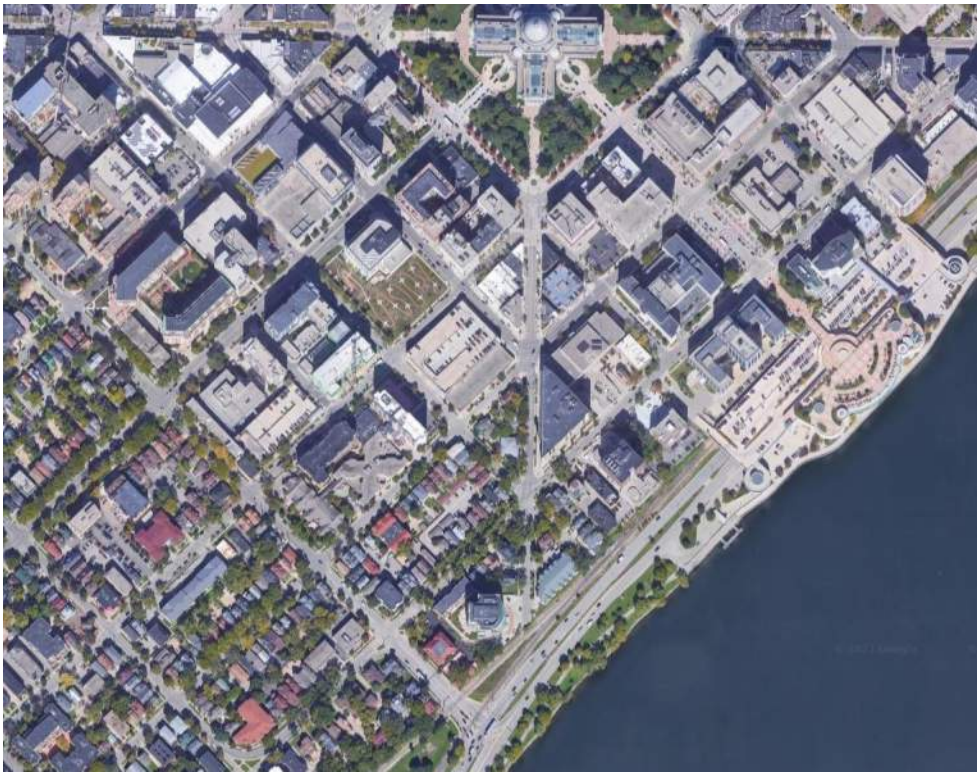
100 W Wilson Street Development
Traffic Impact Analysis

CITY OF MADISON
DANE COUNTY, WISCONSIN



DATE SUBMITTED: APRIL 30, 2021

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100 W Wilson Street Development
City of Madison, Dane County, Wisconsin
Traffic Impact Analysis

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1.0 Introduction

Walter Wayne Development is proposing to construct a mixed-use development in Madison, Wisconsin. This is referred to as the 100 W Wilson Street Development or the development, in this report. The development is located in the east quadrant of the intersection of W Wilson Street with S Henry Street and S Hamilton Street. The proposed development consists predominantly of multi-family dwelling units with a small commercial component.

KL Engineering was contracted by Walter Wayne Development to perform a traffic impact study for the proposed development. This report documents the study and was written to satisfy the City of Madison Traffic Engineering Department's Limited Scope TIA requirements. The report was requested by City staff in conjunction with the land use application submitted by the developer on March 3, 2021.

1.1 Study Purpose and Objective

This study was performed in order to evaluate traffic operations, access, and parking under existing and proposed conditions. This evaluation was used to determine impacts to the roadway network, as well as any required mitigation. Both weekday morning (AM) and evening (PM) peak hour traffic volumes were analyzed.

1.2 Project Location and Study Area

Project Location

The redevelopment parcel is in the east quadrant of the intersection of W Wilson Street with S Henry Street and S Hamilton Street. It is bordered by W Wilson Street to the northwest, S Henry Street to the southwest, other commercial and residential properties to the northeast, and John Nolen Drive to the southeast. The parcel is currently occupied by several multi-family housing structures. A project location map is provided in **Exhibit 1**.

Study Area Roadways

The study area includes the following roadways (descriptions apply to the segment of each roadway within the study area and not necessarily to the entire roadway):

W Wilson Street

W Wilson Street is classified by the City of Madison as a collector. The roadway has an urban cross section, sidewalks on both sides, and a speed limit of 25 miles per hour (mph).

East of S Henry Street

W Wilson Street is a two-lane, one-way, serving only southwest bound traffic. Parking is available on both sides of the street. The average weekday traffic (AWT) volume on this segment of W Wilson Street is 7,450 vehicles per day (vpd).

West of S Henry Street

W Wilson Street has an undivided roadway that serves both northeast bound and southwest bound traffic. There is one lane in the westbound direction and two lanes in the eastbound direction. Parking is restricted in this area. The AWT volume on this segment of W Wilson Street is 9,300 vpd.

S Henry Street

S Henry Street is classified by the City of Madison as a collector. The roadway has a two-lane undivided urban cross section, on-street parking, sidewalks, and a speed limit of 25 mph. S Henry Street leads to a dead end one block south of W Wilson Street. S Henry Street is oriented northwest to southeast and has an AWT volume of 2,450 vpd north of W Wilson Street.

S Hamilton Street

S Hamilton Street is classified by the City of Madison as a collector, has a two-lane urban cross section, on-street parking, sidewalks, bike lanes, and a speed limit of 25 mph. North of W Wilson Street, S Hamilton Street is a northbound one-way road. S Hamilton Street leads to a dead end one block south of W Wilson Street. S Hamilton Street is oriented north to south and has an AWT volume of 4,250 vpd north of W Wilson Street.

Study Area Intersections

The study area includes only the intersection formed by W Wilson Street, S Hamilton Street, and S Henry Street located at the west corner of the development site. S Hamilton Street forms the north approach of the intersection; S Henry Street forms the northwest and southeast approach, and W Wilson Street forms the southwest and northeast approach. The intersection is controlled by a traffic signal (with the exception of the south approach of S Hamilton Street) that operates with fixed timing. Northbound S Hamilton Street traffic is controlled by a stop sign. That traffic is required to merge onto northwest bound S Henry Street before proceeding through the signalized intersection. Therefore, the traffic signal serves only five approaches.

A dedicated left-turn lane is provided for the southwest approach of W Wilson Street and a dedicated right-turn lane is provided on the northeast approach of W Wilson Street. A right turn lane is also provided on the northeast and southwest bound W Wilson Street approaches.

Signalized pedestrian crossings are provided across all five approaches of the intersection. All pedestrian walk intervals time during every cycle because the intersection operates with fixed timing and therefore no pedestrian buttons are present. A short bike lane leading to a bike box that accommodates left and right turns is provided on the northeast approach of W Wilson Street approach.

An overview of the existing transportation network is provided in **Exhibit 2**.

2.0 Background Conditions

2.1 Existing Traffic Volumes

The City of Madison provided turning movement counts at the study intersection from the year 2018. Peak times were found to be 7:30 – 8:30 AM and 4:30 – 5:30 PM. Existing peak hour traffic volumes based on the year 2018 counts are shown in **Exhibit 3**.

2.2 Existing Access Points

The development parcel currently has two unrestricted access points along W Wilson Street and four unrestricted access points on S Henry Street. These accesses are shared among several of the existing buildings. **Exhibit 4** includes an overview map of the existing access at the development site.

2.3 Existing Traffic Operations

Existing traffic operations were analyzed using the software programs Synchro and SimTraffic. Existing traffic volumes, roadway geometrics, and intersection control devices were used for the analysis.

The analysis was used to quantify operations at the study intersection. Due to the unconventional layout of the intersection, HCM methodology was not possible and Synchro software methodology was used instead to estimate delays and 95th percentile queues for vehicular movements at the study intersection.

Estimated delays were used to assign a level of service (LOS) at each movement of the study intersection. LOS is determined by taking delay calculated using mathematical models and assigning a letter grade meant to represent the operating conditions as perceived by the driver as specified in the Highway Capacity Manual. Existing levels of service are summarized in **Table 1**. Failing levels of service, defined as LOS E or LOS F are shown in bold.

Table 1. Existing Level of Service by Movement

Intersection	Peak	Movement												Intersection
		Northeast Bound			Southwest Bound			Northwest Bound			Southeast Bound			
		W Wilson St			W Wilson St			S Henry St			S Henry St			
		L*	T	R	L	T	R*	L	T	R	L	T	R	
W Wilson St & S Henry St/ S Hamilton St	AM	C	C	A	D	D	D	C	C	C	C	B	B	C
	PM	C	C	A	**E**	**E**	B	C	C	C	C	B	B	D

*LOS represents both possible left or right turns from shared lane

Existing 95th percentile queues are shown in **Exhibit 5**. Analysis outputs are provided in **Appendix A**.

Most movements were found to operate at LOS D or better. The southwest bound W Wilson Street left and through movements operate at a LOS E. The intersection levels of service were LOS C and LOS D during the morning and afternoon peak hours, respectively.

Queues were generally found to be acceptable at the intersection, except for the thru/right turn movement on the northeast approach of W Wilson Street. Based on the analysis, the PM peak 95th percentile queue is 495'and extends past several driveways along W Wilson Street ending just short of the S Carroll Street intersection. Existing 95th percentile queues are shown in **Exhibit 5.**

3.0 Proposed Development

3.1 100 W Wilson Street Development

The proposed 100 W Wilson Street development consists of a ten-story apartment building with first floor commercial space and a parking structure. Two hundred six (206) multi-family dwelling units and 809 square feet of first floor commercial space are proposed. The parking structure is proposed with 237 vehicle stalls and 206 bicycle spaces. Twenty-two (22) additional above ground bicycle parking spaces are also proposed with the development. The site plan is provided in **Exhibit 6**.

3.2 Proposed Access

All existing accesses will be closed as a part of the redevelopment. Two new access points would be constructed. One on W Wilson Street, 125' from S Hamilton Street and one on S Henry Street, 265' from W Wilson Street. Both access points would provide connectivity to all the underground parking stalls.

3.3 Trip Generation

Existing Development Trip Generation

Trips were generated for the existing land uses on the development site to account for traffic that will be remobed as a result of the development. Using the existing land use intensities, trips for existing development were generated using the ITE Trip Generation Manual, 10th Edition, published by the Institute of Transportation Engineers. A summary of the existing site trip generation for the 100 W Wilson Street Development is shown in **Table 2**.

