

MEMORANDUM

To: Phillip Aiello, Mandel Group

From: Ken Voigt, Transportation Engineer

Date: June 23, 2020

Project No.: 49-0118.00

Re: Supplemental SSND Findings

This memorandum provides a brief summary of the following analysis requested by Mandel Group related to development of the SSND property:

- Traffic Impact of a single site access road



- Impact on St. Mary's School Traffic
- Impact on railroad crossing queuing

Traffic Impact of a Single Site Access Road and Trip Generation Sensitivity Analysis

An operational analysis was conducted of the Watertown Plank Road study intersections to identify Level of Service changes that might be expected by requiring all SSND development traffic to use the existing SSND western driveway connection to Watertown Plank Road. Under this scenario the SSND access road with Stephen Place would be vacated. The only intersections impacted by this access change are: SSND western access road; Crescent Drive; and Stephen Place.

The analysis of this scenario studied year 2023 traffic with trips generated by the Mandel development and year 2028 with trips generated by the Mandel development plus trips generated by the residential apartment component of the draft Village of Elm Grove Downtown Corridor Master Plan.

Table 1
Comparison of Year 2023 and 2028 Morning and Evening Peak Hour Western Driveway Northbound Intersection Approach

| <u>Scenario</u> | <u>LOS</u> | <u>Average Delay</u> | <u>Maximum Queue</u> |
|-----------------------------|------------|----------------------|----------------------|
| • 2023 Morning Peak Hour | | | |
| Two Driveway | B | 14.4" | 25 feet |
| Single Driveway | C | 15.6" | 25 feet |
| Single Driveway Sensitivity | C | 18.8 | 50 feet |
| • 2028 Morning Peak Hour | | | |
| Two Driveway | B | 15.8" | 25 feet |
| Single Driveway | C | 16.8" | 50 feet |



| <u>Scenario</u> | <u>LOS</u> | <u>Average Delay</u> | <u>Maximum Queue</u> |
|-----------------------------|------------|----------------------|----------------------|
| Single Driveway Sensitivity | C | 20.8 | 50 feet |
| • 2023 Evening Peak Hour | | | |
| Two Driveway | C | 20.7" | 25 feet |
| Single Driveway | C | 24.1" | 50 feet |
| Single Driveway Sensitivity | D | 34.2 | 75 feet |
| • 2028 Evening Peak Hour | | | |
| Two Driveway | C | 23.3" | 25 feet |
| Single Driveway | D | 27.9" | 50 feet |
| Single Driveway Sensitivity | E | 43.0" | 75 feet |

As shown on Table 1, with a two access road scenario the western access road approach with Watertown Plank Road operates at LOS 'B' and 'C' with average vehicle delays between 14.4 " to 20.7 " in the year 2023. By the year 2028 the approach continues to operate at the same LOS but delays increase to a range of 15.8" to 23.3 seconds. With a single access road the western driveway operation in 2023 continues to be LOS 'B' and 'C' but delays increase to a range of 15.6" to 24.1" but by the year 2028 evening peak hour LOS increases to LOS 'D' with a delay of 27.9". Based on a 50% increase in development traffic in 2023 the evening peak hour LOS changes from 'C' to 'D' with an average delay of 34.2". By the year 2028, evening peak hour the western access road will operate at LOS 'E' with an average delay of 43.0".

[REDACTED]

Impact on St. Mary's School Traffic

St. Mary's School classes start at 8:00 A.M. and dismiss at 2:45 P.M. The traffic study includes the morning peak hour time period from 7:15 to 8:15 A.M. which includes the starting time for St. Mary's school. Figure 3 on Page 7 of the SSND Traffic Impact Study indicates that two-way traffic on Watertown Plank Road between Crescent Drive and Stephen Place during the 2:00 to 3:00 P.M. time period is approximately 800 vehicles compared to the evening peak hour volume of approximately 1,200 vehicles. We do not anticipate any significant St. Mary's School study intersection traffic impacts from traffic generated by the planned Mandel apartment development. It is recognized that pedestrian activity can be higher during school start and dismissal time periods and may require additional crosswalk safety enhancements along

Watertown Plank Road. The morning peak hour count data during school starting time did not identify a high amount of pedestrian activity.

It is noted that school traffic patterns have distinct peaking patterns as parents typically start arriving to drop-off their children about 30 minutes before the start of classes and before the dismissal of students at the end of classes. Within 10 minutes after the start or end of classes almost all parent drop-off or pick-up school traffic is dissipated.

Railroad Crossing Delay Impact of Mandel Development

As previously noted in previous study correspondence it has been reported that the Wisconsin Southern/Soo Line experiences up to 32 trains a day crossing Watertown Plank Road. Based on Ayres staff experience the traffic related traffic delays can last between 3 to 5 minutes. It has also been reported that periodically eastbound train crossing queues can extend past Elm Grove Road and that westbound queues can extend past Stephen Place. During peak traffic time periods the development can add approximately $\frac{1}{2}$ to 1 car per minute to traffic queues attributed to a train crossing Watertown Plank Road. During off-peak traffic periods the SSND development generates reduce traffic activity which minimizes its impact on train traffic queuing patterns. Additional analysis is required to provide a more detailed analysis of this impact condition.