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City Engineer

CITY OF CONCORD

New Hampshire's Main Street™

Community Development Department

REPORT TO THE MAYOR AND CITY COUNCIL

FROM: Karen Hill, P.E., Transportation Engineer

DATE: September 28, 2020

SUBJECT: Loudon Road Bridge Alternatives (CIP #588)

Recommendation

Accept this report from the Community Development Department and the Transportation Policy Advisory Committee (TPAC) that summarizes the proposed alternatives for the Loudon Road Bridge cross section, and advise Staff as to which option to pursue.

Background

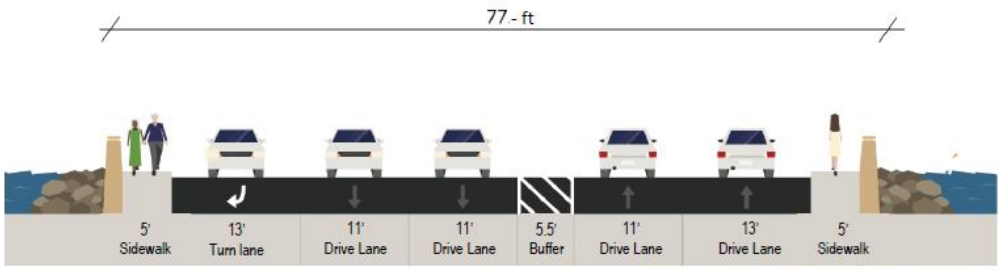
HDR, the City's on-call consultant, is currently working towards completing the Engineering Study for the Loudon Road Bridge Project (CIP #588). In keeping with the City's overarching goals, the project is intended to replace the existing bridge deck and improve the safety and operation for all travel modes within the study area roadways. The project is currently funded at $8.67M in the NHDOT Ten Year Plan for Fiscal Year 2022 with construction programmed for 2023/2024. The City has budgeted $2.1M for the required 20% funding match.

Throughout the Engineering Study phase, HDR has met regularly with City Staff as well as presented to TPAC on August 11th, 2020. Much of the discussion focused on five design alternatives that provide opportunities to improve the safety and operations for both vehicular and multi-modal traffic on the bridge. Staff and TPAC are not recommending the alternatives that do not accommodate pedestrian and bicycles or have minimum accommodations. These alternatives do not align with the City's priorities of better/more safely connecting bicyclists and pedestrians to and from The Heights and Downtown. Due to the amount of vehicular traffic and constrained roadway cross section Loudon Road is a high stress corridor for most pedestrians and bicyclists. It is important to note that Loudon Road is also the preferred Merrimack River crossing for the future Merrimack River Greenway Trail (MRGT). The cross sections for the alternatives that are not supported by staff and TPAC, Options 1-3, are shown below.

OPTION 1 (Not Preferred)

EXISTING CROSS SECTION

- NO bicycle accommodation provided
- CONSTRAINED sidewalks with little buffer from traffic

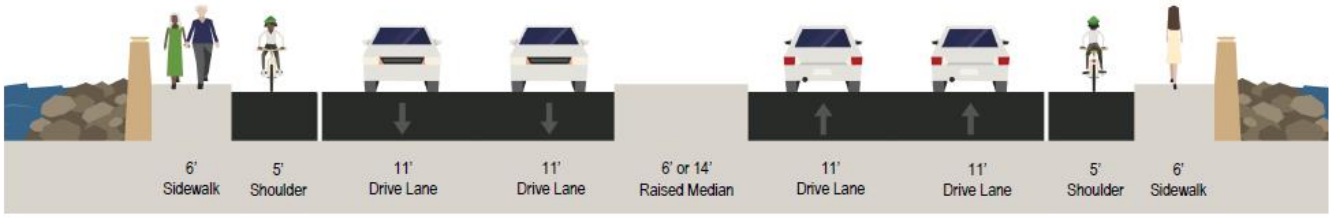


Existing Loudon Road Bridge Looking East

OPTION 2 & 3 (Not Preferred)

MINIMUM SIDEWALK & SHOULDER OPTION(S)

