CITY OF CONCORD

REPORT TO THE MAYOR AND CITY COUNCIL

FROM: Edward L. Roberge, PE, City Engineer

DATE: January 4, 2016

SUBJECT: Report from the City Engineer on the status on the Loudon Road Safety Improvement Project (CIP 19).

Recommendation

Accept this report.

Background

Given the duration of this project and the uncertainty of state and federal funding, Mayor Bouley requested that staff provide a brief summary and detailed update on the status of the Loudon Road Safety Improvement Project.

Project Summary

The Loudon Road corridor has for many years been the most crash-prone corridor in the city; in fact it is recognized by NHDOT as one of the most hazardous corridors in the State. The narrow 1.6-mile four-lane roadway section roughly between Hazen Drive/Airport Road and D'Amante Drive, not including signalized intersections, averages about 100 reported crashes annually, one-third of which involve injuries. Traffic volumes generally range between 18,000 and 21,000 vehicles per day (vpd) along much of this densely developed corridor which is accessed by multiple side streets and numerous uncontrolled commercial and residential driveway openings. In addition to automobile travel, the mixed land-uses along the corridor also generate substantial walking, bicycling and bus transit activity.

In 1999, a tragic crash involving a young student pedestrian brought the City and community groups together in an effort to develop a plan for implementing traffic safety strategies along Loudon Road. Results of those early efforts produced the Greater Concord Safe Communities Coalition and the start of Concord's Safe Routes to School Program. Council approved funding to conduct a traffic operational and safety study of the section of the Loudon Road corridor between Hazen Drive and D'Amante Drive. The scope of the study included: investigating alternatives for traffic calming; pedestrian safety including permanent pedestrian crossing locations; traffic volume and capacity analysis; sidewalks

and the streetscape. Potential alternatives considered included: capacity improvements such as widening the four-lane corridor to add a raised median to restrict left turns or an added fifth lane for continuous left turns; utilization of parallel local streets to develop a one-way traffic circulation pattern along the corridor; a reduced three-lane option with center left turn lane and safety shoulder (context-sensitive); access management, and a no-build alternative.

Findings of the study were summarized in a published report accepted by City Council in 2001. The report summarized traffic management alternatives, recommended actions and aesthetic enhancements to the corridor area that successfully met the goals of the corridor study. Considering limited right-of-way width, abutting land development, and neighborhood livability factors, a conversion of this section of the corridor from four-lanes to three-lanes was recommended.

In FY2011, staff updated the design study and corridor improvement needs. In 2013, the City applied for and was awarded matched grant funds from the NH Department of Transportation (NHDOT) and entered into an agreement for the design and construction of corridor safety improvements, with $1,600,000 appropriated for the project: 90 percent from Highway Safety Improvement Project (HSIP) Funds ($1,440,000) and a 10 percent match by the city ($160,000). A public information meeting on this project was held on December 18, 2013. The project and city funding was authorized by City Council at a February 10, 2014 public hearing. Final design has been submitted to NHDOT for their approval and a February/March 2016 approval and funding obligation is expected. Construction is expected to begin in late spring/early summer 2016.

Alternatives Considered

The 2001 corridor study, the 2013 study update, and the corresponding public processes considered several potential alternatives including: capacity improvements such as widening the four-lane corridor to add raised median to restrict left turns, or an added fifth lane for continuous left turns; utilization of parallel local streets to develop a one-way traffic circulation pattern along the corridor; a reduced three-lane option with center left turn lane and safety shoulder (context-sensitive); access management, and a no-build alternative.

<u>Added Capacity Alternatives:</u>

While widening Loudon Road to a four lane divided highway could provide benefit in terms of added capacity and reduction of left turn conflicts, the capacity (widening) improvements were considered unrealistic due to limited right-of-way, substantial property impacts, potential access restrictions to businesses, and a desire by area residents to not construct a higher-speed, higher volume corridor through the Heights. Recognizing the Heights as a strong residential neighborhood, the clear preference by residents was to maintain or

reduce volumes along the corridor while using parallel corridors (I-393 and Regional Drive) as alternates for east-west travel. Similar preferences were voiced during the project development process of the US Route 3 Corridor (North) Improvement Project (CIP35) and the Manchester Street Corridor Improvement Project (CIP36). In both of those projects, a two-lane and three-lane 'complete street' has been and is programmed to be constructed.

