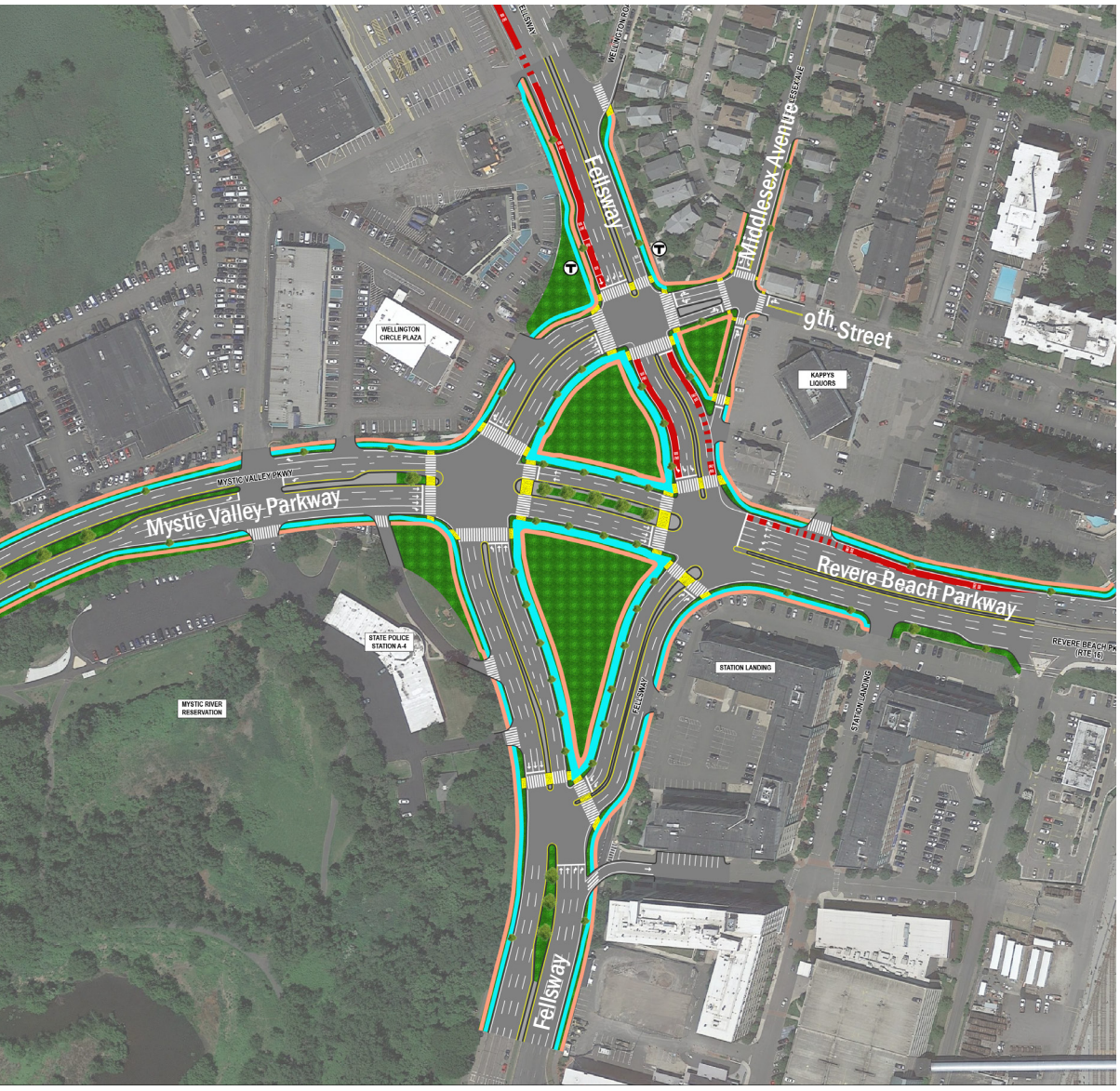

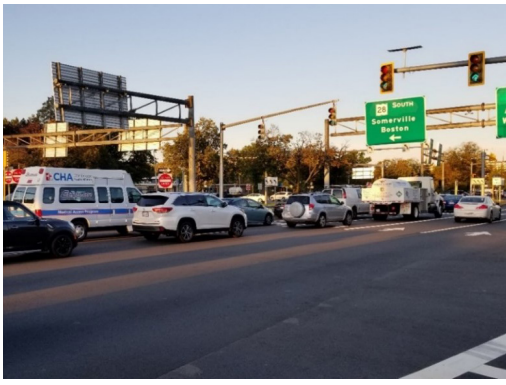

Wellington Circle Study

WELLINGTON CIRCLE STUDY

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Executive Summary

The Massachusetts Department of Transportation (MassDOT) initiated the Wellington Circle Study (the study) to evaluate existing and future multimodal transportation conditions at Wellington Circle (the Circle) in the City of Medford, and to develop Short-/Medium- and Long-Term alternative conceptual designs to improve the overall transportation system both within and through the Circle.

Situated at the intersection of Massachusetts Routes 16 and 28, Wellington Circle is a crucial transportation link through Medford, as well as the wider region. The intersection connects adjacent communities including Malden, Everett, and Somerville to each other, to the Wellington MBTA Station, and to regional routes such as Interstate 93 and Route 1. Most vehicular trips through the Circle are between local communities, with 60% of morning trips and 64% of afternoon trips destined for either Medford, Malden, Everett, Somerville, or Melrose. Similarly, trips related to Wellington Station and the Encore Casino are also from local communities. The prevalence of trips starting and ending within neighboring municipalities demonstrates an opportunity to shift these vehicular trips to more sustainable modes. This supports the study's focus on the redesign of the Circle to improve multimodal connectivity and mobility. This is done by examining and evaluating alternatives to improve transportation conditions in the context of vehicular, bicycle, pedestrian, transit, land use, and cost, as well as resulting economic, social, and cultural benefits and impacts.

Alternatives were evaluated and compared in the context of the study's goals and objectives. There were four overarching goals for the study:

- **Safety**: Improve safety conditions for all transportation modes and users in the Wellington Circle area.
- **Connectivity:** Improve local and regional connectivity to support businesses and future development.
- **Mobility/Access:** Improve mobility and access for all transportation modes and users in the Wellington Circle area.
- **Quality of Life:** Improve quality of life for residents in the Wellington Circle area.