- 6-ft SIDEWALK
- 5-ft BIKE LANE/SHOULDER
- Options for a 6-ft or 14-ft RAISED MEDIAN



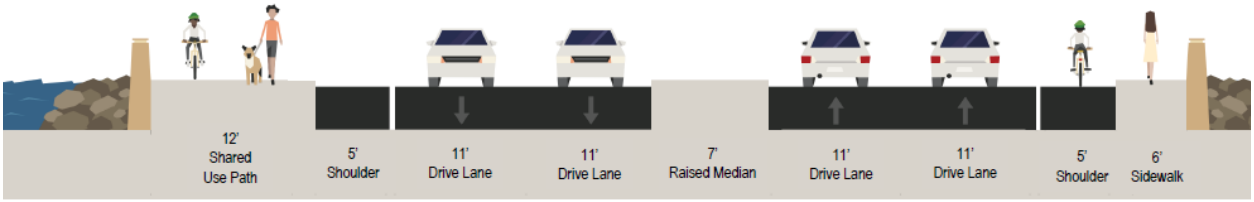
Discussion

After discussions with City Staff and TPAC there is general agreement in support of recommending **Options 4 & 5, a widened cross section with a Shared-Use Path (SUP) on one side or both sides.**

OPTION 4

SHARED USE PATH ON ONE SIDE OPTION

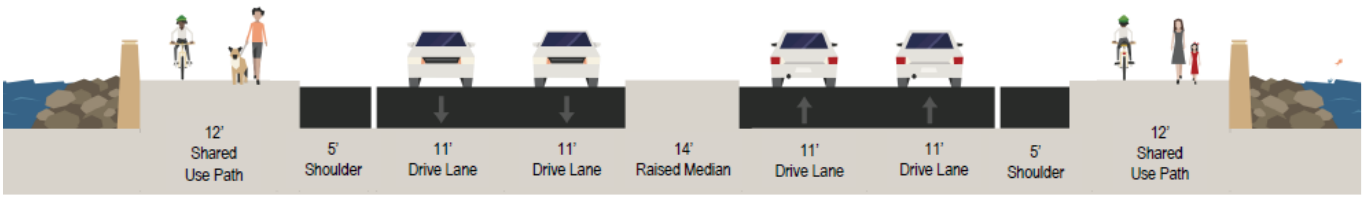
- 12-ft SHARED USE PATH on north side
- 6-ft SIDEWALK on south side
- 5-ft SHOULDERS
- 7-ft RAISED MEDIAN



