KITTELSON & ASSOCIATES

MEMORANDUM

PROJECT: Mission Hill Transportation Planning
SUBJECT: Concept Design Summary
DATE: April 25, 2025

INTRODUCTION

The Boston Transportation Department is conducting the Mission Hill Transportation Planning Project (the Project) in response to community concerns about the safety and comfort of neighborhood streets due in part to the area's growth and development and the shift from light industrial to residential uses. The project aims to redesign Terrace Street and Parker Street to improve safety conditions for all road users, improve multimodal access, and create a public realm that is consistent with the evolving character of the neighborhood.

The project has five key design goals:

- Prioritizing walking, pedestrian safety, and accessibility
- Prioritizing transit
- Bicycle safety and comfort
- Managing multimodal traffic
- Public realm improvements

The project process includes regular public engagement opportunities, existing conditions and needs assessments, and concept design.

This memorandum summarizes the concept design process, which has been informed by a multimodal needs assessment.

SHORT-TERM AND LONG-TERM IMPLEMENTATION

Concept designs for the transportation network in the Mission Hill neighborhood are provided for two implementation timelines, including short-term and long-term, as described below.

Short-Term Implementation is assumed to occur within the next few years. These improvements are quicker to build and can be deployed using mostly pavement markings, signs, and quick-build vertical separation elements.

Long-Term Implementation is assumed to occur in the future as part of private development and/or a capital project. These improvements are more permanent and include reconstruction of curbs.

Proposed Interventions

Table 1 identifies the interventions proposed as part of this concept design package, including in both the short-term and long-term along Terrace Street, Parker Street, and intersecting streets in Mission Hill. A few of the proposed interventions are described in more detail in subsequent sections of this memorandum following Table 1.

Table 1: Proposed Interventions

Street / Intersection	Short-Term Interventions	Long-Term Interventions
Heath Street Rotary	• No short-term interventions	• Convert rotary into a roundabout • Remove entrance from New Heath Street • Remove exit onto Parker Street
New Heath Street (Rotary to Terrace Street)	• Install bicycle shared lane markings in the eastbound travel lane • Install a westbound bicycle lane in place of on-street parking • Install intersection daylighting • Install speed hump	• Install bicycle shared lane markings in eastbound and westbound travel lanes • Extend the curb along the north side of the street and install green stormwater infrastructure • Install intersection curb extensions and restripe crosswalks
Parker Street (Rotary to Tremont Street)	• Install speed humps • Install intersection daylighting • Install parking chicanes by alternating on-street parking from one side of the street to the other • Install northbound buffered bicycle lane from the rotary to Fisher Avenue • Install northbound buffered contraflow bicycle facility from Fisher Avenue to Parker Hill Avenue	• Maintain speed humps • Install intersection curb extensions and restripe crosswalks • Install parking chicanes by alternating on-street parking from one side of the street to the other • Install raised northbound bicycle facility from roundabout to Fisher Avenue • Install northbound buffered contraflow bicycle facility from

Street / Intersection	Short-Term Interventions	Long-Term Interventions
	• Install bicycle shared lane markings in the southbound travel lane	Fisher Avenue to Parker Hill Avenue • Install bicycle shared lane markings in the southbound travel lane
Parker Street (Tremont Street to Station Street)	• Install speed hump	• Install raised crosswalk at Gurney Street • Install intersection curb extensions and restripe crosswalks
Terrace Street (New Heath Street to Tremont Street)	• Change to one-way northbound traffic • Install speed humps • Install bicycle shared lane markings in the northbound travel lane • Install a contraflow southbound bicycle lane along the west side of the street • Install intersection daylighting	• Change to one-way northbound traffic • Maintain speed humps • Install bicycle shared lane markings in the northbound travel lane • Install a contraflow southbound bicycle lane along the west side of the street • Extend the east side curb to expand sidewalks and improve public realm • Install intersection curb extensions and restripe crosswalks • Install a raised intersection at Cedar Street and a raised crosswalk at Alleghany Street
Cedar Street (Terrace Street to Columbus Avenue)	• Change to one-way eastbound traffic • Remove on-street parking • Install buffered bicycle lane in the eastbound direction • Install contraflow bicycle lane in the westbound direction	• Change to one-way eastbound traffic • Remove on-street parking • Install buffered bicycle lane in the eastbound direction • Install contraflow bicycle lane in the westbound direction
Alleghany Street (Terrace Street to Parker Street)	• Install speed hump • Install intersection daylighting	• Maintain speed hump • Install intersection curb extensions and restripe crosswalks
Oscar Street	• Install speed hump	• Maintain speed hump

Street / Intersection	Short-Term Interventions	Long-Term Interventions
(Terrace Street to Parker Street)	• Install intersection daylighting	• Install intersection curb extensions and restripe crosswalks
Gore Street (Terrace Street to Parker Street)	• Install intersection daylighting	• Install intersection curb extensions and restripe crosswalks
Tremont Street (Terrace Street to Parker Street)	• Install intersection daylighting	• Install intersection curb extensions and restripe crosswalks • Add pedestrian crossing to the eastern leg of the intersection where one is currently missing
Gurney Street (Tremont Street to Station Street)	• Install speed hump • Install intersection daylighting	• Install raised crosswalk at Gurney Street • Install intersection daylighting
Gurney Street (Gurney Street to Parker Street)	• Install speed hump • Install intersection daylighting	• Maintain speed hump • Install intersection curb extensions and restripe crosswalks
Station Street (Gurney Street to Parker Street)	• Install speed hump • Install intersection daylighting	• Maintain speed hump • Install intersection daylighting

Terrace Street

This concept proposes modifying Terrace Street between New Heath Street and Tremont Street from two-way directionality to a one-way northbound-only street. This cross section is proposed to provide a dedicated contraflow bicycle facility while maintaining a lane of on-street parking. Speed humps, daylighting, curb extensions, and raised crosswalks / intersections in the short- and long-term also slow traffic speeds along Terrace Street.