Evaluation criteria were developed to support the goals of the study, and to help define and measure the objectives related to each goal. The evaluation criteria were vetted through the Public Involvement Process. Public participation was critical in refining the study's goals and objectives, evaluation criteria, and the Alternatives Development process. The Public Involvement Process included six meetings with the stakeholder Working Group, consisting of federal, state, regional, and local representatives, and three public information meetings with the general public.

The study assessed Existing Conditions at the Circle, including an analysis of Future No-Build conditions, to understand issues that need to be addressed, and opportunities that can be leveraged in the redesign of the Circle. Current issues identified include:

- **Safety for all modes**: The need for multiple lane changes and left turns, and wide turn radii, create conflict points and potential for crashes. High vehicle speeds through the Circle also present safety concerns. Vehicular crashes with pedestrians have occurred at most Circle intersections.

- **Multimodal connectivity and infrastructure**: The current configuration has wide roadways and multiple lanes of traffic with a general lack of pedestrian and bicycle infrastructure creating barriers to local destinations, including Wellington Station.
- **Vehicular congestion**: Traffic congestion causes delay for both private vehicles and buses, particularly east of the Circle.

The Existing and Future Conditions analysis led to the Alternatives Development process, where a variety of preliminary intersection configuration elements were considered to address the issues and opportunities. These included four-leg and five-leg intersections, roundabouts, jughandles, restricted crossing U-turns (RCUT), continuous flow intersections, and quadrant roadways. Each preliminary concept was addressed for fatal flaws, defined as the inability to provide sufficient capacity for existing vehicle volumes within the Circle and the inability to sufficiently accommodate pedestrian, bicycle, and/or transit access to meet Study goals. Overall, the quadrant roadway concept showed the most potential for improving access and connectivity and accommodating vehicle volumes at the Circle. The quadrant roadway configuration was used as the framework to develop the Long-Term At-Grade alternatives.

