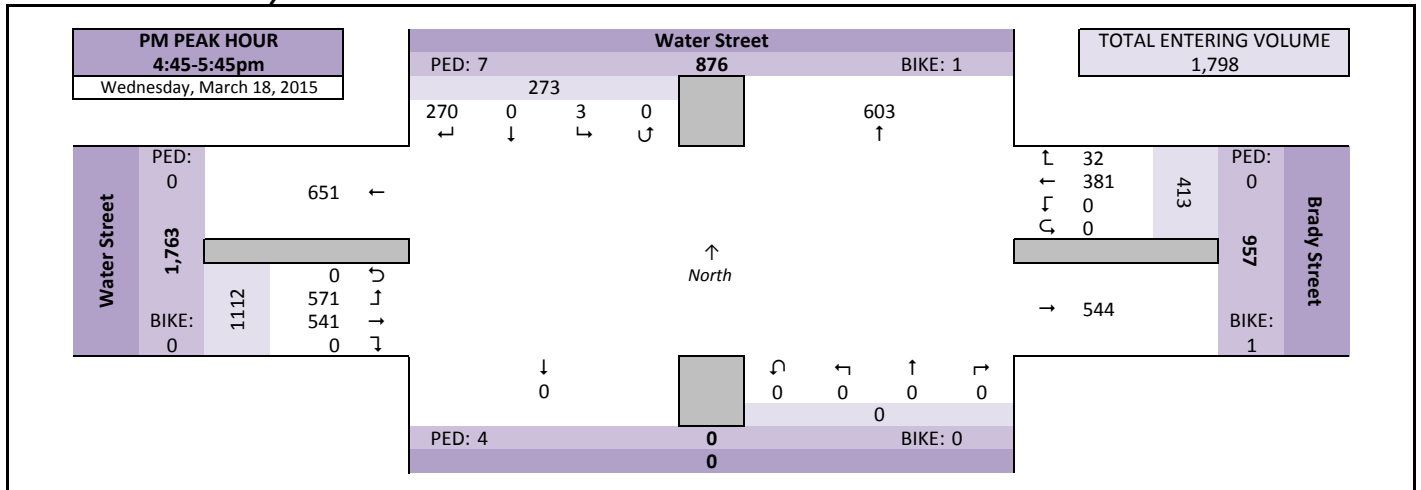
Count Basics		Page 2 of 11	
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events



Midday (MD) Peak Hour Summary



PM Peak Hour Summary

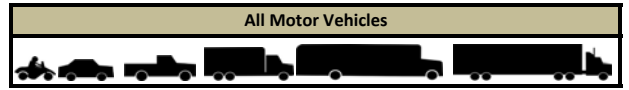


Intersection Traffic Volume Report

Count Basics			Page 3 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Peak Hour Volume Summary

Water Street and Brady Street



Peak Hour Volumes, Truck Percentages, and PHFs

Wednesday, March 18, 2015		From North					From East					From South					From West						
AM Peak Hour	AM Peak Hour	Water Street					Brady Street					0					Water Street						
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals	
	7:30 AM	117	0	1	0	118	1	113	0	0	114	0	0	0	0	0	0	0	50	37	0	87	319
	7:45 AM	115	0	3	0	118	1	140	0	0	141	0	0	0	0	0	0	0	71	37	0	108	367
	8:00 AM	98	0	2	0	100	3	97	0	0	100	0	0	0	0	0	0	0	63	32	0	95	295
	8:15 AM	105	0	2	0	107	1	109	0	0	110	0	0	0	0	0	0	0	52	25	0	77	294
	Peak Hour Volume	435	0	8	0	443	6	459	0	0	465	0	0	0	0	0	0	0	236	131	0	367	1275
	Rounded Hourly Volume	435	0	10	0	445	5	460	0	0	465	0	0	0	0	0	0	0	235	130	0	365	1275
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	16.7	3.3	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	1.5	0.0	4.4	2.5
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.0	0.5	0.2
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	16.7	3.3	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4	2.3	0.0	4.9	2.7
	Peak Hour Factor (PHF)	0.93	0.00	0.67	0.00	0.94	0.50	0.82	0.00	0.00	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.89	0.00	0.85	0.87

N/A		From North					From East					From South					From West					Totals
Midday (MD) Peak Hour	MD Peak Hour Start Time	Water Street					Brady Street					0					Water Street					
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Rounded Hourly Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Wednesday, March 18, 2015		From North					From East					From South					From West						
PM Peak Hour	PM Peak Hour	Water Street					Brady Street					0					Water Street						
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals	
	4:45 PM	74	0	0	0	74	6	98	0	0	104	0	0	0	0	0	0	0	124	134	0	258	436
	5:00 PM	63	0	1	0	64	8	97	0	0	105	0	0	0	0	0	0	0	130	147	0	277	446
	5:15 PM	61	0	0	0	61	7	94	0	0	101	0	0	0	0	0	0	0	141	166	0	307	469
	5:30 PM	72	0	2	0	74	11	92	0	0	103	0	0	0	0	0	0	0	146	124	0	270	447
	Peak Hour Volume	270	0	3	0	273	32	381	0	0	413	0	0	0	0	0	0	0	541	571	0	1112	1798
	Rounded Hourly Volume	270	0	5	0	275	30	380	0	0	410	0	0	0	0	0	0	0	540	570	0	1110	1795
	% Single Unit Trucks	0.4	0.0	0.0	0.0	0.4	0.0	1.8	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.2	0.0	0.9	1.0
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.1
% Trucks (Total)	0.4	0.0	0.0	0.0	0.4	0.0	1.8	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.2	0.0	1.0	1.1	
Peak Hour Factor (PHF)	0.91	0.00	0.37	0.00	0.92	0.73	0.97	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	0.86	0.00	0.91	0.96	

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists		Crossing 			Crossing 			Crossing 			Crossing 			Total Ped & Bike Volume
		North Approach			East Approach			South Approach			West Approach			
15-Minute Start Time		Water Street			Brady Street			0			Water Street			
		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	7:30 AM	1	1	2	0	0	0	0	0	0	0	0	0	2
	7:45 AM	3	4	7	0	0	0	1	0	1	0	0	0	8
	8:00 AM	0	1	1	0	0	0	0	1	1	0	0	0	2
	8:15 AM	1	0	1	0	0	0	0	0	0	0	1	1	2
	Total	5	6	11	0	0	0	1	1	2	0	1	1	14
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:45 PM	1	0	1	0	0	0	3	0	3	0	0	0	4
	5:00 PM	3	1	4	0	0	0	1	0	1	0	0	0	5
	5:15 PM	2	0	2	0	1	1	0	0	0	0	0	0	3
	5:30 PM	1	0	1	0	0	0	0	0	0	0	0	0	1
	Total	7	1	8	0	1	1	4	0	4	0	0	0	13

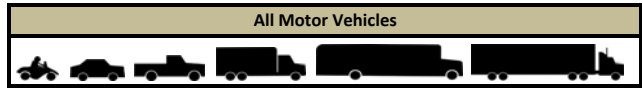
Intersection Traffic Volume Report

Hourly Volume Summary - Motor Vehicle Data

Water Street and Brady Street

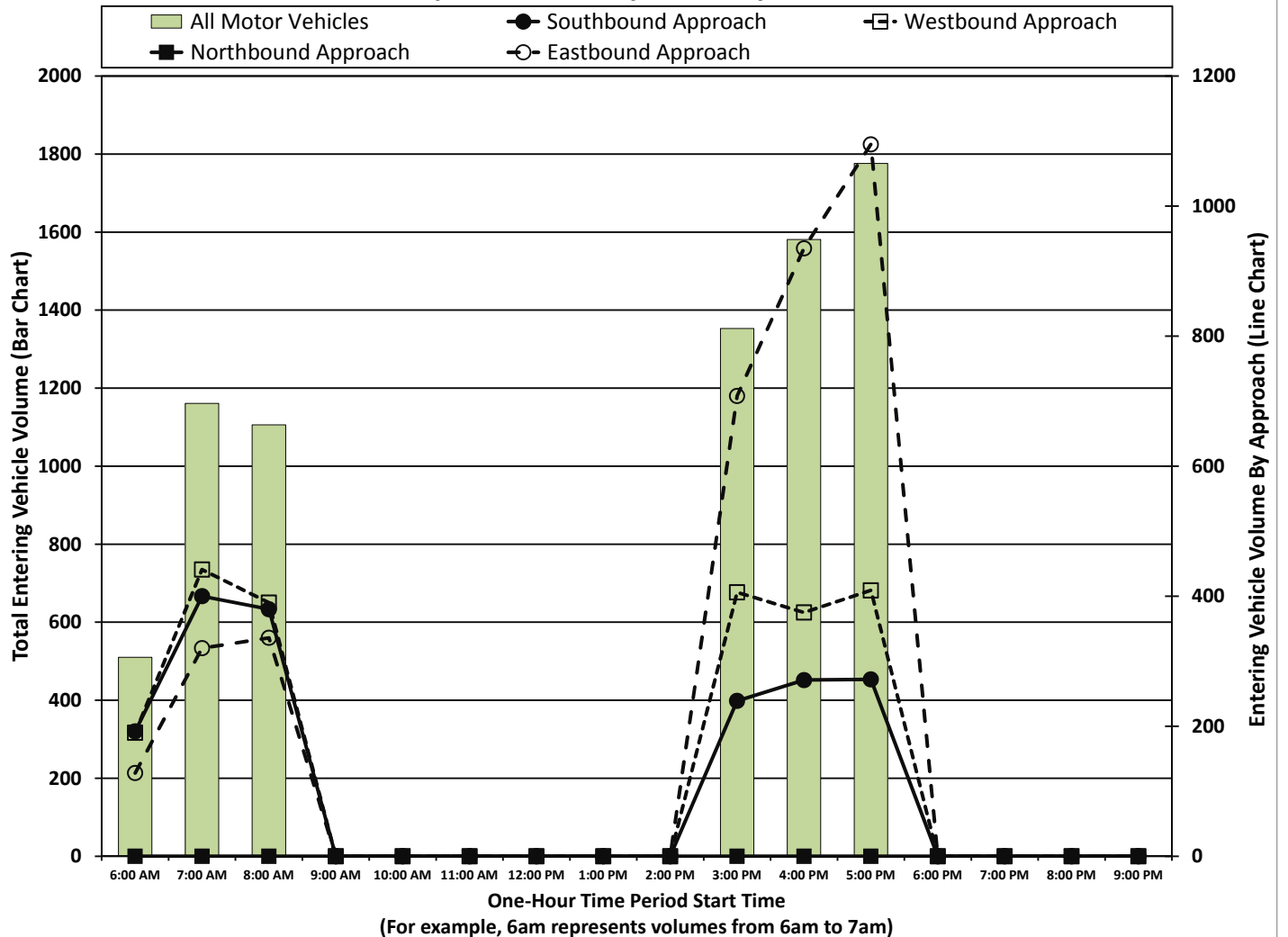
One-Hour Motor Vehicle Data

Count Basics			Page 4 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events



One-Hour Time Period Start Time	From North					From East					From South					From West					Total Vehicle Volume	Directional Volume Totals		
	Water Street					Brady Street					0					Water Street								
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		E/W	N/S	
AM	6:00 AM	191	0	1	0	192	5	185	0	0	190	0	0	0	0	0	0	75	53	0	128	510	318	192
	7:00 AM	395	0	5	0	400	5	436	0	0	441	0	0	0	0	0	0	200	120	0	320	1161	761	400
	8:00 AM	374	0	6	0	380	5	385	0	0	390	0	0	0	0	0	0	214	122	0	336	1106	726	380
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	233	0	6	0	239	23	383	0	0	406	0	0	0	0	0	0	397	311	0	708	1353	1114	239
	4:00 PM	268	0	3	0	271	19	356	0	0	375	0	0	0	0	0	0	460	475	0	935	1581	1310	271
	5:00 PM	267	0	5	0	272	35	374	0	0	409	0	0	0	0	0	0	534	561	0	1095	1776	1504	272
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	1728	0	26	0	1754	92	2119	0	0	2211	0	0	0	0	0	0	1880	1642	0	3522	7487	5733	1754	

Graphical Summary of Hourly Volumes



15-Minute Motor Vehicle Data

Count Basics			Page 5 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Water Street and Brady Street



15-Minute Motor Vehicle Data

[illegible]

Peak Hour All Vehicle Volume Summary

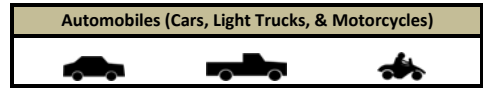
Hourly Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					Total Hourly Volume	PHF
	Water Street					Brady Street					0					Water Street						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM 7:30 AM	435	0	8	0	443	6	459	0	0	465	0	0	0	0	0	0	236	131	0	367	1275	0.87
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM 4:45 PM	270	0	3	0	273	32	381	0	0	413	0	0	0	0	0	0	541	571	0	1112	1798	0.96

Intersection Traffic Volume Report

Count Basics			Page 6 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

15-Minute Automobile Data

Water Street and Brady Street



15-Minute Automobile Data

15-Minute Time Period Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum	
	Water Street					Brady Street					0					Water Street							
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
AM Peak Period	6:00 AM	22	0	0	0	22	1	25	0	0	26	0	0	0	0	0	0	4	6	0	10	58	489
	6:15 AM	35	0	1	0	36	1	37	0	0	38	0	0	0	0	0	0	12	9	0	21	95	622
	6:30 AM	66	0	0	0	66	1	48	0	0	49	0	0	0	0	0	0	21	15	0	36	151	791
	6:45 AM	66	0	0	0	66	2	69	0	0	71	0	0	0	0	0	0	25	23	0	48	185	952
	7:00 AM	72	0	1	0	73	1	75	0	0	76	0	0	0	0	0	0	23	19	0	42	191	1126
	7:15 AM	91	0	0	0	91	2	104	0	0	106	0	0	0	0	0	0	42	25	0	67	264	1219
	7:30 AM	117	0	1	0	118	1	111	0	0	112	0	0	0	0	0	0	46	36	0	82	312	1241
	7:45 AM	115	0	3	0	118	1	135	0	0	136	0	0	0	0	0	0	68	37	0	105	359	1178
	8:00 AM	98	0	2	0	100	2	93	0	0	95	0	0	0	0	0	0	59	30	0	89	284	1073
	8:15 AM	105	0	2	0	107	1	105	0	0	106	0	0	0	0	0	0	48	25	0	73	286	
	8:30 AM	94	0	1	0	95	1	77	0	0	78	0	0	0	0	0	0	49	27	0	76	249	
	8:45 AM	73	0	1	0	74	0	98	0	0	98	0	0	0	0	0	0	46	36	0	82	254	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	59	0	1	0	60	5	82	0	0	87	0	0	0	0	0	0	93	58	0	151	298	1320
	3:15 PM	44	0	2	0	46	3	97	0	0	100	0	0	0	0	0	0	91	85	0	176	322	1382
	3:30 PM	65	0	1	0	66	9	90	0	0	99	0	0	0	0	0	0	93	71	0	164	329	1431
	3:45 PM	63	0	2	0	65	5	100	0	0	105	0	0	0	0	0	0	110	91	0	201	371	1493
	4:00 PM	58	0	2	0	60	6	73	0	0	79	0	0	0	0	0	0	102	119	0	221	360	1551
	4:15 PM	55	0	0	0	55	3	87	0	0	90	0	0	0	0	0	0	114	112	0	226	371	1634
	4:30 PM	81	0	1	0	82	4	86	0	0	90	0	0	0	0	0	0	112	107	0	219	391	1726
	4:45 PM	73	0	0	0	73	6	94	0	0	100	0	0	0	0	0	0	122	134	0	256	429	1779
	5:00 PM	63	0	1	0	64	8	96	0	0	104	0	0	0	0	0	0	129	146	0	275	443	1761
	5:15 PM	61	0	0	0	61	7	93	0	0	100	0	0	0	0	0	0	136	166	0	302	463	
	5:30 PM	72	0	2	0	74	11	91	0	0	102	0	0	0	0	0	0	144	124	0	268	444	
	5:45 PM	71	0	2	0	73	9	89	0	0	98	0	0	0	0	0	0	116	124	0	240	411	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals	1719	0	26	0	1745	90	2055	0	0	2145	0	0	0	0	0	0	1805	1625	0	3430	7320		

Peak Hour Automobile Volume Summary

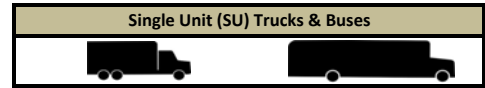
Hourly Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					Total Hourly Volume
	Water Street					Brady Street					0					Water Street					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:30 AM	435	0	8	0	443	5	444	0	0	449	0	0	0	0	0	0	221	128	0	349	1241
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:45 PM	269	0	3	0	272	32	374	0	0	406	0	0	0	0	0	0	531	570	0	1101	1779

Intersection Traffic Volume Report

Count Basics			Page 7 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

15-Minute Single Unit (SU) Truck & Bus Data

Water Street and Brady Street



15-Minute Single Unit (SU) Truck & Bus Data

15-Minute Time Period Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum		
	Water Street					Brady Street					0					Water Street								
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total				
AM Peak Period	6:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	3	19
	6:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	0	2	4	26
	6:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	0	4	6	30
	6:45 AM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	3	0	0	0	3	6	31
	7:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	8	0	0	0	8	10	33
	7:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	5	2	0	0	7	8	32
	7:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	1	0	0	5	7	32
	7:45 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	0	3	8	34
	8:00 AM	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	3	1	0	0	4	9	31
	8:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	0	0	0	4	8	
	8:30 AM	2	0	0	0	2	0	3	0	0	3	0	0	0	0	0	0	3	1	0	0	4	9	
	8:45 AM	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0	0	1	1	0	0	2	5	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	2	0	0	4	7	27
	3:15 PM	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	0	2	2	0	0	4	9	29
	3:30 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	2	0	0	0	2	4	27
	3:45 PM	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	0	1	1	0	0	2	7	30
	4:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	2	0	0	5	9	30
	4:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	0	3	7	24
	4:30 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	1	0	0	3	7	22
	4:45 PM	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	0	2	0	0	0	2	7	18
	5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	0	2	3	14
	5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	0	4	5	
	5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	2	3	
	5:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	0	1	3	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals	9	0	0	0	9	2	61	0	0	63	0	0	0	0	0	0	67	15	0	0	82	154		

Peak Hour Single Unit (SU) Truck & Buses Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume
	Water Street					Brady Street					0					Water Street					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:30 AM	0	0	0	0	0	1	15	0	0	16	0	0	0	0	0	0	14	2	0	16	32
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:45 PM	1	0	0	0	1	0	7	0	0	7	0	0	0	0	0	0	9	1	0	10	18

Intersection Traffic Volume Report

15-Minute Semi-Truck Data

Count Basics		Page 8 of 11	
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Water Street and Brady Street



15-Minute Semi-Truck Data

[illegible]

Peak Hour Semi-Truck Volume Summary

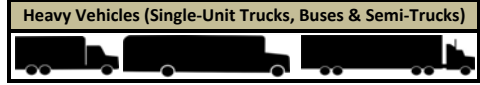
Hourly Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					Total Hourly Volume
	Water Street					Brady Street					0					Water Street					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2

Intersection Traffic Volume Report

Count Basics			Page 9 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

15-Minute Heavy Vehicle Data

Water Street and Brady Street



15-Minute Heavy Vehicle Data

15-Minute Time Period	Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum		
		Water Street					Brady Street					0					Water Street								
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total				
AM Peak Period	6:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	3	21	
	6:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	0	2	4	30	
	6:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	0	4	6	34	
	6:45 AM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	5	0	0	0	5	8	35	
	7:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	9	0	0	0	9	12	35	
	7:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	5	2	0	0	7	8	34	
	7:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	1	0	0	5	7	34	
	7:45 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	0	3	8	36	
	8:00 AM	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	4	2	0	0	6	11	33	
	8:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	0	0	0	4	8		
	8:30 AM	2	0	0	0	2	0	3	0	0	3	0	0	0	0	0	0	3	1	0	0	4	9		
	8:45 AM	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0	0	1	1	0	0	2	5		
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	2	0	0	4	7	33	
	3:15 PM	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	0	3	2	0	0	5	11	35	
	3:30 PM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	3	0	0	0	3	6	31	
	3:45 PM	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	0	2	2	0	0	4	9	32	
	4:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	2	0	0	5	9	30	
	4:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	0	3	7	24	
	4:30 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	1	0	0	3	7	23	
	4:45 PM	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	0	2	0	0	0	2	7	19	
	5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	0	2	3	15	
	5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	5	0	0	0	5	6		
	5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	2	3		
	5:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	0	1	3		
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals		9	0	0	0	9	2	64	0	0	66	0	0	0	0	0	0	75	17	0	0	92	167		

Peak Hour Heavy Vehicle Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume
	Water Street					Brady Street					0					Water Street					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:30 AM	0	0	0	0	0	1	15	0	0	16	0	0	0	0	0	0	0	15	3	0	18
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:45 PM	1	0	0	0	1	0	7	0	0	7	0	0	0	0	0	0	10	1	0	11	

15-Minute Heavy Vehicle Percentages

Heavy Vehicles (Single-Unit Trucks, Buses & Semi-Trucks)	
%	  

15-Minute Heavy Vehicle Percentages

Peak Hour Heavy Vehicle Percentages Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Hourly Heavy Vehicle Percent	
	Water Street					Brady Street					0					Water Street						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM 7:30 AM	0.0	0.0	0.0	0.0	0.0	16.7	3.3	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	6.4	2.3	0.0	0.0	4.9	2.0
MD 12:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PM 4:45 PM	0.4	0.0	0.0	0.0	0.4	0.0	1.8	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.2	0.0	0.0	1.0	1.0

Intersection Traffic Volume Report

Count Basics			Page 11 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

15-Minute Pedestrian and Bicyclist Data

Water Street and Brady Street



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period Start Time		Crossing 			Crossing 			Crossing 			Crossing 			15-Min Totals	Hourly Sum
		North Approach			East Approach			South Approach			West Approach				
		Water Street			Brady Street			0			Water Street				
		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	6
	6:15 AM	0	0	0	1	0	1	0	0	0	0	0	0	1	11
	6:30 AM	0	0	0	0	1	1	0	1	1	0	0	0	2	14
	6:45 AM	0	2	2	0	0	0	1	0	1	0	0	0	3	14
	7:00 AM	1	4	5	0	0	0	0	0	0	0	0	0	5	19
	7:15 AM	0	2	2	0	1	1	0	1	1	0	0	0	4	16
	7:30 AM	1	1	2	0	0	0	0	0	0	0	0	0	2	14
	7:45 AM	3	4	7	0	0	0	1	0	1	0	0	0	8	21
	8:00 AM	0	1	1	0	0	0	0	1	1	0	0	0	2	21
	8:15 AM	1	0	1	0	0	0	0	0	0	0	1	1	2	
	8:30 AM	0	4	4	0	1	1	1	1	2	0	2	2	9	
	8:45 AM	1	5	6	0	0	0	0	0	0	1	1	2	8	
Midday Peak Period	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:00 PM	1	0	1	2	0	2	0	0	0	0	0	0	3	10	
3:15 PM	0	1	1	0	0	0	0	0	0	0	0	0	1	10	
3:30 PM	2	0	2	0	0	0	0	1	1	0	1	1	4	13	
3:45 PM	1	1	2	0	0	0	0	0	0	0	0	0	2	13	
4:00 PM	3	0	3	0	0	0	0	0	0	0	0	0	3	15	
4:15 PM	1	1	2	2	0	2	0	0	0	0	0	0	4	17	
4:30 PM	1	0	1	0	0	0	3	0	3	0	0	0	4	16	
4:45 PM	1	0	1	0	0	0	3	0	3	0	0	0	4	13	
5:00 PM	3	1	4	0	0	0	1	0	1	0	0	0	5	12	
5:15 PM	2	0	2	0	1	1	0	0	0	0	0	0	3		
5:30 PM	1	0	1	0	0	0	0	0	0	0	0	0	1		
5:45 PM	1	0	1	0	0	0	2	0	2	0	0	0	3		
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals		24	27	51	5	4	9	12	5	17	1	5	6	83	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/helper dog)	x					
Elderly/Disabled (except wheelchairs)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

Intersection Traffic Volume Report

Count Basics		Version 2013.J4.1		Page 1 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events	

Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries

Intersection of: **Pleasant Street and Water Street**



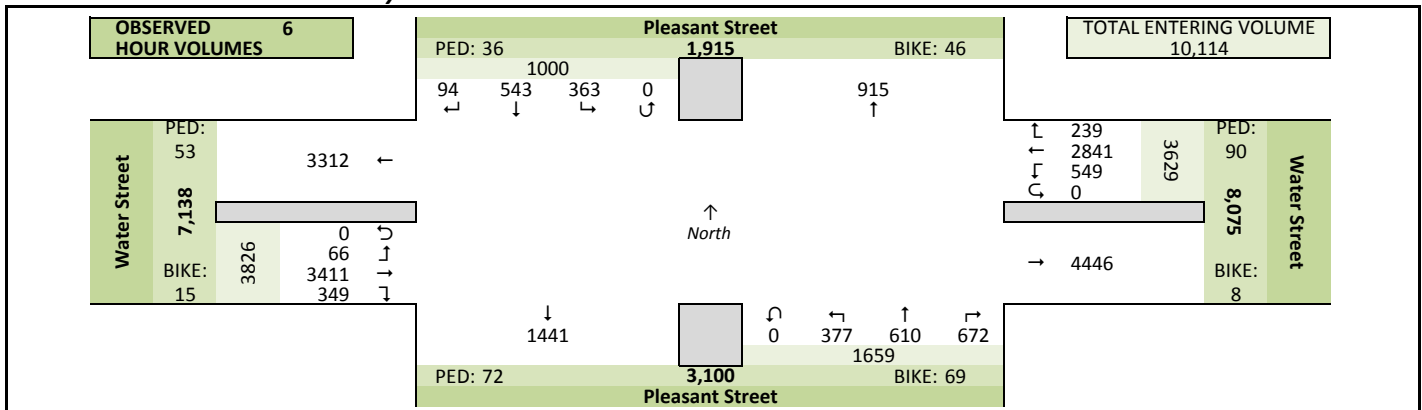
Site Information

Municipality	Milwaukee
County	Milwaukee
WisDOT Region	SE
Traffic Control	Traffic Signal
Roadway Names	North Direction
North Leg	Pleasant Street
East Leg	Water Street
South Leg	Pleasant Street
West Leg	Water Street
Special Considerations	
Schools	In Session
Holidays	None
Special Events	None
Special Pedestrians Observed	
Pre-school children	None
Elementary school age children	None
Visually impaired (white cane/helper dog)	None
Elderly/disabled (except wheelchairs)	None
Wheelchairs/electric scooters	None
Other (describe)	None

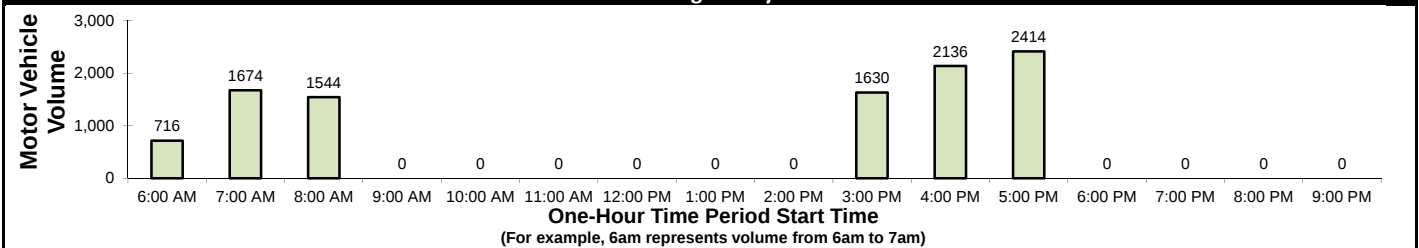
Count Information

Hrs Counted:	6:00 AM-9:00 AM and 3:00 PM-6:00 PM
1st Day of Count	Wednesday, March 18, 2015
AM Peak Period	Thursday, March 19, 2015
Midday Peak Period	Clear & Dry
PM Peak Period	Wednesday, March 18, 2015
Weather	Clear & Dry
Calculated Peak Hours	
AM	7:15-8:15am
MD	
PM	4:45-5:45pm
Peak Hours Selected for Analysis	
AM	7:15-8:15am
MD	
PM	4:45-5:45pm
Daily/Seasonal Adjustment Group	(2) Urban Arterials & Collectors
Count Expansion Group	(2) Urban Arterials & Collectors
Daily/Seasonal Adjustment Factor	0.935
Count Expansion Factor	2.382
Company Name	TADI
Manual Adj.	1.000
Observers	AM Peak Period: Video Count - Amy Scheuerlein
	Midday Peak Period: Video Count - Amy Scheuerlein
	PM Peak Period: Video Count - Amy Scheuerlein
Comments	Version 2011.J4.1 2013 DOT Factors

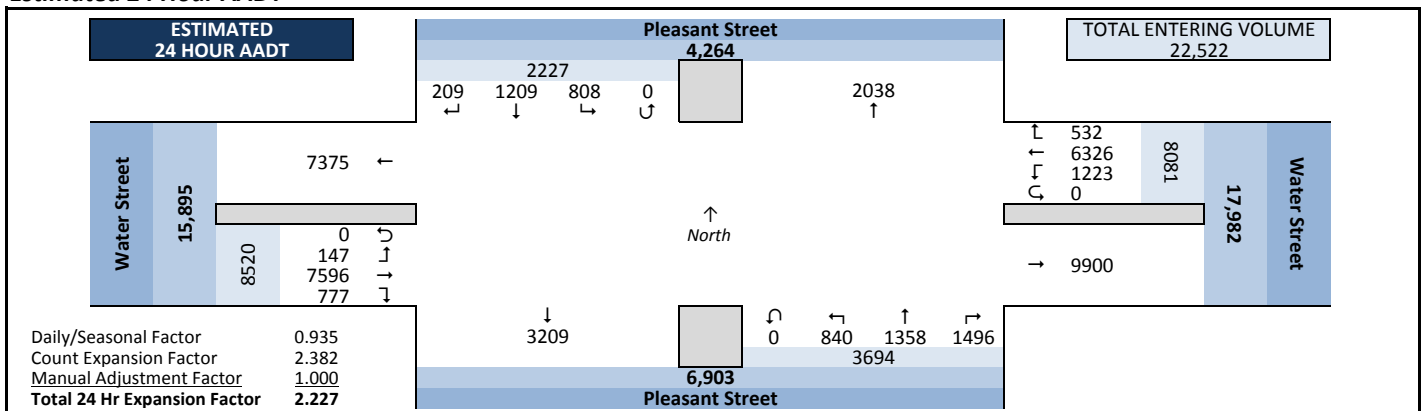
Observed 6 Hour Volume Summary



Total Entering Hourly Volume

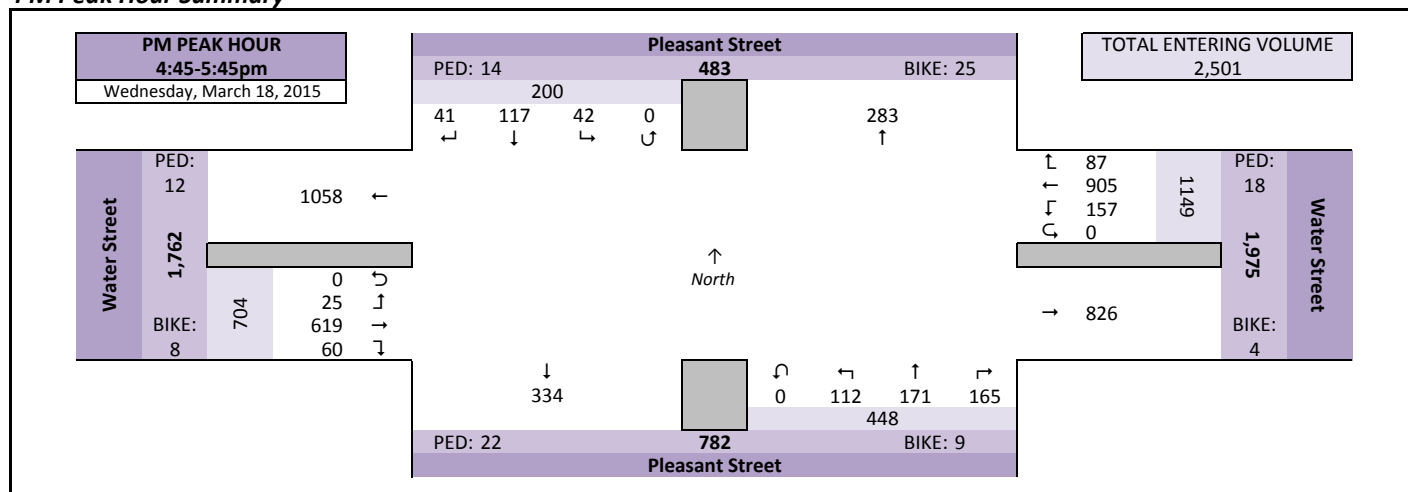


Estimated 24 Hour AADT



Peak Hour Volume Graphical Summary

AM Peak Hour Summary

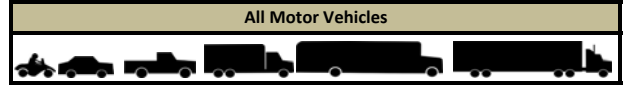


Intersection Traffic Volume Report

Count Basics			Page 3 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Peak Hour Volume Summary

Pleasant Street and Water Street



Peak Hour Volumes, Truck Percentages, and PHFs

Thursday, March 19, 2015		From North					From East					From South					From West					
AM Peak Hour	AM Peak Hour	Pleasant Street					Water Street					Pleasant Street					Water Street					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	7:15 AM	1	23	33	0	57	6	64	8	0	78	28	28	17	0	73	19	175	0	0	194	402
	7:30 AM	0	36	29	0	65	5	81	19	0	105	35	22	11	0	68	18	207	1	0	226	464
	7:45 AM	0	40	31	0	71	8	78	19	0	105	44	28	11	0	83	23	224	4	0	251	510
	8:00 AM	1	30	32	0	63	3	68	24	0	95	34	28	15	0	77	18	176	2	0	196	431
	Peak Hour Volume	2	129	125	0	256	22	291	70	0	383	141	106	54	0	301	78	782	7	0	867	1807
	Rounded Hourly Volume	0	130	125	0	255	20	290	70	0	380	140	105	55	0	300	80	780	5	0	865	1800
	% Single Unit Trucks	0.0	2.3	0.0	0.0	1.2	4.5	2.7	0.0	0.0	2.3	2.1	0.9	13.0	0.0	3.7	5.1	1.2	0.0	0.0	1.5	2.0
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
% Trucks (Total)	0.0	2.3	0.0	0.0	1.2	4.5	3.4	0.0	0.0	2.9	2.1	0.9	13.0	0.0	3.7	5.1	1.2	0.0	0.0	1.5	2.1	
Peak Hour Factor (PHF)	0.50	0.81	0.95	0.00	0.90	0.69	0.90	0.73	0.00	0.91	0.80	0.95	0.79	0.00	0.91	0.85	0.87	0.44	0.00	0.86	0.89	