Table 2. 100 W Wilson Street Existing Site Trip Generation

ITE Land Use	ITE Land Use Code	Size	Weekday Daily Trips (rate)	AM Peak In (%)	AM Peak Out (%)	AM Peak Total (rate)	PM Peak In (%)	PM Peak Out (%)	PM Peak Total (rate)
Multifamily Housing (Low-Rise)	220	22 Dwelling Units	125 (5.70)	0 (23%)	10 (77%)	10 (0.51)	10 (63%)	5 (37%)	15 (0.70)
Total Generated Trips:			**125**	**0**	**10**	**10**	**10**	**5**	**15**

The existing site was estimated to have 125 weekday daily trips. Ten (10) (0 entering/10 exiting) and 15 (10 entering/5 exiting) trips are estimated during the morning and afternoon peak hours, respectively. These trips were subtracted from the proposed multi-family housing, as they are already accounted for on the site. Trip reductions were not applied to the existing development trip generation because the existing trips were subtracted from the proposed trip generation before applying any reductions.

Proposed Development Trip Generation

Using the proposed land use intensities, trips for proposed development were generated using the ITE Trip Generation Manual. A summary of trip generation for the 100 W Wilson Street Development is shown in **Table 3**.

Table 3. 100 W Wilson Street Trip Generation

ITE Land Use	ITE Land Use Code	Size	Weekday Daily Trips (rate)	AM Peak			PM Peak		
				In (%)	Out (%)	Total (rate)	In (%)	Out (%)	Total (rate)
Multifamily Housing (Mid-Rise)	221	206 Dwelling Units	1,120 (5.44)	20 (26%)	50 (74%)	70 (0.34)	55 (61%)	35 (39%)	90 (0.43)
Coffee/Donut Shop without Drive-Through Window	936	0.81 KSF	610 (754.55)	40 (51%)	40 (49%)	80 (101.14)	15 (50%)	15 (50%)	30 (36.31)
Existing Site Trip Generation	-	22 Units	(125)	(0)	(10)	(10)	(10)	(5)	(15)
Total Generated Trips:			**1,605**	**60**	**80**	**140**	**60**	**45**	**105**
Multimodal Reduction - Multifamily (30%)			(300)	(5)	(10)	(15)	(15)	(10)	(25)
Multimodal Reduction - Coffee Shop (75%)			(460)	(30)	(30)	(60)	(10)	(10)	(20)
Total New Trips:			**845**	**25**	**40**	**65**	**35**	**25**	**60**

Each trip represents either an entering or exiting vehicle to or from the development. Total trips generated were reduced to account for multimodal trips to and from the site to determine the total number of new trips expected to be generated by the proposed development.

Multimodal trips are those occurring via transit, pedestrian, or bicycle modes of transportation. Multimodal trips are expected to and from the proposed development due to the accessibility of transit, bicycle, and pedestrian facilities nearby, and the regional links that they form. A 30% and 75% multimodal trip reduction was applied to the multi-family and coffee shop portion of the trip generation, respectively.

The proposed development is expected to generate 845 new trips per day. Sixty-five (65) (25 entering/40 exiting) and 60 (35 entering/25 exiting) new trips are expected during the morning and afternoon peak traffic hours, respectively.

3.4 Trip Distribution and Assignment

Trip distribution was determined using local traffic counts available on the City of Madison website, traffic counts available on the Wisconsin Department of Transportation (WisDOT) website, and engineering judgement. The general trip distribution is expected to be:

Trip Distribution Entering the Development

- 10% from the northwest on S Henry Street
- 20% from the northeast on W Wilson Street
- 70% from the southwest on W Wilson Street

Trip Distribution Exiting the Development

- 65% to the southwest on W Wilson Street
- 25% to the north on S Hamilton Street
- 10% to the northwest on S Henry Street

The proposed trip distribution pattern is shown in **Exhibit 7**.

New trips generated by the development were assigned to the roadway network within the study area according to the trip distribution pattern. Trips were assigned between the two driveways favoring the S Henry Street driveway over the W Wilson Street driveway. This was assumed for exiting traffic because of queuing that occurs on W Wilson Street. This was assumed for entering traffic because entering traffic would have no choice but to use the S Henry Street driveway if they approach from eastbound W Wilson Street or southbound S Henry Street. Proposed new trips are shown in **Exhibit 8**.

3.5 Total Traffic

Total traffic is determined by adding new trips (Exhibit 8) to existing traffic (Exhibit 3). Total traffic is traffic volume expected upon completion of the development. Proposed total traffic volumes are shown in **Exhibit 9**. Existing traffic volumes were not inflated for the total traffic conditions upon buildout because full buildout is expected to take place by the end of year 2021.

4.0 Proposed Conditions

4.1 W Wilson Street Corridor Study

The City of Madison recently completed a planning study of W Wilson Street in July 2020. The study includes recommendations for changes to the cross section of W Wilson Street from Broom Street to Blair Street, which is the segment adjacent to the proposed development. Recommended changes include installation of the two-way cycle track along the southeast side of W Wilson Street. No changes to traffic signal timing at the intersection of W Wilson Street with S Henry Street and S Hamilton Street related to the cycle track are anticipated based on coordination with City of Madison Traffic Engineering Department staff.

4.2 Total Traffic Conditions

Traffic operations were analyzed using the existing roadway network and total traffic volumes. The analysis was used to determine expected delays and queues at each of the study intersections upon completion of the proposed development. Levels of service under the proposed conditions are summarized in **Table 4**.

Table 4. Level of Service by Movement – Total Traffic

Intersection	Peak	Movement												Intersection
		Northeast Bound			Southwest Bound			Northwest Bound			Southeast Bound			
		W Wilson St			W Wilson St			S Henry St			S Henry St			
		L*	T	R	L	T	R*	L	T	R	L	T	R	
W Wilson St & S Henry St/ S Hamilton St	AM	C	C	A	D	D	D	C	C	C	C	B	B	C
	PM	C	C	A	**E**	**E**	B	C	C	C	C	B	B	D

*LOS represents both possible left or right turns from shared lane

Total traffic 95th percentile queues are shown in **Exhibit 10**. Analysis outputs are provided in **Appendix A**.

Minor increases to delays and queues at the study intersections are anticipated as a result of the proposed development. The northeast approach left/through movement on W Wilson Street is anticipated to continue to operate at LOS E under total traffic conditions, with an anticipated increase in the 95th percentile queue of five feet (495 ft to 500 ft). All other movements are anticipated to continue operating at LOS D or better.

4.3 Proposed Parking

Proposed Parking

The proposed 100 W Wilson Street Development includes 237 vehicular parking stalls and 206 bicycle parking stalls in an underground lot for residents of the multi-family housing. No customer parking for the commercial space is proposed. Most customers are anticipated to access the site via pedestrian or bicycle transportation modes as reflected in the multimodal reduction. The remaining customers would likely use on-street parking. The developer is also proposing 22 shared surface bicycle parking stalls. All underground parking spaces would be accessible via either proposed access point.

ITE Parking Generation

Parking generation was performed for the proposed development using ITE Parking Generation 5th Edition and is summarized in **Table 5.**

Table 5. Proposed Parking Generation

ITE Land Use	ITE Land Use Code	Size	Independent Variable Units	Parking Spaces		Peak Hour	Notes
				Average (Rate)	85th (Rate)		
Multifamily Housing (Mid-Rise)	221	206.0	Dwelling Units	270 (1.31)	305 (1.47)	Overnight	Weekday peak period. General Urban/Suburban rates
Coffee/Donut Shop without Drive-Through Window	936	0.81	KSF	10 (10.49)	15 (17.20)	7:00 AM	Weekday peak period. General Urban/Suburban rates
Total Parking Generation:				**280**	**320**	--	--

Parking demand was estimated for the multi-family land use and the commercial space assuming a small café or coffee shop. Due to lack of available urban data, suburban parking generation rates were used. Parking generation is therefore anticipated to be lower than estimated due to increased usage of ride sharing and valet services in urban areas.

The multi-family housing is anticiapted to generate peak parking demand during the overnight hours of 270 and 305 spaces using average and 85th percentile rates. The proposed 237 vehicle stalls is less than the estimated average demand, however, because of the dense urban setting of the site and assignment of residential parking spaces, parking proposed with the development is anticipated to be sufficient.

Parking generation for the café or coffee shop was included for information only. No customer parking for that land use is propsed with the development. The operator may be provided one parking stall in the structure. Seventy five percent of trips to the café are anticipated to be made by bicycle or pedestrian modes of transportation and therefore would not result in any parking demand. The remaining trips, if they are completed by passenger car, would utilize on-street parking.

5.0 Safety

5.1 Crash History

An inventory of crashes that occurred within the study area was compiled as a part of the study. The inventory consists of crashes reported in the five years between and including the years 2015 and 2019. A total of 13 crashes were found at the study intersection of W Wilson Street with S Hamilton Street and S Henry Street. A summary of the crashes is shown in **Table 6.**

Table 6. Crash Analysis Results Summary

Year	Crash Type						Injury	Total
	Angle	Sideswipe	Rear End	Tree	Utility Pole	Parked Vehicle		
2015	-	2	1	-	1	-	-	**4**
2016	-	1	-	-	-	-	-	**1**
2017	-	-	-	1	-	-	1	**1**
2018	1	1	2	-	-	-	-	**4**
2019	-	-	1	1	-	1	-	**3**
Total	**1**	**4**	**4**	**2**	**1**	**1**	**1**	**13**

Eight of the 13 crashes at the intersection were rear end or sideswipe type crashes. Rear end crashes are a typical crash pattern for an intersection with traffic signal control. One crash had a confirmed injury. No crashes involved pedestrians or bicycles. These crashes are summarized in **Exhibit 11.** A contributing factor to the crashes is likely the non-typical intersection geometry, causing drivers to be confused as to which movement has the right of way.

None of the crash patterns were determined to be irregular for the intersection types at which they occurred. Traffic volumes, circulation, and access proposed with the development are not anticipated to result in changes to crash rates or patterns within the study area.

