

Route 28 / Route 38 Planning Study

Stakeholder Group Meeting

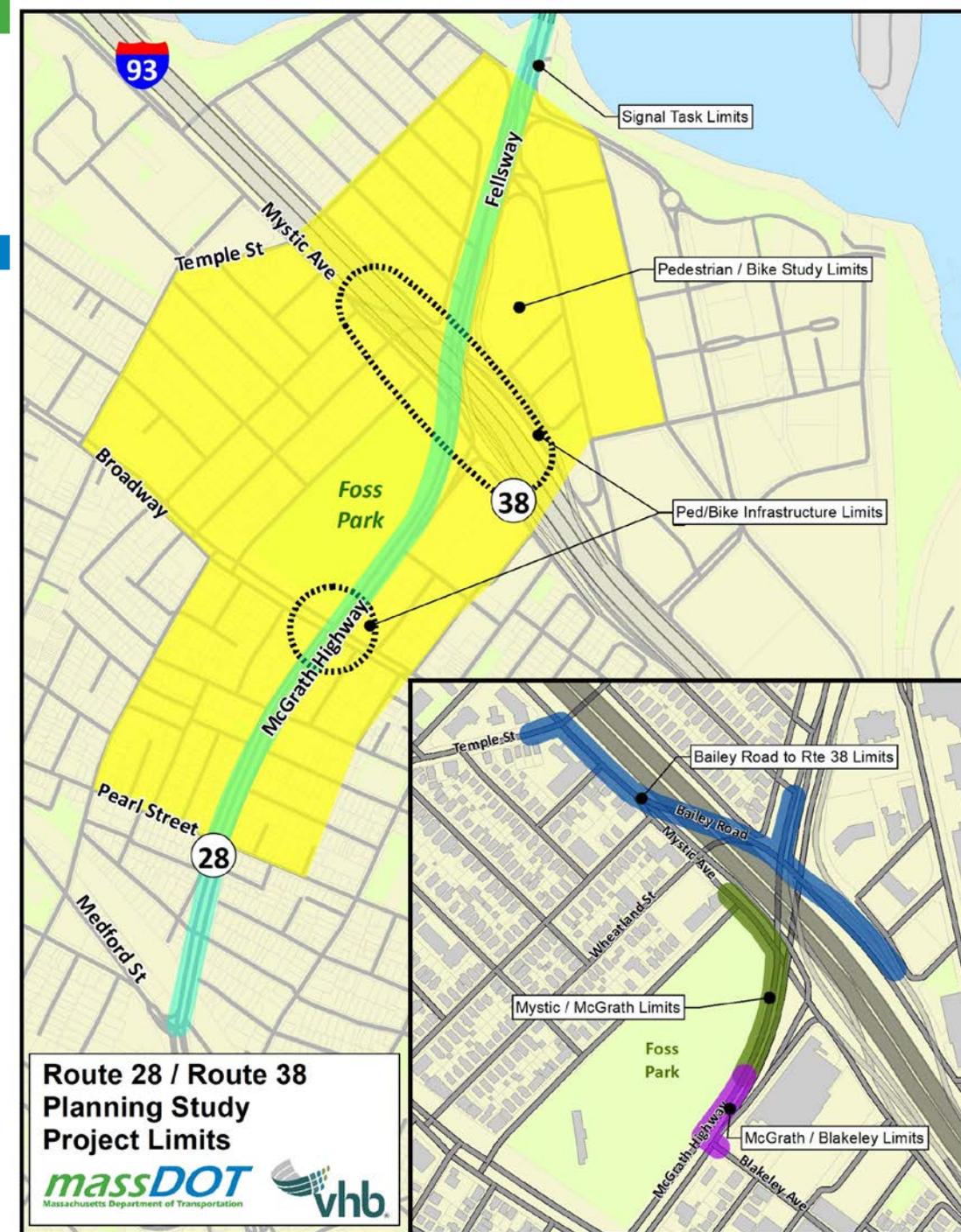
December 11, 2019

Agenda

- Opening / Introductions
- Project Update
- Major Task Recommendations
- Bicycle and Pedestrian Study
- Next Steps

