



MEMORANDUM

TO: Joe Sternlieb

FROM: Kelvin Robinson
Nicole A. White, P.E., PTOE

DATE: December 18, 2020

RE: Georgetown BID – Supplemental Traffic Analysis

INTRODUCTION

As part of the response to the COVID-19 pandemic, numerous streatery locations have been proposed and implemented throughout the District to provide expanded sidewalks for pedestrians and opportunities for restaurants with outdoor seating to comply with social distancing requirements. A traffic analysis was conducted by the District Department of Transportation (DDOT) on September 23, 2020 to evaluate the proposed streatery implementations in Georgetown, including at the critical intersection of Wisconsin Avenue and M Street, NW. The original study provided a summary of the traffic analysis impacts to the corridor, identified any problematic intersections, and presented a list of possible mitigations for adverse impacts at affected intersections. This memo expands on the DDOT analysis and provides a summary on the queuing impacts on the intersections along M Street, particularly the spillover effect from the intersections between 34th Street/Key Bridge and Wisconsin Avenue.

The Georgetown BID is planning to expand on the streatery concept and build at-grade sidewalk extensions along M Street and Wisconsin Avenue to help create more space for safe pedestrian passage, sidewalk dining and retail uses. Implementation of the sidewalk extensions requires the conversion of vehicular rush hour travel lanes. The BID has updated the sidewalk extension plan to incorporate the recommendations outlined in the September 23, 2020 DDOT analysis.

PREVIOUS DDOT CORRIDOR TRAFFIC ANALYSIS

The September 23, 2020 DDOT study focused on the effects the proposed streatery design would have on traffic operations and safety at the intersections along M Street and Wisconsin Avenue. Data for the study was obtained in 2019 (pre-Covid) from the Citywide Signal Optimization program. The study looked at intersection delay, volume to capacity ratio, and level of service (LOS) for each intersection using Highway Capacity Manual (HCM) methodology. The DDOT traffic analysis showed moderate impacts to traffic

operations are expected at 12 of 13 signalized intersections with the streatory implementation and with the following recommendations at Wisconsin Avenue incorporated:

1. Retain a 115-foot exclusive left turn lane in the westbound direction along M Street east of Wisconsin Avenue to
2. Retain a 150-foot exclusive left turn lane in the eastbound direction along M Street west of Wisconsin Avenue to
3. Retain a 125-foot exclusive left turn lane in the southbound direction along Wisconsin Avenue north of M Street to

The DDOT study also recommended retaining a third through travel lane along westbound M Street between 34th Street and Bank Alley to allow through traffic to bypass left turning vehicles at the Key Bridge intersection. This recommendation would also reduce the impacts off traffic spillback onto the Georgetown Roadway network. The Georgetown BID has modified the sidewalk extension plan to reflect this recommendation and the Wisconsin Avenue intersection recommendations.

These updates are shown in **Figure 1** and **Figure 2**.

Figure 1 – M Street at 34th Street Intersection Retaining Three Travel Lanes Westbound

