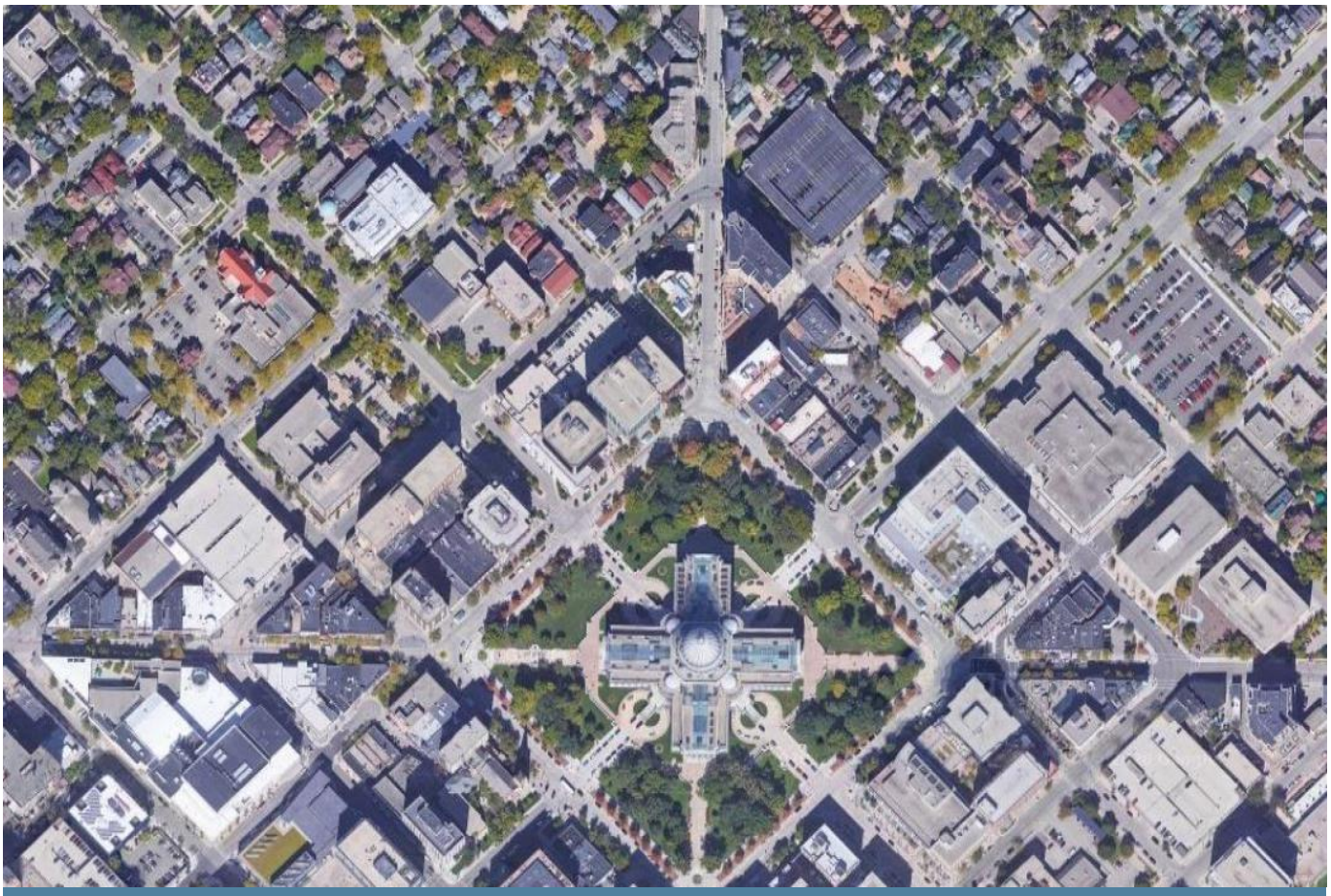
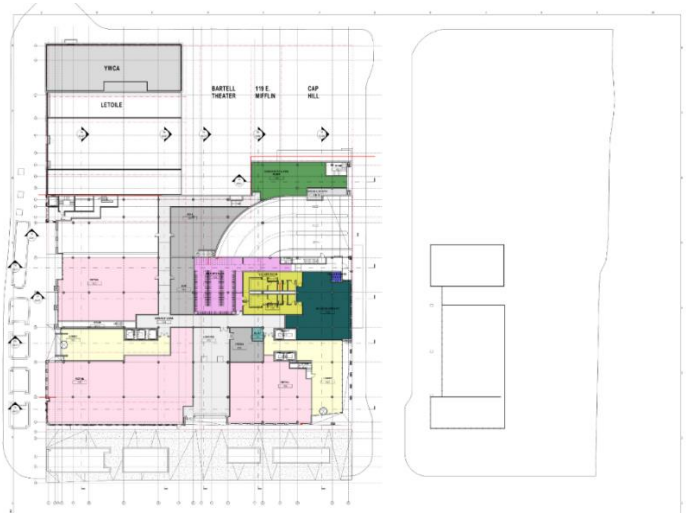