Parallel Local Streets Alternative:

The potential to reduce volumes and control traffic operation on Loudon Road by implementing a one-way traffic pattern with Pembroke Road and Branch Turnpike was considered but ultimately was deemed unreasonable due to the predominant residential nature of the latter two streets. Travel pattern restrictions limiting access to the residential neighborhoods would be considerable and therefore was not favored.

Three-lane Conversion Alternative:

The three-lane conversion alternative was considered to be the most realistic build alternative which met local concerns. The 2001 corridor study noted that in order for a lane conversion project to be successful, the Regional Drive extension and connection to NH Route 106 would be required. Regional Drive was opened in 2004 and had a notable effect on reducing some congestion along Loudon Road, particularly the western end near the Airport Road and Blodgett Street intersections. Upon analysis completed in 2011 study update, the early findings with respect to leveling traffic volumes and reducing some congestion along the corridor still held true.

Access Management:

Access management was considered in each of the above alternatives and is considered crucial to safety improvements within the corridor. Generally, access management is promoted to improve driving conditions and safety for motorists and include reducing the number of driveways, particularly commercial driveways, along a given section of roadway or corridor. Access management also focuses on greater separation of driveways. This is exactly how the sections of Loudon Road to the east (four-lane divided section from D'Amante Drive to NH Route 106) and west (four-lane divided section from Hazen Drive/Airport Road to Main Street) were designed and built. However, where dense development throughout the project corridor has already occurred without consideration of site-to-site connection, opportunities to connect development sites along the corridor are limited given building structure, grading, and utility conflicts. Access management as an improvement alone cannot provide the magnitude of change required to limit turning and traffic operation conflicts within the corridor.

No-Build Alternative:

As always, a no-build/no change alternative was considered for this project. Given its consistently high crash history over the past 15 years, including injuries and fatalities, the need for improvement is high so a no build/no change alternative is not considered reasonable. Without improvements, crash count will continue to grow.

Recommended Alternative

The recommended alternative is the proposed three-lane conversion. The proposed improvements are intended to improve safety, reduce crashes, and enhance livability through a 'complete streets' design. Corridor improvements include the following:

- Pavement resurfacing and new lane configuration. Loudon Road will be resurfaced, within existing curb lines, from the intersection at Airport Road/Hazen Drive easterly to the Old Loudon Road intersection just west of D'Amante Drive. The existing four-lane segments will be restriped to include: one 10-foot travel lane in each direction; a 14-foot wide center two-way left-turn lane; and 5-foot bicycle/safety shoulders on each side. Small raised islands like those installed at select pedestrian crosswalks on the US Route 3 North corridor project (CIP35) will be spaced along the median lane to facilitate safer pedestrian crossings as well as to deter illegal 'through travel' along the median turn lane.

- Major intersections: Existing multi-lane approaches at the three major signalized intersections will be retained with existing signal operation to maintain current intersection capacity. Loudon Road traffic will alternately merge or diverge between one-lane and two-lane segments. The installation of video vehicle detection will be included to replace existing inductive loops as that will allow for enhanced detection of bicycles, a notable 'complete street' enhancement.

- Pedestrian Crossings: Each of the five existing pedestrian crosswalks will be reconstructed to include: a median refuge island; accessible ramps; and replacement of existing pedestrian signals with push-button activated crosswalk beacons.

- Sidewalks: At select locations, raised curb and sidewalks will be extended to narrow overly-wide driveway openings to enhance walking safety.

- Bicycle Shoulders: The 5-foot shoulders will accommodate safe bicycle travel, a use not currently provided for along the narrow four-lane corridor.

- Bus Stop Pullouts: Bus pullouts will be included at the eight existing bus stop locations along the corridor. Accessible sidewalks will be provided at these locations.

- Fire Station: An emergency vehicle hybrid beacon will be considered at the Heights Fire Station to facilitate emergency access to Loudon Road. Similar installations were recently installed at Central Station on North State Street and Manor Station on Village Street.

Anticipated Operational and Safety Improvements

Anticipated safety and operational changes of the above-proposed improvements include:

- Traffic volumes: Volumes should remain consistent at about 21,000 vpd, with no significant changes during most times. Some seasonal peak (December) through traffic and future area growth can be accommodated by I-393 or Regional Drive.