OPTION 5

SHARED USE PATH ON BOTH SIDES OPTION

- 12-ft SHARED USE PATHS
- 5-ft SHOULDERS
- 14-ft RAISED MEDIAN

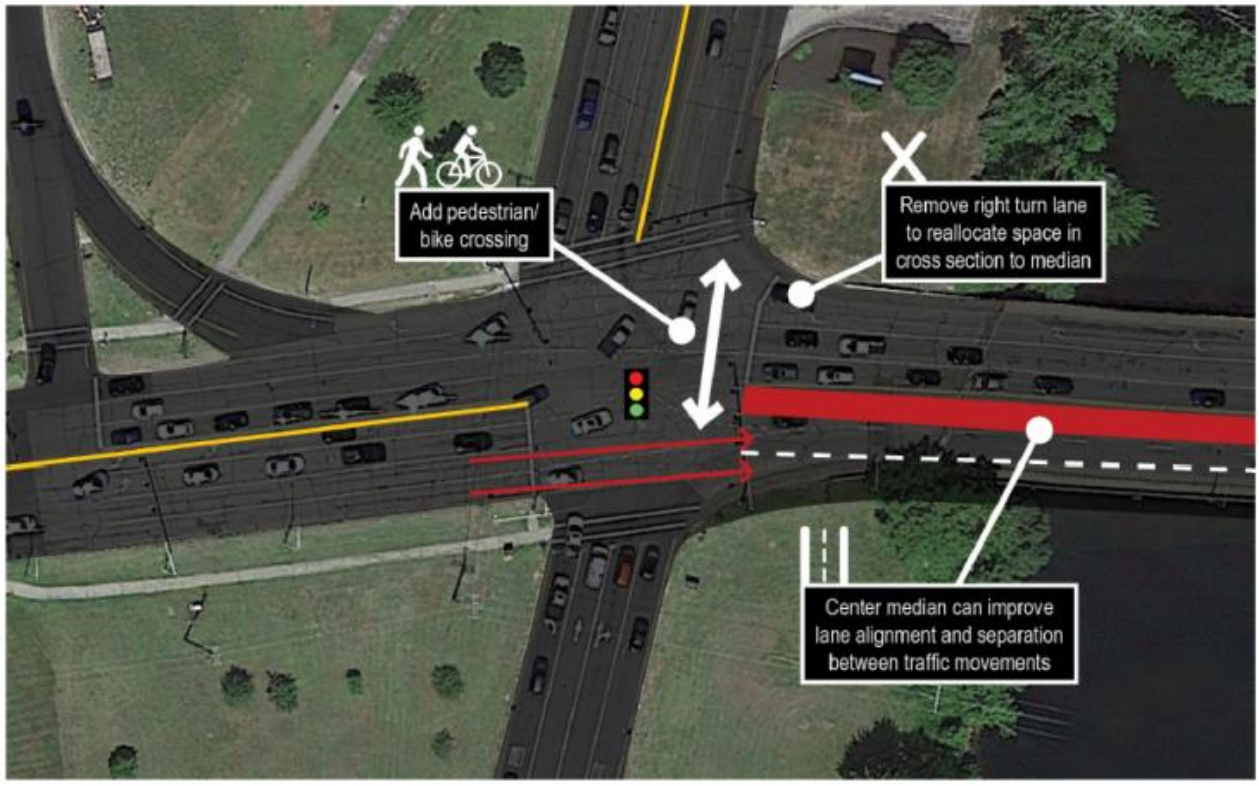


HDR is also considering recommendations for changes to the signal timing and lane configurations at the Fort Eddy Road/Loudon Road intersection in support of the overall project goals. These changes would reallocate space on the bridge to better utilize the width and accommodate bicycles and pedestrians based on traffic safety analysis performed to date.

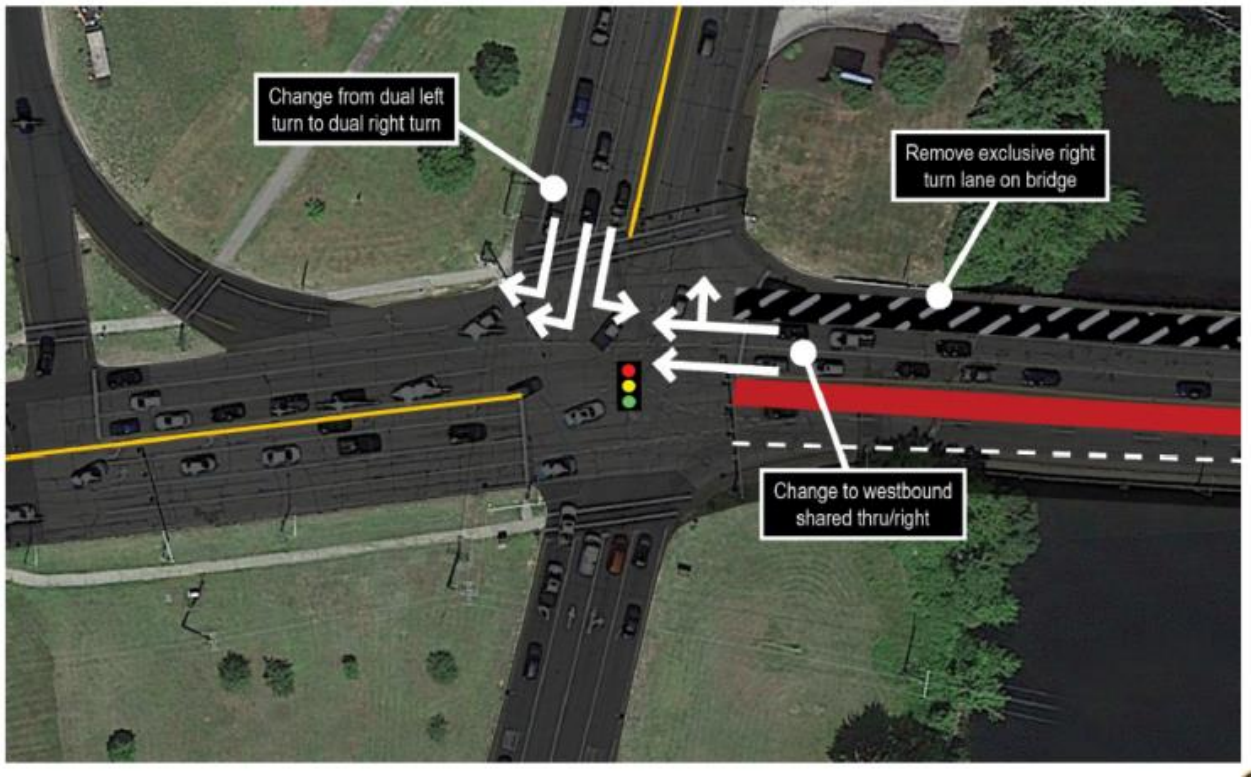
Currently, during the peak periods the existing westbound Loudon Road queue prevents right turning vehicles onto Fort Eddy Road from accessing that exclusive lane much of the time leaving it underutilized during those time periods. By rebalancing the lane configuration there would be significant opportunities to provide enhanced multi-modal accommodations across the bridge. The figures below illustrate the operational and safety benefits that each option provides.