Traffic Study for

AMERICAN EXCHANGE DEVELOPMENT

Urban Land Interests | September 8, 2020



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CITY OF MADISON WISCONSIN

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Introduction

Urban Land Interests (ULI) is proposing to construct a mixed-use development containing commercial land uses in a portion of the block bordered by North Webster Street, East Mifflin Street, East Washington Avenue, and North Pinkney Street in Madison, Wisconsin. The project is referred to as the American Exchange Development or the development in this report.

KL Engineering was contracted by ULI to perform a traffic assessment for the proposed development. This report documents the assessment that was performed.

Study Purpose and Objective

This study was performed to evaluate traffic operations under existing conditions and upon completion of the proposed development. The evaluation was used to identify impacts to the roadway network and any required mitigation. Both weekday morning (AM) and afternoon (PM) peak hour traffic volumes were considered.

Project Location and Study Area

Project Location

The proposed development site is in the west quadrant of the intersection of North Webster Street with East Mifflin Street and East Washington Avenue. It is the current location of retail and office land uses with a surface parking lot. The YMCA is not part of the development site. The site is bordered by East Mifflin Street to the northeast, North Pinckney Street to the southwest, East Washington Avenue to the southeast and North Webster Street northwest. A project location map is provided in **Figure 1**.

Figure 1. Project Location Map

Study Area Roadways

Roadways within the study area are generally aligned southwest to northeast and northwest to southeast. In order to simplify roadway and intersection descriptions, roadway directional orientation has been simplified to generally follow the directional prefixes of area roadways for the remaining portion of this document. 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):

East Washington Avenue

East Washington Avenue is classified by the City of Madison as a standard arterial east of Webster Street and a local road to the west. East Washington Avenue to the east of Webster Street consists of a six-lane divided urban cross section with on-street parking, sidewalks, a westbound on-street bike lane, and a posted speed limit of 25 miles per hour (mph). East Washington Avenue to the west of Webster Street consists of a two-lane undivided cross section with on street parking, sidewalks, and a posted speed limit of 25 mph. East Washington Avenue is oriented west to

east and has an average weekday traffic (AWT) volume of 14,800 vehicles per day (vpd) east of South Webster Street and 3,700 vpd to the west.

North Webster Street

North Webster Street is classified by the City of Madison as a standard arterial, has a two-lane undivided urban cross section with on-street parking, sidewalks, and a posted speed limit of 25 mph. North Webster Street is a one-way roadway in the northbound direction and is oriented north to south. North Webster Street has an AWT volume of 10,900 vpd north of East Mifflin Street and 9,900 vpd to the south of East Washington Avenue.