N/A		From North					From East					From South					From West					
Midday (MD) Peak Hour	MD Peak Hour Start Time	Pleasant Street					Water Street					Pleasant Street					Water Street					
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rounded Hourly Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Wednesday, March 18, 2015		From North					From East					From South					From West					Totals
PM Peak Hour	PM Peak Hour	Pleasant Street					Water Street					Pleasant Street					Water Street					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	4:45 PM	13	23	6	0	42	18	228	36	0	282	34	43	26	0	103	14	157	4	0	175	
	5:00 PM	11	34	14	0	59	16	215	57	0	288	55	48	35	0	138	18	135	9	0	162	
	5:15 PM	9	31	14	0	54	30	216	32	0	278	39	41	27	0	107	15	172	8	0	195	
	5:30 PM	8	29	8	0	45	23	246	32	0	301	37	39	24	0	100	13	155	4	0	172	
	Peak Hour Volume	41	117	42	0	200	87	905	157	0	1149	165	171	112	0	448	60	619	25	0	704	
	Rounded Hourly Volume	40	115	40	0	195	85	905	155	0	1145	165	170	110	0	445	60	620	25	0	705	
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	1.1	0.9	0.0	0.0	0.8	0.0	1.2	1.8	0.0	0.9	0.0	0.8	0.0	0.0	0.7	
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	1.1	0.9	0.0	0.0	0.8	0.0	1.2	1.8	0.0	0.9	0.0	0.8	0.0	0.0	0.7	
	Peak Hour Factor (PHF)	0.79	0.86	0.75	0.00	0.85	0.72	0.92	0.69	0.00	0.95	0.75	0.89	0.80	0.00	0.81	0.83	0.90	0.69	0.00	0.90	

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists		Crossing 			Crossing 			Crossing 			Crossing 			Total Ped & Bike Volume
		North Approach			East Approach			South Approach			West Approach			
15-Minute Start Time		Pleasant Street			Water Street			Pleasant Street			Water Street			
		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	7:15 AM	1	0	1	5	0	5	3	3	6	2	0	2	
	7:30 AM	2	0	2	3	0	3	2	3	5	0	1	1	
	7:45 AM	1	0	1	7	0	7	2	10	12	1	1	2	
	8:00 AM	3	0	3	4	0	4	2	3	5	0	0	0	
	Total	7	0	7	19	0	19	9	19	28	3	2	5	
MD	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
	Total	0	0	0	0	0	0	0	0	0	0	0	0	
PM	4:45 PM	2	9	11	7	0	7	2	1	3	2	1	3	
	5:00 PM	2	5	7	2	1	3	2	1	3	2	1	3	
	5:15 PM	4	5	9	2	2	4	6	4	10	3	3	6	
	5:30 PM	6	6	12	7	1	8	12	3	15	5	3	8	
	Total	14	25	39	18	4	22	22	9	31	12	8	20	

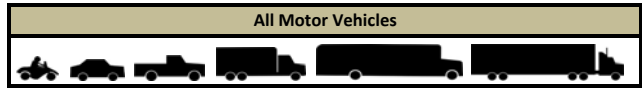
Intersection Traffic Volume Report

Hourly Volume Summary - Motor Vehicle Data

Pleasant Street and Water Street

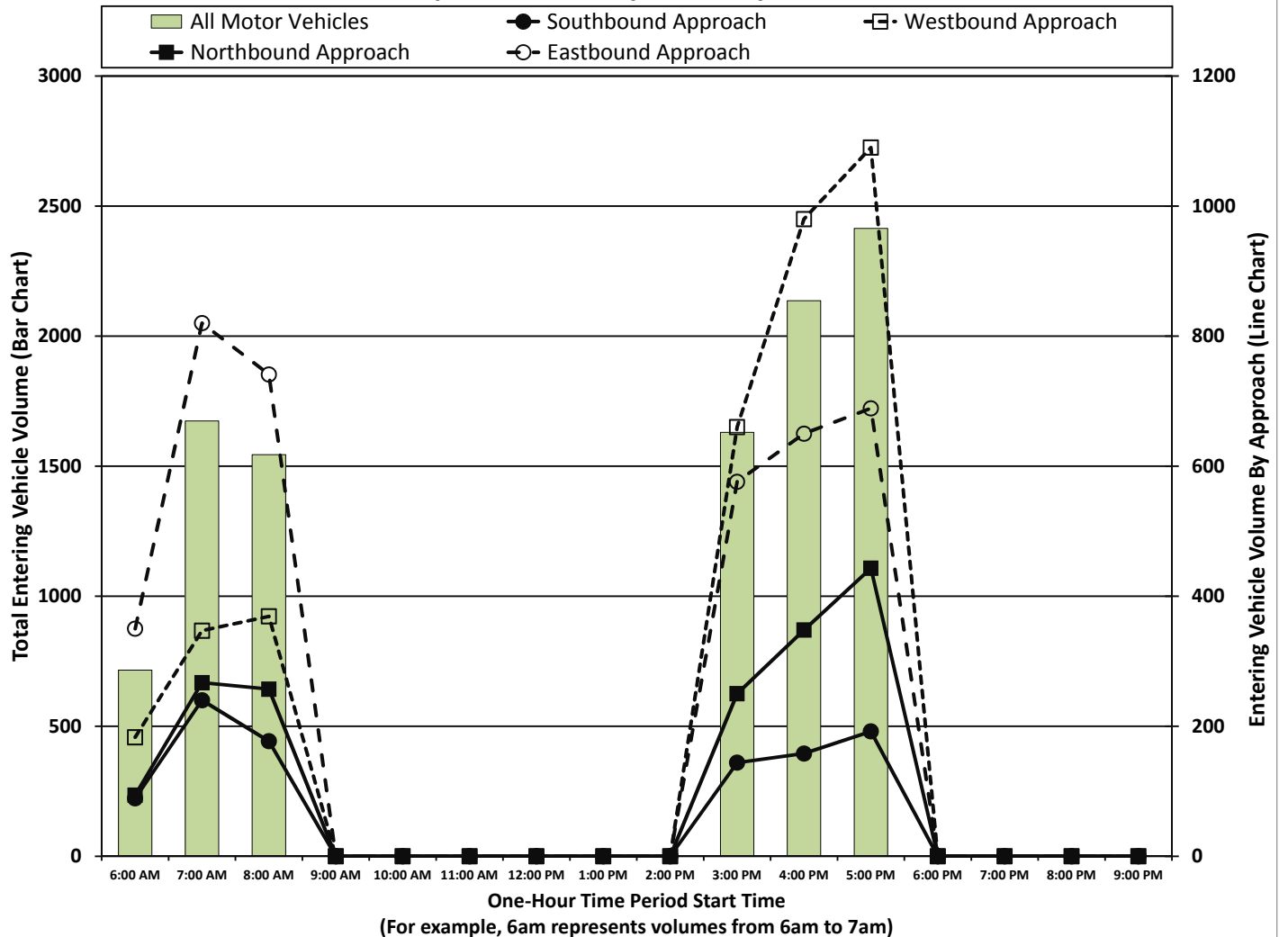
One-Hour Motor Vehicle Data

Count Basics			Page 4 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events



One-Hour Time Period Start Time	From North					From East					From South					From West					Total Vehicle Volume	Directional Volume Totals		
	Pleasant Street					Water Street					Pleasant Street					Water Street								
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		E/W	N/S	
AM	6:00 AM	2	41	46	0	89	16	124	43	0	183	44	33	17	0	94	26	322	2	0	350	716	533	183
	7:00 AM	4	118	118	0	240	22	269	56	0	347	127	93	47	0	267	71	741	8	0	820	1674	1167	507
	8:00 AM	9	93	75	0	177	14	286	69	0	369	117	97	43	0	257	65	667	9	0	741	1544	1110	434
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	18	84	42	0	144	46	520	94	0	660	99	89	62	0	250	68	499	9	0	576	1630	1236	394
	4:00 PM	25	94	39	0	158	58	785	137	0	980	120	130	98	0	348	58	579	13	0	650	2136	1630	506
	5:00 PM	36	113	43	0	192	83	857	150	0	1090	165	168	110	0	443	61	603	25	0	689	2414	1779	635
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	94	543	363	0	1000	239	2841	549	0	3629	672	610	377	0	1659	349	3411	66	0	3826	10114	7455	2659	

Graphical Summary of Hourly Volumes



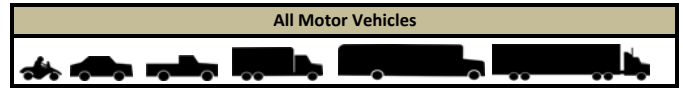
Intersection Traffic Volume Report

15-Minute Motor Vehicle Data

Pleasant Street and Water Street

15-Minute Motor Vehicle Data

Count Basics			Page 5 of 11	
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session	
Total Number of Hours Counted:	6	Non-Holiday	No Special Events	



15-Minute Time Period	Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum	PHF
		Pleasant Street					Water Street					Pleasant Street					Water Street							
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
AM Peak Period	6:00 AM	0	10	5	0	15	3	19	9	0	31	4	4	2	0	10	6	53	0	0	59	115	716	0.67
	6:15 AM	0	4	13	0	17	2	29	15	0	46	12	6	3	0	21	1	66	0	0	67	151	899	0.75
	6:30 AM	2	9	16	0	27	5	28	7	0	40	10	7	6	0	23	7	84	1	0	92	182	1150	0.72
	6:45 AM	0	18	12	0	30	6	48	12	0	66	18	16	6	0	40	12	119	1	0	132	268	1432	0.77
	7:00 AM	3	19	25	0	47	3	46	10	0	59	20	15	8	0	43	11	135	3	0	149	298	1674	0.82
	7:15 AM	1	23	33	0	57	6	64	8	0	78	28	28	17	0	73	19	175	0	0	194	402	1807	0.89
	7:30 AM	0	36	29	0	65	5	81	19	0	105	35	22	11	0	68	18	207	1	0	226	464	1786	0.88
	7:45 AM	0	40	31	0	71	8	78	19	0	105	44	28	11	0	83	23	224	4	0	251	510	1693	0.83
	8:00 AM	1	30	32	0	63	3	68	24	0	95	34	28	15	0	77	18	176	2	0	196	431	1544	0.90
	8:15 AM	2	23	15	0	40	6	58	15	0	79	27	23	8	0	58	16	186	2	0	204	381		
Midday Peak Period	8:30 AM	3	30	19	0	52	2	67	12	0	81	28	26	12	0	66	18	149	5	0	172	371		
	8:45 AM	3	10	9	0	22	3	93	18	0	114	28	20	8	0	56	13	156	0	0	169	361		
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
PM Peak Period	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	3:00 PM	2	12	5	0	19	10	119	14	0	143	27	17	17	0	61	20	104	0	0	124	347	1630	0.90
	3:15 PM	4	24	14	0	42	13	114	31	0	158	16	18	7	0	41	16	124	0	0	140	381	1782	0.89
	3:30 PM	3	27	17	0	47	12	126	24	0	162	33	22	15	0	70	20	147	4	0	171	450	1900	0.95
	3:45 PM	9	21	6	0	36	11	161	25	0	197	23	32	23	0	78	12	124	5	0	141	452	1986	0.93
	4:00 PM	4	29	14	0	47	12	179	36	0	227	28	28	25	0	81	12	130	2	0	144	499	2136	0.89
	4:15 PM	3	21	10	0	34	13	178	32	0	223	19	24	25	0	68	18	152	4	0	174	499	2284	0.88
	4:30 PM	5	21	9	0	35	15	200	33	0	248	39	35	22	0	96	14	140	3	0	157	536	2419	0.93
	4:45 PM	13	23	6	0	42	18	228	36	0	282	34	43	26	0	103	14	157	4	0	175	602	2501	0.97
	5:00 PM	11	34	14	0	59	16	215	57	0	288	55	48	35	0	138	18	135	9	0	162	647	2414	0.93
	5:15 PM	9	31	14	0	54	30	216	32	0	278	39	41	27	0	107	15	172	8	0	195	634		
	5:30 PM	8	29	8	0	45	23	246	32	0	301	37	39	24	0	100	13	155	4	0	172	618		
	5:45 PM	8	19	7	0	34	14	180	29	0	223	34	40	24	0	98	15	141	4	0	160	515		
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Totals		94	543	363	0	1000	239	2841	549	0	3629	672	610	377	0	1659	349	3411	66	0	3826	10114		

Peak Hour All Vehicle Volume Summary

Hourly Time Period	Start Time	From North				From East			
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Intersection Traffic Volume Report

Count Basics			Page 6 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

15-Minute Automobile Data

Pleasant Street and Water Street



15-Minute Automobile Data

15-Minute Time Period Start Time	↙ From North					↖ From East					↗ From South					↘ From West					15-Min Totals	Hourly Sum	
	Pleasant Street					Water Street					Pleasant Street					Water Street							
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
AM Peak Period	6:00 AM	0	10	5	0	15	3	16	9	0	28	3	4	2	0	9	6	51	0	0	57	109	689
	6:15 AM	0	4	13	0	17	2	28	13	0	43	12	6	3	0	21	1	64	0	0	65	146	863
	6:30 AM	2	8	16	0	26	4	27	7	0	38	10	7	5	0	22	7	82	1	0	90	176	1109
	6:45 AM	0	18	12	0	30	6	42	11	0	59	18	15	5	0	38	12	118	1	0	131	258	1387
	7:00 AM	2	18	25	0	45	3	41	9	0	53	19	15	7	0	41	11	130	3	0	144	283	1631
	7:15 AM	1	23	33	0	57	5	62	8	0	75	28	28	12	0	68	19	173	0	0	192	392	1769
	7:30 AM	0	33	29	0	62	5	78	19	0	102	34	22	10	0	66	18	205	1	0	224	454	1745
	7:45 AM	0	40	31	0	71	8	77	19	0	104	42	27	11	0	80	20	223	4	0	247	502	1649
	8:00 AM	1	30	32	0	63	3	64	24	0	91	34	28	14	0	76	17	172	2	0	191	421	1501
	8:15 AM	2	22	14	0	38	6	53	15	0	74	27	21	7	0	55	16	183	2	0	201	368	
	8:30 AM	3	30	18	0	51	2	62	12	0	76	28	24	11	0	63	17	146	5	0	168	358	
	8:45 AM	3	10	9	0	22	3	89	17	0	109	28	20	7	0	55	13	155	0	0	168	354	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	2	12	5	0	19	9	116	13	0	138	27	17	17	0	61	20	101	0	0	121	339	1578
	3:15 PM	4	23	14	0	41	13	110	31	0	154	15	16	6	0	37	15	118	0	0	133	365	1726
	3:30 PM	3	27	17	0	47	11	122	23	0	156	31	15	15	0	61	20	144	4	0	168	432	1850
	3:45 PM	9	21	6	0	36	11	159	25	0	195	22	30	23	0	75	11	120	5	0	136	442	1943
	4:00 PM	4	24	14	0	42	12	175	36	0	223	28	28	24	0	80	12	128	2	0	142	487	2097
	4:15 PM	3	21	10	0	34	13	175	32	0	220	19	23	24	0	66	18	147	4	0	169	489	2253
	4:30 PM	5	21	8	0	34	15	199	33	0	247	38	34	21	0	93	13	135	3	0	151	525	2392
	4:45 PM	13	23	6	0	42	18	226	36	0	280	34	42	25	0	101	14	155	4	0	173	596	2483
	5:00 PM	11	34	14	0	59	16	212	57	0	285	55	48	35	0	138	18	134	9	0	161	643	2396
	5:15 PM	9	31	14	0	54	29	214	32	0	275	39	40	26	0	105	15	171	8	0	194	628	
	5:30 PM	8	29	8	0	45	23	245	32	0	300	37	39	24	0	100	13	154	4	0	171	616	
	5:45 PM	8	19	7	0	34	14	179	29	0	222	33	40	24	0	97	15	137	4	0	156	509	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals		93	531	360	0	984	234	2771	542	0	3547	661	589	358	0	1608	341	3346	66	0	3753	9892	

Peak Hour Automobile Volume Summary

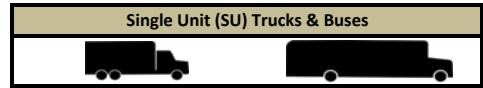
Hourly Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					Total Hourly Volume
	Pleasant Street					Water Street					Pleasant Street					Water Street					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:15 AM	2	126	125	0	253	21	281	70	0	372	138	105	47	0	290	74	773	7	0	854	1769
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:45 PM	41	117	42	0	200	86	897	157	0	1140	165	169	110	0	444	60	614	25	0	699	2483

Intersection Traffic Volume Report

15-Minute Single Unit (SU) Truck & Bus Data

Count Basics			Page 7 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

Pleasant Street and Water Street



15-Minute Single Unit (SU) Truck & Bus Data

15-Minute Time Period Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum	
	Pleasant Street					Water Street					Pleasant Street					Water Street							
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
AM Peak Period	6:00 AM	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	2	0	0	2	6	25
	6:15 AM	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	2	0	0	2	5	34
	6:30 AM	0	1	0	0	1	0	1	0	0	1	0	0	1	0	1	0	2	0	0	2	5	39
	6:45 AM	0	0	0	0	0	0	5	1	0	6	0	1	1	0	2	0	1	0	0	1	9	43
	7:00 AM	1	1	0	0	2	0	5	1	0	6	1	0	1	0	2	0	5	0	0	5	15	42
	7:15 AM	0	0	0	0	0	1	2	0	0	3	0	0	5	0	5	0	2	0	0	2	10	36
	7:30 AM	0	3	0	0	3	0	2	0	0	2	1	0	1	0	2	0	2	0	0	2	9	38
	7:45 AM	0	0	0	0	0	0	1	0	0	1	2	1	0	0	3	3	1	0	0	4	8	42
	8:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	1	4	0	0	5	9	41
	8:15 AM	0	0	1	0	1	0	5	0	0	5	0	2	1	0	3	0	3	0	0	3	12	
	8:30 AM	0	0	1	0	1	0	5	0	0	5	0	2	1	0	3	1	3	0	0	4	13	
	8:45 AM	0	0	0	0	0	0	4	1	0	5	0	0	1	0	1	0	1	0	0	1	7	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	0	0	0	0	1	3	1	0	5	0	0	0	0	0	0	3	0	0	3	8	51
	3:15 PM	0	1	0	0	1	0	4	0	0	4	1	2	1	0	4	1	6	0	0	7	16	55
	3:30 PM	0	0	0	0	0	1	4	1	0	6	2	7	0	0	9	0	2	0	0	2	17	48
	3:45 PM	0	0	0	0	0	0	2	0	0	2	1	2	0	0	3	1	4	0	0	5	10	40
	4:00 PM	0	5	0	0	5	0	4	0	0	4	0	0	1	0	1	0	2	0	0	2	12	36
	4:15 PM	0	0	0	0	0	0	3	0	0	3	0	1	1	0	2	0	4	0	0	4	9	28
	4:30 PM	0	0	1	0	1	0	1	0	0	1	1	1	1	0	3	1	3	0	0	4	9	25
	4:45 PM	0	0	0	0	0	0	2	0	0	2	0	1	1	0	2	0	2	0	0	2	6	18
	5:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4	18
	5:15 PM	0	0	0	0	0	1	2	0	0	3	0	1	1	0	2	0	1	0	0	1	6	
	5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	
	5:45 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	4	0	0	4	6	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals		1	11	3	0	15	4	67	7	0	78	11	21	19	0	51	8	61	0	0	69	213	

Peak Hour Single Unit (SU) Truck & Buses Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume
	Pleasant Street					Water Street					Pleasant Street					Water Street					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:15 AM	0	3	0	0	3	1	8	0	0	9	3	1	7	0	11	4	9	0	0	13	36
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:45 PM	0	0	0	0	0	1	8	0	0	9	0	2	2	0	4	0	5	0	0	5	18

Intersection Traffic Volume Report

Count Basics		Page 8 of 11	
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

15-Minute Semi-Truck Data

Pleasant Street and Water Street



15-Minute Semi-Truck Data

[illegible]

Peak Hour Semi-Truck Volume Summary

Hourly Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					Total Hourly Volume
	Pleasant Street					Water Street					Pleasant Street					Water Street					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:15 AM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	

Intersection Traffic Volume Report

Count Basics			Page 9 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

15-Minute Heavy Vehicle Data

Pleasant Street and Water Street



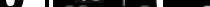
15-Minute Heavy Vehicle Data

15-Minute Time Period	Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum		
		Pleasant Street					Water Street					Pleasant Street					Water Street								
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total				
AM Peak Period	6:00 AM	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	2	0	0	2	6	27		
	6:15 AM	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	2	0	0	2	5	36		
	6:30 AM	0	1	0	0	1	1	1	0	0	2	0	0	1	0	1	0	2	0	0	2	6	41		
	6:45 AM	0	0	0	0	0	0	6	1	0	7	0	1	1	0	2	0	1	0	0	1	10	45		
	7:00 AM	1	1	0	0	2	0	5	1	0	6	1	0	1	0	2	0	5	0	0	5	15	43		
	7:15 AM	0	0	0	0	0	0	2	0	0	3	0	0	5	0	5	0	2	0	0	2	10	38		
	7:30 AM	0	3	0	0	3	0	3	0	0	3	1	0	1	0	2	0	2	0	0	2	10	41		
	7:45 AM	0	0	0	0	0	0	1	0	0	1	2	1	0	0	3	3	1	0	0	4	8	44		
	8:00 AM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	1	4	0	0	5	10	43		
	8:15 AM	0	1	1	0	2	0	5	0	0	5	0	2	1	0	3	0	3	0	0	3	13			
	8:30 AM	0	0	1	0	1	0	5	0	0	5	0	2	1	0	3	1	3	0	0	4	13			
	8:45 AM	0	0	0	0	0	0	4	1	0	5	0	0	1	0	1	0	1	0	0	1	7			
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	3:00 PM	0	0	0	0	0	1	3	1	0	5	0	0	0	0	0	0	3	0	0	3	8	52		
	3:15 PM	0	1	0	0	1	0	4	0	0	4	1	2	1	0	4	1	6	0	0	7	16	56		
	3:30 PM	0	0	0	0	0	1	4	1	0	6	2	7	0	0	9	0	3	0	0	3	18	50		
	3:45 PM	0	0	0	0	0	0	2	0	0	2	1	2	0	0	3	1	4	0	0	5	10	43		
	4:00 PM	0	5	0	0	5	0	4	0	0	4	0	0	1	0	1	0	2	0	0	2	12	39		
	4:15 PM	0	0	0	0	0	0	3	0	0	3	0	1	1	0	2	0	5	0	0	5	10	31		
	4:30 PM	0	0	1	0	1	0	1	0	0	1	1	1	1	0	3	1	5	0	0	6	11	27		
	4:45 PM	0	0	0	0	0	0	2	0	0	2	0	1	1	0	2	0	2	0	0	2	6	18		
	5:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4	18		
	5:15 PM	0	0	0	0	0	1	2	0	0	3	0	1	1	0	2	0	1	0	0	1	6			
	5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2			
	5:45 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	4	0	0	4	6			
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Totals		1	12	3	0	16	5	70	7	0	82	11	21	19	0	51	8	65	0	0	73	222			

Peak Hour Heavy Vehicle Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume
	Pleasant Street					Water Street					Pleasant Street					Water Street					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:15 AM	0	3	0	0	3	1	10	0	0	11	3	1	7	0	11	4	9	0	0	13	38
MD 12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 4:45 PM	0	0	0	0	0	1	8	0	0	9	0	2	2	0	4	0	5	0	0	5	18

15-Minute Heavy Vehicle Percentages

Heavy Vehicles (Single-Unit Trucks, Buses & Semi-Trucks)	
%	

15-Minute Heavy Vehicle Percentages

Peak Hour Heavy Vehicle Percentages Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Hourly Heavy Vehicle Percent
	Pleasant Street					Water Street					Pleasant Street					Water Street					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 7:15 AM	0.0	2.3	0.0	0.0	1.2	4.5	3.4	0.0	0.0	2.9	2.1	0.9	13.0	0.0	3.7	5.1	1.2	0.0	0.0	1.5	2.0
MD 12:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PM 4:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.9	0.0	0.0	0.8	0.0	1.2	1.8	0.0	0.9	0.0	0.8	0.0	0.0	0.7

Intersection Traffic Volume Report

Count Basics			Page 11 of 11
Start Date:	Wednesday, March 18, 2015	Weekday	Schools in Session
Total Number of Hours Counted:	6	Non-Holiday	No Special Events

15-Minute Pedestrian and Bicyclist Data

Pleasant Street and Water Street



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period Start Time		Crossing 			Crossing 			Crossing 			Crossing 			15-Min Totals	Hourly Sum
		Pleasant Street			Water Street			Pleasant Street			Water Street				
		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
AM Peak Period	6:00 AM	0	0	0	2	0	2	0	1	1	0	0	0	3	23
	6:15 AM	0	0	0	5	1	6	1	1	2	2	0	2	10	28
	6:30 AM	0	1	1	1	0	1	2	1	3	2	0	2	7	32
	6:45 AM	1	0	1	0	0	0	2	0	2	0	0	0	3	36
	7:00 AM	1	0	1	1	0	1	2	4	6	0	0	0	8	55
	7:15 AM	1	0	1	5	0	5	3	3	6	2	0	2	14	59
	7:30 AM	2	0	2	3	0	3	2	3	5	0	1	1	11	61
	7:45 AM	1	0	1	7	0	7	2	10	12	1	1	2	22	60
	8:00 AM	3	0	3	4	0	4	2	3	5	0	0	0	12	52
	8:15 AM	0	1	1	0	0	0	5	5	10	4	1	5	16	
8:30 AM	0	1	1	3	0	3	2	1	3	3	0	3	10		
8:45 AM	2	1	3	1	0	1	2	4	6	3	1	4	14		
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	1	2	3	6	1	7	2	2	4	3	0	3	17	72
	3:15 PM	2	2	4	3	0	3	3	3	6	2	2	4	17	73
	3:30 PM	2	0	2	2	0	2	6	4	10	5	0	5	19	65
	3:45 PM	2	4	6	7	0	7	1	3	4	2	0	2	19	69
	4:00 PM	0	4	4	6	1	7	0	4	4	3	0	3	18	74
	4:15 PM	0	0	0	1	0	1	3	2	5	2	1	3	9	72
	4:30 PM	2	4	6	5	1	6	4	2	6	5	0	5	23	92
	4:45 PM	2	9	11	7	0	7	2	1	3	2	1	3	24	112
	5:00 PM	2	5	7	2	1	3	2	1	3	2	1	3	16	113
	5:15 PM	4	5	9	2	2	4	6	4	10	3	3	6	29	
	5:30 PM	6	6	12	7	1	8	12	3	15	5	3	8	43	
	5:45 PM	2	1	3	10	0	10	6	4	10	2	0	2	25	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals		36	46	82	90	8	98	72	69	141	53	15	68	389	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/helper dog)	x					
Elderly/Disabled (except wheelchairs)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

APPENDIX A

Existing Signal Timings

ELECTRICAL: 3 #4/1 #8 LTP SERVICE FED FROM WE ENERGIES WP # 84-01941 20' N. OF "C" LOC.										FUNCTION		KEY	VAL	INTERVAL																																					
										D+4+KEY																																									
										# OF INTER		6	23																																						
										TYPE OF CAB.		7	1																																						
										B+1+KEY																																									
FLASHING PROGRAM : 0200-0600 HRS.; N/S-RED, E/W-RED										ACT. 1 LOCK		0																																							
										ACT. 2 LOCK		1																																							
										ACT. 1 DELAY		2																																							
FLASH OUTPUT ASSIGN.		1	2	3	4	5	6	7	8	ACT. 2 DELAY		3																																							
	8				X				X	PRE-EMPT 1 LOCK		5																																							
	9		X			X			X	PRE-EMPT 2 LOCK		6																																							
	A						X			PRE-EMPT 3 LOCK		7																																							
	B									PRE-EMPT 1 DELAY		8																																							
	C									PRE-EMPT 2 DELAY		9																																							
AUXILIARY EQUIPMENT: PE CONF. LIGHTS W/ 5A FUSES ENCOM WIRELESS INTER-CONNECT SYST. D.C. INPUT CARDS FOR PILOT										PRE-EMPT 3 DELAY		A																																							
										B+3+KEY																																									
										LONG POWER DOWN		0	4																																						
										SHORT POWER DOWN		1	4																																						
PROGRAM: CYCLE 2: 1430-1800 HRS. EX. S/S/H CYCLE 3: 2100-0200 HRS. AND ALL DAY SUN. (VIA AUX. A) SPECIAL ACT. SIG. PL. 4, CYCLE 4: ON N/S OR EB FIRE CALL. PE#1 PHASE IS NB/SB GREEN (VAR. LENGTH BUT 15 SEC. MIN.) MAX DELAY TO PE IS 17 SEC. DET. DIST. MUST BE > 1200 FEET. PE#2 PHASE IS EB/WB GREEN (VAR. LENGTH BUT 15 SEC. MIN.) MAX DELAY TO PE IS 16.5 SEC. DET. DIST. MUST BE > 1100 FEET.										SPECIAL ACT. FUNCTIONS																																									
										ACT. SIGNAL PLAN		2																																							
										ACT. CYCLE		3	3																																						
										ACT. SPLIT		4																																							
										ACT. OFFSET		5																																							
										RESET INTERVAL		6	1																																						
										# OF CYCLES		7																																							
										NO T.B.C. FALL BACK		8																																							
										CRD. FROM ACT. MSTR.		9																																							
										C+C+KEY																																									
										DWELL METHOD A		A	0																																						
										COORD. MODE		E	1																																						
										COORD. MASTER		F																																							
										TIME IN SERVICE: 10-7-11 @ 08:16																				SYSTEM DATA:																					
																														MASTER: HUMBOLDT AND COMMERCE																					
										SIGNAL #: 4086																				PRO. CL.: HUMBOLDT AND COMMERCE																					
FL. CL.: LOCAL																																																			
LOCATION: N. HUMBOLDT AV., E. KANE PL., & N. WATER ST.										DESIGNED BY: SCR				DRAWN BY: SCR				SUPERSEDES: NONE																																	
										CHECKED BY:				APPROVED BY:				SUPERSEDED BY:																																	
										DATE: 8/8/11				DRG. NO.: B-11-669-T																																					

SIGNAL PLAN #1

INTERVAL																																									ACTUAT #1	RESET NO. 1	ACTUAT #2	RESET NO 2	TRANSITION	AUTO TIMING	MIN. TIMING	RESPONSE	PREEMPTION XFER	PLAN XFER	INTERVAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	SPARE								SB HUMBOLDT								EBLT								WB KANE								SBRT																			NB HUMBOLDT								SPARE								EB WATER								W. X-WALK								NIS CONF. LTS.								W. X-WALK								N. X-WALK								EB CONF. L.T.								N. X-WALK								E. X-WALK																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

SIGNAL PLAN #4

INTERVAL																																							ACTUAT #1	RESET NO. 1	ACTUAT #2	RESET NO 2	TRANSITION	AUTO TIMING	MIN. TIMING	RESPONSE	PREEMPTION XFER	PLAN XFER	INTERVAL
	R	Y	G	R	Y	G	R	Y	G	R	Y	G	R	Y	G	R	Y	G	R	Y	G	R	Y	G	DW	flid	W	DW	flid	W	DW	-	W	DW	-	W	-	-	-	-	-	-	-	-	-	-			
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		1	1					0	1
2						2	2			2			2					2							F	2		2	F		F		2												0	2			
3						3	3			3			3					3							3	3		3	F		3		3												0	3			
4				4		4				4			4				4								4	4		4	F		4		4												0	4			
5				5		5				5			5				5								5	5		5	F		5		5												0	5			
6				6				6	6						6	6								6	6	6	6		6	F		6		F										0	6				
7				7				7	7						7	7								7	7	7	7		7	F		7		F										0	7				
8				8				8		8				8		8							8		8	8		8	F		8		8											0	8				
9				9			9					9	9			9								9	9	9		9	F		9		F											0	9				
10				10			10					10	10			10								10	10	10		10	F		10		F											0	10				
11				11			11					11	11			11								11	11	11		11	F		11		F											0	11				
12				12			12				12	12			12								12		12	12		12	F		12		12											0	12				
13				13			13				13	13			13								13		13	13		13	F		13		13											0	13				
14					14		14				14			14			14						14		F	F		14	14		F		14												0	14			
15				15			15				15			15			15						15		15	F		15	15		15		15												0	15			
16				16			16				16			16			16						16		16	F		16	16		16		16												0	16			
17				17			17				17			17			17						17		17	F		17	17		17		F												0	17			
18				18			18				18	18			18								18		18	F		18	18		18		F												0	18			
19				19			19				19	19			19								19		19	F		19	19		19		F												0	19			
20				20			20				20	20			20								20		20	F		F	20		20		F												0	20			
21				21			21				21	21			21								21		21	F		21	21		21		21												0	21			
22				22			22				22			22			22						22		22	F		22	22		22		22												0	22			
23				23			23				23			23			23						23		23	F		23	23		23		23												0	23			
24																																														0	24		
LOCATION : N. HUMBOLDT AV., E. KANE PL., & N. WATER ST.				CYCLE XFER				FLASH ENTRY				DWELL				PLAN OPERATES				DATE				SUPERSEDES				NONE				SUPERSEDED BY				DRG. NO.: B-11-669-T													
				SPLIT XFER				FLASH EXIT				INITIALIZATION				ON N/S OR EB FIRE CALL				8/8/11																													
				DESIGNED BY:				DRAWN BY				CHECKED BY				APPROVED BY																																	
				SCR				SCR				0																																					

PRE-EMPTION PLAN # 1 (NB/SB) FIRE CALL [OPTICOM]

STEP CODE PM #			
00	1	32	2
01	2	34	3
02	3	32	4
03	4	32	5
04	5	35	1
05	6	36	2
06	7	35	2
07	8	36	24
08	9	37	6
09	10	32	7
0A	11	32	8
0B	12	33	18
0C	13	32	10
0D	14	33	17
0E	15	32	11
0F	16	33	17
10	17	32	12
11	18	32	13
12	19	35	1
13	20	36	2
14	21	35	2
15	22	36	24
16	23	37	1
17	24	34	21
18	25	32	22
19	26	32	23
1A	27	35	2
1B	28	36	24
1C	29	35	1
1D	30	36	2
1E	31	37	1
1F	32		

STEP CODE PM #			
20	33		
21	34		
22	35		
23	36		
24	37		
25	38		
26	39		
27	40		
28	41		
29	42		
2A	43		
2B	44		
2C	45		
2D	46		
2E	47		
2F	48		
30	49		
31	50		
32	51		
33	52		
34	53		
35	54		
36	55		
37	56		
38	57		
39	58		
3A	59		
3B	60		
3C	61		
3D	62		
3E	63		
3F	64		

STEP CODE PM #			
40	65		
41	66		
42	67		
43	68		
44	69		
45	70		
46	71		
47	72		
48	73		
49	74		
4A	75		
4B	76		
4C	77		
4D	78		
4E	79		
4F	80		
50	81		
51	82		
52	83		
53	84		
54	85		
55	86		
56	87		
57	88		
58	89		
59	90		
5A	91		
5B	92		
5C	93		
5D	94		
5E	95		
5F	96		

LOCATION:
N. HUMBOLDT AV.,
E. KANE PL., &
N. WATER ST.

