

Mill Road Plaza Pedestrian Crossing Analysis

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During the Planning Board meeting, Planning Board members questioned the potential impacts of the proposed development on traffic operations on Mill Road associated with the mid-block pedestrian crossing. Board members identified that the proposed residential units will result in additional pedestrian crossing activity at the mid-block crossing. The Planning Board requested that Tighe & Bond assess that potential impact.

In support of the Mill Plaza Redevelopment, Tighe & Bond has analyzed vehicular operations on Mill Road as a result of a potential increase in pedestrians crossing the roadway. As stated in the *Mill Plaza Redevelopment Traffic Impact and Access Study*, dated August 14, 2020, one potential option to improve pedestrian safety at the existing crossing just north of the site driveway is to install a Rectangular Rapid Flash Beacon (RRFB). Two operational scenarios were analyzed to determine the effect of the RRFB actuations on vehicular operations on Mill Road:

Scenario 1 assumes the RRFB will be actuated every 30 seconds during a one-hour time period. This scenario assumes vehicles will be stopped for 15 seconds each 30 second cycle while pedestrians cross the roadway. Operationally, this scenario results in vehicles being stopped on Mill Road for 30 minutes of the peak hour, which is a very conservative assessment of how the crosswalk will operate. Under this assumption, the vehicular operations result in LOS B and A on the northbound and southbound movements during the afternoon peak hour under 2031 Build Condition traffic volumes, respectively. Vehicular design queues approach 200 feet in the northbound direction during the weekday afternoon peak hour under 2031 Build Conditions. Average and design queues are less than 75 feet during the remaining time periods. Detailed results of the capacity analyses are presented on the following page.

The second scenario assumes a more realistic scenario in which there will be a large number of pedestrians crossing Mill Road during a concentrated 30-minute time period. This influx of pedestrians during a short time period models student crossing during class changes. This scenario experiences improved vehicular operations and shorter vehicular queues as compared to the first scenario. This scenario experiences LOS A during all time periods and lower average queues. Detailed results of the capacity analyses are presented on the following page.

In conclusion, the potential increase in pedestrian traffic crossing Mill Road is not expected to have a significant impact on Mill Road traffic operations. Furthermore, the installation of an RRFB at the existing crosswalk on Mill Road north of the plaza driveway is not expected to have a negative impact on vehicular operations on Mill Road while increasing pedestrian safety.

Mill Road Pedestrian Crossing

Intersection Operation Summary - Vehicular Levels of Service / Average Delay (sec/veh)

Lane Use	Weekday Afternoon Peak Hour		Saturday Midday Peak Hour	
	2021	2031	2021	2031
	Build	Build	Build	Build

Scenario 1 - Full Hour (Pedestrian Actuation every 30 seconds)

Overall		A / 8.4	A / 8.7	A / 4.6	A / 4.6
Mill Road	NBT	A / 9.9	B / 10.3	A / 4.7	A / 4.7
	SBT	A / 6.2	A / 6.3	A / 4.5	A / 4.5

Scenario 2 - Concentrated Half Hour (Pedestrian Actuation every 30 seconds)

Overall		A / 4.4	A / 4.5	A / 2.9	A / 2.9
Mill Road	NBT	A / 5.4	A / 5.6	A / 2.9	A / 2.9
	SBT	A / 2.8	A / 2.9	A / 2.8	A / 2.8

Intersection Operation Summary - Vehicular 50th / 95th Percentile Queue (In Feet)

Scenario 1 - Full Hour (Pedestrian Actuation every 30 seconds)

Mill Road	NB	73 / 185	75 / 192	0 / 64	0 / 66
	SB	41 / 79	42 / 81	0 / 56	0 / 57

Scenario 2 - Concentrated Half Hour (Pedestrian Actuation every 30 seconds)

Mill Road	NB	0 / 185	0 / 192	0 / 64	0 / 66
	SB	0 / 79	0 / 81	0 / 56	0 / 57