In general, Staff and TPAC are in support of these changes as long as they mitigate delay and the left turn lane into the Arena parking lot can be maintained.

FT. EDDY CONSIDERATIONS (INTERIM)



FT. EDDY LANE REASSIGNMENT OPTIONS



Below is a matrix comparing the features of all five options followed by a cost comparison:

OPTION EVALUATION

Alternative	Description	Width (ft)	Raised Median	Arena Left Turn	Bicycle Access	Pedestrian Access	Shared Use Path
Option 1	Existing Bridge	77'	✗	✓	✗	✓	✗
Option 2	Minimum Sidewalk and Shoulder (narrow median)	77'	✓ (6 ft)	✗	✓	✓	✗
Option 3	Minimum Sidewalk and Shoulder (wider median)	85' (+1 bridge beam)	✓ (14 ft)	✓	✓	✓	✗
Option 4	Shared Use Path on One Side	86' (+1 bridge beam)	✓ (7 ft)	✓	✓	✓	✓ (one side)
Option 5	Shared Use Path on Both Sides	97' (+2 bridge beams)	✓ (14 ft)	✓	✓	✓	✓

COST COMPARISON

Alternative	High Level Total Cost	NHDOT Current Budget (80% of total)	Potential City Cost LOW * (20% of total)	Potential City Cost HIGH ** (20% + additional)
Option 1	$10,850,000	$8,670,000	$2,170,000	$2,170,000
Option 2	$10,850,000	$8,670,000	$2,170,000	$2,170,000
Option 3	$14,000,000	$8,670,000	$2,800,000	$5,330,000
Option 4	$14,000,000	$8,670,000	$2,800,000	$5,330,000
Option 5	$19,000,000	$8,670,000	$3,800,000	$10,330,000

* LOW Cost is the potential City cost if NHDOT can increase the project budget to cover 80% of total cost of each alternative

** HIGH Cost is the potential City cost if NHDOT's budget is non-negotiable and the City would need to cover the original 20% plus any overage

Conclusion

It is recommended that the City move forward with Option 4 or Option 5 as the preferred alternative for the project. ***Staff is looking for direction from Council as to the preferred alternative for the City to pursue***. The preferred alternative will then be presented in the Engineering study report to NHDOT. Funding will then need to be discussed and negotiated with NHDOT since either alternative is more than the current budget for the project.

KMH/kmh

cc: Tom Aspell, City Manager
Carlos Baía, Deputy City Manager - Development
David Cedarholm, City Engineer