170 CONTROLLER
W9FT PROGRAM
PRE-EMPTION SEQUENCE

PAGE 4 OF 7

PRE-EMPTION CODES

COMMAND	CODE	PARAMETER
DISPLAY	32	INTERVAL
JUMP	33	STEP #
HOLD	34	INTERVAL #
TEST	35	PRE-EMPT #
BRANCH IF ON	36	STEP #
RETURN	37	INTERVAL #
CLEAR	38	INTERVAL#

DESIGNED SCR	DRAWN SCR	CHECKED 0	APPROVED	DATE 8/8/11	SUPERSEDES NONE	DRG. NO. B-11-669-T
					SUPERSEDED BY	

PRE-EMPTION PLAN # 2 (EB) FIRE CALL [OPTICOM]

STEP CODE PM #			
00	1	32	14
01	2	33	3
02	3	32	15
03	4	32	16
04	5	35	2
05	6	36	16
06	7	35	1
07	8	36	24
08	9	37	6
09	10	32	17
0A	11	32	18
0B	12	33	16
0C	13	32	19
0D	14	33	16
0E	15	32	20
0F	16	34	21
10	17	32	22
11	18	32	23
12	19	35	2
13	20	36	16
14	21	35	1
15	22	36	24
16	23	37	1
17	24	34	3
18	25	32	4
19	26	32	5
1A	27	35	1
1B	28	36	24
1C	29	35	2
1D	30	36	16
1E	31	37	6
1F	32		

STEP CODE PM #			
20	33		
21	34		
22	35		
23	36		
24	37		
25	38		
26	39		
27	40		
28	41		
29	42		
2A	43		
2B	44		
2C	45		
2D	46		
2E	47		
2F	48		
30	49		
31	50		
32	51		
33	52		
34	53		
35	54		
36	55		
37	56		
38	57		
39	58		
3A	59		
3B	60		
3C	61		
3D	62		
3E	63		
3F	64		

STEP CODE PM #			
40	65		
41	66		
42	67		
43	68		
44	69		
45	70		
46	71		
47	72		
48	73		
49	74		
4A	75		
4B	76		
4C	77		
4D	78		
4E	79		
4F	80		
50	81		
51	82		
52	83		
53	84		
54	85		
55	86		
56	87		
57	88		
58	89		
59	90		
5A	91		
5B	92		
5C	93		
5D	94		
5E	95		
5F	96		

LOCATION:
N. HUMBOLDT AV.,
E. KANE PL., &
N. WATER ST.

170 CONTROLLER
W9FT PROGRAM
PRE-EMPTION SEQUENCE

PAGE 5 OF 7

PRE-EMPTION CODES

COMMAND	CODE	PARAMETER
DISPLAY	32	INTERVAL
JUMP	33	STEP #
HOLD	34	INTERVAL #
TEST	35	PRE-EMPT #
BRANCH IF ON	36	STEP #
RETURN	37	INTERVAL #
CLEAR	38	INTERVAL#

DESIGNED SCR	DRAWN SCR	CHECKED 0	APPROVED	DATE 8/8/11	SUPERSEDES NONE	DRG. NO. B-11-669-T
					SUPERSEDED BY	

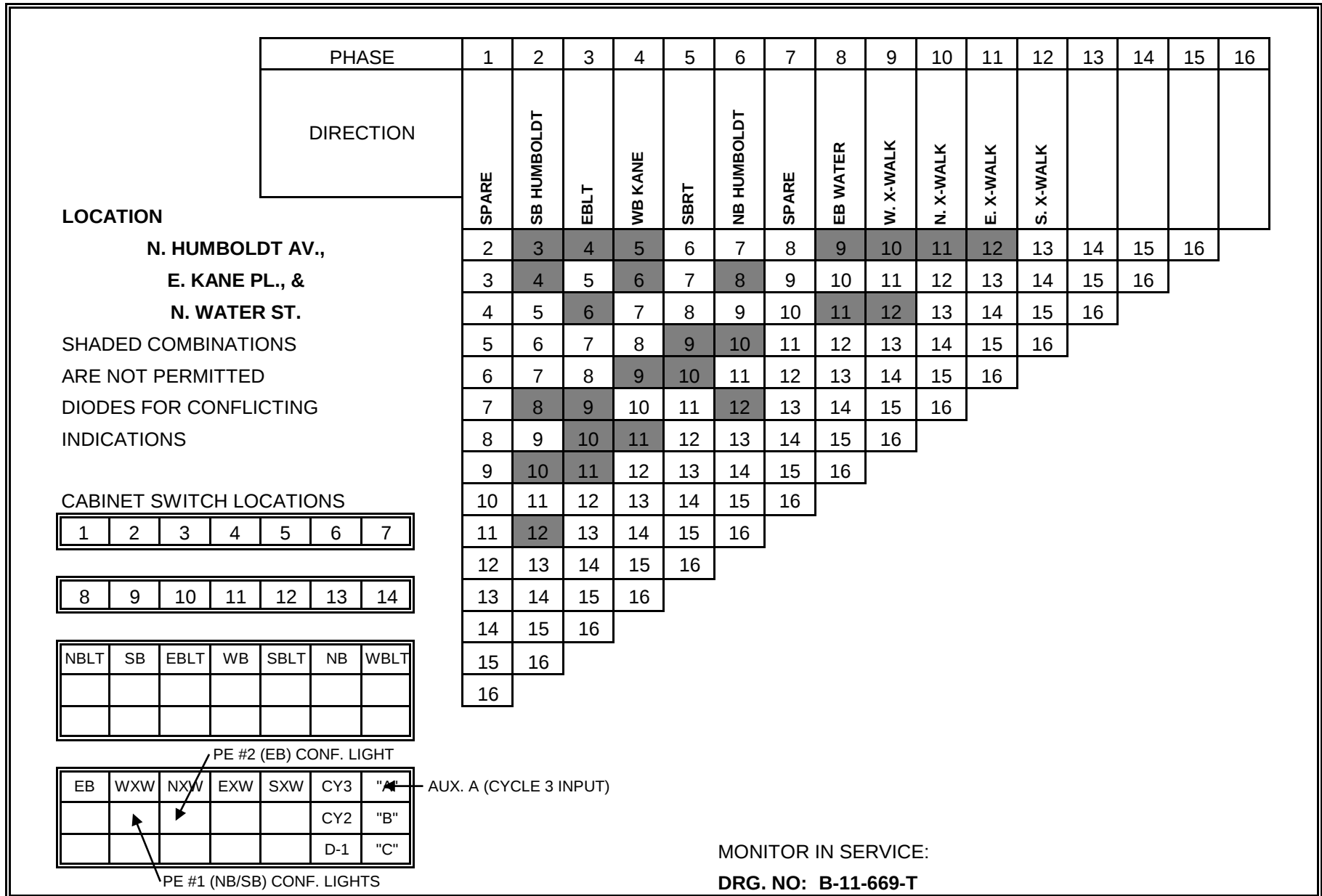
**TIME OF DAY / DAY OF WEEK SETTINGS
170 CONTROLLER - W9FT PROGRAM**

	DAY							HR	MN	FN		DAY							HR	MN	FN
	1	2	3	4	5	6	7					1	2	3	4	5	6	7			
1	A80							A81	A82	A83	17	ACO							AC1	AC2	AC3
	X	X	X	X	X	X	X	02	00	22											
2	A84							A85	A86	A87	18	AC4							AC5	AC6	AC7
	X	X	X	X	X	X	X	02	00	11											
3	A88							A89	A8A	A8B	19	AC8							AC9	ACA	ACB
	X	X	X	X	X	X	X	06	00	12											
4	A8C							A8D	A8E	A8F	20	ACC							ACD	ACE	ACF
	X							06	00	21											
5	A90							A91	A92	A93	21	ADO							AD1	AD2	AD3
	X							06	00	311											
6	A94							A95	A96	A97	22	AD4							AD5	AD6	AD7
		X	X	X	X	X	X	06	00	111											
7	A98							A99	A9A	A9B	23	AD8							AD9	ADA	ADB
		X	X	X	X	X		14	30	211											
8	A9C							A9D	A9E	A9F	24	ADC							ADD	ADE	ADF
		X	X	X	X	X		18	00	111											
9	AAO							AA1	AA2	AA3	25	AEO							AE1	AE2	AE3
		X	X	X	X	X	X	21	00	21											
10	AA4							AA5	AA6	AA7	26	AE4							AE5	AE6	AE7
		X	X	X	X	X	X	21	00	311											
11	AA8							AA9	AAA	AAB	27	AE8							AE9	AEA	AEB
12	AAC							AAD	AAE	AAF	28	AEC							AED	AEE	AEF
13	ABO							AB1	AB2	AB3	29	AFO							AF1	AF2	AF3
14	AB4							AB5	AB6	AB7	30	AF4							AF5	AF6	AF7
15	AB8							AB9	ABA	ABB	31	AF8							AF9	AFa	AFB
16	ABC							ABD	ABE	ABF	32	AFC							AFD	AFE	AFF

TIME OF DAY / DAY OF WEEK FUNCTION CODES

FUNCTION	ON	OFF	FUNCTION	ON	OFF
SIGNAL PLAN	1 - 4		OUTPUT A	21	22
FLASH	11	12	OUTPUT B	23	24
FREE	16	17	OUTPUT C	25	26
FUNCTION				ON	OFF
COORDINATION PLAN = CYCLE / SPLIT / OFFSET (EX. 111)				111 - 444	

LOCATION: N. HUMBOLDT AV., E. KANE PL., & N. WATER ST.			CHECKED BY: 0	SUPERSEDES: NONE
				SUPERSEDED BY:
DESIGNED BY: SCR	DRAWN BY: SCR	DATE: 8/8/11	APPROVED BY:	DRG. NO.: B-11-669-T



SERVICE: 3 #4 LTP WEPCO WP #67-3448 IN ALLEY E/S OF WATER, S/S OF PLEASANT 120/240V 3W	<u>170 CONTROLLER W4IKS PROGRAM</u> <u>INTERSECTION PROGRAMMING DATA</u>
FLASH PROGRAM: 2400-0600 HRS.; N/S-YELLOW E/W-RED	

PHASE - TIMING DATA (PHASE + KEY)										PHASE FUNCTIONS (0 + KEY)									
FUNCTION	> W ≤	1	2	3	4	5	6	7	8	FUNCTION	> W ≤	1	2	3	4	5	6	7	8
MAX I	0	10	67		35		67		35	VEHICLE RECALL	0		X		X		X		X
MAX II / HFDW	1									PED. RECALL	1		X		X		X		X
WALK	2		7		13		7		7	RED LOCK	2								
FDW	3		12		22		12		25	YELLOW LOCK	3								
MAX INITIAL	4									PERMIT	4	X	X		X		X		X
MIN GREEN	5	7	12		22		12		25	PED PHASES	5		X		X		X		X
TIME BEFORE REDUCTION	6									LEAD PHASES	6	X		X		X		X	
TIME TO REDUCE	7									DUAL ENTRY	7		X		X		X		X
OBSERVE GAP	8									SEQ TIMING	8								
PASSAGE	9	3								START UP GREEN	9		X				X		
MINIMUM GAP	A									OVERLAP A	A								
ADDED / ACTUATION	B									OVERLAP B	B								
YELLOW	C	3.5	4		4		4		4	OVERLAP C	C								
RED CLEARANCE	D		1.5		2.5		1.5		2.5	OVERLAP D	D								
RED REVERT	E									EXCLUSIVE	E								
WALK II	F									SIM GAP	F								
PHASE ASSIGNMENT DESCRIPTION		PHASE 5 SPARE								OVERLAP B									
PHASE 1: NBLT ACT.		PHASE 6 NB WATER E. X-WALK								OVERLAP C									
PHASE 2: SB WATER W. X-WALK		PHASE 7 SPARE								OVERLAP D									
PHASE 3: SPARE		PHASE 8 EB PLEASANT S. X-WALK								OVERLAP E EBRT									
PHASE 4: WB PLEASANT N. X-WALK		OVERLAP A								OVERLAP F									
TIME IN: 8-1-13 @ 13:59		PROGRAM: CRD. PL. 7: 0600-0900 HRS. EX. S/S/H								SYSTEM DATA									
SOFTWARE: W4IKS.60										MASTER: MASON AND WATER									
SIGNAL NO: 1105										PRO. CL.: MASON AND WATER									
LOCATION: E. PLEASANT ST. & N. WATER ST.										FL. CL.: LOCAL									
										PROGRAM INST:									
										AUXILLARY EQUIPMENT:									

CHECKED BY:		APPROVED BY:	SUPERSEDED BY:	SUPERSEDES: B-12-618-T
DESIGNED BY: SCR	DRAWN BY: SCR	DATE: 7/26/13	DRAWING NO: B-13-603-T	

**170 CONTROLLER - 4IKS
PROGRAM COORDINATION DATA**

FUNCTION		COORDINATION PLAN								
		1	2	3	4	5	6	7	8	9
CYCLE LENGTH	0	90						90		
FORCE OFF PH 1	1	70						70		
FORCE OFF PH 2	2	0						0		
FORCE OFF PH 3	3									
FORCE OFF PH 4	4	54						54		
FORCE OFF PH 5	5									
FORCE OFF PH 6	6	0						0		
FORCE OFF PH 7	7									
FORCE OFF PH 8	8	54						54		
OFFSET (SECONDS)	9	44						31		
PERMISSIVE LENGTH	A	15						15		
MAXIMUM DWELL	B	15						15		

FUNCTION	KEY	PHASE								FUNCTION	KEY	PHASE							
		1	2	3	4	5	6	7	8			1	2	3	4	5	6	7	8
COORD PLAN 1										COORD PLAN 6									
LEAD PHASES	C	X		X		X		X		LEAD PHASES	C								
COORD PHASES	D		X				X			COORD PHASES	D								
PERM 2 PHASES	E									PERM 2 PHASES	E								
MIN RECALL	F		X		X		X		X	MIN RECALL	F								
COORD PLAN 2										COORD PLAN 7									
LEAD PHASES	C									LEAD PHASES	C	X		X		X		X	
COORD PHASES	D									COORD PHASES	D		X				X		
PERM 2 PHASES	E									PERM 2 PHASES	E								
MIN RECALL	F									MIN RECALL	F		X		X		X		X
COORD PLAN 3										COORD PLAN 8									
LEAD PHASES	C									LEAD PHASES	C								
COORD PHASES	D									COORD PHASES	D								
PERM 2 PHASES	E									PERM 2 PHASES	E								
MIN RECALL	F									MIN RECALL	F								
COORD PLAN 4										COORD PLAN 9									
LEAD PHASES	C									LEAD PHASES	C								
COORD PHASES	D									COORD PHASES	D								
PERM 2 PHASES	E									PERM 2 PHASES	E								
MIN RECALL	F									MIN RECALL	F								
COORD PLAN 5										LOCATION:									
LEAD PHASES	C									E. PLEASANT ST. & N. WATER ST.									
COORD PHASES	D																		
PERM 2 PHASES	E									DATE:	SUPERSEDES: B-12-618-T								
MIN RECALL	F									7/26/13	SUPERSEDED:								
DESIGNED BY:	DRAWN BY:		CHECKED BY:		APPROVED:		DRAWING: B-13-603-T												
SCR	SCR		0																

170 CONTROLLER - W4IKS PROGRAM
MISCELLANEOUS FUNCTIONS

FUNCTION	KEY	PHASE NUMBER								FUNCTION	KEY	VAL	FUNCTION	KEY	VAL	
		1	2	3	4	5	6	7	8							
B + O + KEY										B + O + KEY			9 + KEY			
SAMPLE DET	C									MODE (0-4)	4	2	SHORT POWER DOWN	0	4	
ADV. WARN PH	E									MASTER (0=OFF)	5	0	LONG POWER DOWN	1	4	
MRI PHASES	F									C + F + KEY			EV A DEL TYPE	2		
B + A + KEY										PAGE ID	0		EV B DEL TYPE	3		
FLASH YELLOW	C		X					X		OL A RED	4		EV C DEL TYPE	4		
FLASH CIRCUIT	D									OL B RED	5		EV D DEL TYPE	5		
TOD/DOW MAX	E									OL C RED	6		RR DEL TYPE	6		
OL B SWICH P	F									OL D RED	7		PED INHIBIT	7		
B + B + KEY										D + KEY 1 + KEY 2			A OL B C D O	GREEN	8	
OL FL YELLOW	C									FLOATING PED	2E			YELLOW	9	
OL FL CIRC	D									ID NUMBER	2F	105		GREEN	A	
TOD/DOW PED	E									COORD PED RECALL	3E	0		YELLOW	B	
OL B SWITCH P	F									REST IN WALK	3F	1		GREEN	C	
B + C + KEY										ADV WARN E O G	4E			YELLOW	D	
COORD MAX	C									ADV WARN S O G	4F		GREEN	E		
TOD RED REST	D									RR RED CLEAR	5E		YELLOW	F		
OL A SWITCH P	E									RR RED COLOR	5F		E + F + KEY			
OL D SWITCH P	F									EV MIN AFT C	7E		RR MAX II	0		
C + F + KEY										EV INDICATORS	7F		PED PERM PLAN 1	1		
OVERLAP E	8	X			X				X	B + A + KEY			PED PERM PLAN 2	2		
OVERLAP F	9									PERM 2 P1	9		PED PERM PLAN 3	3		
RED REST	A									PERM 2 P2	A		PED PERM PLAN 4	4		
MAX RECALL	B									PERM 2 P3	B		PED PERM PLAN 5	5		
FLASH GREEN	C									B + C + KEY			PED PERM PLAN 6	6		
FLASH WALK	D									PERM 2 P7	9		PED PERM PLAN 7	7		
ADV WALK	E									PERM 2 P8	A		PED PERM PLAN 8	8		
RESTR PHASE	F									PERM 2 P9	B		PED PERM PLAN 9	9		
C + KEY										B + B + KEY			A + 3 + KEY			
START UP YEL	9									PERM 2 P4	9		SAMPLING DETECTION	9		
EV A	A									PERM 2 P5	A		LEFT TURN TYPE	A		
EV B	B									PERM 2 P6	B		C + KEY			
EV C	C									E + KEY			TRIGGERS ON IN FLASH	8	2	
EV D	D									EV A DELAY	0		DESIGNED BY:	SCR		
HANDICAP PED	E									EV A MIN	1		DRAWN BY:	SCR		
E + KEY										EV B DELAY	2		CHECKED BY:	0		
RR CLEAR PH	B									EV B MIN	3		DATE:	7/26/13		
RR PERMIT	C									EV C DELAY	4		SUPERSEDES:			
RR OL PERMIT	D									EV C MIN	5		B-12-618-T			
LOCATION: E. PLEASANT ST. & N. WATER ST.										EV D DELAY	6		SUPERSEDED BY:			
										EV D MIN	7					
										OL RED REVERT		8		DRAWING NO: B-13-603-T		
										RR	MIN	9				
											DELAY	A				

**170 CONTROLLER - W4IKS PROGRAM
TIME BASED COORDINATION PARAMETERS**

	DAY							HR	MN	FN									HR	MN	FN
	1	2	3	4	5	6	7					1	2	3	4	5	6	7			
1	80							81	82	83	17	CO							C1	C2	C3
	X	X	X	X	X	X	X	00	00	33											
2	84							85	86	87	18	C4							C5	C6	C7
	X	X	X	X	X	X	X	06	00	32											
3	88							89	8A	8B	19	C8							C9	CA	CB
	X						X	06	00	1											
4	8C							8D	8E	8F	20	CC							CD	CE	CF
		X	X	X	X	X		06	00	7											
5	90							91	92	93	21	DO							D1	D2	D3
		X	X	X	X	X		09	00	1											
6	94							95	96	97	22	D4							D5	D6	D7
7	98							99	9A	9B	23	D8							D9	DA	DB
8	9C							9D	9E	9F	24	DC							DD	DE	DF
9	AO							A1	A2	A3	25	EO							E1	E2	E3
10	A4							A5	A6	A7	26	E4							E5	E6	E7
11	A8							A9	AAE	AB	27	E8							E9	EA	EB
12	AC							AD	AE	AF	28	EC							ED	EE	EF
13	BO							B1	B2	B3	29	FO							F1	F2	F3
14	B4							B5	B6	B7	30	F4							F5	F6	F7
15	B8							B9	BA	BB	31	F8							F9	FA	FB
16	BC							BD	BE	BF	32	FC							FD	FE	FF

TIME OF DAY / DAY OF WEEK FUNCTION CODES

FUNCTION	ON	OFF	FUNCTION	ON	OFF
COORDINATION PLAN	1-18		OUTPUT B	72	82
RED REST	25	24	OUTPUT C	73	83
MAX RECALL	27	26	OUTPUT D	74	84
PED RECALL	29	28	TIME TRANSFER (PAGE 1)	101	
FLASH	33	32	TIME TRANSFER (PAGE 2)	102	
WALK II	55	54	TIME TRANSFER (PAGE 0)	100	
OUTPUT A	71	81	MAX II	129	128

LOCATION: E. PLEASANT ST. & N. WATER ST.			CHECKED BY: 0		SUPERSEDES: B-12-618-T	
					SUPERSEDED BY:	
DESIGNED BY: SCR	DRAWN BY: SCR	DATE: 7/26/13	APPROVED BY:		DRG. NO.: B-13-603-T	

PHASE		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DIRECTION		NBLT	SB WATER	SPARE	WB PLEASANT	SPARE	NB WATER	SPARE	EB PLEASANT	W. X-WALK	N. X-WALK	E. X-WALK	S. X-WALK		EBRT (OL-E)		
LOCATION	E. PLEASANT ST.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	&	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
	N. WATER ST.	4	5	6	7	8	9	10	11	12	13	14	15	16			
	SHADED COMBINATIONS	5	6	7	8	9	10	11	12	13	14	15	16				
	ARE NOT PERMITTED	6	7	8	9	10	11	12	13	14	15	16					
	DIODES FOR CONFLICTING	7	8	9	10	11	12	13	14	15	16						
	INDICATIONS	8	9	10	11	12	13	14	15	16							
	CABINET SWITCH LOCATIONS	9	10	11	12	13	14	15	16								
		10	11	12	13	14	15	16									
		11	12	13	14	15	16										
		12	13	14	15	16											
		13	14	15	16												
		14	15	16													
		15	16														
		16															

1	2	3	4	5	6	7
---	---	---	---	---	---	---

8	9	10	11	12	13	14
---	---	----	----	----	----	----

NBLT	SB	-	WB	-	NB	-

EB	WXW	NXW	EXW	SXW	CY3	EBRT
					CY2	→ Y (OL-E)
					D-1	→ G (OL-E)

MONITOR IN SERVICE: 9/26/08 @ 0820

DRG. NO: B-13-603-T

APPENDIX A

Crash Statistics

CRASH STATISTICS

ROADWAY SEGMENT



ROADWAY AND LIMITS: Water Street (Humboldt to Pleasant)

MUNICIPALITY: Milwaukee

COUNTY: Milwaukee **STATE:** WI

ROADWAY TYPE: Urban Streets

DEER CRASHES (Yes/No): No

NOTES:

DATES

FROM: 1/1/2010

TO: 12/31/2014

ROADWAY AADT: 11,300

SEGMENT LENGTH (MILES): 0.6

DURATION

5 YEARS

0 MONTHS

Trends:

> 1.5 x Statewide Average

> 2.0 x Statewide Average

Trends based on figures in 2012 Wisconsin Traffic Crash Facts and 2012 Published Statewide Crash Rates and data retrieved from WisTransPortal system. WI =Statewide Average 2012.

CRASH FREQUENCY & SEVERITY

YEAR	PD	TYPE C	TYPE B	TYPE A	FATAL	TOTAL
2010	18	2	2	0	0	22
2011	16	3	1	0	0	20
2012	11	1	2	1	0	15
2013	14	0	4	1	0	19
2014	19	4	2	1	0	26

TOTAL	78	10	11	3	0	102
PERCENT	76.5%	9.8%	10.8%	2.9%	0.0%	100.0%
WI	68.4%	16.2%	11.7%	3.1%	0.6%	

SEGMENT CRASH RATES

per 100 MVM

STATEWIDE AVERAGES

2012

TOTAL	824	333	+148%
FATAL	0.0	0.7	-100%
INJURY	194.0	95.0	+104%
TYPE A	24.2	6.3	+285%
TYPE B	88.9	35.0	+154%
TYPE C	80.8	54.0	+50%
PDO	630.4	237.0	+166%

LIGHT CONDITIONS

PERCENT

WI

DAY	44	43.1%	73.5%
DARK	58	56.9%	26.5%
TOTAL	102	100.0%	

Note: Dawn, dusk, or street lighted conditions included in dark total.

VEHICLE TYPES

PERCENT

WI

CAR	160	85.6%	70.5%
TRUCK	15	8.0%	23.1%
OTHER/UNK	12	6.4%	6.4%
TOTAL	187	100.0%	

Note: Statistics based on first and second vehicles in crashes.

DAY AND TIME

DAY	PERCENT	EARLY 2 AM to 6 AM	AM PEAK 6 AM to 10 AM	MIDDAY 10 AM to 2 PM	PM PEAK 2 PM to 6 PM	EVENING 6 PM to 10 PM	LATE 10 PM to 2 AM	Unknown	Total	WI
MONDAY	12.7%	0	2	2	3	5	1	0	13	13.5%
TUESDAY	7.8%	0	1	3	1	1	2	0	8	14.3%
WEDNESDAY	9.8%	0	1	3	1	3	2	0	10	13.5%
THURSDAY	16.7%	1	2	5	3	0	6	0	17	15.0%
FRIDAY	16.7%	3	2	3	0	5	4	0	17	17.8%
SATURDAY	18.6%	4	0	3	3	4	5	0	19	13.7%
SUNDAY	17.6%	1	1	5	2	2	7	0	18	12.2%
TOTAL		9	9	24	13	20	27	0	102	
PERCENT		8.8%	8.8%	23.5%	12.7%	19.6%	26.5%	0.0%		
WI		7.3%	16.0%	19.2%	28.7%	18.8%	9.2%	0.9%		

DRIVER AGES

PERCENT

WI

<25	43	23.0%	22.8%
25-34	54	28.9%	18.2%
35-44	25	13.4%	14.6%
45-54	8	4.3%	15.3%
55-64	12	6.4%	11.5%
65-74	3	1.6%	5.4%
75-84	0	0.0%	2.7%
85+	0	0.0%	0.8%
UNKNOWN	42	22.5%	8.7%
TOTAL	187	100.0%	

Note: Statistics based on first and second vehicles in crashes.

VEHICLE DAMAGE

PERCENT

WI

OTHER/UNK	24	12.8%	7.1%
NONE	4	2.1%	3.8%
VERY MINOR	19	10.2%	8.2%
MINOR	39	20.9%	21.5%
MODERATE	66	35.3%	38.2%
SEVERE	29	15.5%	15.9%
VERY SEVERE	6	3.2%	5.3%
TOTAL	187	100.0%	

Note: Statistics based on first and second vehicles in crashes.

VEHICLES INVOLVED

PERCENT

SINGLE VEHICLE	22.5%
TWO VEHICLES	64.7%
3 OR MORE VEHICLES	12.7%

ROAD CONDITIONS

PERCENT

WI

DRY	61	59.8%	77.4%
WET	25	24.5%	9.7%
SNOW	15	14.7%	10.0%
ICE	1	1.0%	2.7%
MUD	0	0.0%	0.2%
OTHER/UNK	0	0.0%	0.1%
TOTAL	102	100.0%	

CRASH TYPE

PERCENT

WI

ANGLE	19	18.6%	23.5%
REAR-END	19	18.6%	25.3%
HEAD-ON	1	1.0%	1.5%
SS-SAME	8	7.8%	10.8%
SS-OPPOSITE	8	7.8%	2.7%
PEDESTRIAN	2	2.0%	1.1%
BICYCLE	7	6.9%	0.8%
FIXED	11	10.8%	23.7%
NOT FIXED	23	22.5%	7.1%
DEER	0	0.0%	
OVERTURN	0	0.0%	3.1%
OTHR/UNKN	4	3.9%	
TOTAL	102	100.0%	

Unknown		Total		WI
0	13	Weekday		13.5%
0	8			14.3%
0	10			13.5%
0	17			15.0%
0	17			17.8%
0	19	Weekend		13.7%
0	18			12.2%
0	102			
0.0%				
0.9%				

BY SEASON		PERCENT	WI
SPRING	21	20.6%	21.7%
SUMMER	21	20.6%	23.0%
FALL	29	28.4%	27.2%
WINTER	31	30.4%	28.0%
TOTAL	102	100.0%	
Note: Wint=Dec-Feb, Spr=Mar-May, Sum=June-Aug, Fall=Sept-Nov			

PERCENT OF CRASHES		WI
ON HORIZONTAL CURVE	57.8%	13.5%
ON VERTICAL CURVE	45.1%	13.8%
AT INTERSECTION	34.3%	
ALCOHOL RELATED	6.9%	4.6%
SPEED RELATED	13.7%	14.8%

CRASH STATISTICS

INTERSECTION



INTERSECTION: N. Water St & E. Pleasant St
MUNICIPALITY: Milwaukee
COUNTY: Milwaukee **STATE:** WI
TRAFFIC CONTROL: TRAFFIC SIGNAL
NUMBER OF LEGS: 4
NOTES:

DATES
FROM: 1/1/2010
TO: 12/31/2014
INTERSECTION AADT: 20,370
AREA TYPE: URBAN

DURATION
 5 YEARS
 0 MONTHS

Trends: > 1.5 x Statewide Average > 2.0 x Statewide Average

Trends based on figures in 2012 Wisconsin Traffic Crash Facts and 2012 Published Statewide Crash Rates and data retrieved from WisTransPortal system. WI =Statewide Average 2012.

CRASH FREQUENCY & SEVERITY

YEAR	PD	TYPE C	TYPE B	TYPE A	FATAL	TOTAL
2010	5	1	0	0	0	6
2011	4	0	1	0	0	5
2012	2	0	0	0	0	2
2013	3	0	0	1	0	4
2014	3	1	1	0	0	5
TOTAL	17	2	2	1	0	22
PERCENT	77.3%	9.1%	9.1%	4.5%	0.0%	100.0%
WI	68.4%	16.2%	11.7%	3.1%	0.6%	

INTERSECTION CRASH RATE:

0.59 Crashes per Million Entering Vehicles

ROAD CONDITIONS	PERCENT	WI
DRY	17	77.3%
WET	4	18.2%
SNOW	1	4.5%
ICE	0	0.0%
MUD	0	0.0%
OTHER/UNK	0	0.0%
TOTAL	22	100.0%

CRASH TYPE	PERCENT	WI
ANGLE	6	27.3%
REAR-END	6	27.3%
HEAD-ON	0	0.0%
SS-SAME	7	31.8%
SS-OPPOSITE	0	0.0%
PEDESTRIAN	0	0.0%
BICYCLE	0	0.0%
FIXED	1	4.5%
NOT FIXED	2	9.1%
DEER	0	0.0%
OVERTURN	0	0.0%
OTHR/UNKN	0	0.0%
TOTAL	22	100.0%

Note: Percents based on intersection only crashes from 2012.

LIGHT CONDITIONS	PERCENT	WI
DAY	14	63.6%
DARK	8	36.4%
TOTAL	22	100.0%

Note: Dawn, dusk, or street lighted conditions included in dark total.

VEHICLE TYPES	PERCENT	WI
CAR	39	90.7%
TRUCK	3	7.0%
OTHER/UNK	1	2.3%
TOTAL	43	100.0%

Note: Statistics based on first and second vehicles in crashes.

DAY AND TIME

DAY	PERCENT	EARLY 2 AM to 6 AM	AM PEAK 6 AM to 10 AM	MIDDAY 10 AM to 2 PM	PM PEAK 2 PM to 6 PM	EVENING 6 PM to 10 PM	LATE 10 PM to 2 AM	Unknown	WI
MONDAY	18.2%	0	2	1	1	0	0	4	13.5%
TUESDAY	9.1%	0	0	2	0	0	0	2	14.3%
WEDNESDAY	13.6%	0	0	2	0	1	0	3	13.5%
THURSDAY	9.1%	0	0	1	1	0	0	2	15.0%
FRIDAY	13.6%	0	0	1	0	1	1	3	17.8%
SATURDAY	9.1%	0	0	0	0	1	1	2	13.7%
SUNDAY	27.3%	1	1	1	1	1	1	6	12.2%
TOTAL		1	3	8	3	4	3	22	
PERCENT		4.5%	13.6%	36.4%	13.6%	18.2%	13.6%	0.0%	
WI	7.3%	16.0%	19.2%	28.7%	18.8%	9.2%	0.9%		

DRIVER AGES	PERCENT	WI
<25	12	27.9%
25-34	12	27.9%
35-44	4	9.3%
45-54	6	14.0%
55-64	3	7.0%
65-74	0	0.0%
75-84	0	0.0%
85+	0	0.0%
UNKNOWN	6	14.0%
TOTAL	43	100.0%

Note: Statistics based on first and second vehicles in crashes.

VEHICLE DAMAGE	PERCENT	WI
OTHER/UNK	6	14.0%
NONE	1	2.3%
VERY MINOR	6	14.0%
MINOR	9	20.9%
MODERATE	12	27.9%
SEVERE	6	14.0%
VERY SEVERE	3	7.0%
TOTAL	43	100.0%

Note: Statistics based on first and second vehicles in crashes.

VEHICLES INVOLVED	PERCENT
SINGLE VEHICLE	4.5%
TWO VEHICLES	81.8%
3 OR MORE VEHICLES	13.6%

BY SEASON	PERCENT	WI
SPRING	3	13.6%
SUMMER	4	18.2%
FALL	8	36.4%
WINTER	7	31.8%
TOTAL	22	100.0%

Note: Wint=Dec-Feb, Spr=Mar-May, Sum=June-Aug, Fall=Sept-Nov

PERCENT OF CRASHES	PERCENT	WI
ON HORIZONTAL CURVE	22.7%	13.5%
ON VERTICAL CURVE	18.2%	13.8%
AT INTERSECTION	100.0%	
ALCOHOL RELATED	0.0%	4.6%
SPEED RELATED	9.1%	14.8%

CRASH STATISTICS

INTERSECTION



INTERSECTION: N. Water St & E. Brady St
MUNICIPALITY: Milwaukee
COUNTY: Milwaukee **STATE:** WI
TRAFFIC CONTROL: MINOR STOP CONTROL
NUMBER OF LEGS: 3
NOTES:

DATES
FROM: 1/1/2010
TO: 12/31/2014
INTERSECTION AADT: 16,800
AREA TYPE: URBAN

DURATION
 5 YEARS
 0 MONTHS

Trends: > 1.5 x Statewide Average > 2.0 x Statewide Average

Trends based on figures in 2012 Wisconsin Traffic Crash Facts and 2012 Published Statewide Crash Rates and data retrieved from WisTransPortal system. WI =Statewide Average 2012.