6.0 Improvements

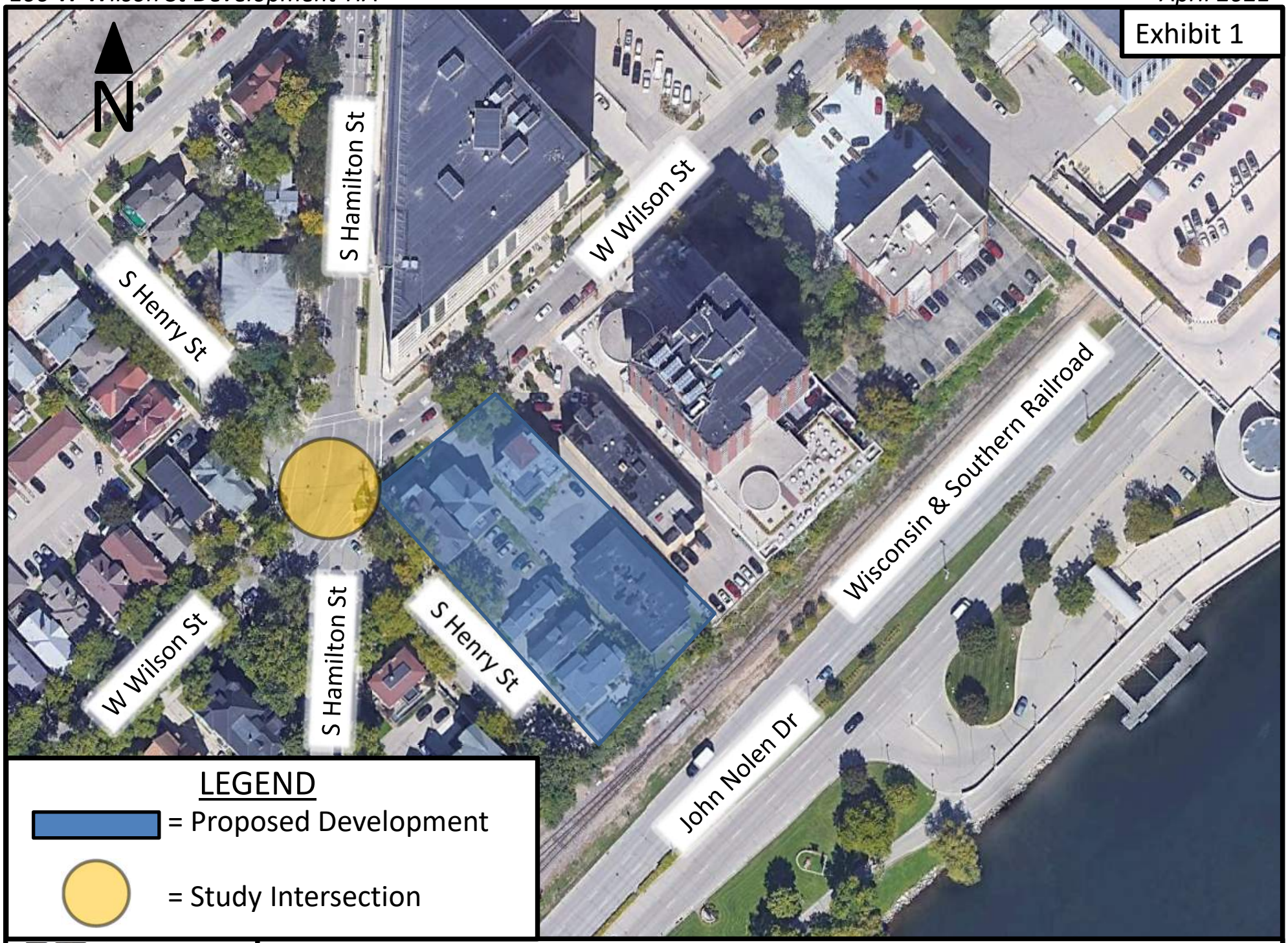
Traffic modeling of the existing roadway network with proposed development traffic volumes estimates nearly the same delays and queues as existing. Therefore, no intersection or roadway improvements are proposed with the development.

7.0 Conclusions and Recommendations

Information and analysis in this report document existing conditions near the proposed development site, expected traffic operations at the study intersection before and after completion of the proposed development, and characteristic of the proposed development. In summary, the findings of this study are as follows:

- Existing traffic operations at the W Wilson Street intersection with S Henry Street and S Hamilton Street are moderately congested. Queues on W Wilson Street during the morning and evening peak hours extend past several driveways to just short of the S Carroll Street intersection.
- The proposed development is expected to generate up to 65 new trips during the morning and evening peak traffic volume hours. No significant operational impacts are anticipated as a result of development traffic.
- Parking proposed with the development is anticipated to be sufficient for the anticipated parking demand.

Exhibit 1



LEGEND

= Proposed Development

= Study Intersection

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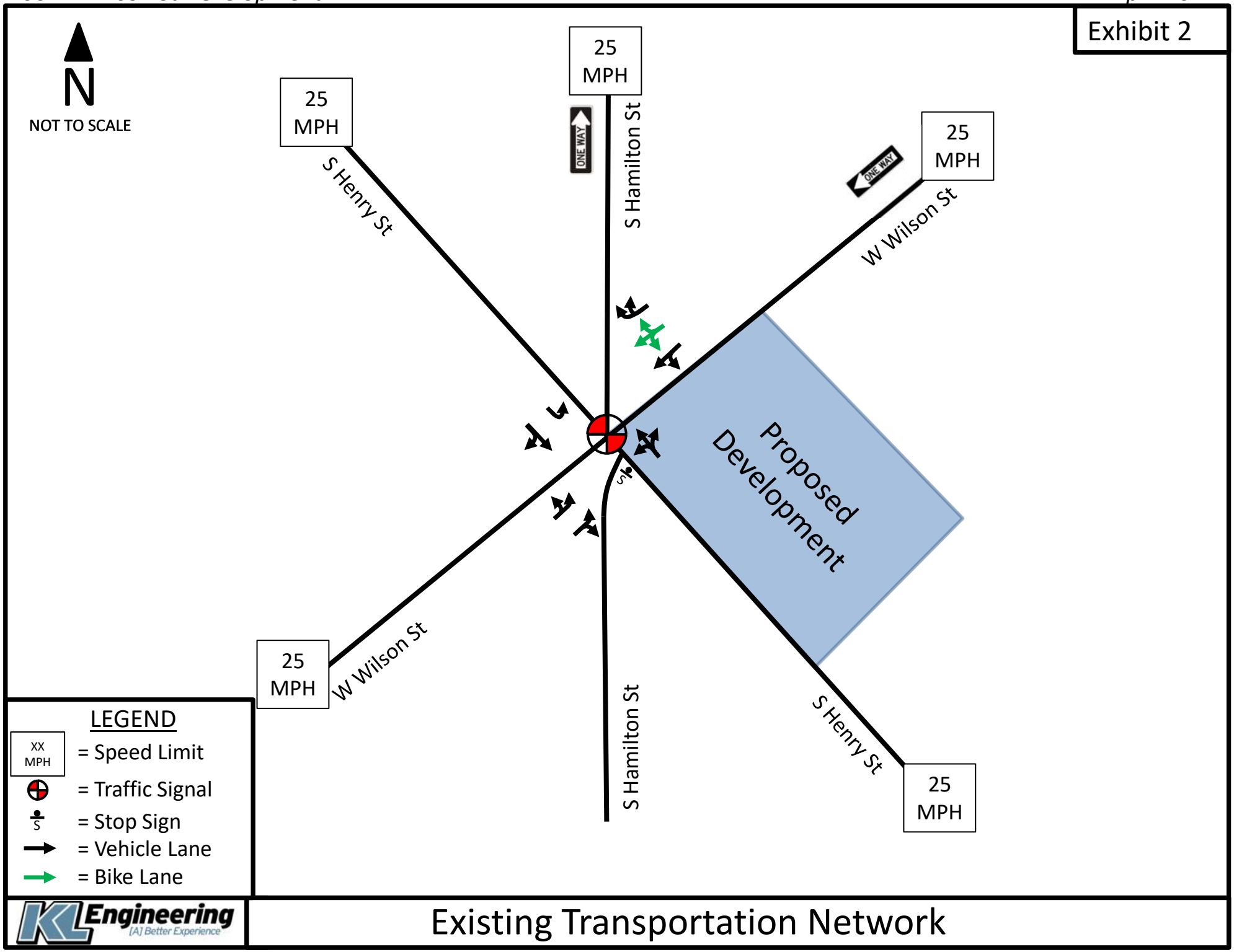
Project Location Map

Exhibit 2



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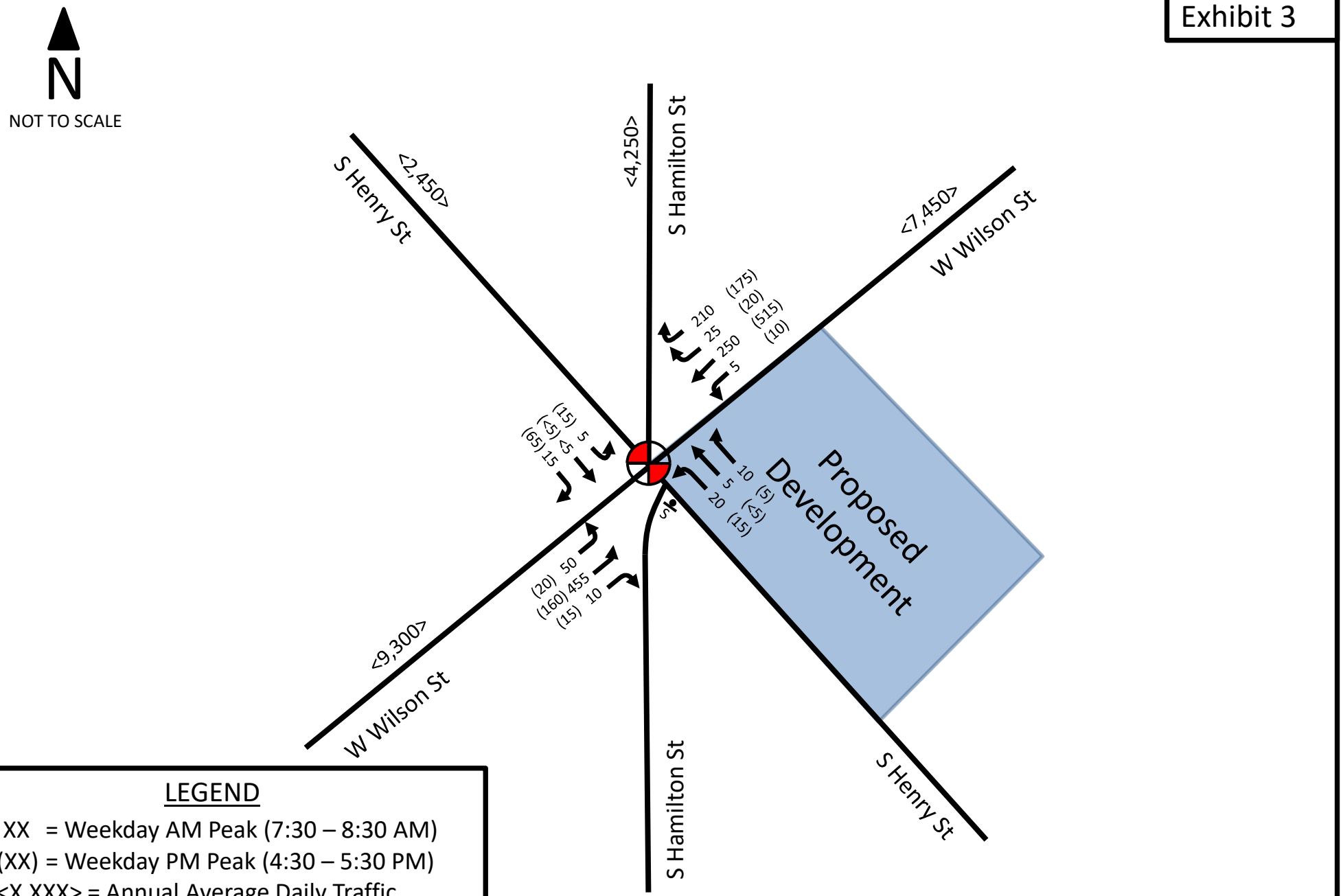
Existing Transportation Network

