Information Item

DATE: December 7, 2017

TO: Transportation Advisory Board

PREPARED BY: Joe Barbeau, Senior Planner (651-602-1705)

SUBJECT: 2018 Regional Solicitation - Signal Re-Timing

The Funding & Programming Committee and TAC both recommended not to include a qualifying criterion requiring that a signal re-timing be completed within the previous five years for roadway thru-lane expansions and interchange construction in the 2018 Regional Solicitation. Following these recommendations, TAB asked that the technical committees consider including a scoring element related to signal re-timing. TAB members believed that rewarding projects that have re-timed their signals per state statute would be good stewardship of the regional funds.

Funding & Programming Committee members remained concerned that a qualifying criterion or scoring measure would be difficult for some applicants, as they cannot force MnDOT or other roadway operators to conduct a re-timing.

It was suggested that using the Synchro model with a setting to optimize signal cycles could be a better strategy in that this puts all projects on equal footing. TAC's input is sought before sharing this potential solution with TAB at its December 20 meeting.

The following page shows, highlighted in yellow, potential placement of this strategy within the congestion reduction measure in the Roadway Expansion application. Also reflected on this page, in the bullet just above, is a correction provided at the December 6, 2018 TAC meeting that the Synchro network settings should include saturation flow rates but should not include phases.

The 2018 Regional Solicitation was out for public review through December 8. Changes can now be considered and, if applicable, will be brought to TAB's January 17, 2018, meeting.

MEASURE: Conduct a capacity analysis at one or more of the intersections (or rail crossings) being improved by the roadway project using existing turning movement counts (collected within the last three years) in the weekday a.m. or p.m. peak hour and Synchro or HCM software. The analysis must include build and no build conditions (with and without the project improvements). The applicant must show the current total peak hour delay at one or more intersections (or rail crossings) and the reduction in total peak hour intersection delay at these intersections (or rail crossings) in seconds, due to the project. If more than one intersection is examined, then the delay reduced by each intersection (or rail crossing) can be can added together to determine the total delay reduced by the project.

- For new roadways, identify the key intersection(s) on any parallel roadway(s) that will experience reduced delay as a result of traffic diverting to the new roadway. If more than one intersection is examined, then the delay reduced by each intersection can be can added together.
- For roadway projects that include a railroad crossing, the applicant should conduct fieldwork during either the a.m. or p.m. peak hour to determine the total peak hour delay reduced by the project. Applicants can also add together intersection delay reduced and railroad delay reduced, if they both will be improved by the project.

The applicant should include the appropriate Synchro or HCM reports (including the Timing Page Report) that support the improvement in total peak hour delay and should conduct the analysis using the following:

- Under the network settings, all defaults should be used for lanes, saturation flow rates, volumes, ~~phases~~ and simulation
- Use Synchro's automatic optimization to determine cycle, offset and splits (for traffic signals). Use this setting when assessing delay both with and without the project. This methodology will ensure that all applicants start with their signal systems optimized when determining existing delay.
- Project improvements assumed in the build condition should be reflected in the total project cost, such as additional through or turn lanes and protective left-turn phasing
- Roadway lengths for intersection approaches must be the same length for before and after scenarios
- An average weekday should be used for the existing conditions instead of a weekend, peak holiday, or special event time period that is not representative of the corridor for most of the year

Total Peak Hour Delay Reduced (Seconds) = Total Peak Hour Delay Per Vehicle x Vehicles Per Hour

RESPONSE (Calculation):

- Total Peak Hour Delay/Vehicle without the Project (Seconds/Vehicle):_____
- Total Peak Hour Delay/Vehicle with the Project (Seconds/Vehicle):_____
- Total Peak Hour Delay/Vehicle Reduced by the Project (Seconds/Vehicle):_____
- Volume (Vehicles Per Hour): _____
- Total Peak Hour Delay Reduced by the Project (Seconds): _____
- *EXPLANATION of methodology used to calculate railroad crossing delay, if applicable, or date of last signal retiming for signalized corridors (Limit 1,400 characters; approximately 200 words):*

SCORING GUIDANCE (100 Points)

The applicant with the most peak hour vehicle delay reduced by the project improvement will receive the full points for the measure. Remaining projects will receive a proportionate share of the points. For example, if the application being scored reduced delay by 5,000 seconds and the top project reduced delay by 25,000 seconds, this applicant would receive (5,000/25,000)*100 points, or 20 points.