



Notre Dame Bridge: Complete Streets

Prepared for: City of Manchester, New Hampshire

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Proposal number: AH-MHT0001

EXECUTIVE SUMMARY

The Notre Dame Bridge Complete Streets project is an innovative and forward-thinking initiative aimed at transforming the existing infrastructure to better serve the needs of all users, including vehicles, cyclists, and pedestrians. Spanning the Merrimack River and connecting Manchester's residential west side with its bustling downtown business district, the Notre Dame Bridge is a vital multi-modal route and great candidate for improvement through investment.

Project Goals

- **Enhance Safety:** The current bridge configuration, while adequate for vehicular traffic, does not provide sufficient safety measures for cyclists and other vulnerable road users. The proposed changes introduce a dedicated bike lane to improve safety for cyclists, while also retaining the same number of vehicle lanes and encouraging adherence to the speed limit.
- **Support Sustainability:** Aligned with Manchester's Master Plan, the project promotes sustainable transportation by reducing reliance on motor vehicles and encouraging active transportation modes like cycling.
- **Increase Accessibility:** The reconfiguration aims to create Manchester's first dedicated bike lane connection between the west and east sides of the city, significantly enhancing access to downtown for cyclists. This also begins to close long-standing gaps in Manchester's bike routes and lanes.
- **Economic Competitiveness:** By improving infrastructure and connectivity, the project is expected to attract more cycle traffic to local businesses, contributing to the economic vitality of the area.

Proposed Configurations

- **Preferred Configuration:** This configuration proposes a 1-foot left buffer, two 10-foot vehicular lanes, and a 6.5-foot bike lane with optional green pavement for increased visibility.
- **Alternative Configuration:** This configuration proposes a 1-foot left buffer, one 10-foot vehicular lane (left), one 11-foot vehicular lane (right), and a 5.5-foot bike lane, maintaining a dedicated space for cyclists. Optional green pavement paint for increased visibility is still included.

Impact and Benefits

This project serves not only to enhance the bridge's safety and functionality, but also to contribute to the city's broader goals of sustainability and urban connectivity. By reallocating existing road space, the project minimizes costs while maximizing public benefit, making it a cost-effective and impactful investment in the city's future. The project is also well-aligned with the city's Master Plan and other long-range planning goals.