East Mifflin Street

East Mifflin Street is classified by the City of Madison as a local road. East Mifflin Street to the west of North Webster Street consists a two-lane undivided urban cross section with on-street parking and a 25-mph speed limit. East Mifflin Street to the east of North Webster Street consist of a one-lane urban undivided cross section with angled on-street parking on the north side of the roadway, sidewalks, a contra-flow bike lane, and a speed limit of 25 mph. East Mifflin Street is a one-way roadway in the eastbound direction to the west of North Webster Street. East Mifflin Street is designated by the City of Madison as a Bike Boulevard, meaning that bicyclists may use the entire width of the travel lane in both directions. East Mifflin Street is oriented east to west and has an AWT volume of 2,300 vpd to the east of North Webster Street.

Study Area Intersections

The study area roadways form the following study intersections:

North Webster Street with East Washington Avenue

The intersection of Webster Street with East Washington Avenue is located to the east of development. North Webster Street forms the north and south approaches of the intersection, East Washington Avenue forms the east and west approaches. The intersection is controlled by a traffic signal with a dedicated pedestrian crossing phase.

North Webster Street with East Mifflin Street

The intersection of North Webster Street with East Mifflin Street is located to the north of development. North Webster Street forms the north and south approaches of the intersection, East Mifflin Street forms the east and west approaches. The intersection is controlled by a traffic signal.

An overview of the existing roadway network is provided in **Figure 2**.

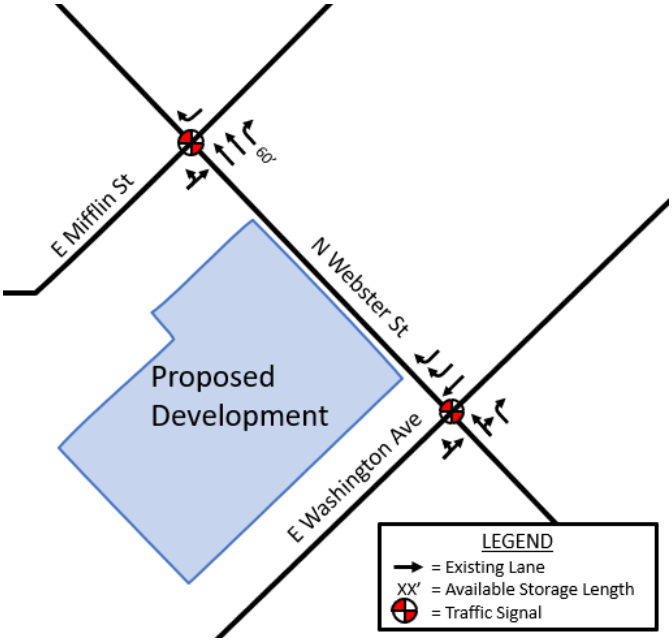

Figure 2. Existing Roadway Network

Existing Conditions

KL Engineering conducted turning movement counts and site observations as part of the existing conditions assessment. A turning movement count was performed at the study intersections during the week of June 29, 2020. The AM peak traffic volume hour was found to be 7:30-8:30 am, and the PM peak hour was found to be 4:15-5:15 pm. Traffic conditions at the time counts were performed were impacted by the restrictions to activities imposed in response to the SARS-CoV-2 virus. Therefore, these traffic counts were adjusted to account for normal conditions.

The City of Madison provided a continuous traffic count completed during the year 2018. One count was performed on North Webster Street to the north of East Mifflin Avenue, another count was performed on North Webster Street to the south of East Washington Avenue. These volumes were grown to 2020 volumes and used to adjust the turning movement count volumes to reflect the most current volumes under normal conditions. These adjusted turning movement count volumes are summarized in **Figure 3**.