Exhibit 3



LEGEND

XX = Weekday AM Peak (7:30 – 8:30 AM)
(XX) = Weekday PM Peak (4:30 – 5:30 PM)
<X,XXX> = Annual Average Daily Traffic
= Traffic Signal
= Stop Sign

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Existing Traffic Volumes

Exhibit 4

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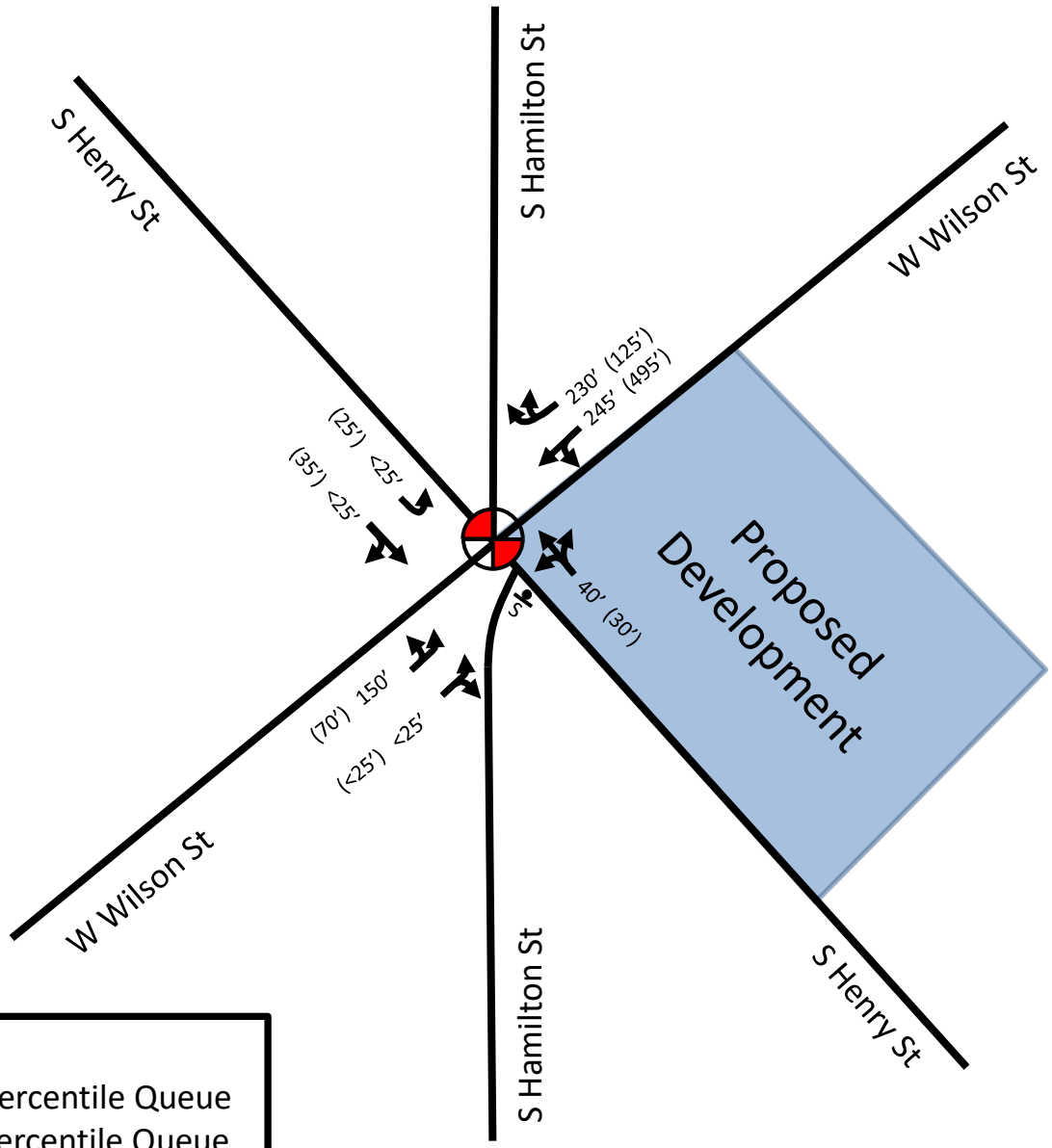
Existing Access Overview

Exhibit 5

N

NOT TO SCALE



LEGEND

XX' = AM Peak Hour 95th Percentile Queue

(XX') = PM Peak Hour 95th Percentile Queue

= Traffic Signal

= Stop Sign

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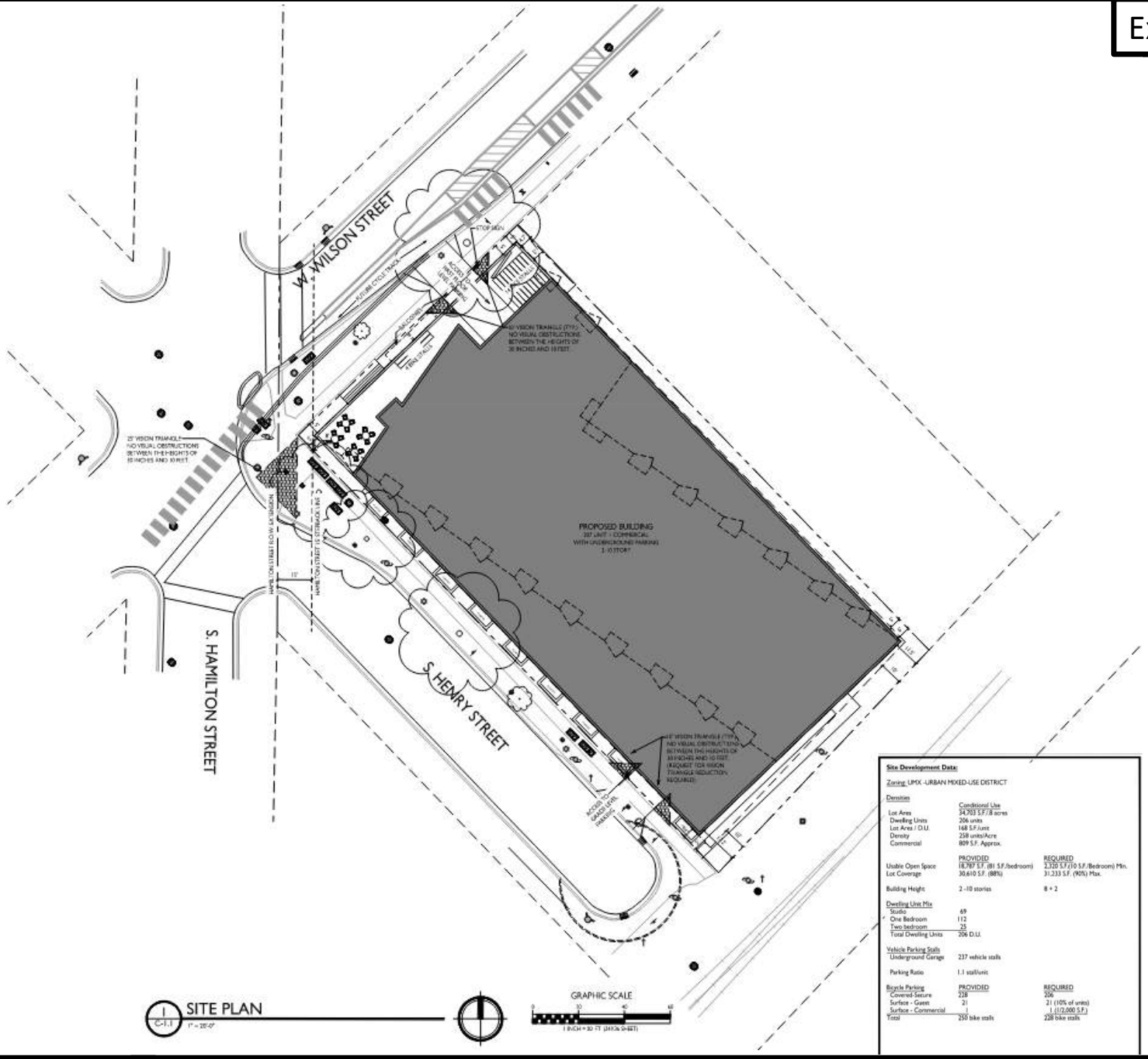
Existing 95th Percentile Queues