PROJECT DETAIL

Project Setting

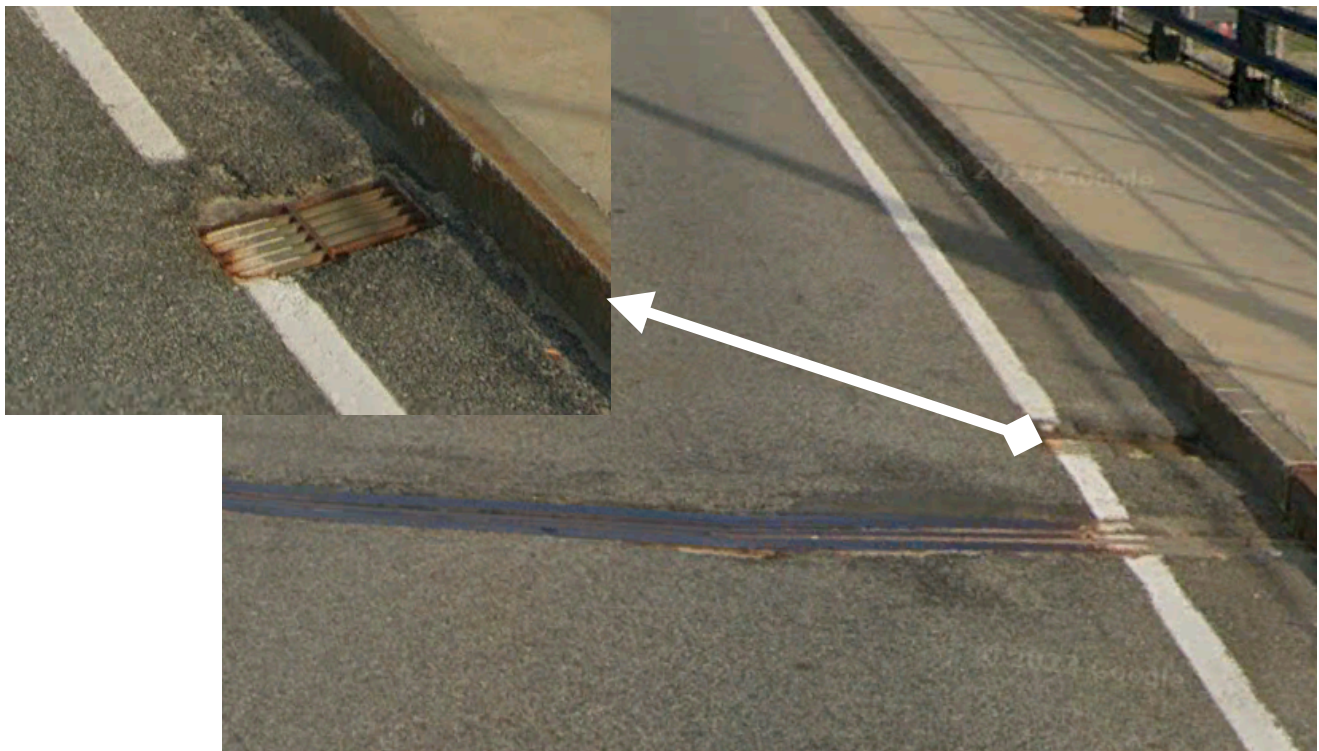
The Notre Dame Bridge carries West Bridge Street across the Merrimack River in Downtown Manchester, NH. Connecting the residential west side with the downtown business district, the bridge serves as a critical multi-modal route for vehicles, pedestrians, and cyclists.

The total width of the road surface is 28 feet. The bridge carries two 12-foot wide lanes of traffic in each direction with buffers on each side, as well as a sidewalk which measures approximately 5-6 feet in width.

Drainage Grates

Drainage on the Notre Dame Bridge is facilitated by 2-3 foot wide grates spaced along the curb adjacent to the proposed bike lane.

The grates feature slats that are perpendicular to the traffic flow, ensuring that they do not pose a hazard for smaller tires. Additionally, given the robust construction of the bridge, the drainage grates are less susceptible to displacement and sinking, thereby mitigating the risk of significant bumps caused by sunken drainage grates.



Proposed Configurations

Preferred Option (#1)

The preferred reconfiguration reallocates the existing 28-foot road surface to create a safer environment for both vehicles and cyclists. The speed limit on the bridge is currently 30 MPH which is conveyed by the more appropriate lane size. The dedicated bike lane would also provide the first bike infrastructure connection between the east and west sides of Manchester.



The proposed layout is:

- **Left-Side Buffer (Yellow Line):** 1 foot wide, with a 6-inch wide solid yellow paint line separating it from the left vehicular travel lane.
- **Left Vehicular Travel Lane:** 10 feet wide, with a 6-inch wide white dash paint line separating it from the right vehicular travel lane.
- **Right Vehicular Travel Lane:** 10 feet wide, with a 6-inch wide solid paint line separating it from the bike lane.
- **Right-Side Bike Lane:** 6 1/2 feet wide, with an optional green pavement paint for increase conspicuity. Optional rumble strips could be added between the vehicle lane and bike lane for increased safety.

This preferred configuration maximizes the available 28-foot pavement surface to provide an appropriate, compliant bike lane with enough width to allow smaller users to navigate around existing drainage openings/grates. The use of green pavement paint in the bike lane is optional, but highly recommended to enhance visible delineation between the vehicular and bicycle lane. The extra width in this preferred configuration also allows for an optional rumble strip while still maintaining a bike lane width that is within guidelines.