CRASH FREQUENCY & SEVERITY

YEAR	PD	TYPE C	TYPE B	TYPE A	FATAL	TOTAL
2010	3	1	1	0	0	5
2011	1	1	0	0	0	2
2012	4	1	2	0	0	7
2013	0	0	1	0	0	1
2014	5	2	0	0	0	7
TOTAL	13	5	4	0	0	22
PERCENT	59.1%	22.7%	18.2%	0.0%	0.0%	100.0%
WI	68.4%	16.2%	11.7%	3.1%	0.6%	

INTERSECTION CRASH RATE:

0.72 Crashes per Million Entering Vehicles

ROAD CONDITIONS	PERCENT	WI
DRY	14	63.6%
WET	8	36.4%
SNOW	0	0.0%
ICE	0	0.0%
MUD	0	0.0%
OTHER/UNK	0	0.0%
TOTAL	22	100.0%

CRASH TYPE	PERCENT	WI
ANGLE	5	22.7%
REAR-END	8	36.4%
HEAD-ON	1	4.5%
SS-SAME	0	0.0%
SS-OPPOSITE	1	4.5%
PEDESTRIAN	1	4.5%
BICYCLE	4	18.2%
FIXED	1	4.5%
NOT FIXED	0	0.0%
DEER	0	0.0%
OVERTURN	0	0.0%
OTHR/UNKN	1	4.5%
TOTAL	22	100.0%

Note: Percents based on intersection only crashes from 2012.

LIGHT CONDITIONS	PERCENT	WI
DAY	6	27.3%
DARK	16	72.7%
TOTAL	22	100.0%

Note: Dawn, dusk, or street lighted conditions included in dark total.

VEHICLE TYPES	PERCENT	WI
CAR	33	80.5%
TRUCK	2	4.9%
OTHER/UNK	6	14.6%
TOTAL	41	100.0%

Note: Statistics based on first and second vehicles in crashes.

DAY AND TIME

DAY	PERCENT	EARLY 2 AM to 6 AM	AM PEAK 6 AM to 10 AM	MIDDAY 10 AM to 2 PM	PM PEAK 2 PM to 6 PM	EVENING 6 PM to 10 PM	LATE 10 PM to 2 AM	Unknown	Total	WI
MONDAY	13.6%	0	0	0	1	1	1	0	3	13.5%
TUESDAY	4.5%	0	0	0	0	1	0	0	1	14.3%
WEDNESDAY	27.3%	0	0	1	1	2	2	0	6	13.5%
THURSDAY	18.2%	0	0	1	1	0	2	0	4	15.0%
FRIDAY	18.2%	0	0	0	0	3	1	0	4	17.8%
SATURDAY	13.6%	0	0	0	0	1	2	0	3	13.7%
SUNDAY	4.5%	0	0	0	0	0	1	0	1	12.2%
TOTAL	0	0	2	3	8	9	0	22		
PERCENT	0.0%	0.0%	9.1%	13.6%	36.4%	40.9%	0.0%			
WI	7.3%	16.0%	19.2%	28.7%	18.8%	9.2%	0.9%			

DRIVER AGES	PERCENT	WI
<25	12	29.3%
25-34	11	26.8%
35-44	8	19.5%
45-54	2	4.9%
55-64	5	12.2%
65-74	1	2.4%
75-84	0	0.0%
85+	0	0.0%
UNKNOWN	2	4.9%
TOTAL	41	100.0%

Note: Statistics based on first and second vehicles in crashes.

VEHICLE DAMAGE	PERCENT	WI
OTHER/UNK	5	12.2%
NONE	1	2.4%
VERY MINOR	5	12.2%
MINOR	13	31.7%
MODERATE	12	29.3%
SEVERE	5	12.2%
VERY SEVERE	0	0.0%
TOTAL	41	100.0%

Note: Statistics based on first and second vehicles in crashes.

VEHICLES INVOLVED	PERCENT
SINGLE VEHICLE	31.8%
TWO VEHICLES	63.6%
3 OR MORE VEHICLES	4.5%

BY SEASON	PERCENT	WI
SPRING	6	27.3%
SUMMER	8	36.4%
FALL	7	31.8%
WINTER	1	4.5%
TOTAL	22	100.0%

Note: Wint=Dec-Feb, Spr=Mar-May, Sum=June-Aug, Fall=Sept-Nov

PERCENT OF CRASHES	PERCENT	WI
ON HORIZONTAL CURVE	77.3%	13.5%
ON VERTICAL CURVE	77.3%	13.8%
AT INTERSECTION	100.0%	
ALCOHOL RELATED	9.1%	4.6%
SPEED RELATED	9.1%	14.8%

CRASH STATISTICS

INTERSECTION



INTERSECTION: N. Water St & N. Hamilton St
MUNICIPALITY: Milwaukee
COUNTY: Milwaukee **STATE:** WI
TRAFFIC CONTROL: MINOR STOP CONTROL
NUMBER OF LEGS: 3
NOTES:

DATES
FROM: 1/1/2010
TO: 12/31/2014
INTERSECTION AADT: 8,400
AREA TYPE: URBAN

DURATION
 5 YEARS
 0 MONTHS

Trends: > 1.5 x Statewide Average > 2.0 x Statewide Average

Trends based on figures in 2012 Wisconsin Traffic Crash Facts and 2012 Published Statewide Crash Rates and data retrieved from WisTransPortal system. WI =Statewide Average 2012.

CRASH FREQUENCY & SEVERITY

YEAR	PD	TYPE C	TYPE B	TYPE A	FATAL	TOTAL
2010	1	0	0	0	0	1
2011	2	0	0	0	0	2
2012	0	0	0	0	0	0
2013	1	0	0	0	0	1
2014	0	0	0	0	0	0
TOTAL	4	0	0	0	0	4
PERCENT	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
WI	68.4%	16.2%	11.7%	3.1%	0.6%	

INTERSECTION CRASH RATE:

0.26 Crashes per Million Entering Vehicles

ROAD CONDITIONS	PERCENT	WI
DRY	2	50.0% 77.4%
WET	1	25.0% 9.7%
SNOW	1	25.0% 10.0%
ICE	0	0.0% 2.7%
MUD	0	0.0% 0.2%
OTHER/UNK	0	0.0% 0.1%
TOTAL	4	100.0%

CRASH TYPE	PERCENT	WI
ANGLE	1	25.0% 41.5%
REAR-END	1	25.0% 27.3%
HEAD-ON	0	0.0% 1.5%
SS-SAME	0	0.0% 9.5%
SS-OPPOSITE	0	0.0% 2.9%
PEDESTRIAN	0	0.0% 1.4%
BICYCLE	0	0.0% 1.3%
FIXED	0	0.0% 12.3%
NOT FIXED	2	50.0% 1.3%
DEER	0	0.0%
OVERTURN	0	0.0% 0.7%
OTHR/UNKN	0	0.0%
TOTAL	4	100.0%

Note: Percents based on intersection only crashes from 2012.

LIGHT CONDITIONS	PERCENT	WI
DAY	1	25.0% 73.5%
DARK	3	75.0% 26.5%
TOTAL	4	100.0%

Note: Dawn, dusk, or street lighted conditions included in dark total.

VEHICLE TYPES	PERCENT	WI
CAR	8	100.0% 70.5%
TRUCK	0	0.0% 23.1%
OTHER/UNK	0	0.0% 6.4%
TOTAL	8	100.0%

Note: Statistics based on first and second vehicles in crashes.

DAY AND TIME

DAY	PERCENT	EARLY 2 AM to 6 AM	AM PEAK 6 AM to 10 AM	MIDDAY 10 AM to 2 PM	PM PEAK 2 PM to 6 PM	EVENING 6 PM to 10 PM	LATE 10 PM to 2 AM	Unknown	Total	WI
MONDAY	25.0%	0	0	0	0	1	0	0	1	13.5%
TUESDAY	25.0%	0	0	0	0	0	1	0	1	14.3%
WEDNESDAY	0.0%	0	0	0	0	0	0	0	0	13.5%
THURSDAY	50.0%	0	0	1	0	0	1	0	2	15.0%
FRIDAY	0.0%	0	0	0	0	0	0	0	0	17.8%
SATURDAY	0.0%	0	0	0	0	0	0	0	0	13.7%
SUNDAY	0.0%	0	0	0	0	0	0	0	0	12.2%
TOTAL		0	0	1	0	1	2	0	4	
PERCENT		0.0%	0.0%	25.0%	0.0%	25.0%	50.0%	0.0%		
WI	7.3%	16.0%	19.2%	28.7%	18.8%	9.2%	0.9%			

DRIVER AGES	PERCENT	WI
<25	1	12.5% 22.8%
25-34	1	12.5% 18.2%
35-44	1	12.5% 14.6%
45-54	0	0.0% 15.3%
55-64	1	12.5% 11.5%
65-74	0	0.0% 5.4%
75-84	0	0.0% 2.7%
85+	0	0.0% 0.8%
UNKNOWN	4	50.0% 8.7%
TOTAL	8	100.0%

Note: Statistics based on first and second vehicles in crashes.

VEHICLE DAMAGE	PERCENT	WI
OTHER/UNK	1	12.5% 7.1%
NONE	0	0.0% 3.8%
VERY MINOR	1	12.5% 8.2%
MINOR	2	25.0% 21.5%
MODERATE	2	25.0% 38.2%
SEVERE	2	25.0% 15.9%
VERY SEVERE	0	0.0% 5.3%
TOTAL	8	100.0%

Note: Statistics based on first and second vehicles in crashes.

VEHICLES INVOLVED	PERCENT
SINGLE VEHICLE	0.0%
TWO VEHICLES	50.0%
3 OR MORE VEHICLES	50.0%

BY SEASON	PERCENT	WI
SPRING	0	0.0% 21.7%
SUMMER	0	0.0% 23.0%
FALL	3	75.0% 27.2%
WINTER	1	25.0% 28.0%
TOTAL	4	100.0%

Note: Wint=Dec-Feb, Spr=Mar-May, Sum=June-Aug, Fall=Sept-Nov

PERCENT OF CRASHES	PERCENT	WI
ON HORIZONTAL CURVE	25.0%	13.5%
ON VERTICAL CURVE	25.0%	13.8%
AT INTERSECTION	100.0%	
ALCOHOL RELATED	25.0%	4.6%
SPEED RELATED	0.0%	14.8%

CRASH STATISTICS

INTERSECTION



INTERSECTION: N. Water St & N. Humboldt Ave
MUNICIPALITY: Milwaukee
COUNTY: Milwaukee **STATE:** WI
TRAFFIC CONTROL: TRAFFIC SIGNAL
NUMBER OF LEGS: 4
NOTES:

DATES
FROM: 1/1/2010
TO: 12/31/2014
INTERSECTION AADT: 12,650
AREA TYPE: URBAN

DURATION
 5 YEARS
 0 MONTHS

Trends: > 1.5 x Statewide Average > 2.0 x Statewide Average

Trends based on figures in 2012 Wisconsin Traffic Crash Facts and 2012 Published Statewide Crash Rates and data retrieved from WisTransPortal system. WI =Statewide Average 2012.

CRASH FREQUENCY & SEVERITY

YEAR	PD	TYPE C	TYPE B	TYPE A	FATAL	TOTAL
2010	0	0	1	0	0	1
2011	1	0	0	0	0	1
2012	0	0	0	0	0	0
2013	0	0	0	0	0	0
2014	1	1	1	0	0	3
TOTAL	2	1	2	0	0	5
PERCENT	40.0%	20.0%	40.0%	0.0%	0.0%	100.0%
WI	68.4%	16.2%	11.7%	3.1%	0.6%	

INTERSECTION CRASH RATE:

0.22 Crashes per Million Entering Vehicles

ROAD CONDITIONS		PERCENT	WI
DRY	4	80.0%	77.4%
WET	1	20.0%	9.7%
SNOW	0	0.0%	10.0%
ICE	0	0.0%	2.7%
MUD	0	0.0%	0.2%
OTHER/UNK	0	0.0%	0.1%
TOTAL	5	100.0%	

CRASH TYPE		PERCENT	WI
ANGLE	3	60.0%	41.5%
REAR-END	0	0.0%	27.3%
HEAD-ON	0	0.0%	1.5%
SS-SAME	0	0.0%	9.5%
SS-OPPOSITE	0	0.0%	2.9%
PEDESTRIAN	0	0.0%	1.4%
BICYCLE	0	0.0%	1.3%
FIXED	1	20.0%	12.3%
NOT FIXED	1	20.0%	1.3%
DEER	0	0.0%	
OVERTURN	0	0.0%	0.7%
OTHR/UNKN	0	0.0%	
TOTAL	5	100.0%	

Note: Percents based on intersection only crashes from 2012.

LIGHT CONDITIONS		PERCENT	WI
DAY	2	40.0%	73.5%
DARK	3	60.0%	26.5%
TOTAL	5	100.0%	

Note: Dawn, dusk, or street lighted conditions included in dark total.

VEHICLE TYPES		PERCENT	WI
CAR	6	66.7%	70.5%
TRUCK	2	22.2%	23.1%
OTHER/UNK	1	11.1%	6.4%
TOTAL	9	100.0%	

Note: Statistics based on first and second vehicles in crashes.

DAY AND TIME

		EARLY	AM PEAK	MIDDAY	PM PEAK	EVENING	LATE			
DAY	PERCENT	2 AM to 6 AM	6 AM to 10 AM	10 AM to 2 PM	2 PM to 6 PM	6 PM to 10 PM	10 PM to 2 AM	Unknown	Total	WI
MONDAY	0.0%	0	0	0	0	0	0	0	0	13.5%
TUESDAY	20.0%	0	1	0	0	0	0	0	1	14.3%
WEDNESDAY	0.0%	0	0	0	0	0	0	0	0	13.5%
THURSDAY	20.0%	0	0	0	1	0	0	0	1	15.0%
FRIDAY	40.0%	0	0	0	0	1	1	0	2	17.8%
SATURDAY	20.0%	0	0	0	1	0	0	0	1	13.7%
SUNDAY	0.0%	0	0	0	0	0	0	0	0	12.2%
TOTAL		0	1	0	2	1	1	0	5	
PERCENT		0.0%	20.0%	0.0%	40.0%	20.0%	20.0%	0.0%		
WI		7.3%	16.0%	19.2%	28.7%	18.8%	9.2%	0.9%		

DRIVER AGES		PERCENT	WI
<25	3	33.3%	22.8%
25-34	2	22.2%	18.2%
35-44	2	22.2%	14.6%
45-54	0	0.0%	15.3%
55-64	1	11.1%	11.5%
65-74	0	0.0%	5.4%
75-84	0	0.0%	2.7%
85+	0	0.0%	0.8%
UNKNOWN	1	11.1%	8.7%
TOTAL	9	100.0%	

Note: Statistics based on first and second vehicles in crashes.

VEHICLE DAMAGE		PERCENT	WI
OTHER/UNK	0	0.0%	7.1%
NONE	0	0.0%	3.8%
VERY MINOR	4	44.4%	8.2%
MINOR	0	0.0%	21.5%
MODERATE	5	55.6%	38.2%
SEVERE	0	0.0%	15.9%
VERY SEVERE	0	0.0%	5.3%
TOTAL	9	100.0%	

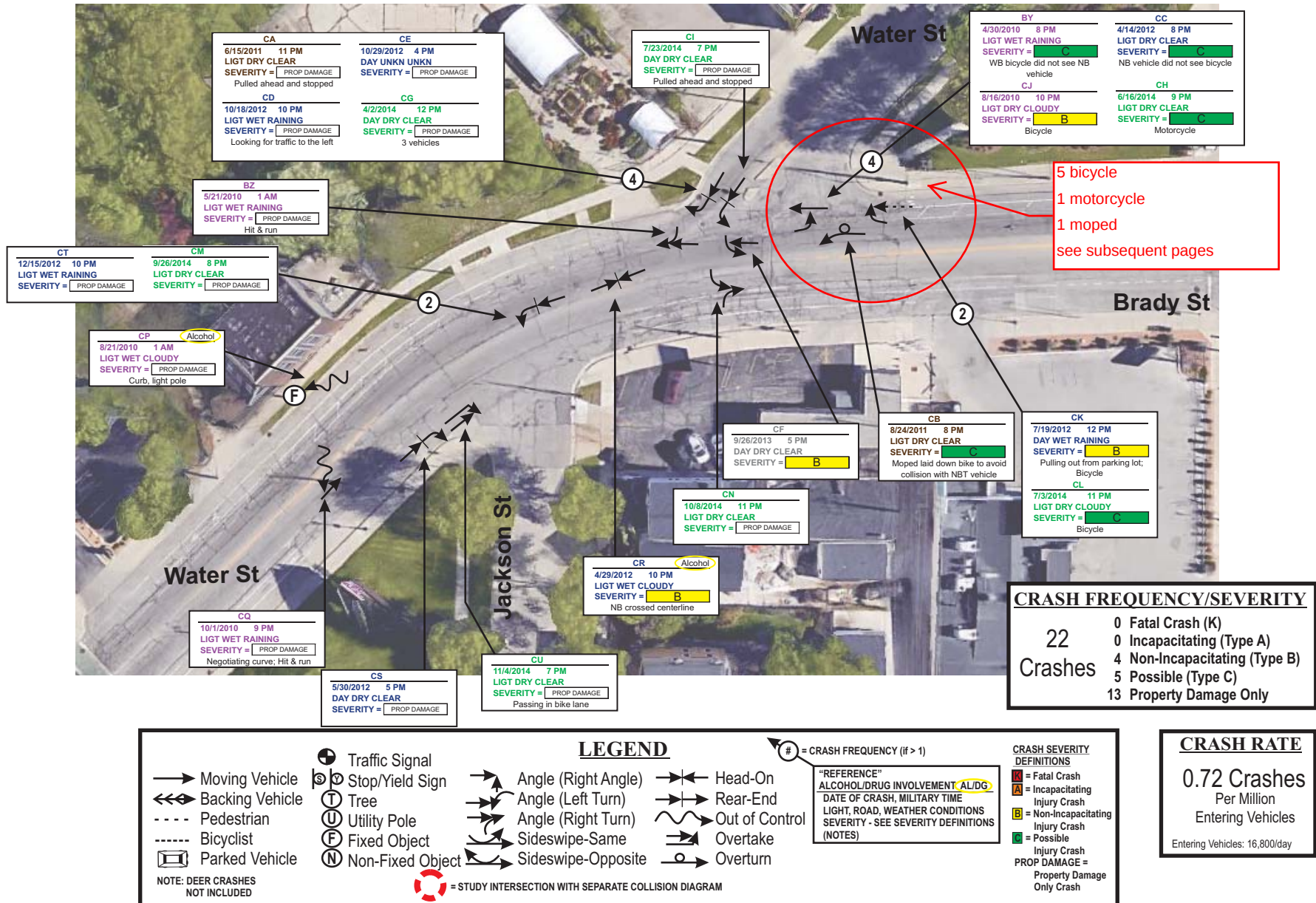
Note: Statistics based on first and second vehicles in crashes.

VEHICLES INVOLVED		PERCENT
SINGLE VEHICLE		20.0%
TWO VEHICLES		80.0%
3 OR MORE VEHICLES		0.0%

BY SEASON		PERCENT	WI
SPRING	1	20.0%	21.7%
SUMMER	1	20.0%	23.0%
FALL	2	40.0%	27.2%
WINTER	1	20.0%	28.0%
TOTAL	5	100.0%	

Note: Wint=Dec-Feb, Spr=Mar-May, Sum=June-Aug, Fall=Sept-Nov

PERCENT OF CRASHES		PERCENT	WI
ON HORIZONTAL CURVE		0.0%	13.5%
ON VERTICAL CURVE		0.0%	13.8%
AT INTERSECTION		100.0%	
ALCOHOL RELATED		20.0%	4.6%
SPEED RELATED		0.0%	14.8%



PK2009

INS 02	63 - Liability Insurance Company NOT-REQUIRED		60 ☐ Policy Holder Same As Owner
	61 - Policy Holder Last Name	61 - Policy Holder First Name	
	61 - Policy Holder Company		

School Bus

BUS 02	Bus Travelling to/from ☐ To ☐ From	School Name	Body Make	Seating Capacity
	School District Contracted With			

Occupant

OCCUPANT 01	☐ Address Same As Operator				
	65 - Unit No 01	66 - Occupant Last Name GRIFFITH	66 - First Name LOGAN	66 - Middle Initial J	66 - Suffix
	68 - Address Street & Number 1928 E BELLVIEW AVE #5		68 - PO Box		
	68 - City MILWAUKEE		68 - State WI	68 - Zip Code 53202	
	67 - Date of Birth 05/10/1988		69 - Sex MALE		
	71 - Seat Position FRONT-SEAT-RIGHT-SIDE-(TRAIN ENGINEER)		72 - Safety Equipment SHOULDER-BELT-AND-LAP-BELT-USED		
	70 - Injury Severity N - NO APPARENT INJURY	73 - Airbag NON-DEPLOYED	75 - Ejected NOT-EJECTED	77 ☐ Medical Transport	
	76 - Trapped/Extricated NOT-TRAPPED	78 - Agency Space			

Diagram and Narrative

DIAGRAM AND NARRATIVE	105 - PHOTOS BY
	Not Drawn To Scale N Water St E BRADY ST
UNIT #1 WAS TRAVELING N/B ON N. WATER ST MAKING A LEFT TURN ONTO N. WATER ST. WHEN HE COLLIDED WITH UNIT #2 WHO WAS RIDING HIS BICYCLE W/B ON E. BRADY ST. UNIT #1, STATED HE NEVER SAW UNIT #2 UNTIL THEY COLLIDED. UNIT #2, WAS TRANSPORTED TO FROEDTERT HOSPITAL BY BELL AMBULANCE #452 AND WAS ADMITTED AT 21:46. UNIT #2 WAS TREATED AND RELEASED BY DR. LIU. UNIT #2 SUFFERED 7 STITCHES TO HIS RIGHT SHIN	

Accident Report MV4000e 01/2005

PK2011

INS 02	63 - Liability Insurance Company NOT-REQUIRED		60 ☐ Policy Holder Same As Owner
	61 - Policy Holder Last Name		61 - Policy Holder First Name
	61 - Policy Holder Company		

School Bus

BUS 02	Bus Travelling to/from ☐ To ☐ From	School Name	Body Make	Seating Capacity
	School District Contracted With			

Diagram and Narrative

DIAGRAM AND NARRATIVE	105 - PHOTOS BY
	Not Drawn to Scale
ON ABOVE LISTED DATE AND TIME, I WAS SENT TO AN ACC-PI AT THE ABOVE LOCATION. UPON ARRIVAL I SPOKE WITH THE DRIVER OF UNIT 1 WHO STATED SHE WAS TRAVELING NORTHBOUND ON WATER ST ATTEMPTING TO MAKE A LEFT TURN. THE DRIVER STATED SHE MADE A LEFT TURN ONTO WATER ST. AND STRUCK UNIT 2 ON HIS BICYCLE. THE DRIVER OF UNIT 1 STATED SHE DID NOT SEE UNIT 2. I THEN SPOKE WITH UNIT 2. UNIT 2 STATED HE WAS TRAVELING WESTBOUND ON BICYCLE ON WATER ST. WHEN HE SAW UNIT 1 STOPPED BEHIND A CAR IN TRAFFIC ATTEMPTING TO MAKE A LEFT TURN. UNIT 2 STATED HE SAW UNIT 1 MAKE A LEFT TURN AND SPEED UP IN ORDER TO COMPLETE THE TURN AND BEAT THE ONCOMING TRAFFIC. UNIT 2 STATED HE THEN ATTEMPTED TO SLOW DOWN BECAUSE SHE WAS GOING TO HIT HIM. UNIT 2 THEN STATED HE WAS STRUCK BY UNIT 1. I THEN SPOKE WITH THE WITNESS WHO STATED HE SAW UNIT 1 MAKING A LEFT TURN AND STRIKE UNIT 2, WHO WAS ON BICYCLE. THE WITNESS STATED HE SAW UNIT 1 STOPPED IN TRAFFIC ATTEMPTING TO MAKE A LEFT TURN. THE WITNESS STATED HE SAW UNIT 1 SPEED UP WHILE MAKING THE LEFT TURN AND THEN STRIKE UNIT 2. PO KNAPINKSI OF 1241 TOOK 10 PHOTOS OF THE SCENE. UNIT 2 WAS CONVEYED TO FROEDTERT HOSPITAL BY MFD MED-UNIT 6 FOR BACK, KNEE, AND HAND PAIN. UNIT 2 WAS ADMITTED AT 20:48 AND THE DOCTOR WAS DR. MARIO COLELLA.	

Witness

WITNESS 01	107 - Witness Last Name JAW		107 - First Name HENGHSU		107 - Middle Initial	
	108 - Address Street & Number 1530 S 116TH ST			108 - PO Box		109 - Date of Birth 10/11/1988
	110 - City WEST ALLIS		State WI	110 - Zip Code 53227		111 - Telephone Number (262) 347-6992 EXT.

INS 02	63 - Liability Insurance Company NOT-REQUIRED		60 ☐ Policy Holder Same As Owner
	61 - Policy Holder Last Name	61 - Policy Holder First Name	
	61 - Policy Holder Company		

School Bus

BUS 02	Bus Travelling to/from ☐ To ☐ From	School Name	Body Make	Seating Capacity
	School District Contracted With			

Diagram and Narrative

DIAGRAM AND NARRATIVE	105 - PHOTOS BY
UNIT#1 WAS MAKING A LEFT TURN FROM N. WATER ST. TO CONTINUE EAST ON N. WATER ST. COLLIDED WITH UNIT#2, WHICH WAS TRAVELLING WEST BOUND ON E. BRADY ST. SUPPLEMENTAL REPORT: ON MONDAY, AUGUST 16TH, 2010, AT APPROXIMATELY 10:45 PM, P.O. MICHAEL LOPEZ, P.O. RODOLFO ALVARADO, AND I, OBSERVED A PERSON AND A BICYCLE LAYING ON THE ROAD WAY NEXT TO A BLUE PONTIAC GRAND AM WITH WISCONSIN LICENSE PLATE#160-JMB AT N. WATER ST. AND E. BRADY ST. I OBSERVED THAT THE BICYCLE DID NOT HAVE A LIGHT ON IT AND THERE WAS A BROKEN OFF PASSENGER SIDE MIRROR AND A SHATTERED REAR PASSENGER SIDE WINDOW. I INTERVIEWED THE DRIVER OF UNIT#1 A W/F DAVIDSON, NATALIE M., D.O.B 08-18-89, WHO STATED THAT SHE WAS TRAVELING EAST BOUND ON N. WATER ST. AND PROCEEDED TO TURN LEFT TO CONTINUE ONTO N. WATER ST.. DAVIDSON STATED THAT SHE OBSERVED ANOTHER CAR TRAVELING WEST BOUND ON E. BRADY ST. DAVIDSON STATED THAT WHEN THE VEHICLE PASSED HER, THE TRAFFIC WAS CLEAR TO MAKE HER LEFT TURN ONTO N. WATER ST., DAVIDSON STATED THAT SHE PROCEEDED TO MAKE HER LEFT HAND TURN. DAVIDSON STATED AS SHE MADE HER LEFT HAND TURN, SHE OBSERVED A BICYCLE TRAVELING WEST BOUND ON E. BRADY ST COMING RIGHT FOR HER. DAVIDSON STATED THAT SHE ATTEMPTED TO ACCELERATE THROUGH, BUT WAS STRUCK BY THE BICYCLE. I INTERVIEWED THE OPERATOR OF UNIT#2, A W/M KRECIOCH, JACOB W., D.O.B 09-14-90, WHO STATED THAT HE WAS TRAVELLING WEST BOUND ON E. BRADY ST. KRECIOCH STATED THAT A VEHICLE PULLED IN FRONT OF HIM AND HE HIT THE VEHICLE. KRECIOCH STATED HE THEN FULL OVER THE VEHICLE LANDING ON THE ROAD. KRECIOCH COMPLAINED OF PAIN TO HIS LOWER AND UPPER EXTREMITIES. KRECIOCH STATED THAT HE FELT EXTREME PAIN TO HIS RIGHT KNEE. I OBSERVED THAT KRECIOCH HAD A 7-8 INCH LACERATION TO HIS RIGHT KNEE. THE MILWAUKEE FIRE DEPARTMENT ENGINE#6 ARRIVED ON SCENE ALONG WITH MFD MED UNIT#6. KRECIOCH WAS CONVEYED TO FROEDTERT HOSPITAL FOR TREATMENT. I INTERVIEWED A WITNESS TO THE ACCIDENT, A W/M HOLM, ANDREW K., D.O.B 12-10-87, WHO STATED THAT HE WAS RIDING HIS BICYCLE WITH KRECIOCH. HOLM STATED THAT HE WAS FOLLOWING BEHIND KRECIOCH. HOLM STATED THAT THEY WERE TRAVELLING WEST BOUND ON E. BRADY ST. HOLM STATED THAT A VEHICLE PULLED OUT IN FRONT OF KRECIOCH. HOLM STATED THAT KRECIOCH AND THE VEHICLE THEN COLLIDED, CAUSING KRECIOCH TO GO AIR BOURNE AND FLIP OVER THE VEHICLE, AND THEN LANDING ONTO THE ROAD. HOLM STATED	

Accident Report MV4000e 01/2005

PK2011

INS 02	63 - Liability Insurance Company TRAVELERS-CASUALTY-&-SURETY-CO		60 ☒ Policy Holder Same As Owner
	61 - Policy Holder Last Name COHEN		61 - Policy Holder First Name LINDA
	61 - Policy Holder Company		

School Bus

BUS 02	Bus Travelling to/from ☐ To ☐ From	School Name	Body Make	Seating Capacity
	School District Contracted With			

Diagram and Narrative

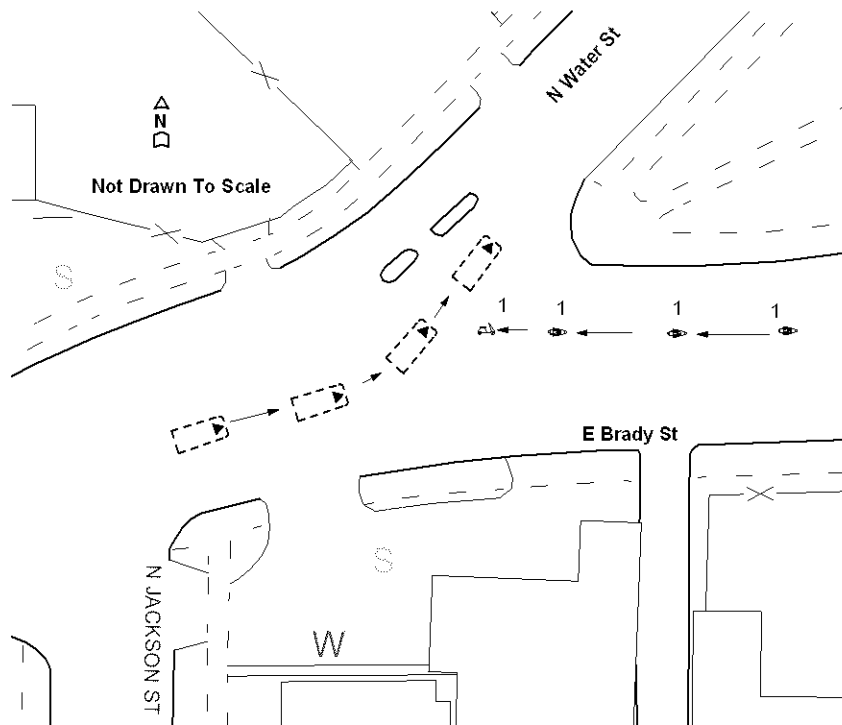
DIAGRAM AND NARRATIVE	105 - PHOTOS BY
UNIT #1 WAS TRAVELING WESTBOUND ON E. BRADY ST AND COLLIDED WITH UNIT #2, WHICH FAILED TO YIELD WHILE MAKING A LEFT HAND TURN ON N. WATER ST. DRIVER OF UNIT #1 COMPLAINED OF PAIN TO HIS LEFT LEG AND ANKLE. DRIVER WAS CONVEYED BY BELL #404 TO ST. MARY'S HOSPITAL FOR TREATMENT.	

Officer Information

OFFICER INFORMATION	125 - Officer Last Name BENITEZ		125 - First Name XAVIER	125 - Middle Initial J	131 - Officer ID 12992
	129 - Law Enforcement Agency No. 14		130 - Law Enforcement Agency Name MILWAUKEE POLICE DEPARTMENT		
	126 - Law Enforcement Agency Address Street & Number 749 WEST STATE STREET				
	127 - City MILWAUKEE		127 - State WI	127 - Zip Code 53233	128 - Telephone Number (414) 933-4444 EXT.
	132 - Date Notified 06/16/2014	133 - Time Notified (Military Time) 2132	134 - Time Arrived (Military Time) 2132	135 - Date Of Report 06/16/2014	
	Agency Accident Number 141672989	Police Number	19 - Special Study		
	18 - Agency Space				

PK2011

DIAGRAM AND NARRATIVE



UNIT 1 WAS TRAVELING W/B ON E. BRADY ST. AS UNIT 1 APPROACHED THE INTERSECTION OF N. WATER ST. ANOTHER VEHICLE TURNED TO TRAVEL N/B ON N. WATER ST. UNIT 1 LAID DOWN THE MOPED HE WAS DRIVING. NO CONTACT WAS MADE WITH THE OTHER VEHICLE. THE DRIVER OF THE OTHER VEHICLE STATED THE MOPED DIDN'T HAVE ANY LIGHTS ON, AND HE DIDN'T SEE THE MOPED. THE DRIVER OF UNIT 1 WAS CONVEYED TO MT. SINAI HOSPITAL BY MFD MED 6 AND TREATED BY DR. TROIANA FOR HIS INJURIES.

Witness

WITNESS 01	107 - Witness Last Name LOEHR	107 - First Name SEAN	107 - Middle Initial M
	108 - Address Street & Number 2759 N MURREY AV	108 - PO Box	109 - Date of Birth 10/19/1987
	110 - City MILWAUKEE	State WI	110 - Zip Code 53211
			111 - Telephone Number (920) 948-7467 EXT.