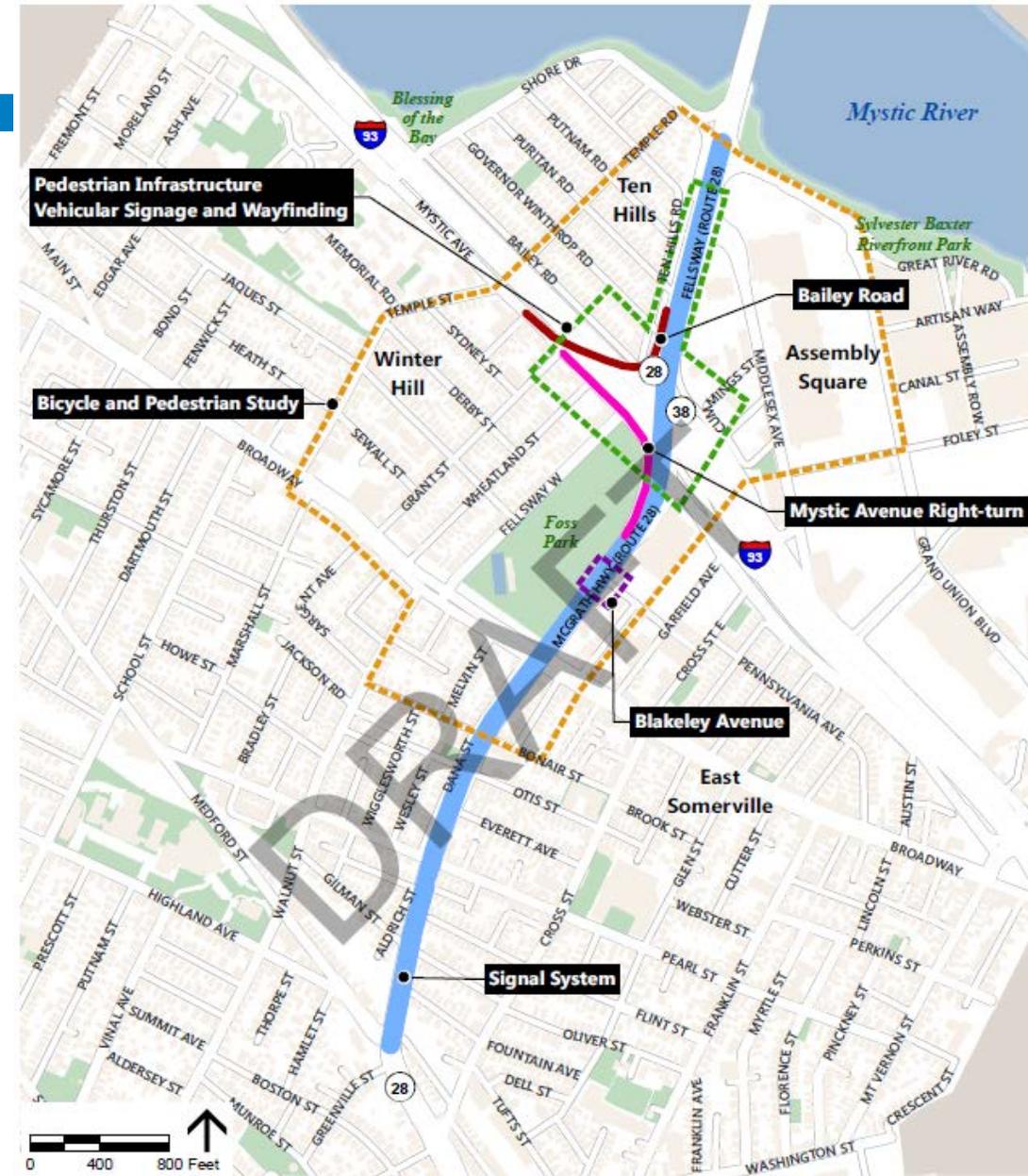
Project Study Area

- Major task areas
 - Existing Conditions Analysis
 - Ped / Bike Planning Study
 - Mystic Ave Right-turn to McGrath Hwy
 - Signal Systems
 - Vehicular Signage & Wayfinding
 - McGrath Hwy / Blakeley Ave Intersection
 - Bailey Road merge onto Mystic