Alternative Option (#2)

The alternative reconfiguration focuses on maintaining an 11 foot wide vehicular lane for trucks and other large vehicles. The smaller lane widths still promote speed that is more in-line with the current speed limit of 30 MPH, and the dedicated bike lane still provides a dedicated space for bike, scooters, etc.



The proposed layout is:

- **Left-Side Buffer (Yellow Line):** 1 foot wide, with a 6-inch wide solid yellow paint line separating it from the left vehicular travel lane.
- **Left Vehicular Travel Lane:** 10 feet wide, with a 6-inch wide white dash paint line separating it from the right vehicular travel lane.
- **Right Vehicular Travel Lane:** 11 feet wide, with a 6-inch wide solid paint line separating it from the bike lane.
- **Right-Side Bike Lane:** 5 1/2 feet wide, with an optional green pavement paint for increase conspicuity.

This alternative configuration takes advantage of the available 28-foot pavement surface to provide a compliant bike lane connecting the west side of Manchester with the east side and downtown. As with the preferred configuration, the use of green pavement paint in the bike lane is optional, but highly recommended to enhance visible delineation between the vehicular and bicycle lane.

Purpose and Need

This project is driven by the need to enhance the safety and functionality of the Notre Dame Bridge for all applicable modes of transportation. It also fills a critical gap in bicycle infrastructure in Manchester by providing a dedicated bike lane between the west side and downtown/east side of the city.

The current configuration, while adequate for vehicle traffic, does not fully support the needs of cyclists and other vulnerable road users.

The proposed reconfiguration of the Notre Dame Bridge aligns with Manchester's Master Plan goals, particularly those emphasizing sustainable transportation and enhanced livability. According to the Master Plan's *Transportation and Mobility* section, the city aims to "promote a balanced transportation system that provides viable alternatives to automobile travel, reduces congestion, and enhances the quality of life" (Manchester Master Plan, 2021, p. 45). By introducing a dedicated bike lane and optimizing lane widths, this project directly supports these objectives, fostering a more balanced and multi-modal transportation network.

Livability

Enhancing the Notre Dame Bridge's infrastructure aligns with the Manchester Master Plan's vision to improve the *Quality of Life* for Manchester residents. By providing safer and more accessible routes for cyclists and pedestrians, the project supports the goal of creating "vibrant, walkable neighborhoods connected by an network of complete streets" (Manchester Master Plan, 2021, p. 30).

Cost/Benefit Analysis

- **Costs:**
 - Lane marking adjustments and re-striping
 - Installation of new signage, where applicable
 - Potential adjustments to infrastructure
 - Smoothing road surface over bridge joints
 - Pothole patches
- **Benefits:**
 - Increased safety for cyclists and pedestrians
 - Encouraged reduction in vehicle speeds due to narrow lanes, leading to fewer and less severe accidents.
 - Enhanced livability in the surrounding areas due to improved infrastructure for multi-modal transportation.

Economic Competitiveness

- **Improved Accessibility:** By adding a dedicated bike lane, the project will enhance access to downtown for cyclists, making it more attractive for businesses and increasing foot traffic to local shops and restaurants. This would be Manchester's first dedicated bike lane connection over the Merrimack river, between the west side and east side/downtown.
 - **Cost-Effectiveness:** This project is a cost-effective way to improve the existing infrastructure without the need for a major reconstruction project or the funding associated with such an undertaking. The focus of this project is to reallocate existing pavement surface to promote safer speeds and provide dedicated bicycle infrastructure.
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Sustainability and Safety

This project aligns with Manchester's commitment to environmental stewardship as outlined in the Manchester Master Plan. Through promotion of active transportation and reduced reliance on motor vehicles, the project supports the city's broader sustainability goals, including reducing greenhouse gas emissions and improving air quality. The Master Plan's *Sustainability and Resilience* chapter highlights the importance of reducing greenhouse gas emissions and promoting active transportation (Manchester Master Plan, 2021, p. 67).

The proposed bike lanes are an essential component of the more extensive effort to create a connected system of public spaces and green infrastructure. The project also adheres to the principles of smart growth and Complete Streets by prioritizing the safety and mobility of all road users with promoting a healthier, more sustainable urban environment.