Officer Information

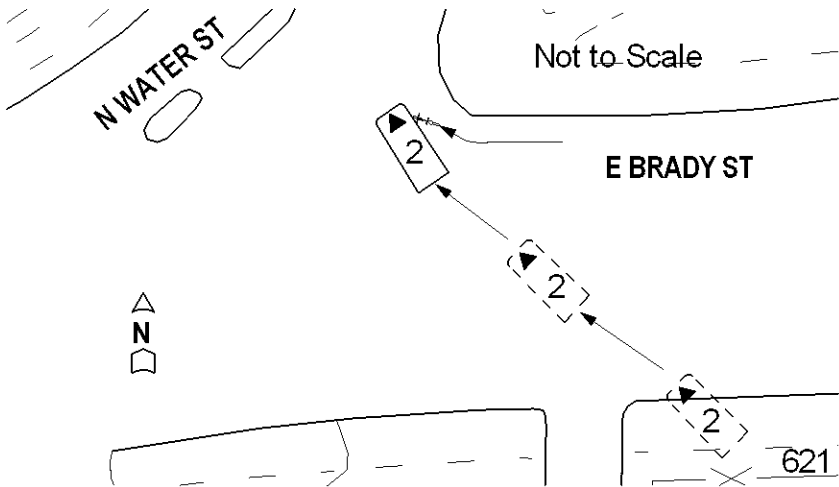
OFFICER INFORMATION	125 - Officer Last Name PTASZEK		125 - First Name TIMOTHY		125 - Middle Initial W		125 - Officer ID 17593		
	129 - Law Enforcement Agency No. 12		130 - Law Enforcement Agency Name MILWAUKEE POLICE DEPARTMENT						
	126 - Law Enforcement Agency Address Street & Number 749 WEST STATE STREET								
	127 - City MILWAUKEE			127 - State WI		127 - Zip Code 53233		128 - Telephone Number (414) 933-4444 EXT.	
	132 - Date Notified 08/24/2011		133 - Time Notified (Military Time) 2005		134 - Time Arrived (Military Time) 2009		135 - Date Of Report 08/24/2011		
	Agency Accident Number 112362345		Police Number		19 - Special Study				
	18 - Agency Space TOW #1507287								

INS 02	63 - Liability Insurance Company GOVERNMENT		60 ☐ Policy Holder Same As Owner
	61 - Policy Holder Last Name		61 - Policy Holder First Name
	61 - Policy Holder Company		

School Bus

BUS 02	Bus Travelling to/from ☐ To ☐ From	School Name	Body Make	Seating Capacity
	School District Contracted With			

Diagram and Narrative

DIAGRAM AND NARRATIVE	105 - PHOTOS BY
	
	UNIT 2 DROVE NORTH OUT OF THE PARKING LOT AT 621 EAST BRADY STREET ONTO EAST BRADY STREET. UNIT 2 THEN DROVE WEST ON EAST BRADY STREET AND TURNED RIGHT AT NORTH WATER STREET AND COLLIDED WITH UNIT 1, WHICH WAS WESTBOUND ON EAST BRADY STREET. SUPPLEMENT: ON THURSDAY, JULY 19, 2012, AT 12:46 PM, I, P.O. MATHEUS, UNIT 1136, WAS DISPATCHED TO A PI ACCIDENT INVOLVING A BICYCLE AT EAST BRADY STREET AND NORTH WATER STREET. UPON ARRIVAL I MET SQUAD 5210, SERGEANT JAMES BRYCE AND SERGEANT BRYCE INFORMED ME THAT HE WAS FLAGGED DOWN FOR THE ACCIDENT. SERGEANT BRYCE ALSO INFORMED ME THAT AN EMPLOYEE AT HABHEGGER WHEEL AND AXLE HAD SURVEILLANCE VIDEO OF THE ACCIDENT. I THEN INTERVIEWED THE OPERATOR OF UNIT 1, GREGG T. TWIGGS, W/M, 09-04-1990. TWIGGS STATED THAT HE WAS RIDING HIS BICYCLE WESTBOUND ON EAST BRADY STREET APPROACHING NORTH WATER STREET WHEN HE OBSERVED A U.S. POSTAL VAN PULLOUT OF THE PARKING LOT AT 621 EAST BRADY STREET. TWIGGS STATED THAT THE VAN CROSSED EAST BRADY STREET AND STARTED TO TURN RIGHT ONTO NORTH WATER STREET. TWIGGS STATED THAT HE TRIED TO AVOID THE VAN BY TURNING RIGHT WITH IT BUT WAS UNABLE TO MAKE THE TURN AND COLLIDED WITH THE PASSENGER SIDE OF THE VAN BETWEEN THE FRONT DOOR AND FRONT WHEEL WELL. TWIGGS STATED THAT HE WENT DOWN ONTO THE GROUND, WHICH CAUSED THE ABRASIONS ON BOTH OF HIS WRISTS AND BOTH OF HIS KNEES. TWIGGS ALSO SHOWED ME ABRASIONS AND BRUISING ON HIS LEFT BICEP. TWIGGS STATED THAT HE DID NOT REQUIRE MEDICAL TREATMENT. I INTERVIEWED THE DRIVER OF UNIT 2, ON DUTY U.S. POSTAL MAIL CARRIER RUSSELL G. WAHL, W/M, 10-03-1962. WAHL STATED THAT HE DROVE NORTH OUT THE PARKING LOT AT 612 EAST BRADY STREET AND ACROSS EAST BRADY STREET. WAHL STATED THAT HE DROVE WEST ON EAST BRADY STREET AND TURNED RIGHT AT NORTH WATER STREET AND COLLIDED WITH A BICYCLIST. WAHL STATED THAT IT WAS RAINING AT THE TIME OF THE COLLISION AND THAT HE DID NOT SEE THE BICYCLIST PRIOR TO THE COLLISION. I ASKED WAHL WHY HIS U.S. POSTAL VAN DID NOT HAVE REGISTRATION PLATES AND WAHL WAS UNABLE TO PROVIDE AN ANSWER. I WENT OVER TO HABHEGGAER WHEEL AND AXLE AT 1709 NORTH WATER STREET AND INTERVIEWED

Accident Report MV4000e 01/2005

PK2011

INS 02	63 - Liability Insurance Company NOT-REQUIRED		60 ☐ Policy Holder Same As Owner
	61 - Policy Holder Last Name		61 - Policy Holder First Name
	61 - Policy Holder Company		

School Bus

BUS 02	Bus Travelling to/from ☐ To ☐ From	School Name	Body Make	Seating Capacity
	School District Contracted With			

Diagram and Narrative

DIAGRAM AND NARRATIVE	105 - PHOTOS BY
	Not drawn to scale
UNIT 1 WAS TRAVELING S/B ON E BRADY ST, AS UNIT 1 TURNED RIGHT TO GO N/B ON N WATER ST, UNIT 2 WHICH WAS TRAVELING PARALLEL TO UNIT 1, WAS NOT ABLE TO STOP IN TIME TO AVOID UNIT 1 AND STRUCK UNIT 1. THE RIDER OF UNIT 2, FELL OFF THE BICYCLE. THE DRIVER OF UNIT 1 STATED THAT HE LOOKED BEFORE TURNING AND DID NOT SEE ANYONE AROUND AND WHEN HE STARTED TURNING HE HEARD A LOUD BANG AND OBSERVED THE CYCLIST FALLING DOWN. THE RIDER OF UNIT 2 STATED HE WAS IN THE BIKE LANE WITH BOTH A FRONT AND REAR LIGHT ON HIS BICYCLE, TRAVELING PARALLEL TO UNIT 1, WHEN UNIT 1 TURNED ON THE RIGHT TURN SIGNAL AND IMMEDIATELY TURNED. HE STATED HE DID NOT HAVE A CHANCE TO STOP BEFORE STRIKING THE VEHICLE. THE RIDER OF UNIT 2 WAS TREATED ON SCENE BY MFD ENGINE 6, CPT. BRIAN GLANCEY, FOR PAIN TO HIS LEFT SHOULDER, MINOR ABRASIONS TO THE RIGHT HAND AND LEFT LEG. THE RIDER REFUSED MEDICAL TRANSPORT TO THE HOSPITAL.	

Officer Information

APPENDIX B

EXISTING TRAFFIC PEAK HOUR ANALYSIS OUTPUTS

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	↗
Volume (vph)	85	20	10	1	75	45	5	140	10	20	140	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		175
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	75			75			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		521			313			376			473	
Travel Time (s)		14.2			8.5			10.3			10.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	5%	5%	5%	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%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	153	0	0	161	0	0	207	0	0	214	340
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	7.5	9.5		9.5	9.5		9.5	9.5		9.5	9.5	7.5
Total Split (s)	17.5	44.5		27.0	27.0		45.5	45.5		45.5	45.5	17.5
Total Split (%)	19.4%	49.4%		30.0%	30.0%		50.6%	50.6%		50.6%	50.6%	19.4%
Maximum Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5
All-Red Time (s)	0.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	0.0
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)		5.5			5.5			5.5			5.5	3.5
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.26			0.36			0.26			0.27	0.29
Control Delay		21.3			25.5			16.4			17.0	1.4
Queue Delay		0.0			0.0			0.0			0.0	0.0

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Synchro 8 Report

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		21.3			25.5			16.4			17.0	1.4
90th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
70th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
50th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
30th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
10th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
Queue Length 50th (ft)		62			61			70			74	0
Queue Length 95th (ft)		90			92			94			100	10
Internal Link Dist (ft)		441			233			296			393	
Turn Bay Length (ft)												175
Base Capacity (vph)		590			450			793			784	1161
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.26			0.36			0.26			0.27	0.29

Intersection Summary

Area Type: Other

Cycle Length: 90

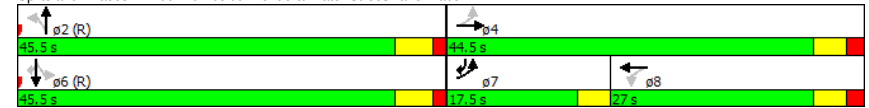
Actuated Cycle Length: 90

Offset: 70 (78%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 40

Control Type: Pretimed

Splits and Phases: 100: Humboldt Avenue & Water Street/Kane Place



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	85	20	10	1	75	45	5	140	10	20	140	255
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1900	1900	1881	1900	1900	1810	1900	1900	1863	1863
Adj Flow Rate, veh/h	113	27	13	1	100	60	7	187	13	27	187	340
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	1	1	1	1	1	1	5	5	5	2	2	2
Cap, veh/h	146	32	10	41	479	285	49	730	49	111	724	704
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	176	73	23	1	1106	658	17	1641	111	148	1628	1583
Grp Volume(v), veh/h	153	0	0	161	0	0	207	0	0	214	0	340
Grp Sat Flow(s),veh/h/ln	272	0	0	1765	0	0	1770	0	0	1777	0	1583
Q Serve(g_s), s	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.7
Cycle Q Clear(g_c), s	6.6	0.0	0.0	5.1	0.0	0.0	6.5	0.0	0.0	6.5	0.0	13.7
Prop In Lane	0.74		0.08	0.01		0.37	0.03		0.06	0.13		1.00
Lane Grp Cap(c), veh/h	0	0	0	805	0	0	828	0	0	835	0	704
V/C Ratio(X)	0.00	0.00	0.00	0.20	0.00	0.00	0.25	0.00	0.00	0.26	0.00	0.48
Avail Cap(c_a), veh/h	0	0	0	805	0	0	828	0	0	835	0	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	15.9	0.0	0.0	15.7	0.0	0.0	15.7	0.0	17.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.6	0.0	0.0	0.7	0.0	0.0	0.7	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	2.6	0.0	0.0	3.4	0.0	0.0	3.5	0.0	6.4
LnGrp Delay(d),s/veh	0.0	0.0	0.0	16.5	0.0	0.0	16.4	0.0	0.0	16.4	0.0	20.1
LnGrp LOS				B			B			B		C
Approach Vol, veh/h	153			161			207			554		
Approach Delay, s/veh	0.0			16.5			16.4			18.7		
Approach LOS	A			B			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	45.5		44.5		45.5		44.5					
Change Period (Y+Rc), s	5.5		5.5		5.5		5.5					
Max Green Setting (Gmax), s	40.0		39.0		40.0		21.5					
Max Q Clear Time (g_c+I1), s	8.5		8.6		15.7		7.1					
Green Ext Time (p_c), s	4.1		2.2		4.0		1.7					
Intersection Summary												
HCM 2010 Ctrl Delay	15.2											
HCM 2010 LOS	B											

HCM 2010 TWSC
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

Lanes, Volumes, Timings
120: Water Street & Hamilton

4/14/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	65	5	110	10	1	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75			75		
Link Speed (mph)	25		25			25
Link Distance (ft)	77		133			332
Travel Time (s)	2.1		3.6			9.1
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	0	132	0	0	397
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
120: Water Street & Hamilton

4/14/2015

Intersection

Int Delay, s/veh 1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	65	5	110	10	1	360
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	71	5	121	11	1	396

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	524	126	0
Stage 1	126	-	-
Stage 2	398	-	-
Critical Hdwy	6.41	6.21	4.11
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	2.209
Pot Cap-1 Maneuver	515	927	1459
Stage 1	902	-	-
Stage 2	681	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	514	927	1459
Mov Cap-2 Maneuver	514	-	-
Stage 1	902	-	-
Stage 2	680	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	531	1459
HCM Lane V/C Ratio	-	-	0.145	0.001
HCM Control Delay (s)	-	-	12.9	7.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0

Lanes, Volumes, Timings
122: Cane & Hamilton

4/14/2015

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↖	↗
Volume (vph)	10	0	0	60	10	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Link Speed (mph)	25			25	25	
Link Distance (ft)	77			130	76	
Travel Time (s)	2.1			3.5	2.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	0	66	12	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

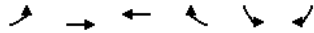
HCM 2010 TWSC
122: Cane & Hamilton

4/14/2015

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	10	0	0	60	10	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	11	0	0	66	11	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	11	0	77	11
Stage 1	-	-	-	-	11	-
Stage 2	-	-	-	-	66	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1615	-	928	1073
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	959	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1615	-	928	1073
Mov Cap-2 Maneuver	-	-	-	-	928	-
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	959	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		8.9	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	940	-	-	1615	-	
HCM Lane V/C Ratio	0.013	-	-	-	-	
HCM Control Delay (s)	8.9	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Lanes, Volumes, Timings
140: Water Street & Brady Street

4/14/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	130	235	460	5	10	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	75				75	
Link Speed (mph)		25	25		25	
Link Distance (ft)		342	265		656	
Travel Time (s)		9.3	7.2		17.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	3%	3%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	419	535	0	511	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
140: Water Street & Brady Street

4/14/2015

Intersection						
Int Delay, s/veh	11.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	130	235	460	5	10	435
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	5	3	3	1	1
Mvmt Flow	149	270	529	6	11	500

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	534	0	1101
Stage 1	-	-	532
Stage 2	-	-	569
Critical Hdwy	4.15	-	6.41
Critical Hdwy Stg 1	-	-	5.41
Critical Hdwy Stg 2	-	-	5.41
Follow-up Hdwy	2.245	-	3.509
Pot Cap-1 Maneuver	*1001	-	*204
Stage 1	-	-	*640
Stage 2	-	-	*568
Platoon blocked, %	1	-	1
Mov Cap-1 Maneuver	*1001	-	*169
Mov Cap-2 Maneuver	-	-	*169
Stage 1	-	-	*640
Stage 2	-	-	*469

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	29.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	* 1001	-	-	-	636
HCM Lane V/C Ratio	0.149	-	-	-	0.804
HCM Control Delay (s)	9.2	0	-	-	29.8
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.5	-	-	-	8.1

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↘	↙	←	↖	↙	↘	↗	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↖		↖		↖	↖	↖	↖	↖	↖
Volume (vph)	55	105	140	125	130	5	70	290	20	5	780	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		85	0		0	230		50	110		50
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	75			75			75			75		
Right Turn on Red		Yes			Yes			Yes			Yes	
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		437			446			537			336	
Travel Time (s)		11.9			12.2			12.2			9.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	3%	3%	3%	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%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	180	157	0	292	0	79	326	22	6	876	90
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8	1		4		1	6			2	
Permitted Phases	8		8	4			6		6	2		2
Detector Phase	8	8	1	4	4		1	6	6	2	2	2
Switch Phase												
Minimum Initial (s)	25.0	25.0	7.0	22.0	22.0		7.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	34.5	34.5	10.5	37.5	37.5		10.5	20.5	20.5	20.5	20.5	20.5
Total Split (s)	55.0	55.0	13.0	55.0	55.0		13.0	35.0	35.0	22.0	22.0	22.0
Total Split (%)	61.1%	61.1%	14.4%	61.1%	61.1%		14.4%	38.9%	38.9%	24.4%	24.4%	24.4%
Maximum Green (s)	48.5	48.5	9.5	48.5	48.5		9.5	29.5	29.5	16.5	16.5	16.5
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0		3.5	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	0.0	2.5	2.5		0.0	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	3.5		6.5			3.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag		Lead			Lead			Lag	Lag	Lag		Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0	2.0	2.0		3.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Ped	Ped	None	Ped	Ped		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		13.0	13.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		18.0	18.0		8.0	8.0	8.0	8.0	8.0	8.0
Pedestrian Calls (#/hr)	15	15		14	14		26	26	20	20	20	20
v/c Ratio		0.36	0.20		0.60		0.33	0.18	0.03	0.01	1.19	0.13
Control Delay		24.6	10.4		30.2		13.7	11.6	1.6	13.6	121.2	2.4
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0

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Synchro 8 Report

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↘	↙	←	↖	↙	↘	↗	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	24.6	10.4			30.2		13.7	11.6	1.6	13.6	121.2	2.4
90th %ile Green (s)	31.0	31.0	9.3	31.0	31.0		9.3	47.0	47.0	34.2	34.2	34.2
90th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	Coord
70th %ile Green (s)	31.0	31.0	8.2	31.0	31.0		8.2	47.0	47.0	35.3	35.3	35.3
70th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	Coord
50th %ile Green (s)	31.0	31.0	7.4	31.0	31.0		7.4	47.0	47.0	36.1	36.1	36.1
50th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	Coord
30th %ile Green (s)	31.0	31.0	7.0	31.0	31.0		7.0	47.0	47.0	36.5	36.5	36.5
30th %ile Term Code	Hold	Hold	Min	Ped	Ped		Min	Coord	Coord	Coord	Coord	Coord
10th %ile Green (s)	31.0	31.0	7.0	31.0	31.0		7.0	47.0	47.0	36.5	36.5	36.5
10th %ile Term Code	Hold	Hold	Min	Ped	Ped		Min	Coord	Coord	Coord	Coord	Coord
Queue Length 50th (ft)		76	38		134		20	48	0	2	-608	0
Queue Length 95th (ft)		130	68		217		40	71	5	m5	#849	m10
Internal Link Dist (ft)		357			366			457			256	
Turn Bay Length (ft)			85				230		50	110		50
Base Capacity (vph)		792	825		766		267	1830	838	410	739	679
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.23	0.19		0.38		0.30	0.18	0.03	0.01	1.19	0.13

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 31 (34%), Referenced to phase 2:SBTL and 6:NBTL, Start of FDW or yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

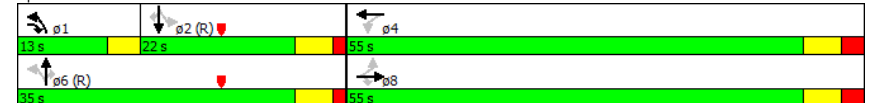
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 150: Water Street & Pleasant Street



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
150: Water Street & Pleasant Street

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	55	105	140	125	130	5	70	290	20	5	780	80
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1827	1900	1881	1900	1845	1845	1845	1863	1863	1863
Adj Flow Rate, veh/h	62	118	157	140	146	6	79	326	22	6	876	90
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	4	4	1	1	1	3	3	3	2	2	2
Cap, veh/h	179	316	577	204	195	7	198	1969	881	549	849	722
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.07	0.56	0.56	0.46	0.46	0.46
Sat Flow, veh/h	412	1038	1553	476	640	23	1757	3505	1568	1029	1863	1583
Grp Volume(v), veh/h	180	0	157	292	0	0	79	326	22	6	876	90
Grp Sat Flow(s),veh/h/ln	1450	0	1553	1140	0	0	1757	1752	1568	1029	1863	1583
Q Serve(g_s), s	0.0	0.0	6.4	14.9	0.0	0.0	1.9	4.0	0.6	0.3	41.0	3.0
Cycle Q Clear(g_c), s	8.1	0.0	6.4	23.0	0.0	0.0	1.9	4.0	0.6	0.3	41.0	3.0
Prop In Lane	0.34		1.00	0.48		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	496	0	577	407	0	0	198	1969	881	549	849	722
V/C Ratio(X)	0.36	0.00	0.27	0.72	0.00	0.00	0.40	0.17	0.02	0.01	1.03	0.12
Avail Cap(c_a), veh/h	859	0	941	736	0	0	265	1969	881	549	849	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.3	0.0	19.8	31.4	0.0	0.0	20.0	9.5	8.8	13.4	24.5	14.1
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.9	0.0	0.0	1.3	0.2	0.1	0.0	39.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	2.7	7.0	0.0	0.0	1.0	2.0	0.3	0.1	30.2	1.3
LnGrp Delay(d),s/veh	24.5	0.0	19.8	32.3	0.0	0.0	21.3	9.7	8.8	13.4	63.7	14.5
LnGrp LOS	C		B	C			C	A	A	B	F	B
Approach Vol, veh/h	337			292			427			972		
Approach Delay, s/veh	22.3			32.3			11.8			58.8		
Approach LOS	C			C			B			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.5	46.5		33.9		56.1		33.9				
Change Period (Y+Rc), s	3.5	5.5		6.5		5.5		6.5				
Max Green Setting (Gmax), s	9.5	16.5		48.5		29.5		48.5				
Max Q Clear Time (g_c+I1), s	3.9	43.0		25.0		6.0		10.1				
Green Ext Time (p_c), s	0.1	0.0		2.5		7.0		2.6				
Intersection Summary												
HCM 2010 Ctrl Delay	39.0											
HCM 2010 LOS	D											

HCM 2010 TWSC
150: Water Street & Pleasant Street

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	←	→	↖	↗	←	↖	↗	←	↖	↗	←	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔			↔			↔				↔	
Volume (vph)	335	100	10	5	35	50	5	175	15	60	185	260	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)		0%			0%			0%			0%		
Storage Length (ft)	0		0	0		0	0		0	0		175	
Storage Lanes	0		0	0		0	0		0	0		1	
Taper Length (ft)	75			75			75			75			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		25			25			25			30		
Link Distance (ft)		521			313			376			473		
Travel Time (s)		14.2			8.5			10.3			10.8		
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)													
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)													
Mid-Block Traffic (%)		0%			0%			0%			0%		
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	484	0	0	97	0	0	211	0	0	266	283	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov	
Protected Phases	7	4			8			2			6	7	
Permitted Phases	4			8			2			6		6	
Detector Phase	7	4		8	8		2	2		6	6	7	
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0	
Minimum Split (s)	7.5	9.5		9.5	9.5		9.5	9.5		9.5	9.5	7.5	
Total Split (s)	26.5	53.5		27.0	27.0		36.5	36.5		36.5	36.5	26.5	
Total Split (%)	29.4%	59.4%		30.0%	30.0%		40.6%	40.6%		40.6%	40.6%	29.4%	
Maximum Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5	
All-Red Time (s)	0.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	0.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	0.0	
Total Lost Time (s)		5.5			5.5			5.5			5.5	3.5	
Lead/Lag	Lead			Lag	Lag							Lead	
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	Max	
Walk Time (s)													
Flash Dont Walk (s)													
Pedestrian Calls (#/hr)													
v/c Ratio		0.61			0.22			0.33			0.47	0.25	
Control Delay		29.3			15.5			23.2			26.4	1.3	
Queue Delay		0.0			0.0			0.0			0.0	0.0	

TADI

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Synchro 8 Report

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	←	→	↖	↗	←	↖	↗	←	↖	↗	←	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Total Delay		29.3			15.5			23.2			26.4	1.3	
90th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0	
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
70th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0	
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
50th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0	
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
30th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0	
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
10th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0	
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
Queue Length 50th (ft)		250			19			86			117	0	
Queue Length 95th (ft)		352			59			143			189	24	
Internal Link Dist (ft)		441			233			296			393		
Turn Bay Length (ft)												175	
Base Capacity (vph)		796			445			633			570	1153	
Starvation Cap Reductn		0			0			0			0	0	
Spillback Cap Reductn		0			0			0			0	0	
Storage Cap Reductn		0			0			0			0	0	
Reduced v/c Ratio		0.61			0.22			0.33			0.47	0.25	

Intersection Summary

Area Type: Other

Cycle Length: 90

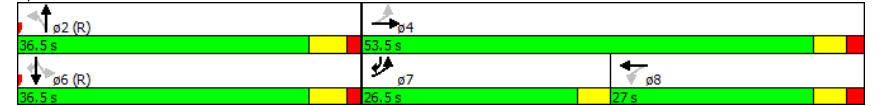
Actuated Cycle Length: 90

Offset: 3 (3%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 55

Control Type: Pretimed

Splits and Phases: 100: Humboldt Avenue & Water Street/Kane Place



TADI

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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	335	100	10	5	35	50	5	175	15	60	185	260
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1900	1900	1881	1900	1900	1863	1900	1900	1881	1881
Adj Flow Rate, veh/h	364	109	11	5	38	54	5	190	16	65	201	283
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	1	1	1
Cap, veh/h	170	30	3	63	380	504	45	577	48	162	474	551
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	188	56	6	39	713	944	12	1676	138	325	1376	1599
Grp Volume(v), veh/h	484	0	0	97	0	0	211	0	0	266	0	283
Grp Sat Flow(s),veh/h/ln	250	0	0	1696	0	0	1826	0	0	1701	0	1599
Q Serve(g_s), s	21.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	12.7
Cycle Q Clear(g_c), s	21.9	0.0	0.0	2.5	0.0	0.0	7.7	0.0	0.0	10.1	0.0	12.7
Prop In Lane	0.75		0.02	0.05		0.56	0.02		0.08	0.24		1.00
Lane Grp Cap(c), veh/h	0	0	0	947	0	0	670	0	0	636	0	551
V/C Ratio(X)	0.00	0.00	0.00	0.10	0.00	0.00	0.31	0.00	0.00	0.42	0.00	0.51
Avail Cap(c_a), veh/h	0	0	0	947	0	0	670	0	0	636	0	551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	10.4	0.0	0.0	21.8	0.0	0.0	22.6	0.0	23.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.0	1.2	0.0	0.0	2.0	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.2	0.0	0.0	4.1	0.0	0.0	5.4	0.0	6.1
LnGrp Delay(d),s/veh	0.0	0.0	0.0	10.6	0.0	0.0	23.1	0.0	0.0	24.6	0.0	26.9
LnGrp LOS				B			C			C		C
Approach Vol, veh/h		484			97			211			549	
Approach Delay, s/veh		0.0			10.6			23.1			25.8	
Approach LOS		A			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.5		53.5		36.5		53.5				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		31.0		48.0		31.0		21.5				
Max Q Clear Time (g_c+I1), s		9.7		23.9		14.7		4.5				
Green Ext Time (p_c), s		4.0		4.3		3.7		3.8				
Intersection Summary												
HCM 2010 Ctrl Delay				14.9								
HCM 2010 LOS				B								

HCM 2010 TWSC
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

Lanes, Volumes, Timings
120: Water Street & Hamilton

4/14/2015

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	N	N	S	S
Volume (vph)	25	15	490	50	5	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75			75		
Link Speed (mph)	25		25		25	
Link Distance (ft)	77		133		332	
Travel Time (s)	2.1		3.6		9.1	
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 (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	587	0	0	326
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
120: Water Street & Hamilton

4/14/2015

Intersection

Int Delay, s/veh 0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	25	15	490	50	5	295
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	27	16	533	54	5	321

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	892	560	587
Stage 1	560	-	-
Stage 2	332	-	-
Critical Hdwy	6.41	6.21	4.11
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	2.209
Pot Cap-1 Maneuver	314	530	993
Stage 1	574	-	-
Stage 2	729	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	312	530	993
Mov Cap-2 Maneuver	312	-	-
Stage 1	574	-	-
Stage 2	725	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 369	993	-
HCM Lane V/C Ratio	-	- 0.118	0.005	-
HCM Control Delay (s)	-	- 16.1	8.6	0
HCM Lane LOS	-	- C	A	A
HCM 95th %tile Q(veh)	-	- 0.4	0	-

Lanes, Volumes, Timings
122: Cane & Hamilton

4/14/2015

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↖	↗
Volume (vph)	55	0	0	25	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Link Speed (mph)	25			25	25	
Link Distance (ft)	77			130	76	
Travel Time (s)	2.1			3.5	2.1	
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 (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	0	0	27	21	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

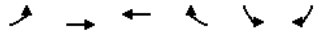
HCM 2010 TWSC
122: Cane & Hamilton

4/14/2015

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	55	0	0	25	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	60	0	0	27	16	5
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	60	0	87	60
Stage 1	-	-	-	-	60	-
Stage 2	-	-	-	-	27	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1550	-	916	1008
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	998	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1550	-	916	1008
Mov Cap-2 Maneuver	-	-	-	-	916	-
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	998	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		8.9	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	937	-	-	1550	-	
HCM Lane V/C Ratio	0.023	-	-	-	-	
HCM Control Delay (s)	8.9	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Lanes, Volumes, Timings
140: Water Street & Brady Street

4/14/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	570	540	380	30	5	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	75				75	
Link Speed (mph)		25	25		25	
Link Distance (ft)		342	265		656	
Travel Time (s)		9.3	7.2		17.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1156	427	0	286	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
140: Water Street & Brady Street

4/14/2015

Intersection

Int Delay, s/veh 43.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	570	540	380	30	5	270
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	594	562	396	31	5	281

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	427	0	2161
Stage 1	-	-	411
Stage 2	-	-	1750
Critical Hdwy	4.11	-	6.41
Critical Hdwy Stg 1	-	-	5.41
Critical Hdwy Stg 2	-	-	5.41
Follow-up Hdwy	2.209	-	3.509
Pot Cap-1 Maneuver	*1125	-	*23
Stage 1	-	-	*708
Stage 2	-	-	*154
Platoon blocked, %	1	-	1
Mov Cap-1 Maneuver	*1125	-	*~ 5
Mov Cap-2 Maneuver	-	-	*~ 5
Stage 1	-	-	*708
Stage 2	-	-	*36

Approach	EB	WB	SB
HCM Control Delay, s	6	0	259.1
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	* 1125	-	-	-	202
HCM Lane V/C Ratio	0.528	-	-	-	1.418
HCM Control Delay (s)	11.7	0	-	-	259.1
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	3.2	-	-	-	16.9

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↖		↖		↖	↖	↖	↖	↖	↖
Volume (vph)	110	170	165	40	115	40	155	905	85	25	620	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		85	0		0	230		50	110		50
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	75			75			75			75		
Right Turn on Red		Yes			Yes			Yes			Yes	
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		437			446			537			336	
Travel Time (s)		11.9			12.2			12.2			9.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	3%	3%	3%	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%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	288	170	0	201	0	160	933	88	26	639	62
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8	1		4		1	6			2	
Permitted Phases	8		8	4			6		6	2		2
Detector Phase	8	8	1	4	4		1	6	6	2	2	2
Switch Phase												
Minimum Initial (s)	25.0	25.0	7.0	22.0	22.0		7.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	34.5	34.5	10.5	37.5	37.5		10.5	20.5	20.5	20.5	20.5	20.5
Total Split (s)	55.0	55.0	13.0	55.0	55.0		13.0	35.0	35.0	22.0	22.0	22.0
Total Split (%)	61.1%	61.1%	14.4%	61.1%	61.1%		14.4%	38.9%	38.9%	24.4%	24.4%	24.4%
Maximum Green (s)	48.5	48.5	9.5	48.5	48.5		9.5	29.5	29.5	16.5	16.5	16.5
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0		3.5	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	0.0	2.5	2.5		0.0	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.5	3.5		6.5		3.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lead				Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0	2.0	2.0		3.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Ped	Ped	None	Ped	Ped		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		13.0	13.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		18.0	18.0		8.0	8.0	8.0	8.0	8.0	8.0
Pedestrian Calls (#/hr)	15	15		14	14		26	26	20	20	20	20
v/c Ratio		0.59	0.21		0.35		0.58	0.51	0.11	0.12	0.91	0.10
Control Delay		30.2	9.6		21.6		21.7	15.2	6.7	17.9	43.5	1.8
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0

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Synchro 8 Report

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	30.2	9.6		21.6			21.7	15.2	6.7	17.9	43.5	1.8
90th %ile Green (s)	31.0	31.0	12.7	31.0	31.0		12.7	47.0	47.0	30.8	30.8	30.8
90th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	Coord
70th %ile Green (s)	31.0	31.0	10.8	31.0	31.0		10.8	47.0	47.0	32.7	32.7	32.7
70th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	Coord
50th %ile Green (s)	31.0	31.0	9.6	31.0	31.0		9.6	47.0	47.0	33.9	33.9	33.9
50th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	Coord
30th %ile Green (s)	31.0	31.0	8.4	31.0	31.0		8.4	47.0	47.0	35.1	35.1	35.1
30th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	Coord
10th %ile Green (s)	31.0	31.0	7.0	31.0	31.0		7.0	47.0	47.0	36.5	36.5	36.5
10th %ile Term Code	Hold	Hold	Min	Ped	Ped		Min	Coord	Coord	Coord	Coord	Coord
Queue Length 50th (ft)		133	39		74		43	171	12	8	343	1
Queue Length 95th (ft)		219	68		132		95	224	35	m22	#592	m6
Internal Link Dist (ft)		357			366			457			256	
Turn Bay Length (ft)			85				230		50	110		50
Base Capacity (vph)		765	841		879		287	1830	838	214	699	647
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.38	0.20		0.23		0.56	0.51	0.11	0.12	0.91	0.10

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 44 (49%), Referenced to phase 2:SBTL and 6:NBT, Start of FDW or yellow

Natural Cycle: 90

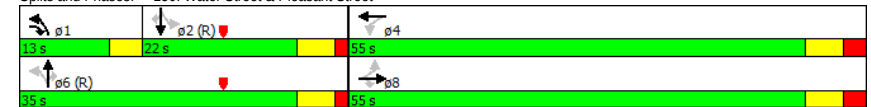
Control Type: Actuated-Coordinated

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 150: Water Street & Pleasant Street



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
150: Water Street & Pleasant Street

