





## TOWN OF MERRIMACK INTER-DEPARTMENT COMMUNICATION

**DATE:** December 1, 2023  
**AT (OFFICE):** Department of Public Works

**To:** Paul Micali,  
Town Manager

**FROM:** Dawn B. Tuomala, PE, LLS, CWS  
DPW Director

**SUBJECT:** Wire Road/US Route 3 Intersection Project  
Requesting approval for the Design and Installation of Traffic Lights

The project has been given to go ahead by NH Department of Transportation (NH DOT) to proceed with the Design Plans and Specifications of the relocation of Wire Road Intersection with US Route 3 (Daniel Webster Highway). In order to better facilitate the design of the project we are requesting that a formal determination/motion be made by the Town Council recommending that the signalization be designed and installed during the construction of the project. The Options are as follows:

Option 1: Allowing the signalization to occur during the project; the State will pick up 80% of the costs for the lights and the Town's portion will be 20%. If we were to wait until a later time period, then the Town will pick up the entire cost instead of the 20%.

Option 2: Only putting in the underground conduits/pads for a future installation of Traffic Lights. This will result in the Town paying 100% of the lights in the future and also having to construct the entrance into the MYA building. The State will not allow the for the fourth leg of the intersection to be made if the lights are not installed.

The engineer has put together the following technical recommendations:

- Satisfies the requirements of MUTCD 8-Hour and 4-Hour Volume Warrants with unadjusted traffic volumes (not reducing the Wire Road volume to account for the effect of Right Turns on Red under signal control).
- Satisfies the requirements of MUTCD 4-Hour Volume Warrant based on the option that allows the major street left turn volume (Route 3 NB left turn) to be considered the minor street volume conflicting with the opposing traffic (Route 3 SB through movement).
- Based on expected future traffic volumes, the Wire Road approach will operate at Level of Service (LOS) F conditions during the AM and PM peak hours if left unsignalized. A coordinated signalized system would operate an overall level of service D.
- A new driveway connection to the Merrimack Youth Association (MYA) can be incorporated into the intersection to provide safer maneuvers from the driveway. The driveway connection is not recommended if the intersection is not signalized.
- Queue lengths reduced overall with a coordinated signal system.

- Overall operations and traffic flow along the corridor between Front Street and the CVS driveway will improve with a traffic signal at the Wire Road intersection since the signals can be coordinated the overall delay along Route 3 will be reduced (see attached tables 6 and 10 for delay comparison). Proper coordination cannot be implemented today since the distance between Front Street and Baboosic Road is too great to do so.
- Allows for the implementation of safe pedestrian crossing movements. This is critical because the project will provide new sidewalks along both sides of Route 3 and safe connections to MYA and Twin Bridge Park.
- Signal coordination can reduce excessive speed through the intersection. 85<sup>th</sup> percentile speed is 42 MPH and posted speed limit is 35 MPH.
- Signal control can accommodate unexpected future traffic conditions such as new nearby development.
- As part of the cost sharing LPA program, DOT would pay for 80% of the cost for signal installation. Signal equipment cost is increasing and will cost more in the future.
- Total 2023 project cost for the option 1 is \$1,660,000 with signal installation. Without signal installation, option 2 is \$1,350,000.

Should you have any questions please let me know.

Thank you for your help in this matter.

Dawn

CC: File