Project Recommendations

- Pedestrian Accessibility
- Kensington Connector Bus Stop
- Mystic Ave Right Turn
- Blakeley Avenue
- Signal Systems
- Bailey Road merge onto Mystic
- Vehicular Signage & Wayfinding
- Bicycle and Pedestrian Study



Project Recommendations

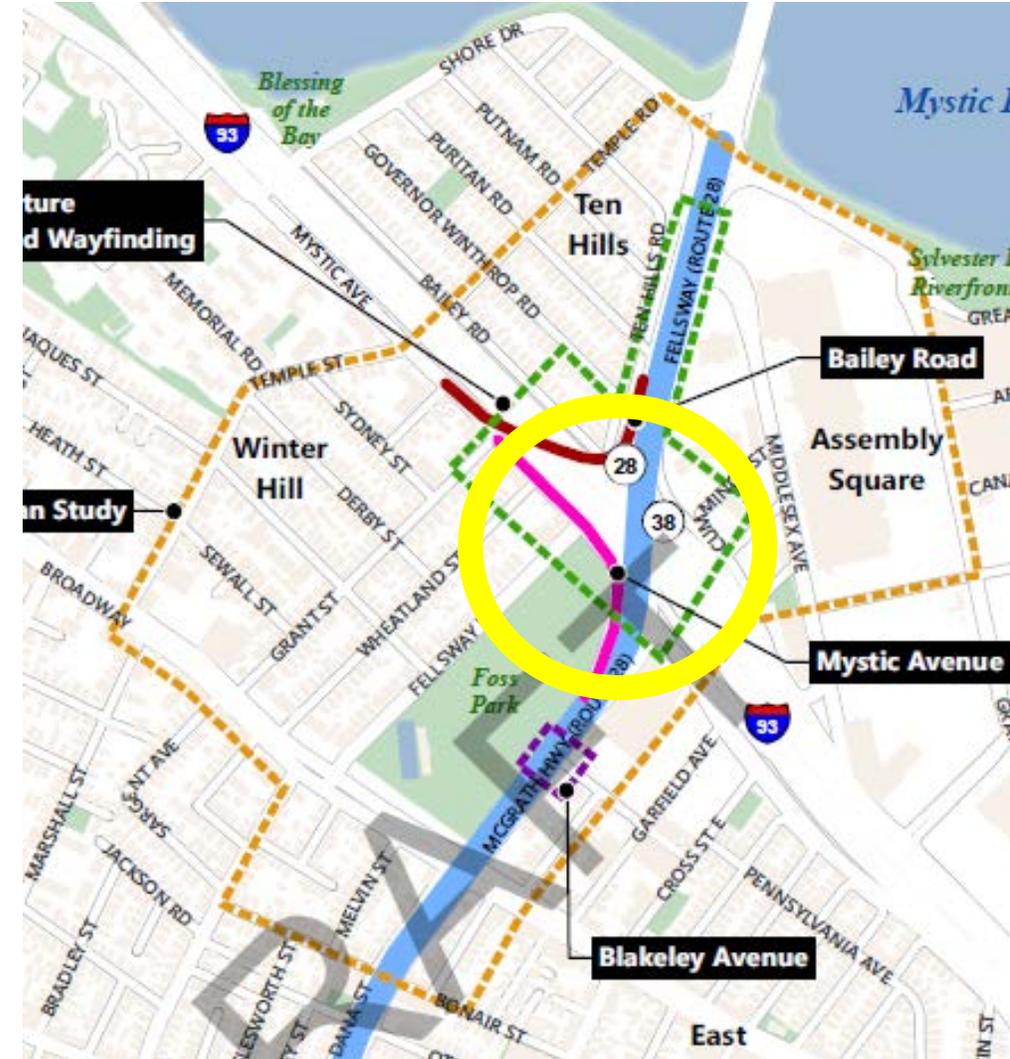
Recommendations advanced in 3 categories to next phase:

- Will be included in next phase
- Will be *partially* included in next phase
- To be included as part of future project

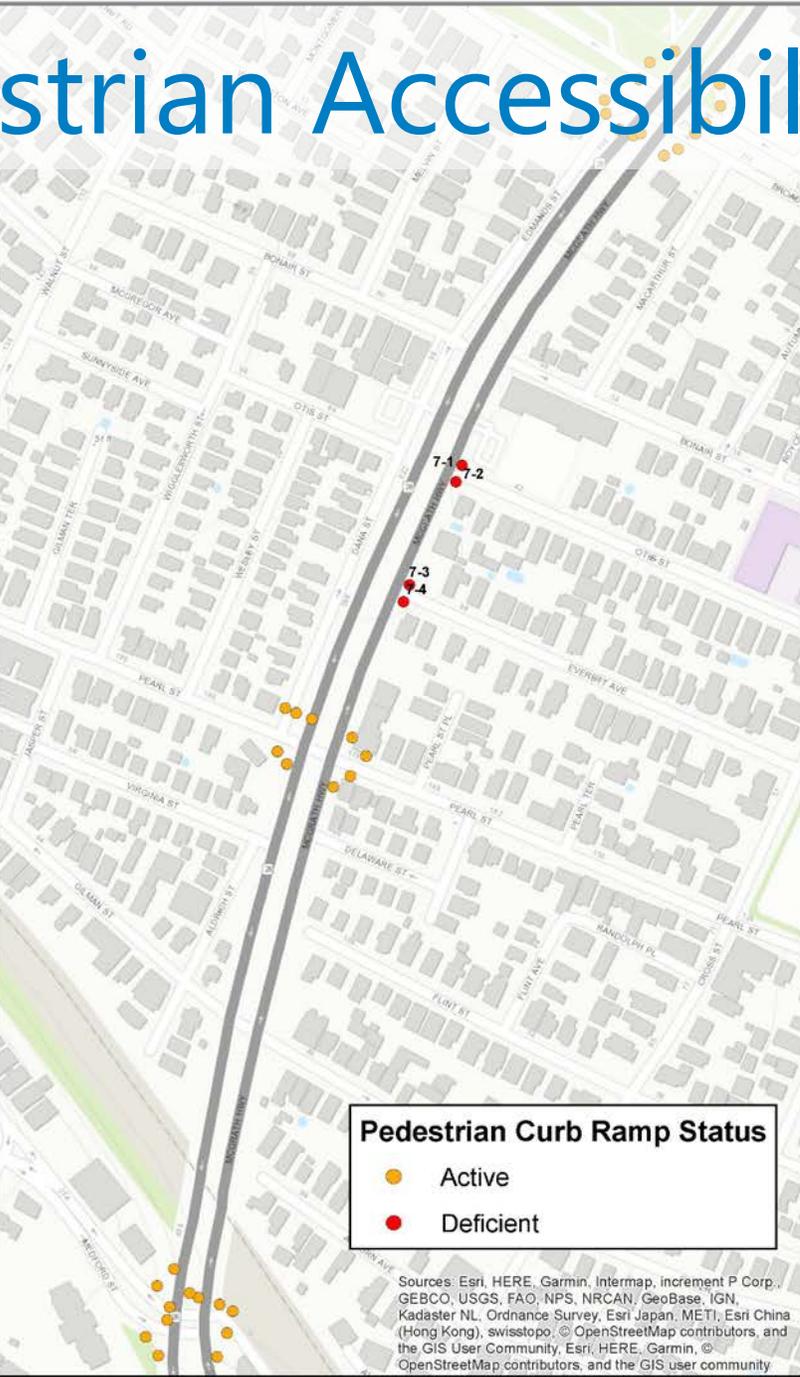
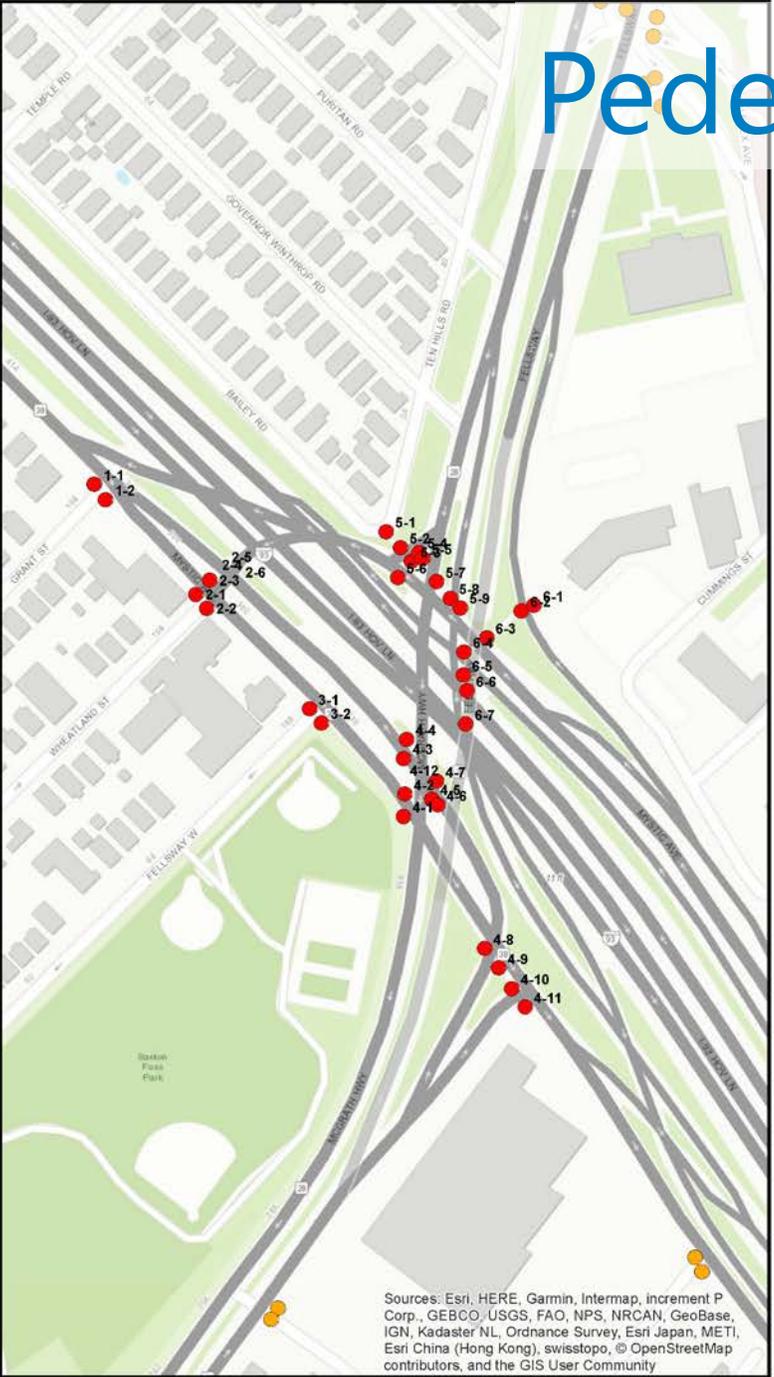
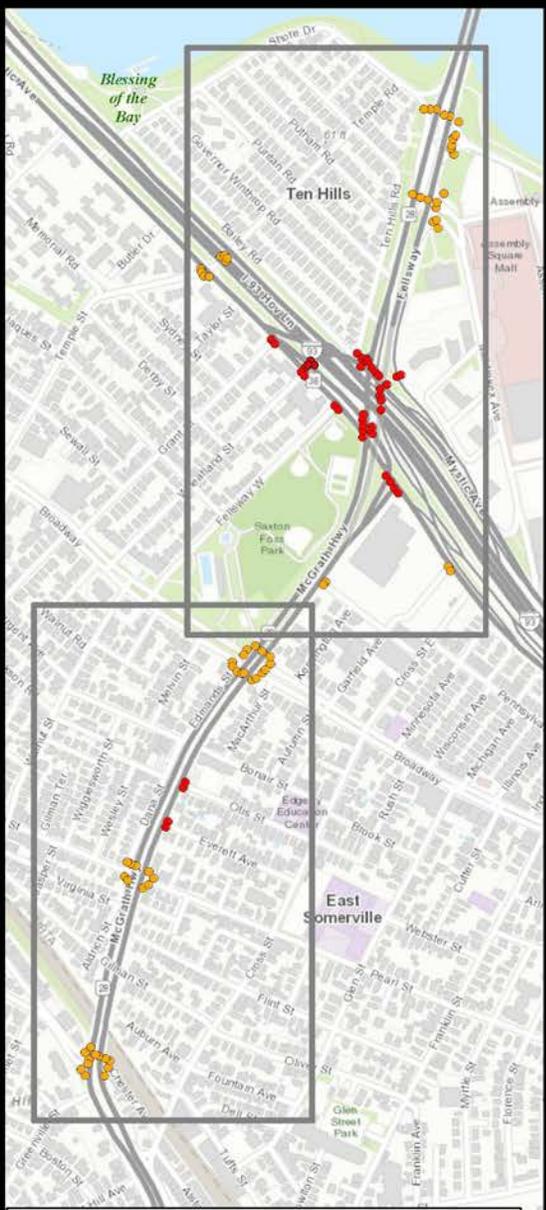