The iterative Alternatives Development process ultimately led to the Alternatives Analysis process, where a Short-/Medium-Term and Long-Term alternatives were more thoroughly evaluated and compared to understand which configuration would best address the study's goals and objectives. Four alternatives advanced to this evaluation:

- Short-/Medium-Term (Options A and B) – shown in Figure 1
- Long-Term At-Grade Dual Quadrant (Square and Triangle Concepts) – shown in Figure 2
- Long-Term At-Grade Transit Enhanced Dual Quadrant – shown in Figure 3
- Long-Term Grade Separated Single Quadrant – shown in Figure 4

Figure 1: Short-/Medium-Term (Options A and B)

Option A

Option B

Figure 2: Long-Term At-Grade Dual Quadrant (Square and Triangle Concepts)

Square

Triangle

Figure 3: Long-Term At-Grade Transit Enhanced Dual Quadrant

Figure 4: Long-Term Grade Separated Single Quadrant

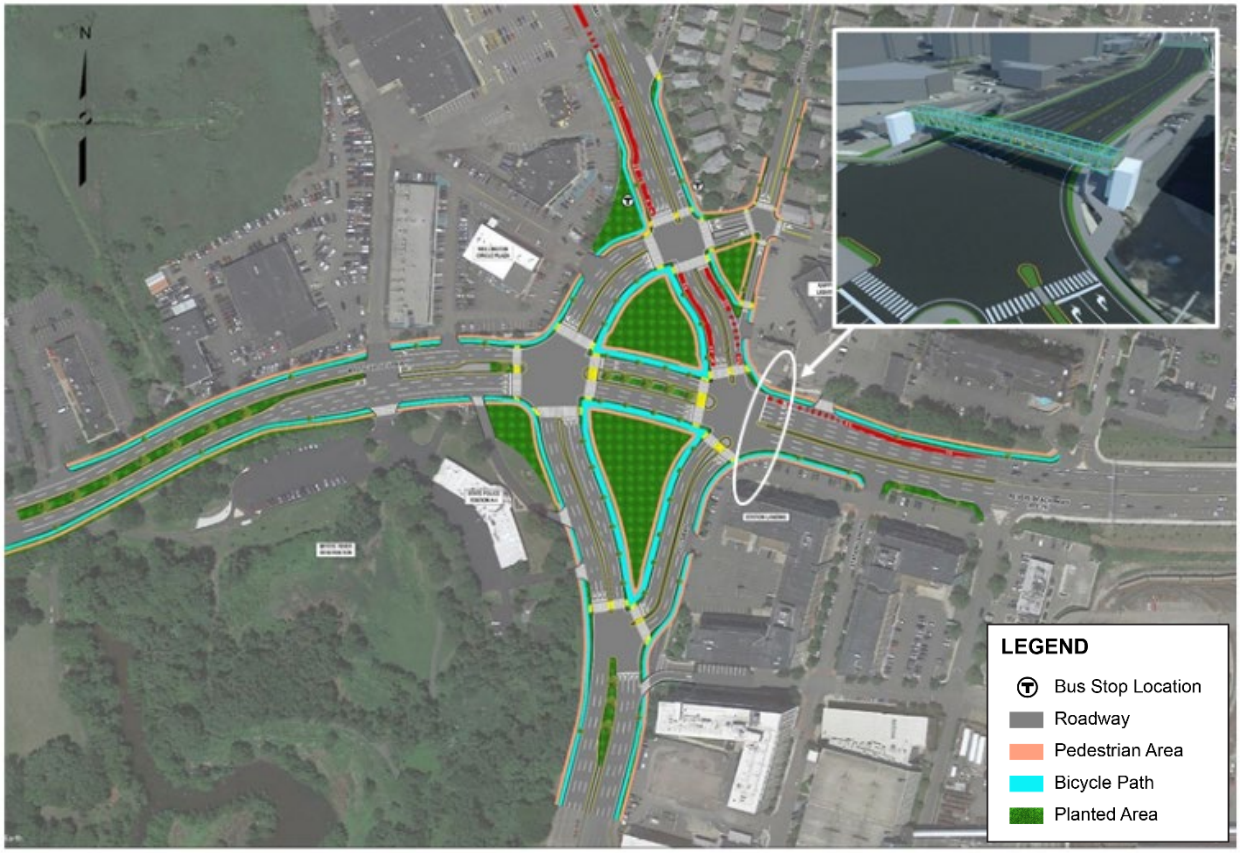
While each of the final alternatives that were evaluated in the Alternatives Analysis process revealed improvements over the existing and Future No-Build configuration, the **Long-Term At-Grade Transit Enhanced Alternative** showed the most potential in meeting the study's goals and objectives and was selected as the recommended alternative.