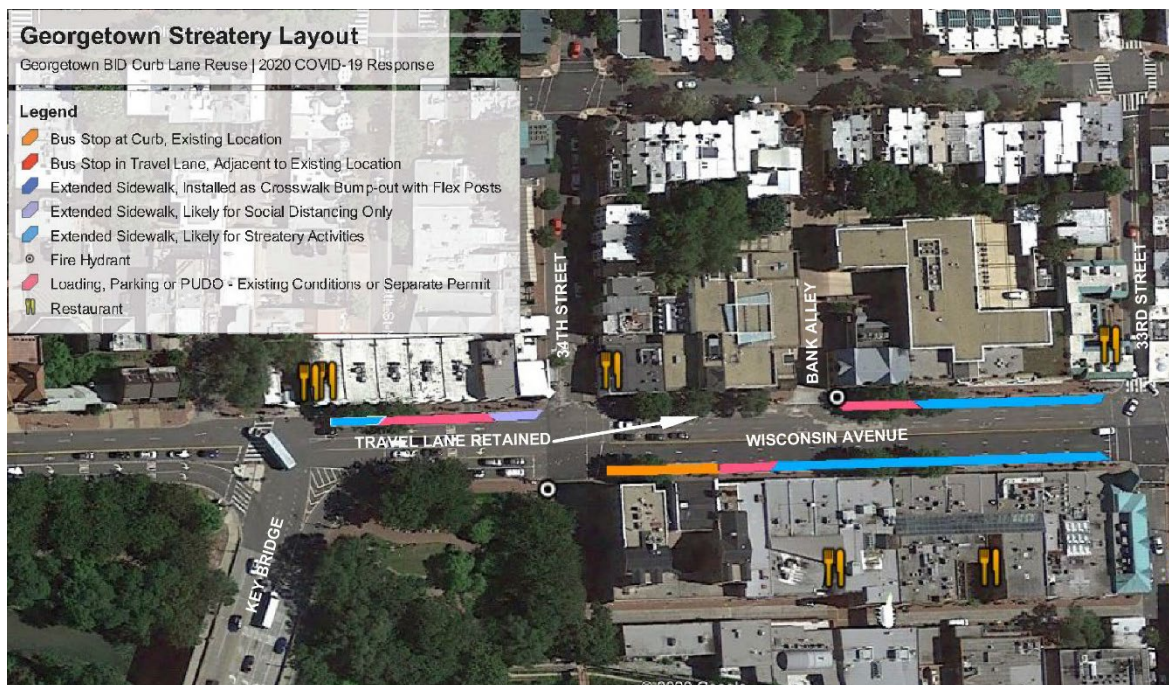
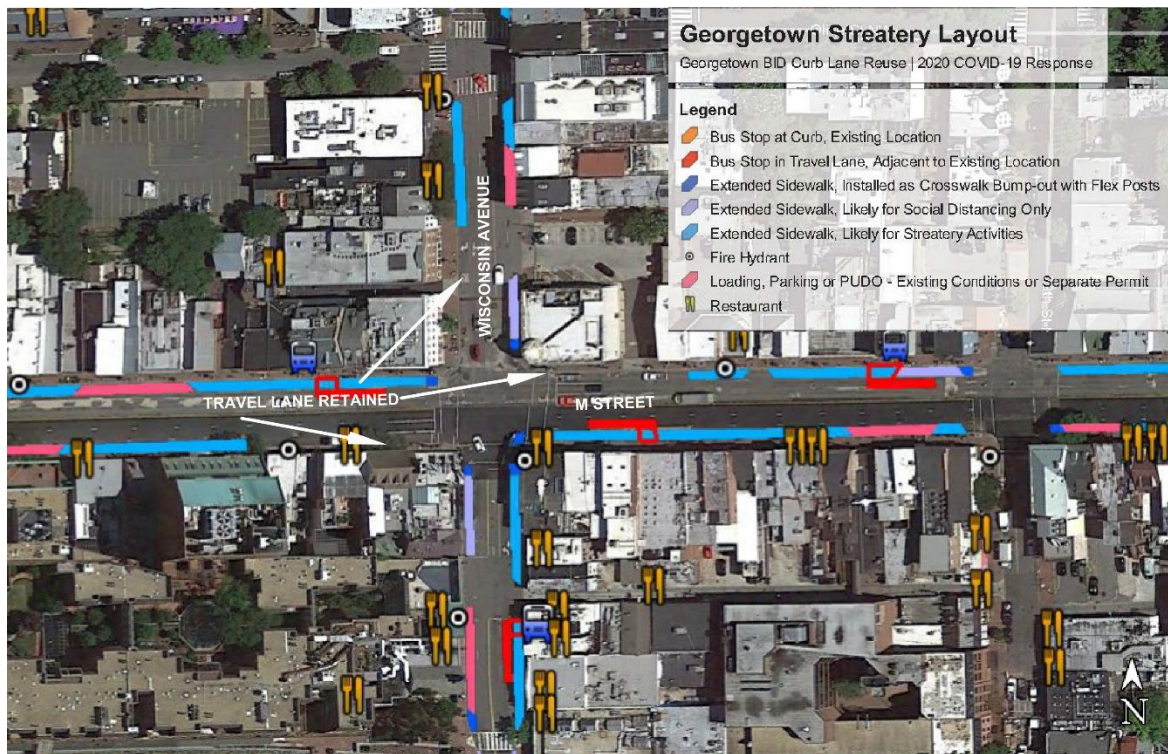


Figure 2 – Wisconsin Avenue Intersection with Exclusive Right Turn Lanes at Three Approaches



SUPPLEMENTAL CORRIDOR TRAFFIC ANALYSIS

Previous DDOT analysis evaluated the traffic conditions along M Street from a level of service (LOS) and delay perspective. The DDOT traffic analysis showed the effects on the LOS at the intersections along M Street were minor with the streetery implementation and with the recommendations at Wisconsin Avenue incorporated. The supplemental analysis includes a review of queuing along the M Street corridor.