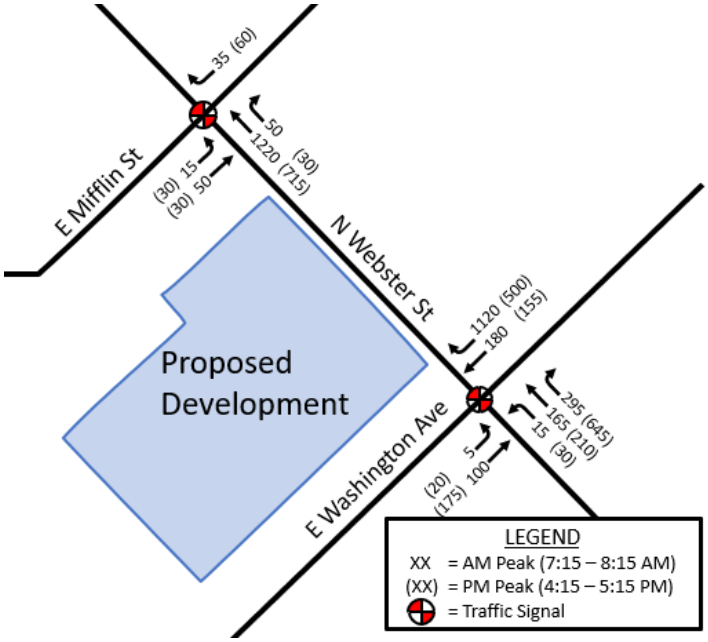

Figure 3. Traffic Volumes – Existing Conditions

Existing traffic volumes and roadway geometry were used to perform traffic modelling and estimate delays experienced by motorists at the intersections of Webster Street with East Washington Avenue and North Webster Street with East Mifflin Street. Estimated delays were used to assign a Level of Service (LOS) at each movement of the intersection. Level of Service is determined by using estimated delay to assign letter grades to each movement and intersection. The letter grades represent operating conditions as specified in the Highway Capacity Manual 6th Edition. LOS for each movement and for the intersection are summarized in **Table 1**.

Table 1. Level of Service Table – Existing Conditions

Intersection	Peak	Movement												Intersection
		Eastbound			Westbound			Northbound			Southbound			
		L	T	R	L	T	R	L	T	R	L	T	R	
South Webster Street & East Washington Avenue	AM	A	A	-	-	A	B	B	B	C	-	-	-	B
	PM	B	B	-	-	B	B	A	A	C	-	-	-	C
North Webster Street & East Mifflin Street	AM	D	D	-	-	-	A	-	A	A	-	-	-	D
	PM	D	D	-	-	-	A	-	A	A	-	-	-	D

All movements are estimated to operate at LOS D or better during both the AM and PM peak hours. These delays were unable to be confirmed due to the traffic pattern changes resulting from the response to the SARS-CoV-2 virus.

Traffic analysis software was also used to estimate vehicular queues along each approach of the intersection. The estimated 95th percentile queue lengths during the AM and PM peak hours are summarized in **Figure 4**.

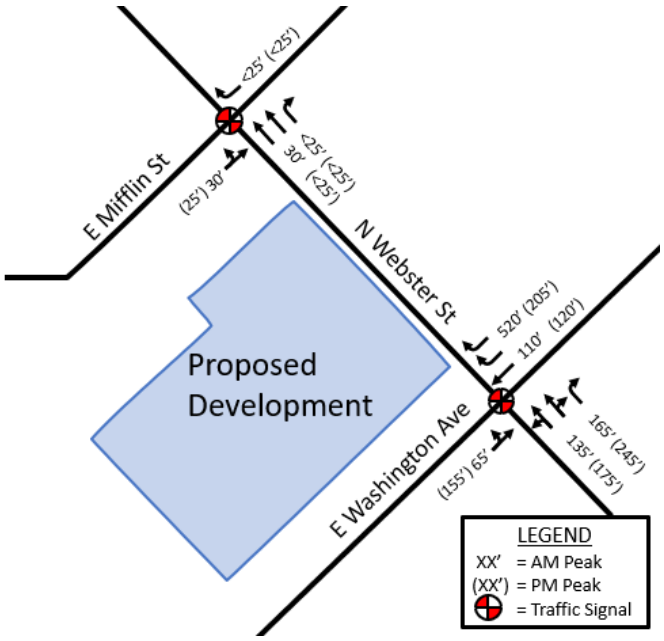

Figure 4. 95th Percentile Queues – Existing Conditions

Proposed Conditions

Site Characteristics

The proposed development consists of a mixed-use building consisting of office space and retail uses. Three hundred ten thousand (310,000) square feet (SF) of office space and 22,000 SF of retail space are proposed for a total of 332,000 SF. A site layout is provided in **Figure 3**.