The recommended **Long-Term At-Grade Transit Enhanced Alternative** would include dedicated transit lanes on Revere Beach Parkway to the east of the Circle and on the Fellsway to the north of the Circle, providing bus priority for MBTA bus routes 100, 108, and 134 to/from Wellington Station. Additionally, this alternative would provide dedicated bus phase signals (transit signal priority) and floating bus stops. A floating bus stop provides a curb extension at a bus stop to serve as a

boarding/alighting platform, with a separated bicycle lane running behind this passenger waiting area, effectively creating an island. Floating stops are used to reduce conflict between bicyclists and buses, leading to a greater level of comfort for the bicyclist and more efficient bus operations by allowing buses to stop in-lane to pick up and drop off passengers. Together, these transit treatments would help increase transit speed, reliability, and accessibility.

While the design improves pedestrian connectivity through the Circle, a crosswalk directly across Revere Beach Parkway at the eastern most portion of the Circle was determined to be infeasible due to high vehicle turning volumes. To provide a crossing at this location, the Long-Term At-Grade Transit Enhanced Alternative could accommodate a pedestrian bridge to create a more direct connection to Wellington Station. An overview of the recommended alternative is shown in Figure 5.

Figure 5: Recommended Alternative – Long -Term At-Grade Transit Enhanced with Pedestrian Bridge Option



A comparison of the Future No-Build cross-section with the Long-Term At-Grade Transit Enhanced Alternative cross-section on Route 16 is shown in Figure 6. The Transit Enhanced Alternative would reallocate roadway space from vehicles to bicyclists and pedestrians, with the addition of two-way bicycle facilities on both the northern and southern sides and sidewalks with space for landscaping/plantings. Vehicle lanes would be reduced from twelve to five. On the quadrant roadway segment of the intersection, the Transit Enhanced alternative would allocate dedicated space for transit vehicles through the addition of bus lanes on both sides. Figure 7 shows a cross-section of the quadrant roadway.

Figure 6: Cross-Section – Future No-Build vs. Transit Enhanced Alternative (Route 16)