By incorporating the proposed bike lane, the project also adheres to the principles outlined in the Southern New Hampshire Planning Commission's Complete Streets Toolkit, which emphasizes the importance of multimodal transportation networks in fostering sustainable and resilient communities.

The optional green pavement paint further enhances visibility and safety, aligning with the city's Vision Zero principles outlined in the Master Plan, which aims to eliminate traffic-related fatalities and serious injuries.

Innovation

The Notre Dame Bridge Complete Streets project exemplifies innovation in urban transportation design by rethinking the use of existing infrastructure to accommodate and/or increase safety for alternative modes of transportation. This project is a direct response to the changing transportation needs of Manchester residents, as highlighted by the Manchester Master Plan.

By reallocating existing road space to include a dedicated bike lane, the project supports the creation and expansion of Manchester's multi-modal network, encouraging active transportation and reducing dependency on cars. This aligns with the master plan's vision of a *Connected City*, where residents have access to safe, efficient, and sustainable transportation options.

Highlights

- **Complete Streets Design:** The proposed changes are part of a broader trend in road design toward "Complete Streets" principles, which prioritize safety and accessibility for all users. This innovative approach can serve as a model for similar projects in other parts of Manchester.
- **Green Pavement Paint:** The integration of optional green pavement paint for the bike lanes is in line with the innovative approaches encouraged by the Manchester Master Plan. The increased conspicuity not only enhances safety but also demonstrates Manchester's commitment to adopting forward-thinking solutions.

Funding

The project should seek to secure funding through a combination of city, state, and/or federal grants focused on transportation and infrastructure improvements, as well as Complete Streets grants when/where applicable. Look at funding under new Fed Transportation Bill focused on safety of all transportation users: Safe Streets and Roads for All Program (SS4A). SNHPC partnering with other NH MPOs with funding pool.

Schedule

This project schedule is an optimistic estimation and subject to change. Consideration of project delays, fallbacks, etc. have not been included at this stage of planning.

- **Planning and Design:** 3-6 months
- **Construction and Implementation:** 6-12 months
- **Post-Implementation Review:** 3 months

Job Creation and Near Term Economic Activity

- **Job Creation:** This project is expected to create jobs in planning, engineering, construction, and related fields.
- **Economic Activity:** Short-term economic activity will receive a boost during the construction period, while long-term benefits of the project include greater accessibility to downtown businesses, potentially leading to economic growth.

Partnerships

- [None Currently - Stay Tuned]

Letters of Recommendation

- [None Currently - Stay Tuned]

References

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NOTRE DAME BRIDGE: COMPLETE STREETS

BUDGET

Note

This budget is an rough estimation based on publicly available information and web searches. It is not intended to serve as a final budget or estimate, and merely serves as an outline. The values and numbers contained within the budget below shall not be used for decision making or final planning.

Description	Quantity	Unit	Unit Price	Cost
White Line Paint (6-inch)	1500	Linear feet	\$2.50	\$3,750.00
Yellow Line Paint (6-inch)	1000	Linear feet	\$2.50	\$2,500.00
Optional Green Pavement Paint for Bike Lane	6500	Square feet	\$4.00	\$26,000.00
Bike Lane Sign (MUTCD R3-17)	4	Sign	\$150.00	\$600.00
Begin Sign Plaque	2	Sign	\$120.00	\$240.00
End Sign Plaque	2	Sign	\$120.00	\$240.00
Pavement Marking Removal	9000	Linear feet	\$3.00	\$27,000.00
Smoothing Road Surface over Bridge Joints	10	Joints	\$2,000.00	\$20,000.00
Pothole Patch/Repair	15	Patches	\$500.00	\$7,500.00
Installation Labor	1	Lump sum	\$10,000.00	\$10,000.00
Contingency (10%)	1	Lump sum	\$9,783.00	\$9,783.00
Total				\$107,613.00