- Speeds: High-end speeds will be substantially reduced as traffic speed in a single lane becomes controlled by the prudent driver; options to weave between lanes are eliminated. Overall travel time through the corridor is expected to be reduced slightly. Most delay will be encountered at the existing signals and will be comparable to current conditions.

- Safety: The lane conversion is expected to reduce crashes by about 25 percent. Lower speeds also bring the potential for reduced severity. Pedestrian islands at crosswalks that reduce crossing width, coupled with elimination of multi-lane traffic approaches, enhance pedestrian crossing safety.

- Major intersection operation: There will be no significant change in signal operations. Most peak hour delays currently experienced along the corridor result from the capacity condition at the Loudon/East Side intersection; this will not change. During peak times, and in the peak season, traffic queueing is expected.

- Safer Lateral Clearances: The three-lane conversion improves vehicle-to-vehicle, vehicle-to-curb, vehicle-to-bicycle, and vehicle-to-sidewalk clearances.

- Side-street left turns: Left turns from Loudon Road will be safer as they can occur from a dedicated turn lane rather than from a stop in the 'passing lane'. Left turns from side streets or driveways on to Loudon Road will be delayed similarly to current conditions (peak or off-peak); although improved given that turns out will only be against one approaching traffic stream in each direction instead of the current two.

- Livability: Reduction in speeds, greater clearance between vehicles, bicycles and pedestrians, enhanced bus stop locations and potential for reduced street noise will enhance the livability of mixed-use corridor. Livability is also enhanced by improving safety and operation of alternate transportation choices, such as bicycle, walking and bus transportation.

Comparable Roadways

Examples of existing three-lane arterials that function well under heavy traffic flows comparable to those on Loudon Road include:

- Manchester Street (US Route 3) near Garvins Falls Road (Concord NH): one lane in each direction with a center turn lane and 4-foot shoulders; about 21,000 vpd; and with substantial left turns at Garvins Falls Road and Jensen's Park.

- North State Street (US Route 3) near Boutwell's Bowling Center (Concord NH): one lane in each direction with a center turn lane and 5-foot bicycle shoulders; about 18,000 vpd; and with a raised median island for pedestrian crossings.

Cost Effectiveness of the Current HSIP Project

The current project is funded at 90 percent ($1,440,000) by Highway Safety Improvement Program (HSIP) funds. The city will fund the remaining 10 percent ($160,000) and will get: a fully repaved corridor, substantial reduction in crashes and resulting injuries to the public, new traffic controls for pedestrians, bicycles, emergency vehicles and motor vehicles, and complete street improvements. Without the HSIP project, the city will need to fund the nearly $1.2M cost of repaving the existing corridor. Maintaining Loudon Road at its current 4-lane sub-standard configuration results in a continuation of high speed travel, high incidence of crashes, with no benefit of traffic control, access management, or complete street improvements.

Current Project Status

Final design for the corridor improvements have been completed and submitted to NHDOT for their review and approval. The project requires several permanent and temporary construction easements so a detailed property valuation process was developed with NHDOT and submitted for their review. Staff expects approval of the project documents in early 2016.

Funding for this project is programmed and has been confirmed in FY16 (July 1, 2015), but has not yet been obligated for construction. Project obligation requires final design approval, NEPA (environmental and cultural review) approval, ROW Certificate approval, and confirmation of local match funding. Final plans and right-of-way documentation have been submitted to NHDOT for review and we expect approval in early 2016. NEPA and appropriation of match funds is complete. The project advertisement date (release for bid) was scheduled for January 16th; however, given this presentation to Council, staff requested the project advertisement date be pushed back into February.

Recommendation

There has been a considerable study effort coupled by an open, public review process supporting this safety improvement project. The Transportation Policy Advisory Committee (TPAC) and the Traffic Operations Committee (TOC) reviewed the project's preliminary findings and recommended these corridor safety improvements. In a recent report to City Council outlining its transportation project priorities, TPAC restated its overwhelming support for completion of this project; noting this project as its highest priority and comparing the 'complete streets' design elements of the Loudon Road project to the transformational improvements recently completed on the Main Street project.

Staff maintains its support for the safety improvements along Loudon Road outlined herein and recommends that City Council accept this report; which essentially directs staff to complete the design and right-of-way acquisition efforts and ready the project for construction in 2016.

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