Exhibit 6



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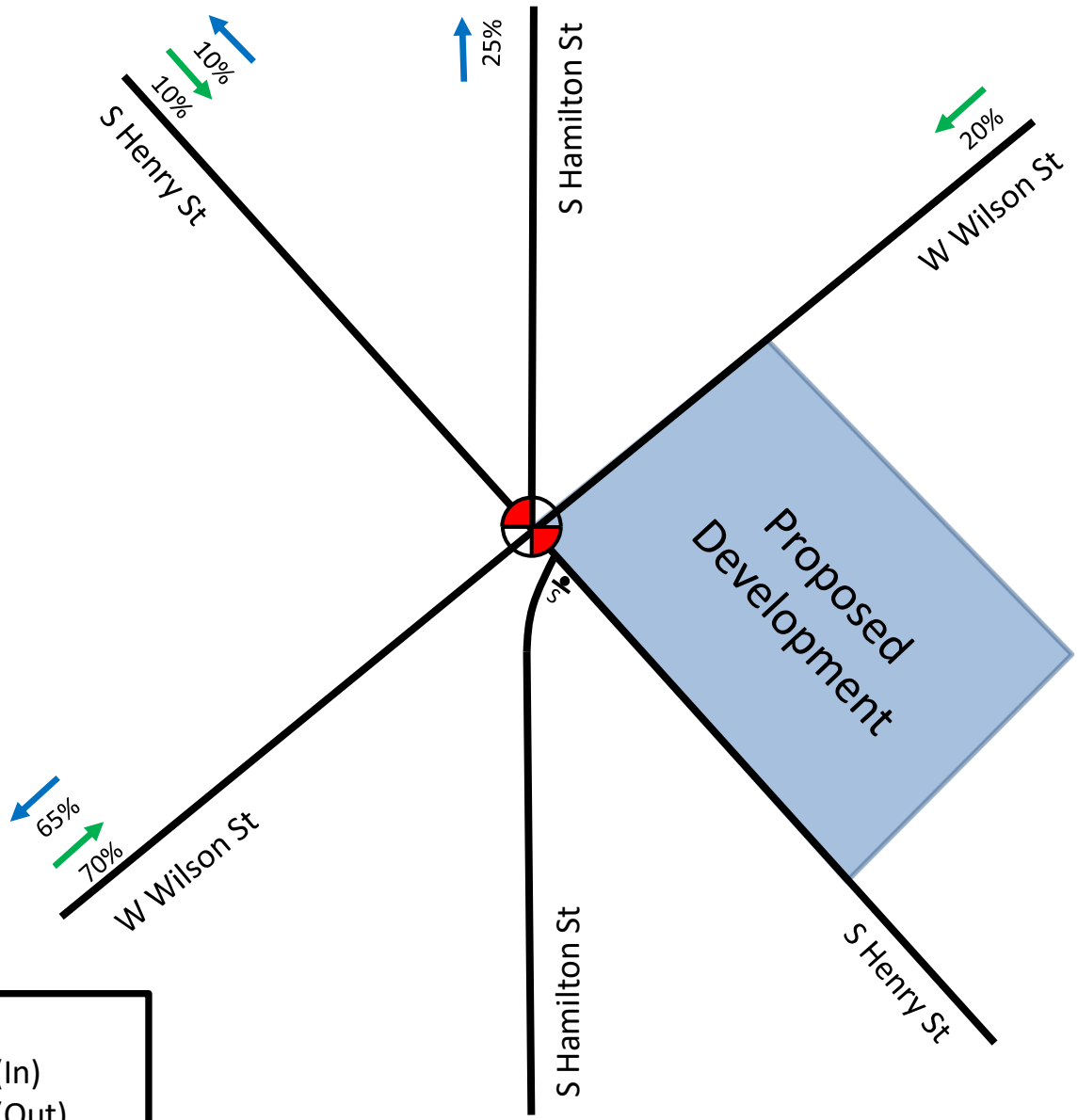
Site Plan

Exhibit 7

N

NOT TO SCALE



LEGEND

= Trip Distribution (In)

= Trip Distribution (Out)

= Traffic Signal

S = Stop Sign

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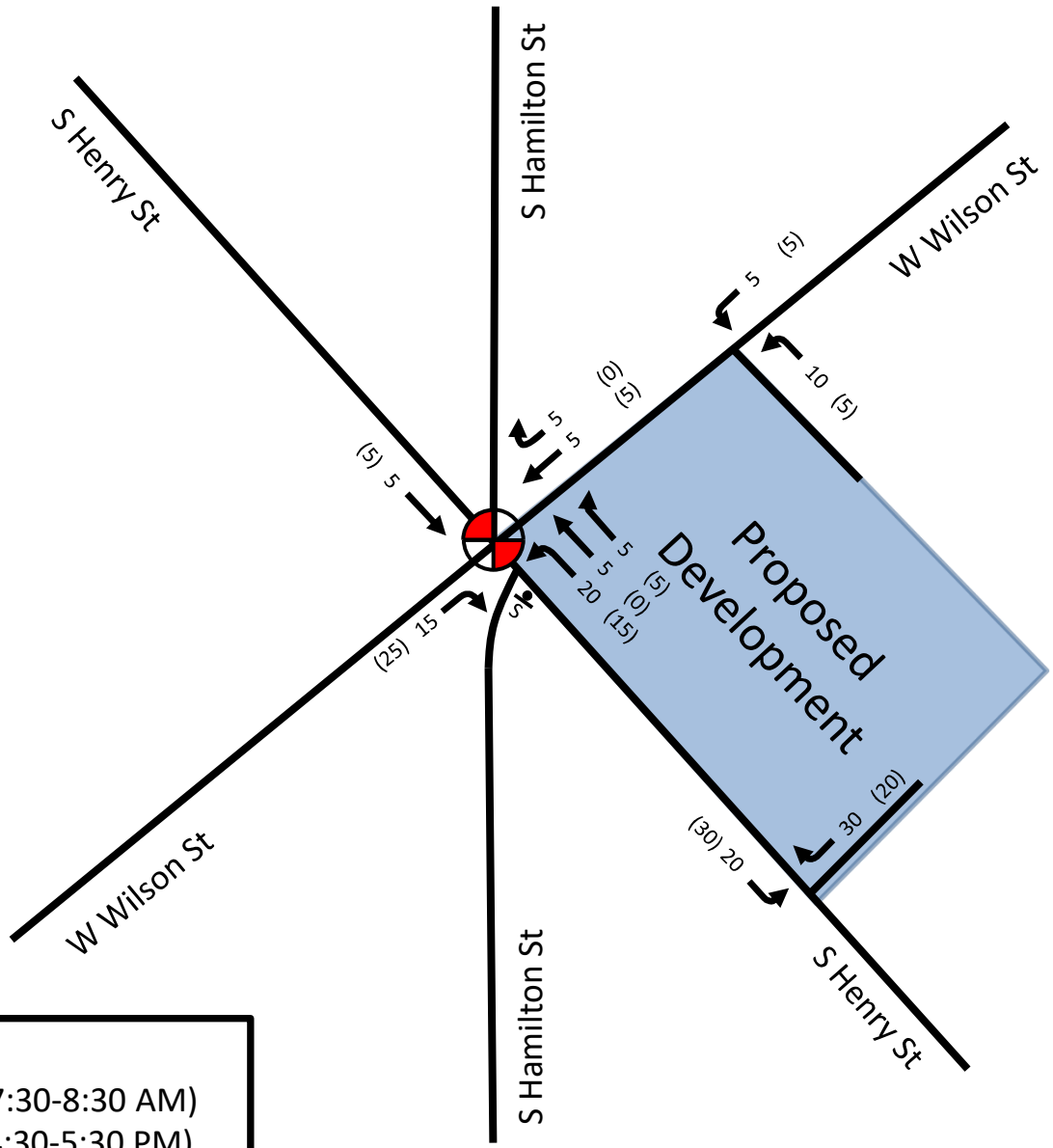
Proposed Trip Distribution

Exhibit 8

N

NOT TO SCALE



LEGEND

XX = Weekday AM Peak (7:30-8:30 AM)

(XX) = Weekday PM Peak (4:30-5:30 PM)

= Traffic Signal

S = Stop Sign

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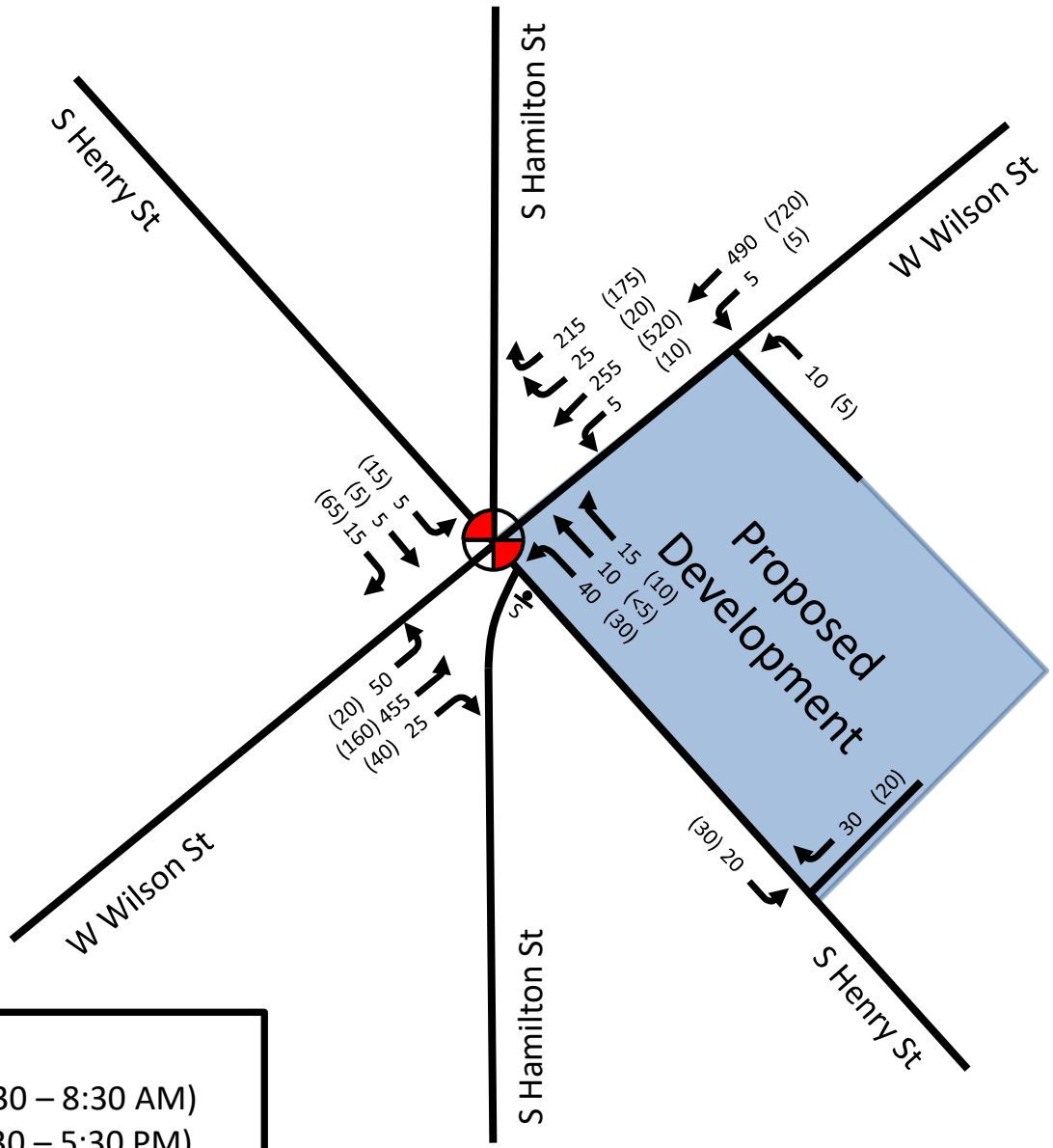
Proposed New Trips

Exhibit 9

N

NOT TO SCALE



LEGEND

XX = Weekday AM Peak (7:30 – 8:30 AM)

(XX) = Weekday PM Peak (4:30 – 5:30 PM)