Access proposed with the development consists of a single unrestricted driveway on North Webster Street. North Webster Street is a northbound one-way roadway; therefore, this access will operate with left-in and left-out movements only. Removal of a driveway located on East Washington Avenue associated with the existing land uses is proposed with the development.

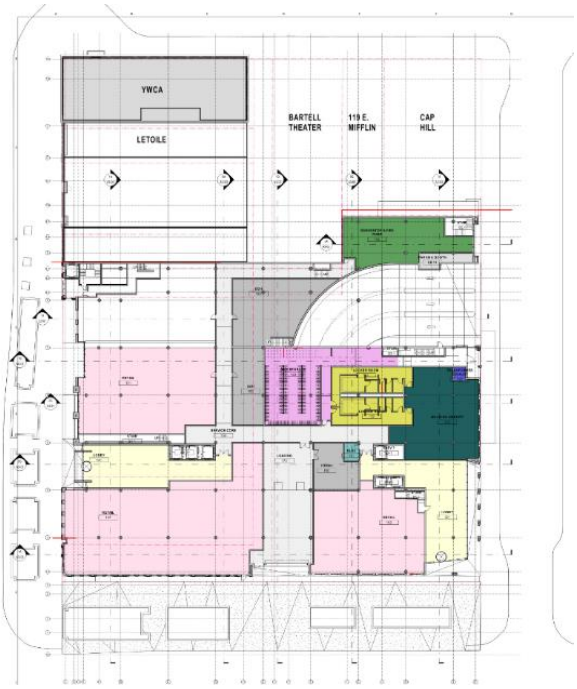

Figure 3. Site Layout

Projected Traffic

Trip generation was performed using the industry standard Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. General urban/suburban rates were used to represent the location of the development. This methodology is summarized in **Table 2**.

Table 2: Trip Generation – Proposed Development

ITE Land Use	ITE Land Use Code	Size	Weekday Daily Trips (rate)	AM Peak			PM Peak		
				In (%)	Out (%)	Total (rate)	In (%)	Out (%)	Total (rate)
General Office Building	710	310.0 ksf	3,180 (10.26)	275 (86%)	45 (14%)	320 (1.03)	55 (16%)	280 (84%)	335 (1.08)
Shopping Center	820	22.0 ksf	830 (37.75)	10 (54%)	10 (46%)	20 (0.94)	40 (48%)	45 (52%)	85 (3.81)
Total Generated Trips			**4,010**	**285**	**55**	**340**	**95**	**325**	**420**
Multimodal Reduction (30%) All Land Uses			(1,205)	(85)	(15)	(100)	(30)	(100)	(130)
Total Driveway Trips:			**2,805**	**200**	**40**	**240**	**65**	**225**	**290**
Pass-By Reduction (10%) Shopping Center			(60)	0	0	0	(5)	(5)	(10)
Total New Trips:			**2,745**	**200**	**40**	**240**	**60**	**220**	**280**
Existing Development Trip Generation:			(490)	(15)	(5)	(20)	(10)	(20)	(30)
Net New Trips:			**2,255**	**185**	**35**	**220**	**50**	**200**	**250**

Each trip represents either an entering or exiting vehicle to or from the development. A 30% reduction in trips was used to account for multimodal trips. Multimodal trips include trips completed via transit, bicycle, pedestrian, or a combination of these modes of transportation. A 30% reduction was estimated given the accessibility of nearby transit, bicycle, pedestrian facilities, and based on the trip reduction goal identified for the site's traffic demand management plan (TDMP), which is detailed in a separate document.