Traffic analysis was performed to assess the street network impacts of modifying the directionality of Terrace Street. Documentation for this analysis is provided in a separate technical memo. This documentation includes a summary of the analyses performed and key assumptions, results, and output files. The traffic analysis considers the combined effect of changes on Terrace Street and Phase 2 of the Columbus Avenue Bus Lanes Project. As of Fall 2024, the Columbus Avenue Bus Lanes Project is expected to include exclusive bus lanes on Columbus Avenue between Jackson Square and Ruggles Station.

The traffic analysis shows that, under proposed design, study intersections on Parker Street and Terrace Street will experience free flow to stable traffic operations during all analysis time periods, including AM and PM peak hours.

New Heath Roundabout

A key aspect of this concept design is the transformation of the rotary at the intersection of Heath Street, New Heath Street, Parker Street, and Wensley Street into a roundabout. This involves adjusting the entry and exit angles to slow traffic speeds and to better control traffic patterns through the circle. The roundabout design also reduces excess pavement and improves pedestrian crossings. To achieve these safety and environmental benefits, the roundabout eliminates the entrance from New Heath Street and the exit onto Parker Street.

Under this design, traffic looking to access Parker Street from the roundabout will exit onto New Heath Street and immediately turn left. Traffic from New Heath Street moving westward will have two options: 1) turn onto Bromley Street and then right onto Heath Street, or 2) turn right onto Parker Street and then turn left onto Fisher Avenue, circulating back via Bucknam Street / Lawn Street.

Concept Design Alternatives

In a few instances, concepts are provided for two design alternatives, described below:

- In the long-term concept, along Parker Street between the roundabout and Fisher Avenue, two alternatives were developed. Under Option 1, the curb is extended on only the eastern side of the street to incorporate a wide raised bicycle facility and planting area. Under Option 2, the widening can be split between the eastern and the western side of the street, such that there is increased buffer space between the sidewalk and the street on both sides of Parker Street. A few benefits and challenges associated with each of these options are listed below.
    - One benefit of Option 1 is that there is less curb reconstruction resulting in a less costly project. The radius of the street centerline is marginally smaller than that for Option 2, creating more of a chicane and traffic calming effect. The larger buffer area on the eastern side of the street allows for more separation between drivers and bicyclists, easier maintenance, and more landscaping options. However, no additional separation is provided between pedestrians and traffic on the western side.

  - This option potentially allows for better tree growth and maintenance of the buffer on the western side of the street. It provides more separation between people walking and driving on the western side, but less separation between people biking and driving on the eastern side. The smaller proposed buffer on the eastern side may be more challenging to maintain.

- In the long-term concept, at the Mission Hill Link stop at Delle Avenue, there are two alternatives. First, the curb extension can be installed on the eastern side of the street. In this case, the bus would stop to board and alight passengers at the current curb. One additional parking space is maintained under this configuration. Alternatively, the curb extension can be installed on the western side of the street. In this case, the bus would stop to board and alight passengers at the extended curb. This design incorporates more of a chicane effect through this section of the street to slow traffic speeds.
- In the long-term concept, at the intersection of Parker Street and Gurney Street, curb extensions are shown on the concept plans. Alternatively, intersection daylighting using pavement markings can be incorporated here to maintain existing curb-to-curb width for future flexibility in designing a bicycle facility along Parker Street.
- In the long-term concept, at the intersection of Gurney Street and Halleck Street, daylighting is shown on the concept plans. Alternatively, curb extensions can be incorporated here to formalize daylighting and complement the proposed raised crosswalk.

Design Standards

The short-term and long-term concept designs presented herein are designed according to Boston City standards for the purpose of testing the engineering feasibility of the proposed interventions and avoiding significant modifications under future project design phases. The parking chicanes proposed along Parker Street are designed using a 20-mph design speed.

AutoTURN was used to verify that the proposed intersection daylighting and curb extensions are feasible to implement. Concept plans are overlaid with AutoTURN exhibits. At most intersections, a DL-23 design vehicle was assumed. This would account for the turning movements of passenger vehicles as well as small delivery trucks and

moving vans. At the Alleghany Street intersections, near Fenway High School, a school bus was assumed to model turning maneuvers. An SU-30 was the assumed design vehicle at Parker Street and Fisher Avenue and at Parker Street and Gurney Street where there may be a need for additional commercial vehicle access. The SU-30 as well as a fire truck were tested within the roundabout.

Next Steps

The Mission Hill Transportation Planning Project is concluding at the Concept Design Phase due to reduced development pressure on Terrace Street and changes in the City's fiscal outlook.

Should development pressure and fiscal realities change in the future, the City may advance the project. Future steps may include:

- Concept design revisions based on:
  - Updated design standards
  - Changes to planned projects (e.g., Columbus Avenue Bus Lanes Project)
  - Public and agency feedback
- Preliminary (25%) and final (75/100%) design phases