= Traffic Signal

= Stop Sign

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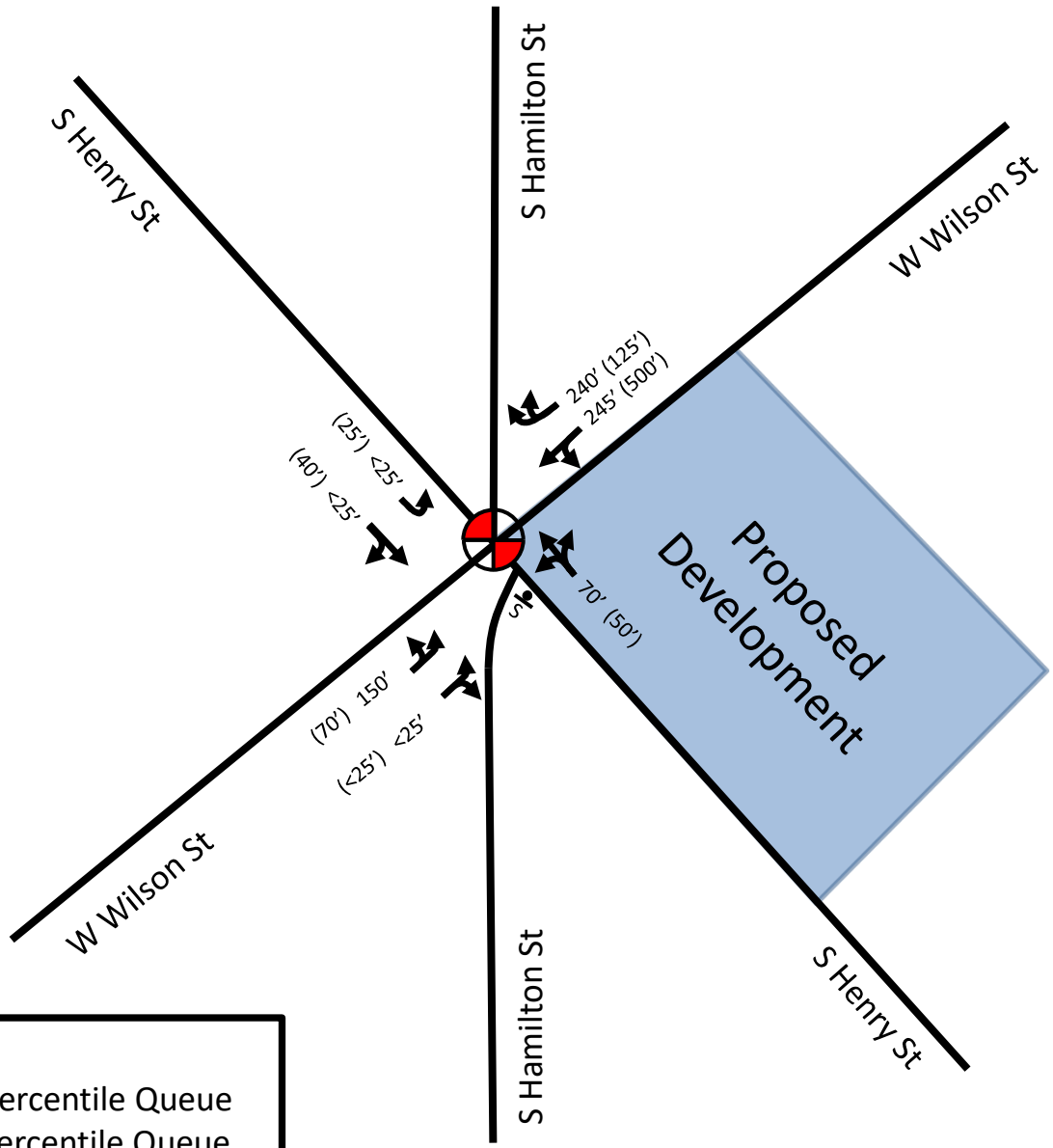
Total Traffic Volumes

Exhibit 10

N

NOT TO SCALE



LEGEND

XX' = AM Peak Hour 95th Percentile Queue

(XX') = PM Peak Hour 95th Percentile Queue

= Traffic Signal

= Stop Sign

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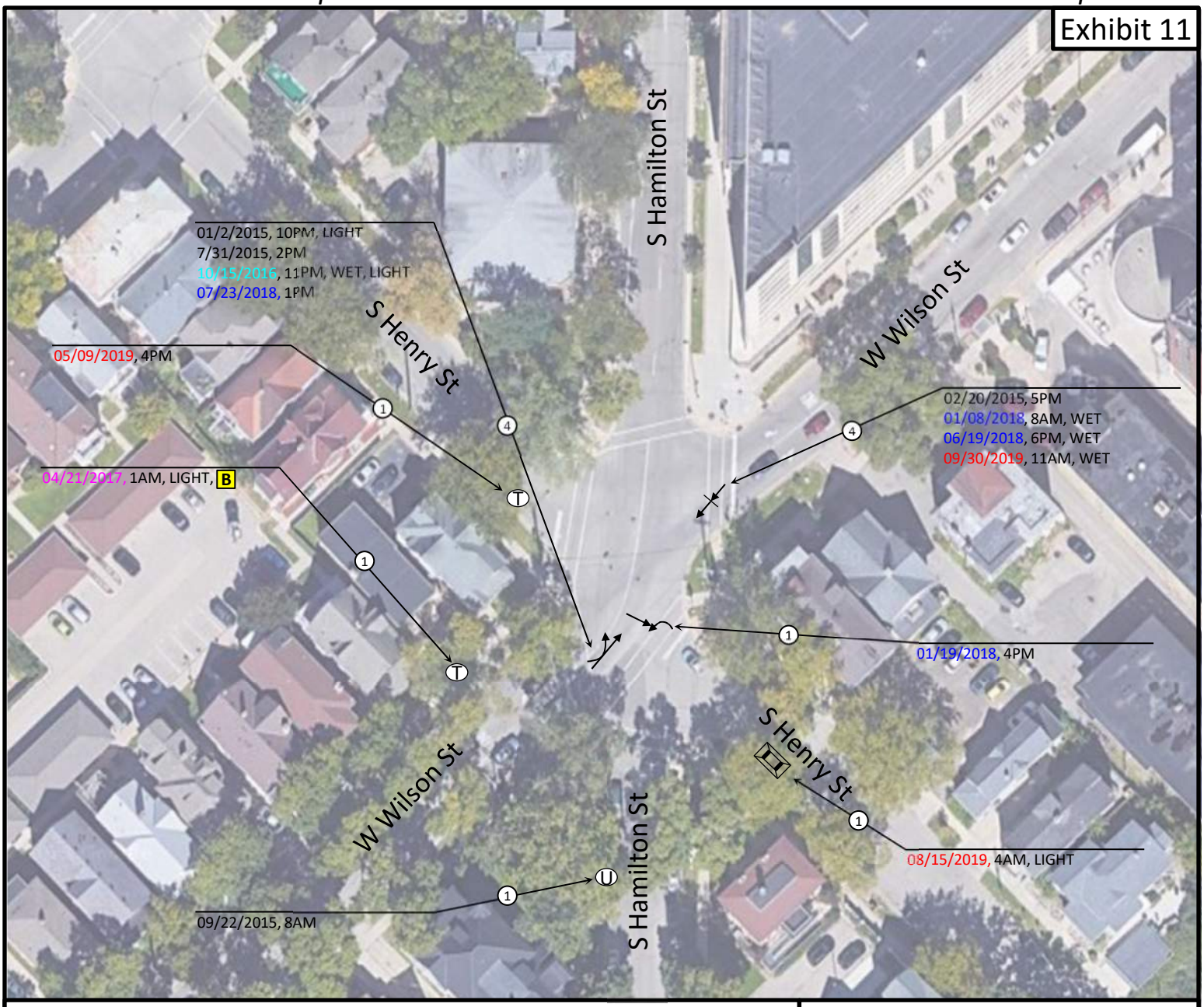
Total Traffic 95th Percentile Queues

Exhibit 11



INTERSECTION CRASH RATE

13 Crashes

0.53 Crashes/MEV

(Per Million Entering Vehicles)

Entering Vehicles: 13,000/day

CRASH SEVERITY

0	Fatal Crash (K)
0	Incapacitating (A-Level)
1	Non-Incapacitating (B-Level)
0	Possible (C-Level)
12	Property Damage Only

W Wilson St & S Hamilton St/ S Henry St
Intersection Crashes
January 2015 – December 2019
Madison, Dane County, WI

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LEGEND

Crash Types

- Moving Vehicle
- Backing Vehicle
- Pedestrian
- Bicyclist
- Parked Vehicle
- 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
- Overturn

YEAR

2015 BLACK
2016 CYAN
2017 MAGENTA
2018 BLUE
2019 RED

XX/XX/XXXX, XX AM/PM, XXX, XXX, #

DATE | TIME | SEE BELOW | CRASH FREQUENCY

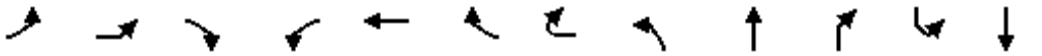
X	= CRASH SEVERITY (SEE DEFINITIONS)
WET	= WET PAVEMENT
SNOW	= SNOW ON PAVEMENT
LIGHT	= STREET LIGHTS OPERATING (DAYTIME IF BLANK)
AL/DG	= ALCOHOL/DRUG INVOLVEMENT