A 10% reduction in driveway trips to the retail space was used to account for pass-by trips. Pass-by trips include trips already present on the roadway network. A 10% reduction was estimated based on the amount of traffic observed by North Webster Street and the nature of the land use.

Proposed Conditions

Trip generation was estimated for the existing land uses at the site. Those trips were subtracted from the development trips to determine the anticipated net trip increase as a result of the development.

The proposed development is expected to generate 2,255 net new trips per day. 220 (185 entering, 35 exiting) net new trips and 250 (50 entering, 200 exiting) net new trips during the AM and PM peak hour are expected, respectively.

Local traffic counts from the City of Madison's website, concentrations of population, and employment location considerations were used to develop the trip distribution for the proposed development. This is the proportional estimate of the direction that new trips will originate and terminate and influences how traffic will utilize the study intersection. The trip distribution is estimated to be:

- 50% inbound from the south on North Webster Street
- 50% inbound from the south on East Washington Avenue
- 50% outbound to the north on East Mifflin Street
- 50% outbound to the north on North Webster Street

This trip distribution is summarized in **Figure 5**. New trips were assigned to the roadway network using this trip distribution and added to the existing traffic volumes to determine the estimated total traffic volumes. The total traffic volumes represent anticipated traffic volumes with the development, using the ITE trip generation methodology.

Total traffic volumes and existing roadway geometry were used to perform traffic modelling and estimate delays experienced by motorists at the intersections of North Webster Street with East Mifflin Street and East Washington Avenue. Total traffic volumes are provided in **Figure 6.**

Results of this traffic analysis are summarized in **Table 3**.