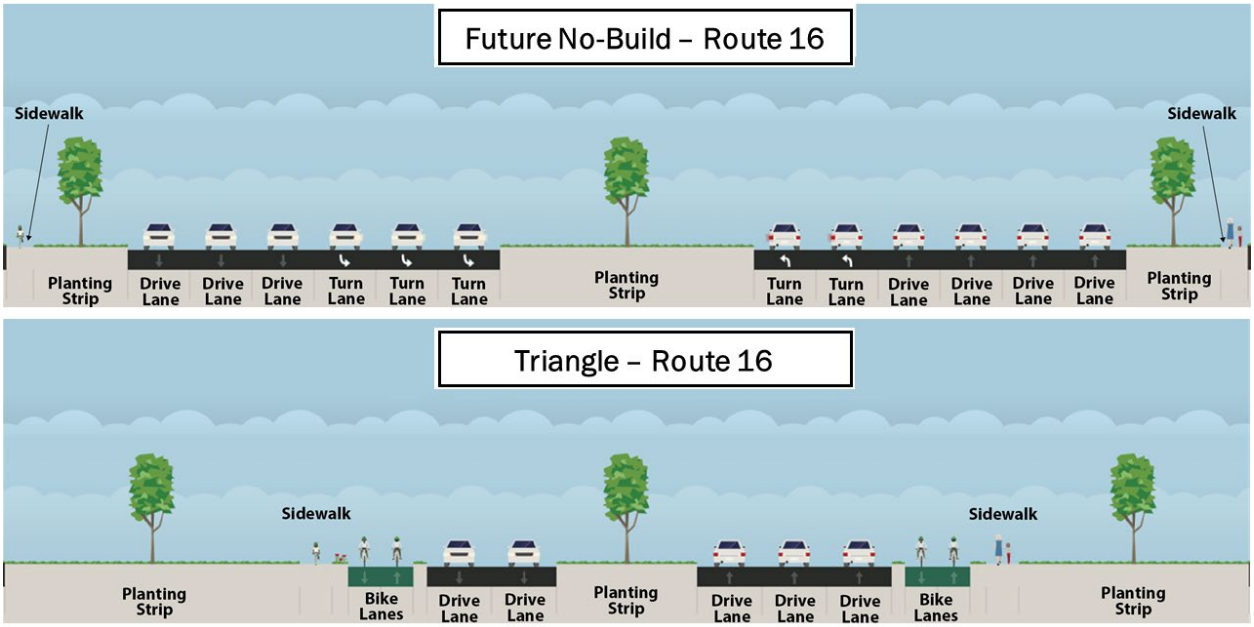
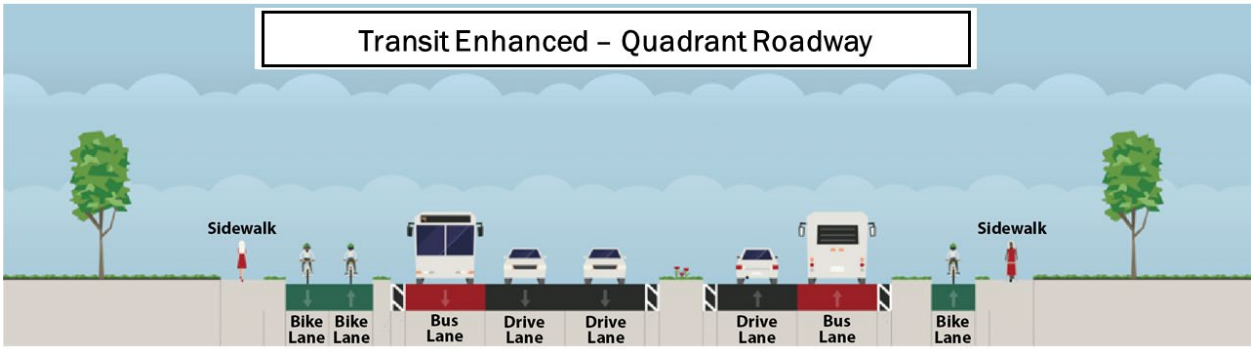


Figure 7: Cross-Section – Transit Enhanced Alternative (Quadrant Roadway)



The Long-Term At-Grade Transit Enhanced Alternative would provide several benefits over the other alternatives. It is the only alternative that would measurably benefit transit operations and access, while also providing the same multimodal and quality of life benefits as the other Long-Term At-Grade alternative. As with all the Long-Term At-Grade alternatives, vehicle operations would remain largely the same as under the Future No-Build condition, with similar total vehicle capacities and delay for vehicles. Under both the existing and future conditions (Future No-Build and the Build alternatives) modeled, intersections operate similarly to most urban areas, as many movements are shown to operate at level of service (LOS) F, while very few operate at LOS A or LOS B. The Long-Term At-Grade Transit Enhanced Alternative is projected to somewhat impact vehicle operations compared to Future No-Build conditions, but this is due to benefits received by other modes, such as increased pedestrian signal time at intersections and reductions in bus travel time. Significant improvements to safety are also anticipated, with the overall driver experience expected to be safer and less confusing, and the provision of dedicated space for walkers, bikers, and transit users. These benefits

provide an opportunity for trips to shift to alternative modes of transportation and reduce the number of vehicles using the Circle in the future.

As a conceptual planning study, the Wellington Circle Study is only the beginning of improving connectivity and mobility throughout the Wellington Circle area for the City of Medford and surrounding region. This study examined transportation needs for those who drive, walk, bike, and use transit, as well as land use and development, environmental conditions, and economic, social, and cultural impacts. The result was the identification of a recommended alternative, the Transit Enhanced Alternative, which would advance the study goals of improving safety, mobility and access, local and regional connectivity, and quality of life, while also measurably improving transit operations and access.

The next step for the study is for the City of Medford, in coordination with MassDOT District 4, to initiate a project through the MassDOT Project Development Process. This will process will further define the project design, costs, timeline, impacts, and responsibilities, and secure approval from the MassDOT project Review Committee, as well as any permits. Funding will need to be pursued to advance into the design process for the future implementation of improvements that will benefit those who live in, work in, and travel through Wellington Circle.