CRASH SEVERITY DEFINITIONS

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

APPENDIX A

Traffic Analysis Outputs



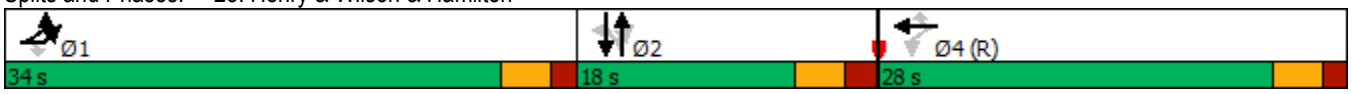
Lane Group	EBL2	EBL	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2	SBT
Lane Configurations												
Traffic Volume (vph)	50	455	10	5	250	25	210	20	5	10	5	2
Future Volume (vph)	50	455	10	5	250	25	210	20	5	10	5	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Storage Length (ft)		200	5	0		0		0		0		
Storage Lanes		1	1	0		1		0		0		
Taper Length (ft)		25		25				25				
Lane Util. Factor	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.93	0.94		1.00	0.86			0.91		0.98	0.94
Frt			0.850			0.850			0.961			0.867
Flt Protected		0.950			0.999				0.972		0.950	
Satd. Flow (prot)	0	2912	1343	0	1257	1304	0	0	1455	0	1516	1307
Flt Permitted		0.950			0.999				0.859		0.732	
Satd. Flow (perm)	0	2722	1260	0	1255	1120	0	0	1199	0	1139	1307
Right Turn on Red			Yes				No					
Satd. Flow (RTOR)			89									16
Link Speed (mph)					25				25			25
Link Distance (ft)					1248				287			294
Travel Time (s)					34.0				7.8			8.0
Confl. Peds. (#/hr)	12	12	12	27		27	27	36		36	13	
Confl. Bikes (#/hr)			3			3	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
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	4%	0%	0%	0%	0%	0%
Parking (#/hr)					16							
Adj. Flow (vph)	54	495	11	5	272	27	228	22	5	11	5	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	549	11	0	277	255	0	0	38	0	5	18
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right	Left	Left
Median Width(ft)					20				0			10
Link Offset(ft)					-10				0			0
Crosswalk Width(ft)					16				16			16
Two way Left Turn Lane												
Headway Factor	1.25	1.25	1.25	1.25	1.59	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Turning Speed (mph)	15	15	9	15		9	9	15		9	15	
Turn Type	Prot	Prot	Perm	Perm	NA	Perm		Perm	NA		Perm	NA
Protected Phases	1	1			4				2			2
Permitted Phases			1	4		4		2			2	
Minimum Split (s)	16.5	16.5	16.5	15.5	15.5	15.5		17.0	17.0		17.0	17.0
Total Split (s)	34.0	34.0	34.0	28.0	28.0	28.0		18.0	18.0		18.0	18.0
Total Split (%)	42.5%	42.5%	42.5%	35.0%	35.0%	35.0%		22.5%	22.5%		22.5%	22.5%
Maximum Green (s)	29.5	29.5	29.5	23.5	23.5	23.5		13.0	13.0		13.0	13.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-0.5	0.0		-0.5	-0.5			-1.0		-1.0	-1.0
Total Lost Time (s)		4.0	4.5		4.0	4.0			4.0		4.0	4.0
Lead/Lag	Lead	Lead	Lead					Lag	Lag		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes		Yes	Yes

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	15
Future Volume (vph)	15
Ideal Flow (vphpl)	1900
Lane Width (ft)	10
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Parking (#/hr)	
Adj. Flow (vph)	16
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.25
Turning Speed (mph)	9
Turn Type	
Protected Phases	
Permitted Phases	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	

Lane Group	EBL2	EBL	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2	SBT
Walk Time (s)	1.0	1.0	1.0	1.0	1.0	1.0		4.0	4.0		4.0	4.0
Flash Dont Walk (s)	11.0	11.0	11.0	9.0	9.0	9.0		8.0	8.0		8.0	8.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0	0		0	0
Act Effct Green (s)		30.0	29.5		24.0	24.0			14.0		14.0	14.0
Actuated g/C Ratio		0.38	0.37		0.30	0.30			0.18		0.18	0.18
v/c Ratio		0.50	0.02		0.74	0.76			0.18		0.03	0.07
Control Delay		21.2	0.1		39.0	42.3			30.7		27.8	15.3
Queue Delay		0.0	0.0		0.0	0.0			0.0		0.0	0.0
Total Delay		21.2	0.1		39.0	42.3			30.7		27.8	15.3
LOS		C	A		D	D			C		C	B
Approach Delay					40.6				30.7			18.0
Approach LOS					D				C			B

Intersection Summary			
Area Type:	CBD		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 47 (59%), Referenced to phase 4:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 30.2		Intersection LOS: C	
Intersection Capacity Utilization 64.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 25: Henry & Wilson & Hamilton



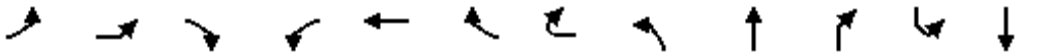
Lane Group	SBR
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBR	WBT	WBR	NBT	SBL2	SBT
Lane Group Flow (vph)	549	11	277	255	38	5	18
v/c Ratio	0.50	0.02	0.74	0.76	0.18	0.03	0.07
Control Delay	21.2	0.1	39.0	42.3	30.7	27.8	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	0.1	39.0	42.3	30.7	27.8	15.3
Queue Length 50th (ft)	106	0	123	115	16	2	1
Queue Length 95th (ft)	152	0	#240	#232	43	12	19
Internal Link Dist (ft)			1168		207		214
Turn Bay Length (ft)	200	5				25	
Base Capacity (vph)	1092	520	376	336	209	199	241
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	0.50	0.02	0.74	0.76	0.18	0.03	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



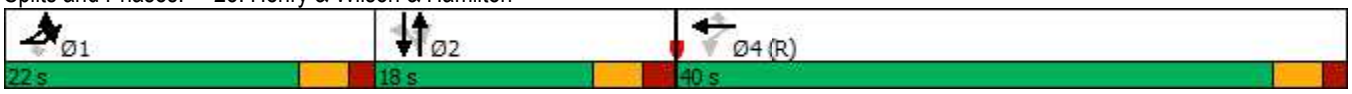
Lane Group	EBL2	EBL	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2	SBT
Lane Configurations												
Traffic Volume (vph)	20	160	15	10	515	20	175	15	2	5	15	1
Future Volume (vph)	20	160	15	10	515	20	175	15	2	5	15	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Storage Length (ft)		200	5	0		0		0		0		
Storage Lanes		1	1	0		1		0		0		
Taper Length (ft)		25		25				25				
Lane Util. Factor	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.96	0.94		1.00	0.91			0.87		0.97	0.92
Frt			0.850			0.850			0.971			0.852
Flt Protected		0.950			0.999				0.966		0.950	
Satd. Flow (prot)	0	2912	1343	0	1257	1304	0	0	1461	0	1516	1254
Flt Permitted		0.950			0.999				0.825		0.742	
Satd. Flow (perm)	0	2786	1257	0	1255	1182	0	0	1114	0	1143	1254
Right Turn on Red			Yes				No					
Satd. Flow (RTOR)			89									71
Link Speed (mph)					25				25			25
Link Distance (ft)					1248				287			294
Travel Time (s)					34.0				7.8			8.0
Confl. Peds. (#/hr)	12	12	12	17		17	17	51		51	18	
Confl. Bikes (#/hr)			3			3	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
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	4%	0%	0%	0%	0%	0%
Parking (#/hr)					16							
Adj. Flow (vph)	22	174	16	11	560	22	190	16	2	5	16	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	16	0	571	212	0	0	23	0	16	72
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right	Left	Left
Median Width(ft)					20				0			10
Link Offset(ft)					-10				0			0
Crosswalk Width(ft)					16				16			16
Two way Left Turn Lane												
Headway Factor	1.25	1.25	1.25	1.25	1.59	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Turning Speed (mph)	15	15	9	15		9	9	15		9	15	
Turn Type	Prot	Prot	Perm	Perm	NA	Perm		Perm	NA		Perm	NA
Protected Phases	1	1			4				2			2
Permitted Phases			1	4		4		2			2	
Minimum Split (s)	16.5	16.5	16.5	15.5	15.5	15.5		17.0	17.0		17.0	17.0
Total Split (s)	22.0	22.0	22.0	40.0	40.0	40.0		18.0	18.0		18.0	18.0
Total Split (%)	27.5%	27.5%	27.5%	50.0%	50.0%	50.0%		22.5%	22.5%		22.5%	22.5%
Maximum Green (s)	17.5	17.5	17.5	35.5	35.5	35.5		13.0	13.0		13.0	13.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-0.5	0.0		-0.5	-0.5			-1.0		-1.0	-1.0
Total Lost Time (s)		4.0	4.5		4.0	4.0			4.0		4.0	4.0
Lead/Lag	Lead	Lead	Lead					Lag	Lag		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes		Yes	Yes

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	65
Future Volume (vph)	65
Ideal Flow (vphpl)	1900
Lane Width (ft)	10
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	18
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Parking (#/hr)	
Adj. Flow (vph)	71
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.25
Turning Speed (mph)	9
Turn Type	
Protected Phases	
Permitted Phases	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	

Lane Group	EBL2	EBL	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2	SBT
Walk Time (s)	1.0	1.0	1.0	1.0	1.0	1.0		4.0	4.0		4.0	4.0
Flash Dont Walk (s)	11.0	11.0	11.0	9.0	9.0	9.0		8.0	8.0		8.0	8.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0	0		0	0
Act Effct Green (s)		18.0	17.5		36.0	36.0			14.0		14.0	14.0
Actuated g/C Ratio		0.22	0.22		0.45	0.45			0.18		0.18	0.18
v/c Ratio		0.30	0.05		1.01	0.40			0.12		0.08	0.26
Control Delay		27.2	0.3		65.8	17.6			29.7		28.9	10.7
Queue Delay		0.0	0.0		0.0	0.0			0.0		0.0	0.0
Total Delay		27.2	0.3		65.8	17.6			29.7		28.9	10.7
LOS		C	A		E	B			C		C	B
Approach Delay					52.8				29.7			14.0
Approach LOS					D				C			B

Intersection Summary			
Area Type:	CBD		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 47 (59%), Referenced to phase 4:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Pretimed			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 43.9		Intersection LOS: D	
Intersection Capacity Utilization 77.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 25: Henry & Wilson & Hamilton



Lane Group	SBR
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

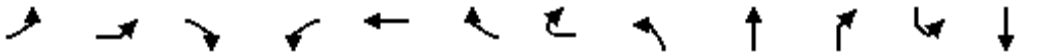
Intersection Summary

Lane Group	EBL	EBR	WBT	WBR	NBT	SBL2	SBT
Lane Group Flow (vph)	196	16	571	212	23	16	72
v/c Ratio	0.30	0.05	1.01	0.40	0.12	0.08	0.26
Control Delay	27.2	0.3	65.8	17.6	29.7	28.9	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	0.3	65.8	17.6	29.7	28.9	10.7
Queue Length 50th (ft)	42	0	~282	68	10	7	0
Queue Length 95th (ft)	71	0	#496	124	30	24	35
Internal Link Dist (ft)			1168		207		214
Turn Bay Length (ft)	200	5				25	
Base Capacity (vph)	655	344	564	531	194	200	278
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	0.30	0.05	1.01	0.40	0.12	0.08	0.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