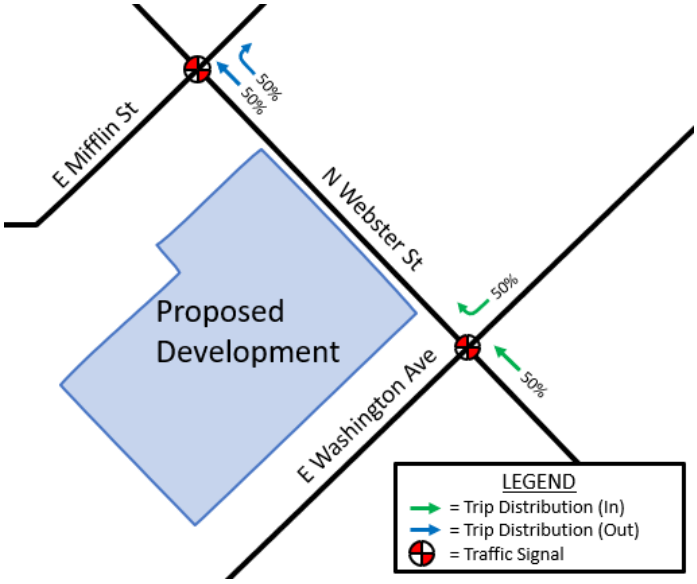

Figure 5. Trip Distribution

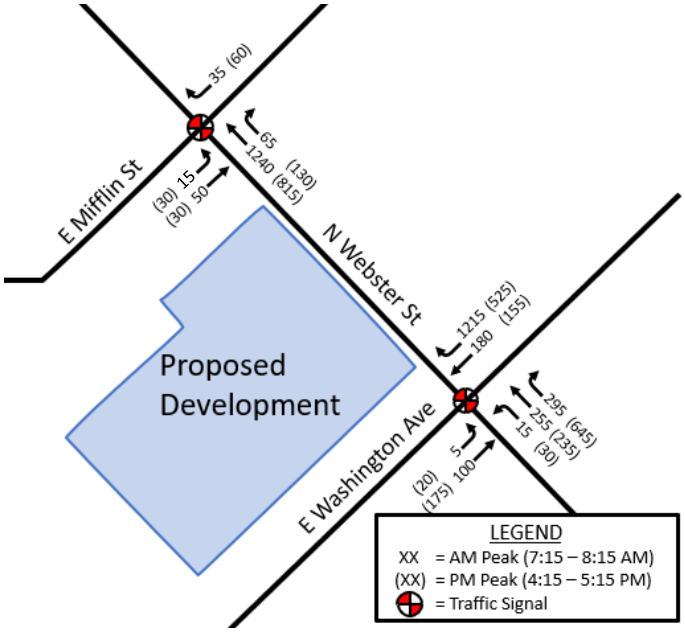

Figure 6. Total Traffic Volumes

Table 3. Level of Service Table – Total Traffic

Intersection	Peak	Movement												Intersection
		Eastbound			Westbound			Northbound			Southbound			
		L	T	R	L	T	R	L	T	R	L	T	R	
South Webster Street & East Washington Avenue	AM	A	A	-	-	A	C	B	B	C	-	-	-	B
	PM	B	B	-	-	B	C	A	A	C	-	-	-	C
North Webster Street & East Mifflin Street	AM	D	D	-	-	-	A	-	A	A	-	-	-	D
	PM	D	D	-	-	-	A	-	A	A	-	-	-	D

Analysis results for the total traffic scenario are similar to those under existing conditions. The westbound right urn movement at the intersection of Webster Street with East Washington Avenue is anticipated to change from LOS B to LOS C. 95th percentile queues anticipated under the total traffic scenario are summarized in **Figure 7**. Minor increases in queues are anticipated at the intersection of Webster Street with East Washington Avenue.

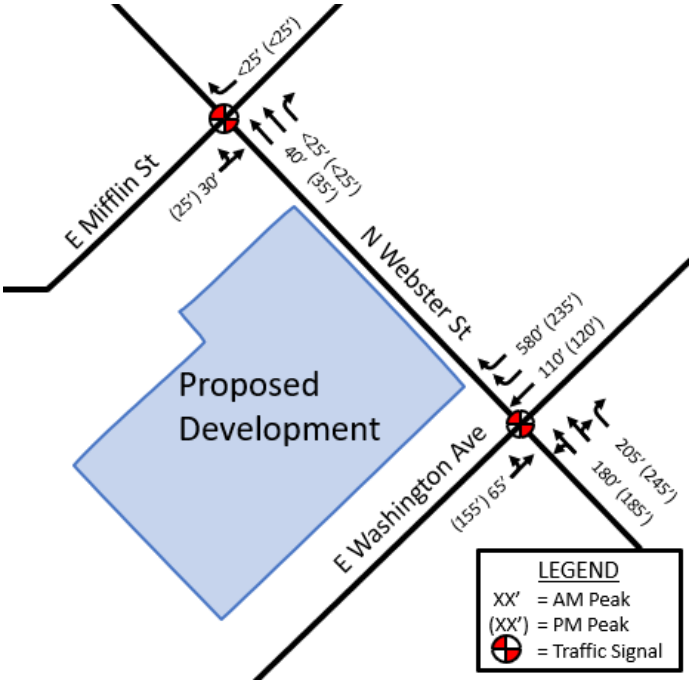

Figure 7. 95th Percentile Queues – With Development

Conclusions

ULI is proposing to construct a mixed-use development consisting of commercial land uses called the American Exchange Development in Madison, WI. A traffic assessment was performed to evaluate current traffic operations and impacts of the development. The following conclusions summarize the assessment.

- ULI is proposing a development that will include 310,000 square feet of office space and 22,000 square feet of retail space near the intersection of Webster Street with East Washington Avenue in downtown Madison.
- Traffic operations in the area are generally acceptable with minor congestion during peak hours.
- The development is anticipated to result in 220 (185 in and 35 out) and 250 (50 in and 250 out) net new trips during the AM and PM peak hours, respectively.
- Minimal impacts to motorist delays and traffic queuing, or backups, are anticipated as a result of the development.
- Access proposed with the development is anticipated to promote safe and efficient operations.

Traffic count information and other technical documentation prepared with this study is available upon request. Please direct any inquiries to:

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