Queuing analyses were performed using Simtraffic 10 methodology for the study intersections along M Street under existing and alternative conditions for the PM peak hour. DDOT was concerned with possible spillback onto the Georgetown roadway network and recommended further study of queuing along M Street, especially between the Key Bridge and Wisconsin Avenue. The PM peak hour timeframe was chosen since it represents the time that would experience the greatest amount of queuing in the westbound direction creating a spillover effect on the Georgetown roadway network. Eastbound traffic would not spillback into Georgetown. A summary of the scenarios analyzed is included below:

1. Baseline: This scenario includes the pre-COVID geometry, signal phasing and timings, and traffic volumes collected in 2019 as part of the Citywide Signal Optimization program (pre-COVID).

2. Alternative 1¹: This scenario includes the modified geometric conditions proposed for the Streatery condition. All signal timings and phasing remained consistent from Baseline condition. The modified sidewalk extension plan incorporated the recommendations from the DDOT memo.

Table 1 provides a summary of the results of the queuing analysis performed using Simtraffic 10 methodology for both eastbound and westbound directions. The 95th percentile queue length and the link distance are shown for each intersection along M Street. The queuing results worksheets for the baseline and Alternative 1 scenarios are in the Appendix.

Table 1 - Summary of Queuing Analysis for Georgetown Sidewalk Widening (PM Peak Hour)

Intersection	Simtraffic 10 Results					
	95 th Percentile Queue Length				Link Distance	
	Baseline		Alternative 1			
	EB	WB	EB	WB	EB	WB
Key Bridge and M St, NW	404	154	360	154	391	120
34th St and M St, NW	167	595	177	546	120	448
33rd St and M St, NW	131	252	392	245	448	176
Potomac St and M St, NW	107	234	117	271	176	598
Wisconsin Ave and M St, NW	230	321	197	215	598	392
31st St and M St, NW	133	110	146	128	392	237
Thomas Jefferson St and M St, NW	95	72	82	89	237	249
30th St and M St, NW	126	127	165	166	249	252
29th St and M St, NW	90	123	98	126	252	86

Note: Queue lengths at two of the intersections west of Wisconsin decreased in the westbound direction when Alternative 1 was compared to the baseline condition. This is due to a reduction between 2% and 5% of vehicle throughput at these intersections.

¹ This is consistent with the recommendation in the DDOT Study and includes the retention of exclusive right turn lanes at three approaches of the Wisconsin Avenue/M Street intersection.

As shown in Table 1, queuing in the westbound direction west of Wisconsin Avenue is comparable to queuing for the baseline condition. Under both baseline and Alternative 1 scenarios, the queue is maintained within the intersection link at all locations except the Key Bridge and 34th Street intersections. The queues at the other intersections along this segment are not expected to spillback to the upstream intersection. The queue in the eastbound direction would experience a significant increase at the 33rd Street intersection when compared to the baseline condition but would not spillback to the adjacent intersection. This is attributed to the loss of a third travel lane which performed as a de facto left turn lane in the baseline condition.

CONCLUSIONS

As presented in the previous DDOT corridor-wide traffic analysis, moderate impacts to traffic operations are expected at 12 of 13 signalized intersections within the study area. The study recommended retaining exclusive right turn lanes on three approach of the Wisconsin Avenue/M Street intersection and retaining a third through travel lane on westbound M Street between Bank Alley and 34th Street. With this recommendation all of the intersections would operate with moderate traffic impacts.

The supplemental analysis results further confirm that the sidewalk widening will not adversely impact traffic conditions. Queues are generally comparable to baseline conditions. The 33rd Street intersection would experience a significant increase in queue length in the eastbound direction. However, the queue would not extend back to the upstream intersection. Analysis results indicate two locations under both baseline and Alternative 1 conditions where the queue would extend back to the adjacent intersection – 34th and Key Bridge westbound direction. At both locations, the Alternative 1 scenario would not exasperate the condition.

No further recommendations, beyond the Wisconsin Ave recommendations, which have already been implemented in the concept plan, would be required.