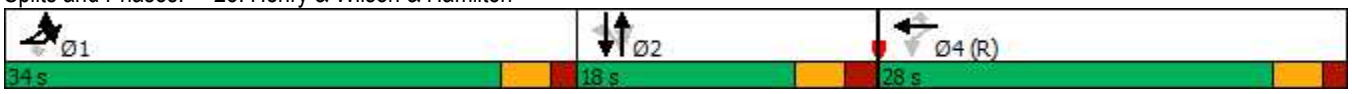
Lane Group	EBL2	EBL	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2	SBT
Lane Configurations												
Traffic Volume (vph)	50	455	25	5	255	25	215	40	10	15	5	5
Future Volume (vph)	50	455	25	5	255	25	215	40	10	15	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Storage Length (ft)		200	5	0		0		0		0		
Storage Lanes		1	1	0		1		0		0		
Taper Length (ft)		25		25				25				
Lane Util. Factor	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.94	0.94		1.00	0.86			0.91		0.98	0.95
Frt			0.850			0.850			0.969			0.886
Flt Protected		0.950			0.999				0.970		0.950	
Satd. Flow (prot)	0	2912	1343	0	1257	1304	0	0	1472	0	1516	1347
Flt Permitted		0.950			0.999				0.824		0.761	
Satd. Flow (perm)	0	2723	1260	0	1255	1120	0	0	1161	0	1188	1347
Right Turn on Red			Yes				No					
Satd. Flow (RTOR)			89									16
Link Speed (mph)					25				25			25
Link Distance (ft)					1248				287			294
Travel Time (s)					34.0				7.8			8.0
Confl. Peds. (#/hr)	12	12	12	27		27	27	36		36	13	
Confl. Bikes (#/hr)			3			3	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
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	4%	0%	0%	0%	0%	0%
Parking (#/hr)					16							
Adj. Flow (vph)	54	495	27	5	277	27	234	43	11	16	5	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	549	27	0	282	261	0	0	70	0	5	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right	Left	Left
Median Width(ft)					20				0			10
Link Offset(ft)					-10				0			0
Crosswalk Width(ft)					16				16			16
Two way Left Turn Lane												
Headway Factor	1.25	1.25	1.25	1.25	1.59	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Turning Speed (mph)	15	15	9	15		9	9	15		9	15	
Turn Type	Prot	Prot	Perm	Perm	NA	Perm		Perm	NA		Perm	NA
Protected Phases	1	1			4				2			2
Permitted Phases			1	4		4		2			2	
Minimum Split (s)	16.5	16.5	16.5	15.5	15.5	15.5		17.0	17.0		17.0	17.0
Total Split (s)	34.0	34.0	34.0	28.0	28.0	28.0		18.0	18.0		18.0	18.0
Total Split (%)	42.5%	42.5%	42.5%	35.0%	35.0%	35.0%		22.5%	22.5%		22.5%	22.5%
Maximum Green (s)	29.5	29.5	29.5	23.5	23.5	23.5		13.0	13.0		13.0	13.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-0.5	0.0		-0.5	-0.5			-1.0		-1.0	-1.0
Total Lost Time (s)		4.0	4.5		4.0	4.0			4.0		4.0	4.0
Lead/Lag	Lead	Lead	Lead					Lag	Lag		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes		Yes	Yes

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	15
Future Volume (vph)	15
Ideal Flow (vphpl)	1900
Lane Width (ft)	10
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Parking (#/hr)	
Adj. Flow (vph)	16
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.25
Turning Speed (mph)	9
Turn Type	
Protected Phases	
Permitted Phases	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	

Lane Group	EBL2	EBL	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2	SBT
Walk Time (s)	1.0	1.0	1.0	1.0	1.0	1.0		4.0	4.0		4.0	4.0
Flash Dont Walk (s)	11.0	11.0	11.0	9.0	9.0	9.0		8.0	8.0		8.0	8.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0	0		0	0
Act Effct Green (s)		30.0	29.5		24.0	24.0			14.0		14.0	14.0
Actuated g/C Ratio		0.38	0.37		0.30	0.30			0.18		0.18	0.18
v/c Ratio		0.50	0.05		0.75	0.78			0.34		0.02	0.08
Control Delay		21.2	0.2		39.9	43.8			34.5		27.8	16.6
Queue Delay		0.0	0.0		0.0	0.0			0.0		0.0	0.0
Total Delay		21.2	0.2		39.9	43.8			34.5		27.8	16.6
LOS		C	A		D	D			C		C	B
Approach Delay					41.8				34.5			18.7
Approach LOS					D				C			B

Intersection Summary			
Area Type:	CBD		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 47 (59%), Referenced to phase 4:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 30.7		Intersection LOS: C	
Intersection Capacity Utilization 66.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 25: Henry & Wilson & Hamilton



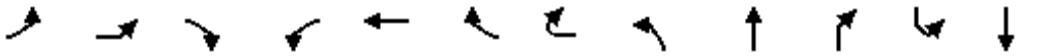
Lane Group	SBR
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBR	WBT	WBR	NBT	SBL2	SBT
Lane Group Flow (vph)	549	27	282	261	70	5	21
v/c Ratio	0.50	0.05	0.75	0.78	0.34	0.02	0.08
Control Delay	21.2	0.2	39.9	43.8	34.5	27.8	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	0.2	39.9	43.8	34.5	27.8	16.6
Queue Length 50th (ft)	106	0	126	118	31	2	2
Queue Length 95th (ft)	152	0	#245	#240	70	12	21
Internal Link Dist (ft)			1168		207		214
Turn Bay Length (ft)	200	5				25	
Base Capacity (vph)	1092	520	376	336	203	207	248
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	0.50	0.05	0.75	0.78	0.34	0.02	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



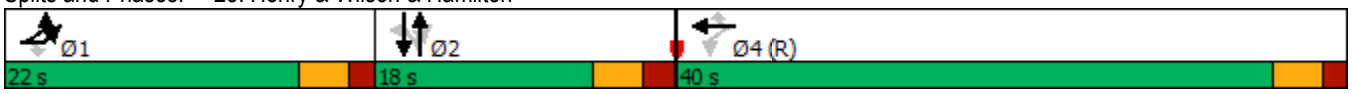
Lane Group	EBL2	EBL	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2	SBT
Lane Configurations												
Traffic Volume (vph)	20	160	40	10	520	20	175	30	0	10	15	5
Future Volume (vph)	20	160	40	10	520	20	175	30	0	10	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Storage Length (ft)		200	5	0		0		0		0		
Storage Lanes		1	1	0		1		0		0		
Taper Length (ft)		25		25				25				
Lane Util. Factor	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.96	0.94		1.00	0.91			0.86		0.97	0.93
Frt			0.850			0.850			0.966			0.860
Flt Protected		0.950			0.999				0.964		0.950	
Satd. Flow (prot)	0	2912	1343	0	1257	1304	0	0	1445	0	1516	1272
Flt Permitted		0.950			0.999				0.777		0.728	
Satd. Flow (perm)	0	2787	1257	0	1255	1182	0	0	1031	0	1123	1272
Right Turn on Red			Yes				No					
Satd. Flow (RTOR)			89									71
Link Speed (mph)					25				25			25
Link Distance (ft)					1248				287			294
Travel Time (s)					34.0				7.8			8.0
Confl. Peds. (#/hr)	12	12	12	17		17	17	51		51	18	
Confl. Bikes (#/hr)			3			3	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
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	4%	0%	0%	0%	0%	0%
Parking (#/hr)					16							
Adj. Flow (vph)	22	174	43	11	565	22	190	33	0	11	16	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	43	0	576	212	0	0	44	0	16	76
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right	Left	Left
Median Width(ft)					20				0			10
Link Offset(ft)					-10				0			0
Crosswalk Width(ft)					16				16			16
Two way Left Turn Lane												
Headway Factor	1.25	1.25	1.25	1.25	1.59	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Turning Speed (mph)	15	15	9	15		9	9	15		9	15	
Turn Type	Prot	Prot	Perm	Perm	NA	Perm		Perm	NA		Perm	NA
Protected Phases	1	1			4				2			2
Permitted Phases			1	4		4		2			2	
Minimum Split (s)	16.5	16.5	16.5	15.5	15.5	15.5		17.0	17.0		17.0	17.0
Total Split (s)	22.0	22.0	22.0	40.0	40.0	40.0		18.0	18.0		18.0	18.0
Total Split (%)	27.5%	27.5%	27.5%	50.0%	50.0%	50.0%		22.5%	22.5%		22.5%	22.5%
Maximum Green (s)	17.5	17.5	17.5	35.5	35.5	35.5		13.0	13.0		13.0	13.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-0.5	0.0		-0.5	-0.5			-1.0		-1.0	-1.0
Total Lost Time (s)		4.0	4.5		4.0	4.0			4.0		4.0	4.0
Lead/Lag	Lead	Lead	Lead					Lag	Lag		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes					Yes	Yes		Yes	Yes

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	65
Future Volume (vph)	65
Ideal Flow (vphpl)	1900
Lane Width (ft)	10
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	18
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Parking (#/hr)	
Adj. Flow (vph)	71
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.25
Turning Speed (mph)	9
Turn Type	
Protected Phases	
Permitted Phases	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	

Lane Group	EBL2	EBL	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL2	SBT
Walk Time (s)	1.0	1.0	1.0	1.0	1.0	1.0		4.0	4.0		4.0	4.0
Flash Dont Walk (s)	11.0	11.0	11.0	9.0	9.0	9.0		8.0	8.0		8.0	8.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0	0		0	0
Act Effct Green (s)		18.0	17.5		36.0	36.0			14.0		14.0	14.0
Actuated g/C Ratio		0.22	0.22		0.45	0.45			0.18		0.18	0.18
v/c Ratio		0.30	0.12		1.02	0.40			0.24		0.08	0.27
Control Delay		27.2	1.8		68.2	17.6			32.5		29.0	11.5
Queue Delay		0.0	0.0		0.0	0.0			0.0		0.0	0.0
Total Delay		27.2	1.8		68.2	17.6			32.5		29.0	11.5
LOS		C	A		E	B			C		C	B
Approach Delay					54.6				32.5			14.6
Approach LOS					D				C			B

Intersection Summary			
Area Type:	CBD		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 47 (59%), Referenced to phase 4:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Pretimed			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 44.0		Intersection LOS: D	
Intersection Capacity Utilization 78.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 25: Henry & Wilson & Hamilton



Lane Group	SBR
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBR	WBT	WBR	NBT	SBL2	SBT
Lane Group Flow (vph)	196	43	576	212	44	16	76
v/c Ratio	0.30	0.12	1.02	0.40	0.24	0.08	0.27
Control Delay	27.2	1.8	68.2	17.6	32.5	29.0	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	1.8	68.2	17.6	32.5	29.0	11.5
Queue Length 50th (ft)	42	0	~292	68	19	7	2
Queue Length 95th (ft)	71	6	#501	124	49	24	38
Internal Link Dist (ft)			1168		207		214
Turn Bay Length (ft)	200	5				25	
Base Capacity (vph)	655	344	564	531	180	196	281
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	0.30	0.13	1.02	0.40	0.24	0.08	0.27

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.