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	110	170	165	40	115	40	155	905	85	25	620	60
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1827	1900	1881	1900	1845	1845	1845	1863	1863	1863
Adj Flow Rate, veh/h	113	175	170	41	119	41	160	933	88	26	639	62
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	1	1	1	3	3	3	2	2	2
Cap, veh/h	176	244	658	73	193	56	282	1819	814	269	752	639
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.08	0.52	0.52	0.40	0.40	0.40
Sat Flow, veh/h	345	702	1553	70	555	160	1757	3505	1568	550	1863	1583
Grp Volume(v), veh/h	288	0	170	201	0	0	160	933	88	26	639	62
Grp Sat Flow(s),veh/h/ln	1047	0	1553	785	0	0	1757	1752	1568	550	1863	1583
Q Serve(g, s), s	0.0	0.0	6.4	2.5	0.0	0.0	4.5	15.7	2.6	2.9	28.0	2.2
Cycle Q Clear(g_c), s	24.5	0.0	6.4	26.9	0.0	0.0	4.5	15.7	2.6	8.3	28.0	2.2
Prop In Lane	0.39		1.00	0.20		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	420	0	658	321	0	0	282	1819	814	269	752	639
V/C Ratio(X)	0.69	0.00	0.26	0.63	0.00	0.00	0.57	0.51	0.11	0.10	0.85	0.10
Avail Cap(c_a), veh/h	709	0	955	621	0	0	333	1819	814	269	752	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	0.0	16.8	23.3	0.0	0.0	18.7	14.2	11.0	20.3	24.3	16.6
Incr Delay (d2), s/veh	0.7	0.0	0.1	0.7	0.0	0.0	1.8	1.0	0.3	0.7	11.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	0.0	2.7	3.7	0.0	0.0	2.3	7.8	1.2	0.5	16.8	1.0
LnGrp Delay(d),s/veh	26.7	0.0	16.8	24.1	0.0	0.0	20.5	15.2	11.3	21.0	35.9	16.9
LnGrp LOS	C		B	C			C	B	B	C	D	B
Approach Vol, veh/h	458			201			1181			727		
Approach Delay, s/veh	23.1			24.1			15.6			33.7		
Approach LOS	C			C			B			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.4	41.8		37.8		52.2		37.8				
Change Period (Y+Rc), s	3.5	5.5		6.5		5.5		6.5				
Max Green Setting (Gmax), s	9.5	16.5		48.5		29.5		48.5				
Max Q Clear Time (g_c+I1), s	6.5	30.0		28.9		17.7		26.5				
Green Ext Time (p_c), s	0.1	0.0		2.4		6.5		2.5				
Intersection Summary												
HCM 2010 Ctrl Delay	22.8											
HCM 2010 LOS	C											

HCM 2010 TWSC
150: Water Street & Pleasant Street

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

APPENDIX C

BUILD TRAFFIC PEAK HOUR ANALYSIS OUTPUTS

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	↖	→	↘	↙	←	↖	↙	↗	↘	↙	↘	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	↗
Volume (vph)	110	25	10	1	75	45	5	140	10	20	140	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		175
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	75			75			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		521			313			376			473	
Travel Time (s)		14.2			8.5			10.3			10.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	5%	5%	5%	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%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	193	0	0	161	0	0	207	0	0	214	347
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	7.5	9.5		9.5	9.5		9.5	9.5		9.5	9.5	7.5
Total Split (s)	17.5	44.5		27.0	27.0		45.5	45.5		45.5	45.5	17.5
Total Split (%)	19.4%	49.4%		30.0%	30.0%		50.6%	50.6%		50.6%	50.6%	19.4%
Maximum Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5
All-Red Time (s)	0.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	0.0
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)		5.5			5.5			5.5			5.5	3.5
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.35			0.36			0.26			0.27	0.30
Control Delay		21.4			25.5			16.4			17.0	1.4
Queue Delay		0.0			0.0			0.0			0.0	0.0

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Synchro 8 Report

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	↖	→	↘	↙	←	↖	↙	↗	↘	↙	↘	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		21.4			25.5			16.4			17.0	1.4
90th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
70th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
50th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
30th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
10th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
Queue Length 50th (ft)		77			61			70			74	0
Queue Length 95th (ft)		105			92			94			100	10
Internal Link Dist (ft)		441			233			296			393	
Turn Bay Length (ft)												175
Base Capacity (vph)		544			450			793			784	1164
Starvation Cap Reductn		0			0			0			0	0
Spillback Cap Reductn		0			0			0			0	0
Storage Cap Reductn		0			0			0			0	0
Reduced v/c Ratio		0.35			0.36			0.26			0.27	0.30

Intersection Summary

Area Type: Other

Cycle Length: 90

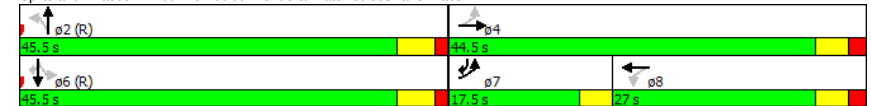
Actuated Cycle Length: 90

Offset: 70 (78%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 40

Control Type: Pretimed

Splits and Phases: 100: Humboldt Avenue & Water Street/Kane Place



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	110	25	10	1	75	45	5	140	10	20	140	260
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1900	1900	1881	1900	1900	1810	1900	1900	1863	1863
Adj Flow Rate, veh/h	147	33	13	1	100	60	7	187	13	27	187	347
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	1	1	1	1	1	1	5	5	5	2	2	2
Cap, veh/h	147	29	8	41	479	285	49	729	49	111	724	704
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	177	68	18	1	1106	658	17	1641	111	148	1628	1583
Grp Volume(v), veh/h	193	0	0	161	0	0	207	0	0	214	0	347
Grp Sat Flow(s), veh/h/ln	262	0	0	1765	0	0	1770	0	0	1777	0	1583
Q Serve(g_s), s	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0
Cycle Q Clear(g_c), s	8.6	0.0	0.0	5.1	0.0	0.0	6.5	0.0	0.0	6.5	0.0	14.0
Prop In Lane	0.76		0.07	0.01		0.37	0.03		0.06	0.13		1.00
Lane Grp Cap(c), veh/h	0	0	0	805	0	0	828	0	0	835	0	704
V/C Ratio(X)	0.00	0.00	0.00	0.20	0.00	0.00	0.25	0.00	0.00	0.26	0.00	0.49
Avail Cap(c_a), veh/h	0	0	0	805	0	0	828	0	0	835	0	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	15.9	0.0	0.0	15.7	0.0	0.0	15.7	0.0	17.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.6	0.0	0.0	0.7	0.0	0.0	0.7	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	2.6	0.0	0.0	3.4	0.0	0.0	3.5	0.0	6.6
LnGrp Delay(d),s/veh	0.0	0.0	0.0	16.5	0.0	0.0	16.4	0.0	0.0	16.4	0.0	20.2
LnGrp LOS				B			B			B		C
Approach Vol, veh/h	193			161			207			561		
Approach Delay, s/veh	0.0			16.5			16.4			18.8		
Approach LOS	A			B			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	45.5		44.5		45.5		44.5					
Change Period (Y+Rc), s	5.5		5.5		5.5		5.5					
Max Green Setting (Gmax), s	40.0		39.0		40.0		21.5					
Max Q Clear Time (g_c+I1), s	8.5		10.6		16.0		7.1					
Green Ext Time (p_c), s	4.2		2.5		4.0		1.9					
Intersection Summary												
HCM 2010 Ctrl Delay	14.8											
HCM 2010 LOS	B											

HCM 2010 TWSC
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

Lanes, Volumes, Timings
110: Water Street & North Drwy

4/14/2015

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	15	60	15	130	360	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	75		75			
Link Speed (mph)	25			25	25	
Link Distance (ft)	272			332	510	
Travel Time (s)	7.4			9.1	13.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	0	0	159	401	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 2010 TWSC
110: Water Street & North Drwy

4/14/2015

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	15	60	15	130	360	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	16	66	16	143	396	5
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	574	398	401	0	-	0
Stage 1	398	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	482	654	1163	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	857	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	475	654	1163	-	-	-
Mov Cap-2 Maneuver	475	-	-	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	844	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	11.8		0.8		0	
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1163	-	608	-	-	
HCM Lane V/C Ratio	0.014	-	0.136	-	-	
HCM Control Delay (s)	8.1	0	11.8	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.5	-	-	

Lanes, Volumes, Timings
120: Water Street & Hamilton

4/14/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	65	10	135	10	35	385
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Link Speed (mph)	25		25			25
Link Distance (ft)	77		133			332
Travel Time (s)	2.1		3.6			9.1
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	0	159	0	0	461
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
120: Water Street & Hamilton

4/14/2015

Intersection

Int Delay, s/veh 2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	65	10	135	10	35	385
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	71	11	148	11	38	423

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	654	154	0
Stage 1	154	-	-
Stage 2	500	-	-
Critical Hdwy	6.41	6.21	4.11
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	2.209
Pot Cap-1 Maneuver	433	895	1427
Stage 1	877	-	-
Stage 2	611	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	418	895	1427
Mov Cap-2 Maneuver	418	-	-
Stage 1	877	-	-
Stage 2	590	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.8	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	450	1427
HCM Lane V/C Ratio	-	-	0.183	0.027
HCM Control Delay (s)	-	-	14.8	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.7	0.1

Lanes, Volumes, Timings
122: Cane & Hamilton

4/14/2015

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↖	↗
Volume (vph)	45	0	0	65	10	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Link Speed (mph)	25			25	25	
Link Distance (ft)	77			130	76	
Travel Time (s)	2.1			3.5	2.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	0	0	71	12	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 2010 TWSC
122: Cane & Hamilton

4/14/2015

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	45	0	0	65	10	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	49	0	0	71	11	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	49	0	120	49
Stage 1	-	-	-	-	49	-
Stage 2	-	-	-	-	71	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1564	-	878	1022
Stage 1	-	-	-	-	976	-
Stage 2	-	-	-	-	954	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1564	-	878	1022
Mov Cap-2 Maneuver	-	-	-	-	878	-
Stage 1	-	-	-	-	976	-
Stage 2	-	-	-	-	954	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		9.1	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	889	-	-	1564	-	
HCM Lane V/C Ratio	0.014	-	-	-	-	
HCM Control Delay (s)	9.1	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Lanes, Volumes, Timings
130: Water Street & South Drwy

4/14/2015

	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (vph)	15	60	15	130	450	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	75		75			
Link Speed (mph)	25			25	25	
Link Distance (ft)	290			656	133	
Travel Time (s)	7.9			17.9	3.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	0	0	159	496	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
130: Water Street & South Drwy

4/14/2015

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	15	60	15	130	450	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	16	66	16	143	495	1

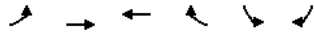
Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	671	495	496
Stage 1	495	-	-
Stage 2	176	-	-
Critical Hdwy	6.41	6.21	4.11
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	2.209
Pot Cap-1 Maneuver	423	577	1073
Stage 1	615	-	-
Stage 2	857	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	416	577	1073
Mov Cap-2 Maneuver	416	-	-
Stage 1	615	-	-
Stage 2	843	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.9	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1073	-	536	-
HCM Lane V/C Ratio	0.015	-	0.154	-
HCM Control Delay (s)	8.4	0	12.9	-
HCM Lane LOS	A	A	B	-
HCM 95th %tile Q(veh)	0	-	0.5	-

Lanes, Volumes, Timings
140: Water Street & Brady Street

4/14/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	145	235	460	15	10	485
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	75				75	
Link Speed (mph)		25	25		25	
Link Distance (ft)		342	265		656	
Travel Time (s)		9.3	7.2		17.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	3%	3%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	437	546	0	568	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
140: Water Street & Brady Street

4/14/2015

Intersection						
Int Delay, s/veh	16					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	145	235	460	15	10	485
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	5	3	3	1	1
Mvmt Flow	167	270	529	17	11	557

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	546	0	1140
Stage 1	-	-	537
Stage 2	-	-	603
Critical Hdwy	4.15	-	6.41
Critical Hdwy Stg 1	-	-	5.41
Critical Hdwy Stg 2	-	-	5.41
Follow-up Hdwy	2.245	-	3.509
Pot Cap-1 Maneuver	*1001	-	*187
Stage 1	-	-	*640
Stage 2	-	-	*548
Platoon blocked, %	1	-	1
Mov Cap-1 Maneuver	*1001	-	*151
Mov Cap-2 Maneuver	-	-	*151
Stage 1	-	-	*640
Stage 2	-	-	*441

Approach	EB	WB	SB
HCM Control Delay, s	3.6	0	40.8
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	* 1001	-	-	-	634
HCM Lane V/C Ratio	0.167	-	-	-	0.897
HCM Control Delay (s)	9.3	0	-	-	40.8
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.6	-	-	-	11.1

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↘	↙	←	↖	↙	↘	↗	↘	↙	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↖		↖		↖	↖	↖	↖	↖	↖
Volume (vph)	60	105	140	125	130	5	70	300	20	5	815	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		85	0		0	230		50	110		50
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	75			75			75			75		
Right Turn on Red		Yes			Yes			Yes			Yes	
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		437			446			537			336	
Travel Time (s)		11.9			12.2			12.2			9.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	3%	3%	3%	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%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	185	157	0	292	0	79	337	22	6	916	107
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8	1		4		1	6			2	
Permitted Phases	8		8	4			6		6	2		2
Detector Phase	8	8	1	4	4		1	6	6	2	2	2
Switch Phase												
Minimum Initial (s)	25.0	25.0	7.0	22.0	22.0		7.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	34.5	34.5	10.5	37.5	37.5		10.5	20.5	20.5	20.5	20.5	20.5
Total Split (s)	55.0	55.0	13.0	55.0	55.0		13.0	35.0	35.0	22.0	22.0	22.0
Total Split (%)	61.1%	61.1%	14.4%	61.1%	61.1%		14.4%	38.9%	38.9%	24.4%	24.4%	24.4%
Maximum Green (s)	48.5	48.5	9.5	48.5	48.5		9.5	29.5	29.5	16.5	16.5	16.5
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0		3.5	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	0.0	2.5	2.5		0.0	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	3.5		6.5			3.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag		Lead			Lead			Lag	Lag	Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0	2.0	2.0		3.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Ped	Ped	None	Ped	Ped		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		13.0	13.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		18.0	18.0		8.0	8.0	8.0	8.0	8.0	8.0
Pedestrian Calls (#/hr)	15	15		14	14		26	26	20	20	20	20
v/c Ratio		0.37	0.20		0.60		0.33	0.18	0.03	0.01	1.24	0.16
Control Delay		24.9	10.4		30.5		13.7	11.7	1.6	13.6	143.6	3.4
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0

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Synchro 8 Report

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↘	↙	←	↖	↙	↘	↗	↘	↙	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	24.9	10.4			30.5		13.7	11.7	1.6	13.6	143.6	3.4
90th %ile Green (s)	31.0	31.0	9.3	31.0	31.0		9.3	47.0	47.0	34.2	34.2	34.2
90th %ile Term Code	Hold	Hold	Gap	Gap	Gap		Gap	Coord	Coord	Coord	Coord	Coord
70th %ile Green (s)	31.0	31.0	8.2	31.0	31.0		8.2	47.0	47.0	35.3	35.3	35.3
70th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	Coord
50th %ile Green (s)	31.0	31.0	7.4	31.0	31.0		7.4	47.0	47.0	36.1	36.1	36.1
50th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	Coord
30th %ile Green (s)	31.0	31.0	7.0	31.0	31.0		7.0	47.0	47.0	36.5	36.5	36.5
30th %ile Term Code	Hold	Hold	Min	Ped	Ped		Min	Coord	Coord	Coord	Coord	Coord
10th %ile Green (s)	31.0	31.0	7.0	31.0	31.0		7.0	47.0	47.0	36.5	36.5	36.5
10th %ile Term Code	Hold	Hold	Min	Ped	Ped		Min	Coord	Coord	Coord	Coord	Coord
Queue Length 50th (ft)		78	38		135		20	50	0	2	-656	1
Queue Length 95th (ft)		134	68		218		40	73	5	m5	#900	m19
Internal Link Dist (ft)		357			366			457			256	
Turn Bay Length (ft)			85				230		50	110		50
Base Capacity (vph)		778	825		759		267	1830	838	405	739	679
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.24	0.19		0.38		0.30	0.18	0.03	0.01	1.24	0.16

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 31 (34%), Referenced to phase 2:SBTL and 6:NBT, Start of FDW or yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

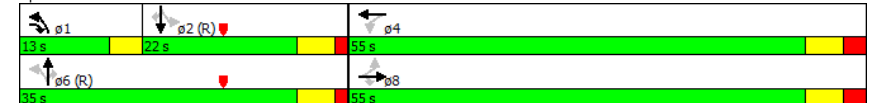
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 150: Water Street & Pleasant Street



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
150: Water Street & Pleasant Street

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	60	105	140	125	130	5	70	300	20	5	815	95
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1827	1900	1881	1900	1845	1845	1845	1863	1863	1863
Adj Flow Rate, veh/h	67	118	157	140	146	6	79	337	22	6	916	107
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	4	4	1	1	1	3	3	3	2	2	2
Cap, veh/h	189	308	584	204	196	7	198	1953	874	540	841	715
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.07	0.56	0.56	0.45	0.45	0.45
Sat Flow, veh/h	433	994	1553	469	632	23	1757	3505	1568	1018	1863	1583
Grp Volume(v), veh/h	185	0	157	292	0	0	79	337	22	6	916	107
Grp Sat Flow(s),veh/h/ln	1427	0	1553	1124	0	0	1757	1752	1568	1018	1863	1583
Q Serve(g_s), s	0.0	0.0	6.3	14.8	0.0	0.0	1.9	4.2	0.6	0.3	40.6	3.6
Cycle Q Clear(g_c), s	8.5	0.0	6.3	23.4	0.0	0.0	1.9	4.2	0.6	0.3	40.6	3.6
Prop In Lane	0.36		1.00	0.48		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	496	0	584	407	0	0	198	1953	874	540	841	715
V/C Ratio(X)	0.37	0.00	0.27	0.72	0.00	0.00	0.40	0.17	0.03	0.01	1.09	0.15
Avail Cap(c_a), veh/h	850	0	941	730	0	0	265	1953	874	540	841	715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	19.5	31.3	0.0	0.0	20.0	9.8	8.9	13.6	24.7	14.5
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.9	0.0	0.0	1.3	0.2	0.1	0.0	58.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	2.7	7.0	0.0	0.0	1.0	2.1	0.3	0.1	34.4	1.6
LnGrp Delay(d),s/veh	24.3	0.0	19.6	32.2	0.0	0.0	21.3	10.0	9.0	13.7	82.9	15.0
LnGrp LOS	C		B	C			C	A	A	B	F	B
Approach Vol, veh/h		342			292			438			1029	
Approach Delay, s/veh		22.1			32.2			12.0			75.5	
Approach LOS		C			C			B			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.5	46.1		34.3		55.7		34.3				
Change Period (Y+Rc), s	3.5	5.5		6.5		5.5		6.5				
Max Green Setting (Gmax), s	9.5	16.5		48.5		29.5		48.5				
Max Q Clear Time (g_c+I1), s	3.9	42.6		25.4		6.2		10.5				
Green Ext Time (p_c), s	0.1	0.0		2.5		7.5		2.6				
Intersection Summary												
HCM 2010 Ctrl Delay			47.5									
HCM 2010 LOS			D									

HCM 2010 TWSC
150: Water Street & Pleasant Street

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	350	100	10	5	40	50	5	175	15	60	185	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%		0%	
Storage Length (ft)	0		0	0		0	0		0	0		175
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	75			75			75			75		
Right Turn on Red			Yes				Yes				Yes	
Link Speed (mph)	25				25				25		30	
Link Distance (ft)	521				313				376		473	
Travel Time (s)	14.2				8.5				10.3		10.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)	0%				0%				0%		0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	500	0	0	102	0	0	211	0	0	266	310
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	7.5	9.5		9.5	9.5		9.5	9.5		9.5	9.5	7.5
Total Split (s)	26.5	53.5		27.0	27.0		36.5	36.5		36.5	36.5	26.5
Total Split (%)	29.4%	59.4%		30.0%	30.0%		40.6%	40.6%		40.6%	40.6%	29.4%
Maximum Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5
All-Red Time (s)	0.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	0.0
Lost Time Adjust (s)	0.0				0.0				0.0		0.0	
Total Lost Time (s)	5.5				5.5				5.5		5.5	
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.63				0.23				0.33		0.47	
Control Delay	27.8				16.1				23.2		26.4	
Queue Delay	0.0				0.0				0.0		0.0	

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Synchro 8 Report

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	27.8				16.1				23.2		26.4	
90th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
70th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
50th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
30th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
10th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
Queue Length 50th (ft)	250				21				86		117	
Queue Length 95th (ft)	354				62				143		189	
Internal Link Dist (ft)	441				233				296		393	
Turn Bay Length (ft)											175	
Base Capacity (vph)	789				446				633		570	
Starvation Cap Reductn	0				0				0		0	
Spillback Cap Reductn	0				0				0		0	
Storage Cap Reductn	0				0				0		0	
Reduced v/c Ratio	0.63				0.23				0.33		0.47	

Intersection Summary

Area Type: Other

Cycle Length: 90

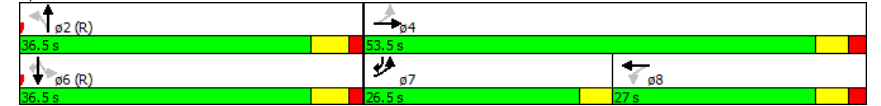
Actuated Cycle Length: 90

Offset: 3 (3%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Pretimed

Splits and Phases: 100: Humboldt Avenue & Water Street/Kane Place



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	350	100	10	5	40	50	5	175	15	60	185	285
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1900	1900	1881	1900	1900	1863	1900	1900	1881	1881
Adj Flow Rate, veh/h	380	109	11	5	43	54	5	190	16	65	201	310
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	1	1	1
Cap, veh/h	169	28	3	61	409	481	45	577	48	162	474	551
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	186	53	5	36	767	903	12	1676	138	325	1376	1599
Grp Volume(v), veh/h	500	0	0	102	0	0	211	0	0	266	0	310
Grp Sat Flow(s), veh/h/ln	244	0	0	1705	0	0	1826	0	0	1701	0	1599
Q Serve(g_s), s	23.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	14.2
Cycle Q Clear(g_c), s	23.2	0.0	0.0	2.6	0.0	0.0	7.7	0.0	0.0	10.1	0.0	14.2
Prop In Lane	0.76		0.02	0.05		0.53	0.02		0.08	0.24		1.00
Lane Grp Cap(c), veh/h	0	0	0	951	0	0	670	0	0	636	0	551
V/C Ratio(X)	0.00	0.00	0.00	0.11	0.00	0.00	0.32	0.00	0.00	0.42	0.00	0.56
Avail Cap(c_a), veh/h	0	0	0	951	0	0	670	0	0	636	0	551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	10.4	0.0	0.0	21.8	0.0	0.0	22.6	0.0	24.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.0	1.2	0.0	0.0	2.0	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.3	0.0	0.0	4.1	0.0	0.0	5.4	0.0	6.8
LnGrp Delay(d),s/veh	0.0	0.0	0.0	10.6	0.0	0.0	23.1	0.0	0.0	24.6	0.0	28.1
LnGrp LOS				B			C			C		C
Approach Vol, veh/h	500			102			211			576		
Approach Delay, s/veh	0.0			10.6			23.1			26.5		
Approach LOS	A			B			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	36.5		53.5		36.5		53.5					
Change Period (Y+Rc), s	5.5		5.5		5.5		5.5					
Max Green Setting (Gmax), s	31.0		48.0		31.0		21.5					
Max Q Clear Time (g_c+I1), s	9.7		25.2		16.2		4.6					
Green Ext Time (p_c), s	4.2		4.4		3.7		4.0					
Intersection Summary												
HCM 2010 Ctrl Delay	15.3											
HCM 2010 LOS	B											

HCM 2010 TWSC
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

Lanes, Volumes, Timings
110: Water Street & North Drwy

4/14/2015

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	10	30	55	510	315	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	75		75			
Link Speed (mph)	25			25	25	
Link Distance (ft)	272			332	510	
Travel Time (s)	7.4			9.1	13.9	
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 (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	0	0	614	358	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 2010 TWSC
110: Water Street & North Drwy

4/14/2015

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	10	30	55	510	315	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	11	33	60	554	342	16
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1025	351	359	0	-	0
Stage 1	351	-	-	-	-	-
Stage 2	674	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	262	695	1205	-	-	-
Stage 1	715	-	-	-	-	-
Stage 2	508	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	243	695	1205	-	-	-
Mov Cap-2 Maneuver	243	-	-	-	-	-
Stage 1	715	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	13.4		0.8		0	
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR		
Capacity (veh/h)	1205	- 474	-	-		
HCM Lane V/C Ratio	0.05	- 0.092	-	-		
HCM Control Delay (s)	8.1	0 13.4	-	-		
HCM Lane LOS	A	A B	-	-		
HCM 95th %tile Q(veh)	0.2	- 0.3	-	-		

Lanes, Volumes, Timings
120: Water Street & Hamilton

4/14/2015

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	N	N	S	S
Volume (vph)	35	25	540	50	20	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75			75		
Link Speed (mph)	25		25			25
Link Distance (ft)	77		133			332
Travel Time (s)	2.1		3.6			9.1
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 (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	0	641	0	0	375
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
120: Water Street & Hamilton

4/14/2015

Intersection

Int Delay, s/veh 1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	35	25	540	50	20	325
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	38	27	587	54	22	353

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1011	614	0
Stage 1	614	-	-
Stage 2	397	-	-
Critical Hdwy	6.41	6.21	4.11
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	2.209
Pot Cap-1 Maneuver	267	494	948
Stage 1	542	-	-
Stage 2	681	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	259	494	948
Mov Cap-2 Maneuver	259	-	-
Stage 1	542	-	-
Stage 2	661	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.9	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	323	948
HCM Lane V/C Ratio	-	-	0.202	0.023
HCM Control Delay (s)	-	-	18.9	8.9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.7	0.1

Lanes, Volumes, Timings

122: Cane & Hamilton

4/14/2015

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↖	↗
Volume (vph)	70	0	0	45	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Link Speed (mph)	25			25	25	
Link Distance (ft)	77			130	76	
Travel Time (s)	2.1			3.5	2.1	
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 (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	0	0	49	21	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 2010 TWSC

122: Cane & Hamilton

4/14/2015

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	70	0	0	45	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	76	0	0	49	16	5
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	76	0	125	76
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	49	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1529	-	872	988
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1529	-	872	988
Mov Cap-2 Maneuver	-	-	-	-	872	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	976	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		9.1	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	898	-	-	1529	-	
HCM Lane V/C Ratio	0.024	-	-	-	-	
HCM Control Delay (s)	9.1	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Lanes, Volumes, Timings
130: Water Street & South Drwy

4/14/2015

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	5	35	50	585	335	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	75		75			
Link Speed (mph)	25			25	25	
Link Distance (ft)	290			656	133	
Travel Time (s)	7.9			17.9	3.6	
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 (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	0	690	391	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
130: Water Street & South Drwy

4/14/2015

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	35	50	585	335	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	5	38	54	636	364	27

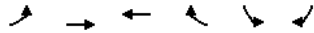
Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1123	378	391
Stage 1	378	-	-
Stage 2	745	-	-
Critical Hdwy	6.41	6.21	4.11
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	2.209
Pot Cap-1 Maneuver	229	671	1173
Stage 1	695	-	-
Stage 2	471	-	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	213	671	1173
Mov Cap-2 Maneuver	213	-	-
Stage 1	695	-	-
Stage 2	438	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1173	-	529	-
HCM Lane V/C Ratio	0.046	-	0.082	-
HCM Control Delay (s)	8.2	0	12.4	-
HCM Lane LOS	A	A	B	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-

Lanes, Volumes, Timings
140: Water Street & Brady Street

4/14/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	620	540	380	75	5	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	75				75	
Link Speed (mph)		25	25		25	
Link Distance (ft)		342	265		656	
Travel Time (s)		9.3	7.2		17.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1208	474	0	317	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
140: Water Street & Brady Street

4/14/2015

Intersection

Int Delay, s/veh 97.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	620	540	380	75	5	300
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	646	562	396	78	5	312

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	474	0	2289
Stage 1	-	-	435
Stage 2	-	-	1854
Critical Hdwy	4.11	-	6.41
Critical Hdwy Stg 1	-	-	5.41
Critical Hdwy Stg 2	-	-	5.41
Follow-up Hdwy	2.209	-	3.509
Pot Cap-1 Maneuver	1112	-	*18
Stage 1	-	-	*708
Stage 2	-	-	*137
Platoon blocked, %	1	-	1
Mov Cap-1 Maneuver	1112	-	*~ 3
Mov Cap-2 Maneuver	-	-	*~ 3
Stage 1	-	-	*708
Stage 2	-	-	*21

Approach	EB	WB	SB
HCM Control Delay, s	6.7	0	\$ 587.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1112	-	-	-	148
HCM Lane V/C Ratio	0.581	-	-	-	2.147
HCM Control Delay (s)	12.6	0	-	-	\$ 587.4
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	3.9	-	-	-	25.8

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↘	↙	←	↖	↙	↘	↗	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↖		↖		↖	↖	↖	↖	↖	↖
Volume (vph)	125	170	165	40	115	40	155	940	85	25	640	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		85	0		0	230		50	110		50
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	75			75			75			75		
Right Turn on Red		Yes			Yes			Yes			Yes	
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		437			446			537			336	
Travel Time (s)		11.9			12.2			12.2			9.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	3%	3%	3%	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%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	304	170	0	201	0	160	969	88	26	660	72
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8	1		4		1	6			2	
Permitted Phases	8		8	4			6		6	2		2
Detector Phase	8	8	1	4	4		1	6	6	2	2	2
Switch Phase												
Minimum Initial (s)	25.0	25.0	7.0	22.0	22.0		7.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	34.5	34.5	10.5	37.5	37.5		10.5	20.5	20.5	20.5	20.5	20.5
Total Split (s)	55.0	55.0	13.0	55.0	55.0		13.0	35.0	35.0	22.0	22.0	22.0
Total Split (%)	61.1%	61.1%	14.4%	61.1%	61.1%		14.4%	38.9%	38.9%	24.4%	24.4%	24.4%
Maximum Green (s)	48.5	48.5	9.5	48.5	48.5		9.5	29.5	29.5	16.5	16.5	16.5
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0		3.5	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.5	2.5	0.0	2.5	2.5		0.0	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.5	3.5		6.5		3.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag			Lead				Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0	2.0	2.0		3.0	2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Ped	Ped	None	Ped	Ped		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		13.0	13.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		18.0	18.0		8.0	8.0	8.0	8.0	8.0	8.0
Pedestrian Calls (#/hr)	15	15		14	14		26	26	20	20	20	20
v/c Ratio		0.63	0.20		0.35		0.58	0.53	0.11	0.13	0.95	0.11
Control Delay		31.2	9.3		21.7		21.6	15.8	6.9	19.2	51.3	2.8
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0

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Synchro 8 Report

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↘	↙	←	↖	↙	↘	↗	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	31.2	9.3			21.7		21.6	15.8	6.9	19.2	51.3	2.8
90th %ile Green (s)	32.5	32.5	13.0	32.5	32.5		13.0	45.5	45.5	29.0	29.0	29.0
90th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord	Coord	Coord	Coord	Coord
70th %ile Green (s)	31.0	31.0	10.8	31.0	31.0		10.8	47.0	47.0	32.7	32.7	32.7
70th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	Coord
50th %ile Green (s)	31.0	31.0	9.6	31.0	31.0		9.6	47.0	47.0	33.9	33.9	33.9
50th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	Coord
30th %ile Green (s)	31.0	31.0	8.4	31.0	31.0		8.4	47.0	47.0	35.1	35.1	35.1
30th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	Coord
10th %ile Green (s)	31.0	31.0	7.0	31.0	31.0		7.0	47.0	47.0	36.5	36.5	36.5
10th %ile Term Code	Hold	Hold	Min	Ped	Ped		Min	Coord	Coord	Coord	Coord	Coord
Queue Length 50th (ft)		143	39		76		43	181	12	8	358	1
Queue Length 95th (ft)		228	65		130		97	245	36	m25	#640	m11
Internal Link Dist (ft)		357			366			457			256	
Turn Bay Length (ft)			85				230		50	110		50
Base Capacity (vph)		753	847		874		288	1818	833	204	692	641
Starvation Cap Reductn		0	0		0		0	0	0	0	0	0
Spillback Cap Reductn		0	0		0		0	0	0	0	0	0
Storage Cap Reductn		0	0		0		0	0	0	0	0	0
Reduced v/c Ratio		0.40	0.20		0.23		0.56	0.53	0.11	0.13	0.95	0.11

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 44 (49%), Referenced to phase 2:SBTL and 6:NBT, Start of FDW or yellow

Natural Cycle: 90

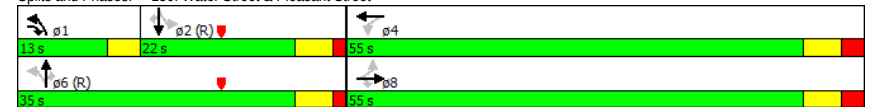
Control Type: Actuated-Coordinated

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 150: Water Street & Pleasant Street



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
150: Water Street & Pleasant Street

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	125	170	165	40	115	40	155	940	85	25	640	70
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1827	1900	1881	1900	1845	1845	1845	1863	1863	1863
Adj Flow Rate, veh/h	129	175	170	41	119	41	160	969	88	26	660	72
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	1	1	1	3	3	3	2	2	2
Cap, veh/h	194	240	736	74	198	57	215	1646	736	222	660	561
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.08	0.47	0.47	0.35	0.35	0.35
Sat Flow, veh/h	346	604	1553	65	500	145	1757	3505	1568	532	1863	1583
Grp Volume(v), veh/h	304	0	170	201	0	0	160	969	88	26	660	72
Grp Sat Flow(s),veh/h/ln	950	0	1553	710	0	0	1757	1752	1568	532	1863	1583
Q Serve(g, s), s	0.0	0.0	5.8	3.1	0.0	0.0	4.9	18.2	2.8	3.4	31.9	2.8
Cycle Q Clear(g_c), s	28.4	0.0	5.8	31.5	0.0	0.0	4.9	18.2	2.8	11.2	31.9	2.8
Prop In Lane	0.42		1.00	0.20		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	434	0	736	330	0	0	215	1646	736	222	660	561
V/C Ratio(X)	0.70	0.00	0.23	0.61	0.00	0.00	0.74	0.59	0.12	0.12	1.00	0.13
Avail Cap(c_a), veh/h	646	0	956	552	0	0	266	1646	736	222	660	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	0.0	14.0	21.1	0.0	0.0	21.2	17.5	13.4	25.4	29.1	19.7
Incr Delay (d2), s/veh	0.8	0.0	0.1	0.7	0.0	0.0	8.6	1.6	0.3	1.1	35.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.0	2.5	3.4	0.0	0.0	2.9	9.1	1.3	0.6	22.8	1.3
LnGrp Delay(d),s/veh	24.4	0.0	14.1	21.8	0.0	0.0	29.7	19.0	13.7	26.5	64.3	20.1
LnGrp LOS	C		B	C			C	B	B	C	F	C
Approach Vol, veh/h	474			201			1217			758		
Approach Delay, s/veh	20.7			21.8			20.1			58.8		
Approach LOS	C			C			C			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.4	37.3		42.3		47.7		42.3				
Change Period (Y+Rc), s	3.5	5.5		6.5		5.5		6.5				
Max Green Setting (Gmax), s	9.5	16.5		48.5		29.5		48.5				
Max Q Clear Time (g_c+I1), s	6.9	33.9		33.5		20.2		30.4				
Green Ext Time (p_c), s	0.1	0.0		2.3		5.7		2.5				
Intersection Summary												
HCM 2010 Ctrl Delay	31.4											
HCM 2010 LOS	C											

HCM 2010 TWSC
150: Water Street & Pleasant Street

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

APPENDIX D

EXISTING TRAFFIC PEAK HOUR ANALYSIS OUTPUTS *WITH IMPROVEMENTS*

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	←	→	↖	↗	←	↖	↗	←	↖	↗	←	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖			↖			↖			↖	↖	
Volume (vph)	85	20	10	1	75	45	5	140	10	20	140	255	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)		0%			0%			0%			0%		
Storage Length (ft)	75		0	0		0	0		0	0		175	
Storage Lanes	1		0	0		0	0		0	0		1	
Taper Length (ft)	75			75			75			75			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		25			25			25			30		
Link Distance (ft)		521			313			376			473		
Travel Time (s)		14.2			8.5			10.3			10.8		
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)													
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	5%	5%	5%	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%		
Shared Lane Traffic (%)													
Lane Group Flow (vph)	113	40	0	0	161	0	0	207	0	0	214	340	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov	
Protected Phases	7	4			8			2			6	7	
Permitted Phases	4			8			2			6		6	
Detector Phase	7	4		8	8		2	2		6	6	7	
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0	
Minimum Split (s)	7.5	9.5		9.5	9.5		9.5	9.5		9.5	9.5	7.5	
Total Split (s)	17.5	44.5		27.0	27.0		45.5	45.5		45.5	45.5	17.5	
Total Split (%)	19.4%	49.4%		30.0%	30.0%		50.6%	50.6%		50.6%	50.6%	19.4%	
Maximum Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5	
All-Red Time (s)	0.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	0.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0	
Total Lost Time (s)	3.5	5.5			5.5			5.5			5.5	3.5	
Lead/Lag	Lead			Lag	Lag							Lead	
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	Max	
Walk Time (s)													
Flash Dont Walk (s)													
Pedestrian Calls (#/hr)													
v/c Ratio	0.20	0.05			0.36			0.26			0.27	0.29	
Control Delay	20.8	16.0			25.5			16.4			17.0	1.4	
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0	

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Synchro 8 Report

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	←	→	↖	↗	←	↖	↗	←	↖	↗	←	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Total Delay	20.8	16.0			25.5			16.4			17.0	1.4	
90th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0	
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
70th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0	
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
50th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0	
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
30th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0	
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
10th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0	
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
Queue Length 50th (ft)	46	12			61			70			74	0	
Queue Length 95th (ft)	71	m28			92			94			100	10	
Internal Link Dist (ft)		441			233			296			393		
Turn Bay Length (ft)	75											175	
Base Capacity (vph)	564	782			450			793			784	1161	
Starvation Cap Reductn	0	0			0			0			0	0	
Spillback Cap Reductn	0	0			0			0			0	0	
Storage Cap Reductn	0	0			0			0			0	0	
Reduced v/c Ratio	0.20	0.05			0.36			0.26			0.27	0.29	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

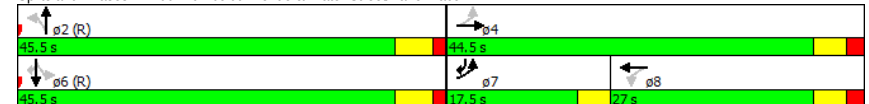
Offset: 70 (78%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 40

Control Type: Pretimed

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Humboldt Avenue & Water Street/Kane Place



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	85	20	10	1	75	45	5	140	10	20	140	255
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1900	1881	1900	1900	1810	1900	1900	1863	1863
Adj Flow Rate, veh/h	113	27	13	1	100	60	7	187	13	27	187	340
Adj No. of Lanes	1	1	0	0	1	0	0	1	0	0	1	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	1	1	1	1	1	1	5	5	5	2	2	2
Cap, veh/h	635	520	251	41	264	157	49	730	49	111	724	950
Arrive On Green	0.16	0.43	0.43	0.24	0.24	0.24	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	1792	1201	578	2	1105	658	17	1641	111	148	1628	1583
Grp Volume(v), veh/h	113	0	40	161	0	0	207	0	0	214	0	340
Grp Sat Flow(s), veh/h/ln	1792	0	1779	1764	0	0	1770	0	0	1777	0	1583
Q Serve(g_s), s	3.5	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.8
Cycle Q Clear(g_c), s	3.5	0.0	1.2	6.9	0.0	0.0	6.5	0.0	0.0	6.5	0.0	9.8
Prop In Lane	1.00		0.32	0.01		0.37	0.03		0.06	0.13		1.00
Lane Grp Cap(c), veh/h	635	0	771	462	0	0	828	0	0	835	0	950
V/C Ratio(X)	0.18	0.00	0.05	0.35	0.00	0.00	0.25	0.00	0.00	0.26	0.00	0.36
Avail Cap(c_a), veh/h	635	0	771	462	0	0	828	0	0	835	0	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.3	0.0	14.8	28.7	0.0	0.0	15.7	0.0	0.0	15.7	0.0	9.2
Incr Delay (d2), s/veh	0.6	0.0	0.1	2.1	0.0	0.0	0.7	0.0	0.0	0.7	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.6	3.6	0.0	0.0	3.4	0.0	0.0	3.5	0.0	4.5
LnGrp Delay(d),s/veh	17.0	0.0	14.9	30.8	0.0	0.0	16.4	0.0	0.0	16.4	0.0	10.2
LnGrp LOS	B		B	C			B			B		B
Approach Vol, veh/h	153			161			207			554		
Approach Delay, s/veh	16.4			30.8			16.4			12.6		
Approach LOS	B			C			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		7		8			
Phs Duration (G+Y+Rc), s	45.5		44.5		45.5		17.5		27.0			
Change Period (Y+Rc), s	5.5		5.5		5.5		3.5		5.5			
Max Green Setting (Gmax), s	40.0		39.0		40.0		14.0		21.5			
Max Q Clear Time (g_c+I1), s	8.5		3.2		11.8		5.5		8.9			
Green Ext Time (p_c), s	4.1		1.3		4.1		0.2		0.9			
Intersection Summary												
HCM 2010 Ctrl Delay	16.6											
HCM 2010 LOS	B											

HCM 2010 TWSC
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

Lanes, Volumes, Timings
120: Water Street & Hamilton

4/14/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	65	5	110	10	1	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Link Speed (mph)	25		25			25
Link Distance (ft)	77		133			332
Travel Time (s)	2.1		3.6			9.1
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	0	132	0	0	397
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
120: Water Street & Hamilton

4/14/2015

Intersection

Int Delay, s/veh 1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	65	5	110	10	1	360
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	71	5	121	11	1	396

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	524	126	0
Stage 1	126	-	-
Stage 2	398	-	-
Critical Hdwy	6.41	6.21	4.11
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	2.209
Pot Cap-1 Maneuver	515	927	1459
Stage 1	902	-	-
Stage 2	681	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	514	927	1459
Mov Cap-2 Maneuver	514	-	-
Stage 1	902	-	-
Stage 2	680	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	531	1459
HCM Lane V/C Ratio	-	-	0.145	0.001
HCM Control Delay (s)	-	-	12.9	7.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0

Lanes, Volumes, Timings
122: Cane & Hamilton

4/14/2015

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↖	↗
Volume (vph)	10	0	0	60	10	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Link Speed (mph)	25			25	25	
Link Distance (ft)	77			130	76	
Travel Time (s)	2.1			3.5	2.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	0	66	12	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 2010 TWSC
122: Cane & Hamilton

4/14/2015

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	10	0	0	60	10	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	11	0	0	66	11	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	11	0	77	11
Stage 1	-	-	-	-	11	-
Stage 2	-	-	-	-	66	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1615	-	928	1073
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	959	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1615	-	928	1073
Mov Cap-2 Maneuver	-	-	-	-	928	-
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	959	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		8.9	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	940	-	-	1615	-	
HCM Lane V/C Ratio	0.013	-	-	-	-	
HCM Control Delay (s)	8.9	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Lanes, Volumes, Timings
140: Water Street & Brady Street

4/14/2015

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗	↖	↖	↗
Volume (vph)	130	235	460	5	10	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	100			50	50	0
Storage Lanes	1			1	1	1
Taper Length (ft)	75				75	
Link Speed (mph)		25	25		25	
Link Distance (ft)		342	265		656	
Travel Time (s)		9.3	7.2		17.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	3%	3%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	149	270	529	6	11	500
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 2010 TWSC
140: Water Street & Brady Street

4/14/2015

Intersection						
Int Delay, s/veh		9.2				
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	130	235	460	5	10	435
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	50	50	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	5	3	3	1	1
Mvmt Flow	149	270	529	6	11	500
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	529	0	-	0	1098	529
Stage 1	-	-	-	-	529	-
Stage 2	-	-	-	-	569	-
Critical Hdwy	4.15	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.245	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	*1001	-	-	-	*206	*679
Stage 1	-	-	-	-	*640	-
Stage 2	-	-	-	-	*568	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	*1001	-	-	-	*175	*679
Mov Cap-2 Maneuver	-	-	-	-	*175	-
Stage 1	-	-	-	-	*640	-
Stage 2	-	-	-	-	*483	-
Approach	EB		WB		SB	
HCM Control Delay, s	3.3		0		23.7	
HCM LOS					C	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	* 1001	-	-	-	175	679
HCM Lane V/C Ratio	0.149	-	-	-	0.066	0.736
HCM Control Delay (s)	9.2	-	-	-	27	23.6
HCM Lane LOS	A	-	-	-	D	C
HCM 95th %tile Q(veh)	0.5	-	-	-	0.2	6.5
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↘	↙	←	↖	↙	↘	↗	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↖		↖		↖	↖	↖	↖	↖	↖
Volume (vph)	55	105	140	125	130	5	70	290	20	5	780	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		85	0		0	230		50	110		50
Storage Lanes	0		1	0		0	1		1	1		0
Taper Length (ft)	75			75			75			75		
Right Turn on Red		Yes				Yes			Yes			Yes
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		437			446			537			336	
Travel Time (s)		11.9			12.2			12.2			9.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	3%	3%	3%	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%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	180	157	0	292	0	79	326	22	6	966	0
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		8	1		4		1	6			2	
Permitted Phases	8		8	4			6		6	2		
Detector Phase	8	8	1	4	4		1	6	6	2	2	
Switch Phase												
Minimum Initial (s)	25.0	25.0	7.0	22.0	22.0		7.0	12.0	12.0	12.0	12.0	
Minimum Split (s)	34.5	34.5	10.5	37.5	37.5		10.5	20.5	20.5	20.5	20.5	
Total Split (s)	55.0	55.0	13.0	55.0	55.0		13.0	35.0	35.0	22.0	22.0	
Total Split (%)	61.1%	61.1%	14.4%	61.1%	61.1%		14.4%	38.9%	38.9%	24.4%	24.4%	
Maximum Green (s)	48.5	48.5	9.5	48.5	48.5		9.5	29.5	29.5	16.5	16.5	
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0		3.5	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.5	2.5	0.0	2.5	2.5		0.0	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0			0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.5	3.5		6.5		3.5	5.5	5.5	5.5	5.5	
Lead/Lag			Lead				Lead			Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0	2.0	2.0		3.0	2.0	2.0	2.0	2.0	
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Ped	Ped	None	Ped	Ped		None	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0		13.0	13.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		18.0	18.0		8.0	8.0	8.0	8.0	8.0	
Pedestrian Calls (#/hr)	15	15		14	14		26	26	20	20	20	
v/c Ratio		0.36	0.20		0.60		0.28	0.18	0.03	0.01	0.69	
Control Delay		24.6	10.4		30.2		12.5	11.6	1.6	13.6	21.0	
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	

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Synchro 8 Report

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↘	↙	←	↖	↙	↘	↗	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		24.6	10.4		30.2		12.5	11.6	1.6	13.6	21.0	
90th %ile Green (s)	31.0	31.0	9.3	31.0	31.0		9.3	47.0	47.0	34.2	34.2	
90th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	
70th %ile Green (s)	31.0	31.0	8.2	31.0	31.0		8.2	47.0	47.0	35.3	35.3	
70th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	
50th %ile Green (s)	31.0	31.0	7.4	31.0	31.0		7.4	47.0	47.0	36.1	36.1	
50th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord	
30th %ile Green (s)	31.0	31.0	7.0	31.0	31.0		7.0	47.0	47.0	36.5	36.5	
30th %ile Term Code	Hold	Hold	Min	Ped	Ped		Min	Coord	Coord	Coord	Coord	
10th %ile Green (s)	31.0	31.0	7.0	31.0	31.0		7.0	47.0	47.0	36.5	36.5	
10th %ile Term Code	Hold	Hold	Min	Ped	Ped		Min	Coord	Coord	Coord	Coord	
Queue Length 50th (ft)		76	38		134		20	48	0	2	227	
Queue Length 95th (ft)		130	68		217		40	71	5	m5	288	
Internal Link Dist (ft)		357			366			457			256	
Turn Bay Length (ft)			85				230		50	110		
Base Capacity (vph)		792	825		766		306	1830	838	410	1391	
Starvation Cap Reductn		0	0		0		0	0	0	0	0	
Spillback Cap Reductn		0	0		0		0	0	0	0	0	
Storage Cap Reductn		0	0		0		0	0	0	0	0	
Reduced v/c Ratio		0.23	0.19		0.38		0.26	0.18	0.03	0.01	0.69	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

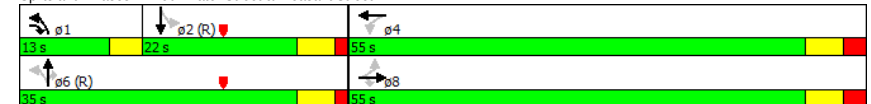
Offset: 31 (34%), Referenced to phase 2:SBTL and 6:NBT, Start of FDW or yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 150: Water Street & Pleasant Street



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
150: Water Street & Pleasant Street

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	55	105	140	125	130	5	70	290	20	5	780	80
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1827	1900	1881	1900	1845	1845	1845	1863	1863	1900
Adj Flow Rate, veh/h	62	118	157	140	146	6	79	326	22	6	876	90
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	4	4	1	1	1	3	3	3	2	2	2
Cap, veh/h	179	316	577	204	195	7	344	1969	881	549	1478	152
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.07	0.56	0.56	0.46	0.46	0.46
Sat Flow, veh/h	412	1038	1553	476	640	23	1757	3505	1568	1029	3241	333
Grp Volume(v), veh/h	180	0	157	292	0	0	79	326	22	6	478	488
Grp Sat Flow(s),veh/h/ln	1450	0	1553	1140	0	0	1757	1752	1568	1029	1770	1804
Q Serve(g_s), s	0.0	0.0	6.4	14.9	0.0	0.0	1.9	4.0	0.6	0.3	18.1	18.1
Cycle Q Clear(g_c), s	8.1	0.0	6.4	23.0	0.0	0.0	1.9	4.0	0.6	0.3	18.1	18.1
Prop In Lane	0.34		1.00	0.48		0.02	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	496	0	577	407	0	0	344	1969	881	549	807	823
V/C Ratio(X)	0.36	0.00	0.27	0.72	0.00	0.00	0.23	0.17	0.02	0.01	0.59	0.59
Avail Cap(c_a), veh/h	859	0	941	736	0	0	411	1969	881	549	807	823
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.3	0.0	19.8	31.4	0.0	0.0	12.4	9.5	8.8	13.4	18.3	18.3
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.9	0.0	0.0	0.3	0.2	0.1	0.0	3.2	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	2.7	7.0	0.0	0.0	0.9	2.0	0.3	0.1	9.5	9.7
LnGrp Delay(d),s/veh	24.5	0.0	19.8	32.3	0.0	0.0	12.7	9.7	8.8	13.4	21.4	21.4
LnGrp LOS	C		B	C			B	A	A	B	C	C
Approach Vol, veh/h	337			292			427			972		
Approach Delay, s/veh	22.3			32.3			10.2			21.4		
Approach LOS	C			C			B			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.5	46.5		33.9		56.1		33.9				
Change Period (Y+Rc), s	3.5	5.5		6.5		5.5		6.5				
Max Green Setting (Gmax), s	9.5	16.5		48.5		29.5		48.5				
Max Q Clear Time (g_c+I1), s	3.9	20.1		25.0		6.0		10.1				
Green Ext Time (p_c), s	0.1	0.0		2.5		6.5		2.6				
Intersection Summary												
HCM 2010 Ctrl Delay	20.7											
HCM 2010 LOS	C											

HCM 2010 TWSC
150: Water Street & Pleasant Street

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	↖	→	↘	↙	←	↖	↙	↗	↘	↙	↘	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖			↖			↖			↖	↖
Volume (vph)	335	100	10	5	35	50	5	175	15	60	185	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	75		0	0		0	0		0	0		175
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	75			75			75			75		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		521			313			376			473	
Travel Time (s)		14.2			8.5			10.3			10.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	364	120	0	0	97	0	0	211	0	0	266	283
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		8	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	7.5	9.5		9.5	9.5		9.5	9.5		9.5	9.5	7.5
Total Split (s)	26.5	53.5		27.0	27.0		36.5	36.5		36.5	36.5	26.5
Total Split (%)	29.4%	59.4%		30.0%	30.0%		40.6%	40.6%		40.6%	40.6%	29.4%
Maximum Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5
All-Red Time (s)	0.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	0.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	3.5	5.5			5.5			5.5			5.5	3.5
Lead/Lag	Lead			Lag	Lag							Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.45	0.12			0.22			0.33			0.47	0.25
Control Delay	25.2	18.8			15.4			23.2			26.4	1.3
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0

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Synchro 8 Report

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	↖	→	↘	↙	←	↖	↙	↗	↘	↙	↘	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	25.2	18.8			15.4			23.2			26.4	1.3
90th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
70th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
50th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
30th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
10th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR
Queue Length 50th (ft)	185	50		19			86			117	0	
Queue Length 95th (ft)	262	m94		59			143			189	24	
Internal Link Dist (ft)		441			233			296			393	
Turn Bay Length (ft)	75											175
Base Capacity (vph)	812	993			451			633			570	1153
Starvation Cap Reductn	0	0		0			0			0	0	0
Spillback Cap Reductn	0	0		0			0			0	0	0
Storage Cap Reductn	0	0		0			0			0	0	0
Reduced v/c Ratio	0.45	0.12			0.22			0.33			0.47	0.25

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

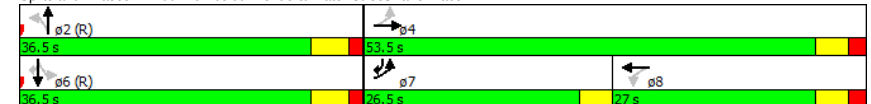
Offset: 3 (3%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 40

Control Type: Pretimed

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Humboldt Avenue & Water Street/Kane Place



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	335	100	10	5	35	50	5	175	15	60	185	260
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1900	1881	1900	1900	1863	1900	1900	1881	1881
Adj Flow Rate, veh/h	364	109	11	5	38	54	5	190	16	65	201	283
Adj No. of Lanes	1	1	0	0	1	0	0	1	0	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	1	1	1
Cap, veh/h	868	897	91	48	174	226	45	577	48	162	474	959
Arrive On Green	0.26	0.53	0.53	0.24	0.24	0.24	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1792	1682	170	26	728	947	12	1676	138	325	1376	1599
Grp Volume(v), veh/h	364	0	120	97	0	0	211	0	0	266	0	283
Grp Sat Flow(s),veh/h/ln	1792	0	1851	1702	0	0	1826	0	0	1701	0	1599
Q Serve(g_s), s	11.1	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	7.7
Cycle Q Clear(g_c), s	11.1	0.0	2.9	4.1	0.0	0.0	7.7	0.0	0.0	10.1	0.0	7.7
Prop In Lane	1.00		0.09	0.05		0.56	0.02		0.08	0.24		1.00
Lane Grp Cap(c), veh/h	868	0	987	449	0	0	670	0	0	636	0	959
V/C Ratio(X)	0.42	0.00	0.12	0.22	0.00	0.00	0.31	0.00	0.00	0.42	0.00	0.29
Avail Cap(c_a), veh/h	868	0	987	449	0	0	670	0	0	636	0	959
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.2	0.0	10.5	27.6	0.0	0.0	21.8	0.0	0.0	22.6	0.0	8.7
Incr Delay (d2), s/veh	1.5	0.0	0.3	1.1	0.0	0.0	1.2	0.0	0.0	2.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	0.0	1.5	2.1	0.0	0.0	4.1	0.0	0.0	5.4	0.0	3.6
LnGrp Delay(d),s/veh	14.7	0.0	10.7	28.7	0.0	0.0	23.1	0.0	0.0	24.6	0.0	9.5
LnGrp LOS	B		B	C			C			C		A
Approach Vol, veh/h	484			97			211			549		
Approach Delay, s/veh	13.7			28.7			23.1			16.8		
Approach LOS	B			C			C			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		7		8			
Phs Duration (G+Y+Rc), s	36.5		53.5		36.5		26.5		27.0			
Change Period (Y+Rc), s	5.5		5.5		5.5		3.5		5.5			
Max Green Setting (Gmax), s	31.0		48.0		31.0		23.0		21.5			
Max Q Clear Time (g_c+I1), s	9.7		4.9		12.1		13.1		6.1			
Green Ext Time (p_c), s	4.0		1.5		3.9		0.8		1.1			
Intersection Summary												
HCM 2010 Ctrl Delay	17.5											
HCM 2010 LOS	B											

HCM 2010 TWSC
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

Lanes, Volumes, Timings
120: Water Street & Hamilton

4/14/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	25	15	490	50	5	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Link Speed (mph)	25		25			25
Link Distance (ft)	77		133			332
Travel Time (s)	2.1		3.6			9.1
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 (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	587	0	0	326
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
120: Water Street & Hamilton

4/14/2015

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	25	15	490	50	5	295
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	27	16	533	54	5	321

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	892	560	587
Stage 1	560	-	-
Stage 2	332	-	-
Critical Hdwy	6.41	6.21	4.11
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	2.209
Pot Cap-1 Maneuver	314	530	993
Stage 1	574	-	-
Stage 2	729	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	312	530	993
Mov Cap-2 Maneuver	312	-	-
Stage 1	574	-	-
Stage 2	725	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 369	993	-
HCM Lane V/C Ratio	-	- 0.118	0.005	-
HCM Control Delay (s)	-	- 16.1	8.6	0
HCM Lane LOS	-	- C	A	A
HCM 95th %tile Q(veh)	-	- 0.4	0	-

Lanes, Volumes, Timings
122: Cane & Hamilton

4/14/2015

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↖	↗
Volume (vph)	55	0	0	25	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Link Speed (mph)	25			25	25	
Link Distance (ft)	77			130	76	
Travel Time (s)	2.1			3.5	2.1	
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 (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	0	0	27	21	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 2010 TWSC
122: Cane & Hamilton

4/14/2015

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	55	0	0	25	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	60	0	0	27	16	5
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	60	0	87	60
Stage 1	-	-	-	-	60	-
Stage 2	-	-	-	-	27	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1550	-	916	1008
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	998	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1550	-	916	1008
Mov Cap-2 Maneuver	-	-	-	-	916	-
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	998	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		8.9	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	937	-	-	1550	-	
HCM Lane V/C Ratio	0.023	-	-	-	-	
HCM Control Delay (s)	8.9	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Lanes, Volumes, Timings
140: Water Street & Brady Street

4/14/2015

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗
Volume (vph)	570	540	380	30	5	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	100			50	75	0
Storage Lanes	1			1	1	1
Taper Length (ft)	75				75	
Link Speed (mph)		25	25		25	
Link Distance (ft)		342	265		656	
Travel Time (s)		9.3	7.2		17.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	594	562	396	31	5	281
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
140: Water Street & Brady Street

4/14/2015

Intersection						
Int Delay, s/veh	7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	570	540	380	30	5	270
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	50	75	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	594	562	396	31	5	281

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	396	0	2146
Stage 1	-	-	396
Stage 2	-	-	1750
Critical Hdwy	4.11	-	6.41
Critical Hdwy Stg 1	-	-	5.41
Critical Hdwy Stg 2	-	-	5.41
Follow-up Hdwy	2.209	-	3.509
Pot Cap-1 Maneuver	*1125	-	*24
Stage 1	-	-	*708
Stage 2	-	-	*154
Platoon blocked, %	1	-	1
Mov Cap-1 Maneuver	*1125	-	*11
Mov Cap-2 Maneuver	-	-	*708
Stage 1	-	-	*73
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	6	0	21.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	*1125	-	-	-	11	751
HCM Lane V/C Ratio	0.528	-	-	-	0.473	0.375
HCM Control Delay (s)	11.7	-	-	-	503.2	12.6
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	3.2	-	-	-	1.1	1.7

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖	↘		↖		↖	↘	↖	↘	↖	↘	
Volume (vph)	110	170	165	40	115	40	155	905	85	25	620	60	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)		0%			0%			0%			0%		
Storage Length (ft)	0		85	0		0	230		50	110		50	
Storage Lanes	0		1	0		0	1		1	1		0	
Taper Length (ft)	75			75			75			75			
Right Turn on Red		Yes			Yes			Yes			Yes		
Link Speed (mph)		25			25			30			25		
Link Distance (ft)		437			446			537			336		
Travel Time (s)		11.9			12.2			12.2			9.2		
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)													
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	3%	3%	3%	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%		
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	288	170	0	201	0	160	933	88	26	701	0	
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA	Perm	Perm	NA		
Protected Phases		8	1		4		1	6			2		
Permitted Phases	8		8	4			6		6	2			
Detector Phase	8	8	1	4	4		1	6	6	2	2		
Switch Phase													
Minimum Initial (s)	25.0	25.0	7.0	22.0	22.0		7.0	12.0	12.0	12.0	12.0		
Minimum Split (s)	34.5	34.5	10.5	37.5	37.5		10.5	20.5	20.5	20.5	20.5		
Total Split (s)	55.0	55.0	13.0	55.0	55.0		13.0	35.0	35.0	22.0	22.0		
Total Split (%)	61.1%	61.1%	14.4%	61.1%	61.1%		14.4%	38.9%	38.9%	24.4%	24.4%		
Maximum Green (s)	48.5	48.5	9.5	48.5	48.5		9.5	29.5	29.5	16.5	16.5		
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0		3.5	4.0	4.0	4.0	4.0		
All-Red Time (s)	2.5	2.5	0.0	2.5	2.5		0.0	1.5	1.5	1.5	1.5		
Lost Time Adjust (s)	0.0	0.0		0.0			0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)		6.5	3.5		6.5		3.5	5.5	5.5	5.5	5.5		
Lead/Lag			Lead				Lead			Lag	Lag		
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	3.0	2.0	2.0		3.0	2.0	2.0	2.0	2.0		
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2		
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Recall Mode	Ped	Ped	None	Ped	Ped		None	C-Max	C-Max	C-Max	C-Max		
Walk Time (s)	7.0	7.0		13.0	13.0		7.0	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	21.0	21.0		18.0	18.0		8.0	8.0	8.0	8.0	8.0		
Pedestrian Calls (#/hr)	15	15		14	14		26	26	20	20	20		
v/c Ratio		0.59	0.21		0.35		0.41	0.51	0.11	0.12	0.53		
Control Delay		30.2	9.6		21.6		13.6	15.2	6.7	17.9	19.8		
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0		

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Synchro 8 Report

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Total Delay		30.2	9.6		21.6		13.6	15.2	6.7	17.9	19.8		
90th %ile Green (s)	31.0	31.0	12.7	31.0	31.0		12.7	47.0	47.0	30.8	30.8		
90th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord		
70th %ile Green (s)	31.0	31.0	10.8	31.0	31.0		10.8	47.0	47.0	32.7	32.7		
70th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord		
50th %ile Green (s)	31.0	31.0	9.6	31.0	31.0		9.6	47.0	47.0	33.9	33.9		
50th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord		
30th %ile Green (s)	31.0	31.0	8.4	31.0	31.0		8.4	47.0	47.0	35.1	35.1		
30th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord		
10th %ile Green (s)	31.0	31.0	7.0	31.0	31.0		7.0	47.0	47.0	36.5	36.5		
10th %ile Term Code	Hold	Hold	Min	Ped	Ped		Min	Coord	Coord	Coord	Coord		
Queue Length 50th (ft)		133	39		74		43	171	12	8	165		
Queue Length 95th (ft)		219	68		132		75	224	35	m22	237		
Internal Link Dist (ft)		357			366			457			256		
Turn Bay Length (ft)			85				230		50	110			
Base Capacity (vph)		765	841		879		405	1830	838	214	1317		
Starvation Cap Reductn		0	0		0		0	0	0	0	0		
Spillback Cap Reductn		0	0		0		0	0	0	0	0		
Storage Cap Reductn		0	0		0		0	0	0	0	0		
Reduced v/c Ratio		0.38	0.20		0.23		0.40	0.51	0.11	0.12	0.53		

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

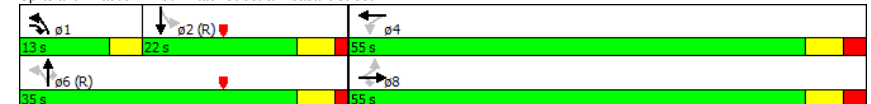
Offset: 44 (49%), Referenced to phase 2:SBTL and 6:NBT, Start of FDW or yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 150: Water Street & Pleasant Street



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
150: Water Street & Pleasant Street

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	110	170	165	40	115	40	155	905	85	25	620	60
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1827	1900	1881	1900	1845	1845	1845	1863	1863	1900
Adj Flow Rate, veh/h	113	175	170	41	119	41	160	933	88	26	639	62
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	1	1	1	3	3	3	2	2	2
Cap, veh/h	176	244	658	73	193	56	404	1819	814	269	1317	128
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.08	0.52	0.52	0.40	0.40	0.40
Sat Flow, veh/h	345	702	1553	70	555	160	1757	3505	1568	550	3261	316
Grp Volume(v), veh/h	288	0	170	201	0	0	160	933	88	26	346	355
Grp Sat Flow(s),veh/h/ln	1047	0	1553	785	0	0	1757	1752	1568	550	1770	1807
Q Serve(g, s), s	0.0	0.0	6.4	2.5	0.0	0.0	4.5	15.7	2.6	2.9	13.1	13.1
Cycle Q Clear(g_c), s	24.5	0.0	6.4	26.9	0.0	0.0	4.5	15.7	2.6	8.3	13.1	13.1
Prop In Lane	0.39		1.00	0.20		0.20	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	420	0	658	321	0	0	404	1819	814	269	715	730
V/C Ratio(X)	0.69	0.00	0.26	0.63	0.00	0.00	0.40	0.51	0.11	0.10	0.48	0.49
Avail Cap(c_a), veh/h	709	0	955	621	0	0	455	1819	814	269	715	730
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	0.0	16.8	23.3	0.0	0.0	13.9	14.2	11.0	20.3	19.9	19.9
Incr Delay (d2), s/veh	0.7	0.0	0.1	0.7	0.0	0.0	0.6	1.0	0.3	0.7	2.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	0.0	2.7	3.7	0.0	0.0	2.2	7.8	1.2	0.5	6.8	7.0
LnGrp Delay(d),s/veh	26.7	0.0	16.8	24.1	0.0	0.0	14.5	15.2	11.3	21.0	22.2	22.2
LnGrp LOS	C		B	C			B	B	B	C	C	C
Approach Vol, veh/h	458			201			1181			727		
Approach Delay, s/veh	23.1			24.1			14.8			22.2		
Approach LOS	C			C			B			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.4	41.8		37.8		52.2		37.8				
Change Period (Y+Rc), s	3.5	5.5		6.5		5.5		6.5				
Max Green Setting (Gmax), s	9.5	16.5		48.5		29.5		48.5				
Max Q Clear Time (g_c+1), s	6.5	15.1		28.9		17.7		26.5				
Green Ext Time (p_c), s	0.1	1.1		2.4		6.4		2.5				
Intersection Summary												
HCM 2010 Ctrl Delay	19.1											
HCM 2010 LOS	B											

HCM 2010 TWSC
150: Water Street & Pleasant Street

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

APPENDIX E

BUILD TRAFFIC PEAK HOUR ANALYSIS OUTPUTS *WITH IMPROVEMENTS*

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	←	→	↖	↗	←	↖	↗	←	↖	↗	←	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖			↖			↖			↖	↖	
Volume (vph)	110	25	10	1	75	45	5	140	10	20	140	260	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)		0%			0%			0%			0%		
Storage Length (ft)	75		0	0		0	0		0	0		175	
Storage Lanes	1		0	0		0	0		0	0		1	
Taper Length (ft)	75			75			75			75			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		25			25			25			30		
Link Distance (ft)		521			313			376			473		
Travel Time (s)		14.2			8.5			10.3			10.8		
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)													
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	5%	5%	5%	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%		
Shared Lane Traffic (%)													
Lane Group Flow (vph)	147	46	0	0	161	0	0	207	0	0	214	347	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov	
Protected Phases	7	4			8			2			6	7	
Permitted Phases	4			8			2			6		6	
Detector Phase	7	4		8	8		2	2		6	6	7	
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0	
Minimum Split (s)	7.5	9.5		9.5	9.5		9.5	9.5		9.5	9.5	7.5	
Total Split (s)	17.5	44.5		27.0	27.0		45.5	45.5		45.5	45.5	17.5	
Total Split (%)	19.4%	49.4%		30.0%	30.0%		50.6%	50.6%		50.6%	50.6%	19.4%	
Maximum Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5	
All-Red Time (s)	0.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	0.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0	
Total Lost Time (s)	3.5	5.5			5.5			5.5			5.5	3.5	
Lead/Lag	Lead			Lag	Lag							Lead	
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	Max	
Walk Time (s)													
Flash Dont Walk (s)													
Pedestrian Calls (#/hr)													
v/c Ratio	0.26	0.06			0.36			0.26			0.27	0.30	
Control Delay	19.8	14.9			25.5			16.4			17.0	1.4	
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0	

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Synchro 8 Report

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	←	→	↖	↗	←	↖	↗	←	↖	↗	←	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Total Delay	19.8	14.9			25.5			16.4			17.0	1.4	
90th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0	
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
70th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0	
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
50th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0	
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
30th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0	
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
10th %ile Green (s)	14.0	39.0		21.5	21.5		40.0	40.0		40.0	40.0	14.0	
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
Queue Length 50th (ft)	57	13			61			70			74	0	
Queue Length 95th (ft)	82	m29			92			94			100	10	
Internal Link Dist (ft)		441			233			296			393		
Turn Bay Length (ft)	75											175	
Base Capacity (vph)	564	788			450			793			784	1164	
Starvation Cap Reductn	0	0			0			0			0	0	
Spillback Cap Reductn	0	0			0			0			0	0	
Storage Cap Reductn	0	0			0			0			0	0	
Reduced v/c Ratio	0.26	0.06			0.36			0.26			0.27	0.30	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

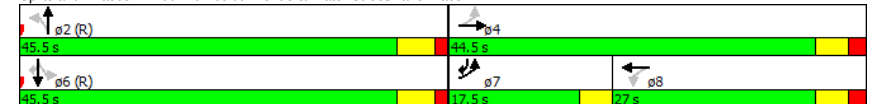
Offset: 70 (78%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 40

Control Type: Pretimed

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Humboldt Avenue & Water Street/Kane Place



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	110	25	10	1	75	45	5	140	10	20	140	260
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1900	1881	1900	1900	1810	1900	1900	1863	1863
Adj Flow Rate, veh/h	147	33	13	1	100	60	7	187	13	27	187	347
Adj No. of Lanes	1	1	0	0	1	0	0	1	0	0	1	1
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Percent Heavy Veh, %	1	1	1	1	1	1	5	5	5	2	2	2
Cap, veh/h	635	557	219	41	264	157	49	729	49	111	724	950
Arrive On Green	0.16	0.43	0.43	0.24	0.24	0.24	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	1792	1285	506	2	1105	658	17	1641	111	148	1628	1583
Grp Volume(v), veh/h	147	0	46	161	0	0	207	0	0	214	0	347
Grp Sat Flow(s),veh/h/ln	1792	0	1792	1764	0	0	1770	0	0	1777	0	1583
Q Serve(g_s), s	4.7	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1
Cycle Q Clear(g_c), s	4.7	0.0	1.3	6.9	0.0	0.0	6.5	0.0	0.0	6.5	0.0	10.1
Prop In Lane	1.00		0.28	0.01		0.37	0.03		0.06	0.13		1.00
Lane Grp Cap(c), veh/h	635	0	776	462	0	0	828	0	0	835	0	950
V/C Ratio(X)	0.23	0.00	0.06	0.35	0.00	0.00	0.25	0.00	0.00	0.26	0.00	0.37
Avail Cap(c_a), veh/h	635	0	776	462	0	0	828	0	0	835	0	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.7	0.0	14.8	28.7	0.0	0.0	15.7	0.0	0.0	15.7	0.0	9.2
Incr Delay (d2), s/veh	0.9	0.0	0.1	2.1	0.0	0.0	0.7	0.0	0.0	0.7	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	0.7	3.6	0.0	0.0	3.4	0.0	0.0	3.5	0.0	4.6
LnGrp Delay(d),s/veh	17.5	0.0	15.0	30.8	0.0	0.0	16.4	0.0	0.0	16.4	0.0	10.3
LnGrp LOS	B		B	C			B			B		B
Approach Vol, veh/h	193			161			207			561		
Approach Delay, s/veh	16.9			30.8			16.4			12.6		
Approach LOS	B			C			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	45.5		44.5		45.5		27.0					
Change Period (Y+Rc), s	5.5		5.5		5.5		5.5					
Max Green Setting (Gmax), s	40.0		39.0		40.0		21.5					
Max Q Clear Time (g_c+I1), s	8.5		3.3		12.1		8.9					
Green Ext Time (p_c), s	4.2		1.4		4.1		0.9					
Intersection Summary												
HCM 2010 Ctrl Delay	16.7											
HCM 2010 LOS	B											

HCM 2010 TWSC
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

Lanes, Volumes, Timings
110: Water Street & North Drwy

4/14/2015

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	15	60	15	130	360	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	75		75			
Link Speed (mph)	25			25	25	
Link Distance (ft)	272			332	510	
Travel Time (s)	7.4			9.1	13.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	0	0	159	401	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 2010 TWSC
110: Water Street & North Drwy

4/14/2015

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	15	60	15	130	360	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	16	66	16	143	396	5
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	574	398	401	0	-	0
Stage 1	398	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	482	654	1163	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	857	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	475	654	1163	-	-	-
Mov Cap-2 Maneuver	475	-	-	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	844	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	11.8		0.8		0	
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1163	-	608	-	-	
HCM Lane V/C Ratio	0.014	-	0.136	-	-	
HCM Control Delay (s)	8.1	0	11.8	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.5	-	-	

4/14/2015

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Synchro 8 Report

4/14/2015

Major/Minor	Minor1		Major1	Major2
Conflicting Flow All	654	154	0 0	159 0
Stage 1	154	-	-	-
Stage 2	500	-	-	-
Critical Hdwy	6.41	6.21	-	4.11
Critical Hdwy Stg 1	5.41	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-
Follow-up Hdwy	3.509	3.309	-	2.209
Pot Cap-1 Maneuver	433	895	-	1427
Stage 1	877	-	-	-
Stage 2	611	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	418	895	-	1427
Mov Cap-2 Maneuver	418	-	-	-
Stage 1	877	-	-	-
Stage 2	590	-	-	-

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 450	1427	-
HCM Lane V/C Ratio	-	- 0.183	0.027	-
HCM Control Delay (s)	-	- 14.8	7.6	0
HCM Lane LOS	-	- B	A	A
HCM 95th %tile Q(veh)	-	- 0.7	0.1	-

Synchro 8 Report

Lanes, Volumes, Timings
122: Cane & Hamilton

4/14/2015

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↖	↗
Volume (vph)	45	0	0	65	10	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Link Speed (mph)	25			25	25	
Link Distance (ft)	77			130	76	
Travel Time (s)	2.1			3.5	2.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	0	0	71	12	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 2010 TWSC
122: Cane & Hamilton

4/14/2015

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	45	0	0	65	10	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	49	0	0	71	11	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	49	0	120	49
Stage 1	-	-	-	-	49	-
Stage 2	-	-	-	-	71	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1564	-	878	1022
Stage 1	-	-	-	-	976	-
Stage 2	-	-	-	-	954	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1564	-	878	1022
Mov Cap-2 Maneuver	-	-	-	-	878	-
Stage 1	-	-	-	-	976	-
Stage 2	-	-	-	-	954	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		9.1	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	889	-	-	1564	-	
HCM Lane V/C Ratio	0.014	-	-	-	-	
HCM Control Delay (s)	9.1	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Lanes, Volumes, Timings
130: Water Street & South Drwy

4/14/2015

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	15	60	15	130	450	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	75		75			
Link Speed (mph)	25			25	25	
Link Distance (ft)	290			656	133	
Travel Time (s)	7.9			17.9	3.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	0	0	159	496	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

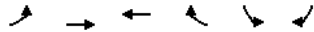
HCM 2010 TWSC
130: Water Street & South Drwy

4/14/2015

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	15	60	15	130	450	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	16	66	16	143	495	1
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	671	495	496	0	-	0
Stage 1	495	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	423	577	1073	-	-	-
Stage 1	615	-	-	-	-	-
Stage 2	857	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	416	577	1073	-	-	-
Mov Cap-2 Maneuver	416	-	-	-	-	-
Stage 1	615	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	12.9		0.9		0	
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1073	-	536	-	-	
HCM Lane V/C Ratio	0.015	-	0.154	-	-	
HCM Control Delay (s)	8.4	0	12.9	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.5	-	-	

Lanes, Volumes, Timings
140: Water Street & Brady Street

4/14/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑	↑	↱	↰	↱
Volume (vph)	145	235	460	15	10	485
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	100			50	50	0
Storage Lanes	1			1	1	1
Taper Length (ft)	75				75	
Link Speed (mph)		25	25		25	
Link Distance (ft)		342	265		656	
Travel Time (s)		9.3	7.2		17.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	3%	3%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	167	270	529	17	11	557
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
140: Water Street & Brady Street

4/14/2015

Intersection						
Int Delay, s/veh	12					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	145	235	460	15	10	485
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	50	50	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	5	3	3	1	1
Mvmt Flow	167	270	529	17	11	557

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	529	0	1132
Stage 1	-	-	529
Stage 2	-	-	603
Critical Hdwy	4.15	-	6.41
Critical Hdwy Stg 1	-	-	5.41
Critical Hdwy Stg 2	-	-	5.41
Follow-up Hdwy	2.245	-	3.509
Pot Cap-1 Maneuver	*1001	-	*191
Stage 1	-	-	*640
Stage 2	-	-	*548
Platoon blocked, %	1	-	1
Mov Cap-1 Maneuver	*1001	-	*159
Mov Cap-2 Maneuver	-	-	*159
Stage 1	-	-	*640
Stage 2	-	-	*457

Approach	EB	WB	SB
HCM Control Delay, s	3.6	0	29.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	* 1001	-	-	-	159	679
HCM Lane V/C Ratio	0.167	-	-	-	0.072	0.821
HCM Control Delay (s)	9.3	-	-	-	29.4	29.9
HCM Lane LOS	A	-	-	-	D	D
HCM 95th %tile Q(veh)	0.6	-	-	-	0.2	8.7

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖	↖		↖		↖	↖	↖	↖	↖	↖	
Volume (vph)	60	105	140	125	130	5	70	300	20	5	815	95	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)		0%			0%			0%			0%		
Storage Length (ft)	0		85	0		0	230		50	110		50	
Storage Lanes	0		1	0		0	1		1	1		0	
Taper Length (ft)	75			75			75			75			
Right Turn on Red		Yes				Yes			Yes			Yes	
Link Speed (mph)		25			25			30			25		
Link Distance (ft)		437			446			537			336		
Travel Time (s)		11.9			12.2			12.2			9.2		
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)													
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	3%	3%	3%	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%		
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	185	157	0	292	0	79	337	22	6	1023	0	
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA	Perm	Perm	NA		
Protected Phases		8	1		4		1	6			2		
Permitted Phases	8		8	4			6		6	2			
Detector Phase	8	8	1	4	4		1	6	6	2	2		
Switch Phase													
Minimum Initial (s)	25.0	25.0	7.0	22.0	22.0		7.0	12.0	12.0	12.0	12.0		
Minimum Split (s)	34.5	34.5	10.5	37.5	37.5		10.5	20.5	20.5	20.5	20.5		
Total Split (s)	55.0	55.0	13.0	55.0	55.0		13.0	35.0	35.0	22.0	22.0		
Total Split (%)	61.1%	61.1%	14.4%	61.1%	61.1%		14.4%	38.9%	38.9%	24.4%	24.4%		
Maximum Green (s)	48.5	48.5	9.5	48.5	48.5		9.5	29.5	29.5	16.5	16.5		
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0		3.5	4.0	4.0	4.0	4.0		
All-Red Time (s)	2.5	2.5	0.0	2.5	2.5		0.0	1.5	1.5	1.5	1.5		
Lost Time Adjust (s)	0.0	0.0		0.0			0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.5	3.5		6.5			3.5	5.5	5.5	5.5	5.5		
Lead/Lag		Lead					Lead			Lag	Lag		
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	3.0	2.0	2.0		3.0	2.0	2.0	2.0	2.0		
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2		
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Recall Mode	Ped	Ped	None	Ped	Ped		None	C-Max	C-Max	C-Max	C-Max		
Walk Time (s)	7.0	7.0		13.0	13.0		7.0	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	21.0	21.0		18.0	18.0		8.0	8.0	8.0	8.0	8.0		
Pedestrian Calls (#/hr)	15	15		14	14		26	26	20	20	20		
v/c Ratio		0.37	0.20		0.60		0.30	0.18	0.03	0.01	0.74		
Control Delay		24.9	10.4		30.5		12.9	11.7	1.6	13.6	22.4		
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0		

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Synchro 8 Report

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Total Delay		24.9	10.4		30.5		12.9	11.7	1.6	13.6	22.4		
90th %ile Green (s)	31.0	31.0	9.3	31.0	31.0		9.3	47.0	47.0	34.2	34.2		
90th %ile Term Code	Hold	Hold	Gap	Gap	Gap		Gap	Coord	Coord	Coord	Coord		
70th %ile Green (s)	31.0	31.0	8.2	31.0	31.0		8.2	47.0	47.0	35.3	35.3		
70th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord		
50th %ile Green (s)	31.0	31.0	7.4	31.0	31.0		7.4	47.0	47.0	36.1	36.1		
50th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord		
30th %ile Green (s)	31.0	31.0	7.0	31.0	31.0		7.0	47.0	47.0	36.5	36.5		
30th %ile Term Code	Hold	Hold	Min	Ped	Ped		Min	Coord	Coord	Coord	Coord		
10th %ile Green (s)	31.0	31.0	7.0	31.0	31.0		7.0	47.0	47.0	36.5	36.5		
10th %ile Term Code	Hold	Hold	Min	Ped	Ped		Min	Coord	Coord	Coord	Coord		
Queue Length 50th (ft)		78	38		135		20	50	0	2	256		
Queue Length 95th (ft)		134	68		218		40	73	5	m5	322		
Internal Link Dist (ft)		357			366		457			256			
Turn Bay Length (ft)			85				230		50	110			
Base Capacity (vph)		778	825		759		289	1830	838	405	1389		
Starvation Cap Reductn		0	0		0		0	0	0	0	0		
Spillback Cap Reductn		0	0		0		0	0	0	0	0		
Storage Cap Reductn		0	0		0		0	0	0	0	0		
Reduced v/c Ratio		0.24	0.19		0.38		0.27	0.18	0.03	0.01	0.74		

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

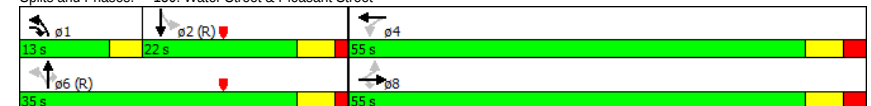
Offset: 31 (34%), Referenced to phase 2:SBTL and 6:NBT, Start of FDW or yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 150: Water Street & Pleasant Street



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
150: Water Street & Pleasant Street

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	60	105	140	125	130	5	70	300	20	5	815	95
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1827	1900	1881	1900	1845	1845	1845	1863	1863	1900
Adj Flow Rate, veh/h	67	118	157	140	146	6	79	337	22	6	916	107
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	4	4	1	1	1	3	3	3	2	2	2
Cap, veh/h	189	308	584	204	196	7	323	1953	874	540	1442	168
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.07	0.56	0.56	0.45	0.45	0.45
Sat Flow, veh/h	433	994	1553	469	632	23	1757	3505	1568	1018	3194	373
Grp Volume(v), veh/h	185	0	157	292	0	0	79	337	22	6	508	515
Grp Sat Flow(s),veh/h/ln	1427	0	1553	1124	0	0	1757	1752	1568	1018	1770	1797
Q Serve(g_s), s	0.0	0.0	6.3	14.8	0.0	0.0	1.9	4.2	0.6	0.3	19.9	19.9
Cycle Q Clear(g_c), s	8.5	0.0	6.3	23.4	0.0	0.0	1.9	4.2	0.6	0.3	19.9	19.9
Prop In Lane	0.36		1.00	0.48		0.02	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	496	0	584	407	0	0	323	1953	874	540	799	811
V/C Ratio(X)	0.37	0.00	0.27	0.72	0.00	0.00	0.24	0.17	0.03	0.01	0.64	0.64
Avail Cap(c_a), veh/h	850	0	941	730	0	0	391	1953	874	540	799	811
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	19.5	31.3	0.0	0.0	13.1	9.8	8.9	13.6	19.0	19.0
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.9	0.0	0.0	0.4	0.2	0.1	0.0	3.8	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	2.7	7.0	0.0	0.0	1.0	2.1	0.3	0.1	10.4	10.6
LnGrp Delay(d),s/veh	24.3	0.0	19.6	32.2	0.0	0.0	13.4	10.0	9.0	13.7	22.8	22.8
LnGrp LOS	C		B	C			B	A	A	B	C	C
Approach Vol, veh/h		342			292			438			1029	
Approach Delay, s/veh		22.1			32.2			10.5			22.7	
Approach LOS		C			C			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.5	46.1		34.3		55.7		34.3				
Change Period (Y+Rc), s	3.5	5.5		6.5		5.5		6.5				
Max Green Setting (Gmax), s	9.5	16.5		48.5		29.5		48.5				
Max Q Clear Time (g_c+I1), s	3.9	21.9		25.4		6.2		10.5				
Green Ext Time (p_c), s	0.1	0.0		2.5		7.0		2.6				
Intersection Summary												
HCM 2010 Ctrl Delay			21.4									
HCM 2010 LOS			C									

HCM 2010 TWSC
150: Water Street & Pleasant Street

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	←	→	↖	↗	←	↖	↗	←	↖	↗	←	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖			↖			↖			↖	↖	
Volume (vph)	350	100	10	5	40	50	5	175	15	60	185	285	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)		0%			0%			0%			0%		
Storage Length (ft)	75		0	0		0	0		0	0		175	
Storage Lanes	1		0	0		0	0		0	0		1	
Taper Length (ft)	75			75			75			75			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		25			25			25			30		
Link Distance (ft)		521			313			376			473		
Travel Time (s)		14.2			8.5			10.3			10.8		
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)													
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)													
Mid-Block Traffic (%)		0%			0%			0%			0%		
Shared Lane Traffic (%)													
Lane Group Flow (vph)	380	120	0	0	102	0	0	211	0	0	266	310	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov	
Protected Phases	7	4			8			2			6	7	
Permitted Phases	4			8			2			6		6	
Detector Phase	7	4		8	8		2	2		6	6	7	
Switch Phase													
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0	
Minimum Split (s)	7.5	9.5		9.5	9.5		9.5	9.5		9.5	9.5	7.5	
Total Split (s)	26.5	53.5		27.0	27.0		36.5	36.5		36.5	36.5	26.5	
Total Split (%)	29.4%	59.4%		30.0%	30.0%		40.6%	40.6%		40.6%	40.6%	29.4%	
Maximum Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5	
All-Red Time (s)	0.0	2.0		2.0	2.0		1.5	1.5		1.5	1.5	0.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0	
Total Lost Time (s)	3.5	5.5			5.5			5.5			5.5	3.5	
Lead/Lag	Lead			Lag	Lag							Lead	
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	Max	
Walk Time (s)													
Flash Dont Walk (s)													
Pedestrian Calls (#/hr)													
v/c Ratio	0.47	0.12			0.23			0.33			0.47	0.27	
Control Delay	23.5	17.1			16.0			23.2			26.4	1.3	
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0	

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Synchro 8 Report

Lanes, Volumes, Timings

100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

	←	→	↖	↗	←	↖	↗	←	↖	↗	←	↖	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Total Delay	23.5	17.1			16.0			23.2			26.4	1.3	
90th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0	
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
70th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0	
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
50th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0	
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
30th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0	
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
10th %ile Green (s)	23.0	48.0		21.5	21.5		31.0	31.0		31.0	31.0	23.0	
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord	MaxR	
Queue Length 50th (ft)	183	46		21			86			117	0		
Queue Length 95th (ft)	260	m87		62			143			189	25		
Internal Link Dist (ft)		441			233			296			393		
Turn Bay Length (ft)	75											175	
Base Capacity (vph)	807	993			453			633			570	1162	
Starvation Cap Reductn	0	0		0			0			0	0	0	
Spillback Cap Reductn	0	0		0			0			0	0	0	
Storage Cap Reductn	0	0		0			0			0	0	0	
Reduced v/c Ratio	0.47	0.12			0.23			0.33			0.47	0.27	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

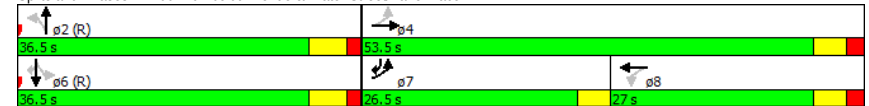
Offset: 3 (3%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 40

Control Type: Pretimed

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: Humboldt Avenue & Water Street/Kane Place



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	350	100	10	5	40	50	5	175	15	60	185	285
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1900	1881	1900	1900	1863	1900	1900	1881	1881
Adj Flow Rate, veh/h	380	109	11	5	43	54	5	190	16	65	201	310
Adj No. of Lanes	1	1	0	0	1	0	0	1	0	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	1	1	1
Cap, veh/h	864	897	91	48	186	216	45	577	48	162	474	959
Arrive On Green	0.26	0.53	0.53	0.24	0.24	0.24	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1792	1682	170	25	780	905	12	1676	138	325	1376	1599
Grp Volume(v), veh/h	380	0	120	102	0	0	211	0	0	266	0	310
Grp Sat Flow(s),veh/h/ln	1792	0	1851	1710	0	0	1826	0	0	1701	0	1599
Q Serve(g_s), s	11.7	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	8.7
Cycle Q Clear(g_c), s	11.7	0.0	2.9	4.3	0.0	0.0	7.7	0.0	0.0	10.1	0.0	8.7
Prop In Lane	1.00		0.09	0.05		0.53	0.02		0.08	0.24		1.00
Lane Grp Cap(c), veh/h	864	0	987	450	0	0	670	0	0	636	0	959
V/C Ratio(X)	0.44	0.00	0.12	0.23	0.00	0.00	0.32	0.00	0.00	0.42	0.00	0.32
Avail Cap(c_a), veh/h	864	0	987	450	0	0	670	0	0	636	0	959
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	10.5	27.7	0.0	0.0	21.8	0.0	0.0	22.6	0.0	8.9
Incr Delay (d2), s/veh	1.6	0.0	0.3	1.2	0.0	0.0	1.2	0.0	0.0	2.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.0	1.5	2.2	0.0	0.0	4.1	0.0	0.0	5.4	0.0	4.0
LnGrp Delay(d),s/veh	15.0	0.0	10.7	28.9	0.0	0.0	23.1	0.0	0.0	24.6	0.0	9.8
LnGrp LOS	B		B	C			C			C		A
Approach Vol, veh/h	500			102			211			576		
Approach Delay, s/veh	14.0			28.9			23.1			16.6		
Approach LOS	B			C			C			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		7		8			
Phs Duration (G+Y+Rc), s	36.5		53.5		36.5		26.5		27.0			
Change Period (Y+Rc), s	5.5		5.5		5.5		3.5		5.5			
Max Green Setting (Gmax), s	31.0		48.0		31.0		23.0		21.5			
Max Q Clear Time (g_c+I1), s	9.7		4.9		12.1		13.7		6.3			
Green Ext Time (p_c), s	4.2		1.5		4.0		0.9		1.1			
Intersection Summary												
HCM 2010 Ctrl Delay	17.5											
HCM 2010 LOS	B											

HCM 2010 TWSC
100: Humboldt Avenue & Water Street/Kane Place

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.

Lanes, Volumes, Timings
110: Water Street & North Drwy

4/14/2015

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	10	30	55	510	315	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	75		75			
Link Speed (mph)	25			25	25	
Link Distance (ft)	272			332	510	
Travel Time (s)	7.4			9.1	13.9	
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 (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	0	0	614	358	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 2010 TWSC
110: Water Street & North Drwy

4/14/2015

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	10	30	55	510	315	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	11	33	60	554	342	16
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1025	351	359	0	-	0
Stage 1	351	-	-	-	-	-
Stage 2	674	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	262	695	1205	-	-	-
Stage 1	715	-	-	-	-	-
Stage 2	508	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	243	695	1205	-	-	-
Mov Cap-2 Maneuver	243	-	-	-	-	-
Stage 1	715	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	13.4		0.8		0	
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1205	-	474	-	-	
HCM Lane V/C Ratio	0.05	-	0.092	-	-	
HCM Control Delay (s)	8.1	0	13.4	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-	

Lanes, Volumes, Timings
120: Water Street & Hamilton

4/14/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	35	25	540	50	20	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	75				75	
Link Speed (mph)	25		25			25
Link Distance (ft)	77		133			332
Travel Time (s)	2.1		3.6			9.1
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 (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	0	641	0	0	375
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
120: Water Street & Hamilton

4/14/2015

Intersection

Int Delay, s/veh 1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	35	25	540	50	20	325
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	38	27	587	54	22	353

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1011	614	0
Stage 1	614	-	-
Stage 2	397	-	-
Critical Hdwy	6.41	6.21	4.11
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	2.209
Pot Cap-1 Maneuver	267	494	948
Stage 1	542	-	-
Stage 2	681	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	259	494	948
Mov Cap-2 Maneuver	259	-	-
Stage 1	542	-	-
Stage 2	661	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.9	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	323	948
HCM Lane V/C Ratio	-	-	0.202	0.023
HCM Control Delay (s)	-	-	18.9	8.9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.7	0.1

Lanes, Volumes, Timings
122: Cane & Hamilton

4/14/2015

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↖	↗
Volume (vph)	70	0	0	45	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Link Speed (mph)	25			25	25	
Link Distance (ft)	77			130	76	
Travel Time (s)	2.1			3.5	2.1	
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 (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	0	0	49	21	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 2010 TWSC
122: Cane & Hamilton

4/14/2015

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	70	0	0	45	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	76	0	0	49	16	5
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	76	0	125	76
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	49	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1529	-	872	988
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1529	-	872	988
Mov Cap-2 Maneuver	-	-	-	-	872	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	976	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		9.1	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	898	-	-	1529	-	
HCM Lane V/C Ratio	0.024	-	-	-	-	
HCM Control Delay (s)	9.1	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Lanes, Volumes, Timings
130: Water Street & South Drwy

4/14/2015

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	5	35	50	585	335	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	75		75			
Link Speed (mph)	25			25	25	
Link Distance (ft)	290			656	133	
Travel Time (s)	7.9			17.9	3.6	
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 (%)	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	0	690	391	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

HCM 2010 TWSC
130: Water Street & South Drwy

4/14/2015

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	35	50	585	335	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	5	38	54	636	364	27

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1123	378	391
Stage 1	378	-	-
Stage 2	745	-	-
Critical Hdwy	6.41	6.21	4.11
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.309	2.209
Pot Cap-1 Maneuver	229	671	1173
Stage 1	695	-	-
Stage 2	471	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	213	671	1173
Mov Cap-2 Maneuver	213	-	-
Stage 1	695	-	-
Stage 2	438	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1173	-	529	-
HCM Lane V/C Ratio	0.046	-	0.082	-
HCM Control Delay (s)	8.2	0	12.4	-
HCM Lane LOS	A	A	B	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-

Lanes, Volumes, Timings
140: Water Street & Brady Street

4/14/2015

	↖	→	←	↗	↘	↙
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗
Volume (vph)	620	540	380	75	5	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	100			50	75	0
Storage Lanes	1			1	1	1
Taper Length (ft)	75				75	
Link Speed (mph)		25	25		25	
Link Distance (ft)		342	265		656	
Travel Time (s)		9.3	7.2		17.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	646	562	396	78	5	312
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 2010 TWSC
140: Water Street & Brady Street

4/14/2015

Intersection						
Int Delay, s/veh	8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	620	540	380	75	5	300
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	50	75	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	646	562	396	78	5	312
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	396	0	-	0	2250	396
Stage 1	-	-	-	-	396	-
Stage 2	-	-	-	-	1854	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	*1125	-	-	-	*19	*751
Stage 1	-	-	-	-	*708	-
Stage 2	-	-	-	-	*137	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	*1125	-	-	-	*8	*751
Mov Cap-2 Maneuver	-	-	-	-	*8	-
Stage 1	-	-	-	-	*708	-
Stage 2	-	-	-	-	*58	-
Approach	EB		WB		SB	
HCM Control Delay, s	6.6		0		25.2	
HCM LOS					D	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	* 1125	-	-	-	8	751
HCM Lane V/C Ratio	0.574	-	-	-	0.651	0.416
HCM Control Delay (s)	12.4	-	-	-	\$ 748	13.2
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	3.8	-	-	-	1.2	2.1
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖	↖		↖		↖	↖	↖	↖	↖	↖	
Volume (vph)	125	170	165	40	115	40	155	940	85	25	640	70	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)		0%			0%			0%			0%		
Storage Length (ft)	0		85	0		0	230		50	110		50	
Storage Lanes	0		1	0		0	1		1	1		0	
Taper Length (ft)	75			75			75			75			
Right Turn on Red		Yes			Yes			Yes			Yes		
Link Speed (mph)		25			25			30			25		
Link Distance (ft)		437			446			537			336		
Travel Time (s)		11.9			12.2			12.2			9.2		
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)													
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	3%	3%	3%	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%			
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	304	170	0	201	0	160	969	88	26	732	0	
Turn Type	Perm	NA	pm+ov	Perm	NA		pm+pt	NA	Perm	Perm	NA		
Protected Phases		8	1		4		1	6			2		
Permitted Phases	8		8	4			6		6	2			
Detector Phase	8	8	1	4	4		1	6	6	2	2		
Switch Phase													
Minimum Initial (s)	25.0	25.0	7.0	22.0	22.0		7.0	12.0	12.0	12.0	12.0		
Minimum Split (s)	34.5	34.5	10.5	37.5	37.5		10.5	20.5	20.5	20.5	20.5		
Total Split (s)	55.0	55.0	13.0	55.0	55.0		13.0	35.0	35.0	22.0	22.0		
Total Split (%)	61.1%	61.1%	14.4%	61.1%	61.1%		14.4%	38.9%	38.9%	24.4%	24.4%		
Maximum Green (s)	48.5	48.5	9.5	48.5	48.5		9.5	29.5	29.5	16.5	16.5		
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0		3.5	4.0	4.0	4.0	4.0		
All-Red Time (s)	2.5	2.5	0.0	2.5	2.5		0.0	1.5	1.5	1.5	1.5		
Lost Time Adjust (s)	0.0	0.0		0.0			0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)		6.5	3.5		6.5		3.5	5.5	5.5	5.5	5.5		
Lead/Lag		Lead					Lead			Lag	Lag		
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	3.0	2.0	2.0		3.0	2.0	2.0	2.0	2.0		
Minimum Gap (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2		
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Recall Mode	Ped	Ped	None	Ped	Ped		None	C-Max	C-Max	C-Max	C-Max		
Walk Time (s)	7.0	7.0		13.0	13.0		7.0	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	21.0	21.0		18.0	18.0		8.0	8.0	8.0	8.0	8.0		
Pedestrian Calls (#/hr)	15	15		14	14		26	26	20	20	20		
v/c Ratio		0.63	0.20		0.35		0.42	0.53	0.11	0.13	0.56		
Control Delay		31.2	9.3		21.7		14.2	15.8	6.9	19.2	21.3		
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0		

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Synchro 8 Report

Lanes, Volumes, Timings

150: Water Street & Pleasant Street

4/14/2015

	↖	→	↘	↙	←	↖	↙	↗	↘	↖	↙	↗	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Total Delay	31.2	9.3		21.7			14.2	15.8	6.9	19.2	21.3		
90th %ile Green (s)	32.5	32.5	13.0	32.5	32.5		13.0	45.5	45.5	29.0	29.0		
90th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord	Coord	Coord	Coord		
70th %ile Green (s)	31.0	31.0	10.8	31.0	31.0		10.8	47.0	47.0	32.7	32.7		
70th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord		
50th %ile Green (s)	31.0	31.0	9.6	31.0	31.0		9.6	47.0	47.0	33.9	33.9		
50th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord		
30th %ile Green (s)	31.0	31.0	8.4	31.0	31.0		8.4	47.0	47.0	35.1	35.1		
30th %ile Term Code	Hold	Hold	Gap	Ped	Ped		Gap	Coord	Coord	Coord	Coord		
10th %ile Green (s)	31.0	31.0	7.0	31.0	31.0		7.0	47.0	47.0	36.5	36.5		
10th %ile Term Code	Hold	Hold	Min	Ped	Ped		Min	Coord	Coord	Coord	Coord		
Queue Length 50th (ft)		143	39		76		43	181	12	8	173		
Queue Length 95th (ft)		228	65		130		78	245	36	m25	253		
Internal Link Dist (ft)		357			366			457			256		
Turn Bay Length (ft)			85				230		50	110			
Base Capacity (vph)		753	847		874		390	1818	833	204	1302		
Starvation Cap Reductn		0	0		0		0	0	0	0	0		
Spillback Cap Reductn		0	0		0		0	0	0	0	0		
Storage Cap Reductn		0	0		0		0	0	0	0	0		
Reduced v/c Ratio		0.40	0.20		0.23		0.41	0.53	0.11	0.13	0.56		

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

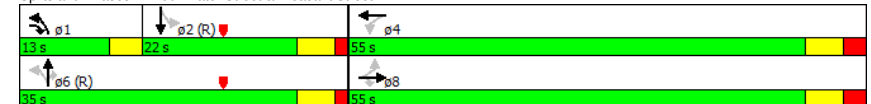
Offset: 44 (49%), Referenced to phase 2:SBTL and 6:NBT, Start of FDW or yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 150: Water Street & Pleasant Street



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Synchro 8 Report

HCM 2010 Signalized Intersection Summary
150: Water Street & Pleasant Street

4/14/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔		↔	↔	↔	↔	↔	
Volume (veh/h)	125	170	165	40	115	40	155	940	85	25	640	70
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1827	1900	1881	1900	1845	1845	1845	1863	1863	1900
Adj Flow Rate, veh/h	129	175	170	41	119	41	160	969	88	26	660	72
Adj No. of Lanes	0	1	1	0	1	0	1	2	1	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	1	1	1	3	3	3	2	2	2
Cap, veh/h	194	240	736	74	198	57	348	1646	736	222	1140	124
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.08	0.47	0.47	0.35	0.35	0.35
Sat Flow, veh/h	346	604	1553	65	500	145	1757	3505	1568	532	3220	351
Grp Volume(v), veh/h	304	0	170	201	0	0	160	969	88	26	362	370
Grp Sat Flow(s),veh/h/ln	950	0	1553	710	0	0	1757	1752	1568	532	1770	1801
Q Serve(g, s), s	0.0	0.0	5.8	3.1	0.0	0.0	4.9	18.2	2.8	3.4	15.0	15.0
Cycle Q Clear(g_c), s	28.4	0.0	5.8	31.5	0.0	0.0	4.9	18.2	2.8	11.2	15.0	15.0
Prop In Lane	0.42		1.00	0.20		0.20	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	434	0	736	330	0	0	348	1646	736	222	627	638
V/C Ratio(X)	0.70	0.00	0.23	0.61	0.00	0.00	0.46	0.59	0.12	0.12	0.58	0.58
Avail Cap(c_a), veh/h	646	0	956	552	0	0	399	1646	736	222	627	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	0.0	14.0	21.1	0.0	0.0	16.9	17.5	13.4	25.4	23.6	23.6
Incr Delay (d2), s/veh	0.8	0.0	0.1	0.7	0.0	0.0	0.9	1.6	0.3	1.1	3.9	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.0	2.5	3.4	0.0	0.0	2.4	9.1	1.3	0.6	7.9	8.1
LnGrp Delay(d),s/veh	24.4	0.0	14.1	21.8	0.0	0.0	17.8	19.0	13.7	26.5	27.5	27.4
LnGrp LOS	C		B	C			B	B	B	C	C	C
Approach Vol, veh/h	474			201			1217			758		
Approach Delay, s/veh	20.7			21.8			18.5			27.4		
Approach LOS	C			C			B			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.4	37.3		42.3		47.7		42.3				
Change Period (Y+Rc), s	3.5	5.5		6.5		5.5		6.5				
Max Green Setting (Gmax), s	9.5	16.5		48.5		29.5		48.5				
Max Q Clear Time (g_c+I1), s	6.9	17.0		33.5		20.2		30.4				
Green Ext Time (p_c), s	0.1	0.0		2.3		5.6		2.5				
Intersection Summary												
HCM 2010 Ctrl Delay	21.7											
HCM 2010 LOS	C											

HCM 2010 TWSC
150: Water Street & Pleasant Street

4/14/2015

Two Way Analysis cannot be performed on Signalized Intersection.