Pedestrian Accessibility

- Focused on Route 28/38 intersection and Route I-93 Understory
- Curb Ramp Analysis
- Impediments to pedestrian desire lines
- Kensington Connector bus stop



Pedestrian Accessibility



Pedestrian Curb Ramp Status

- Active
- Deficient

Figure 1

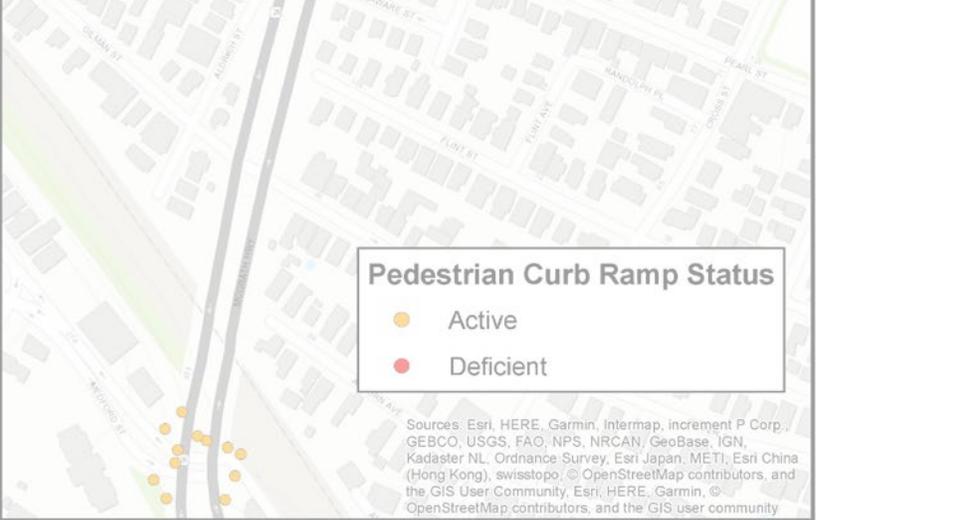
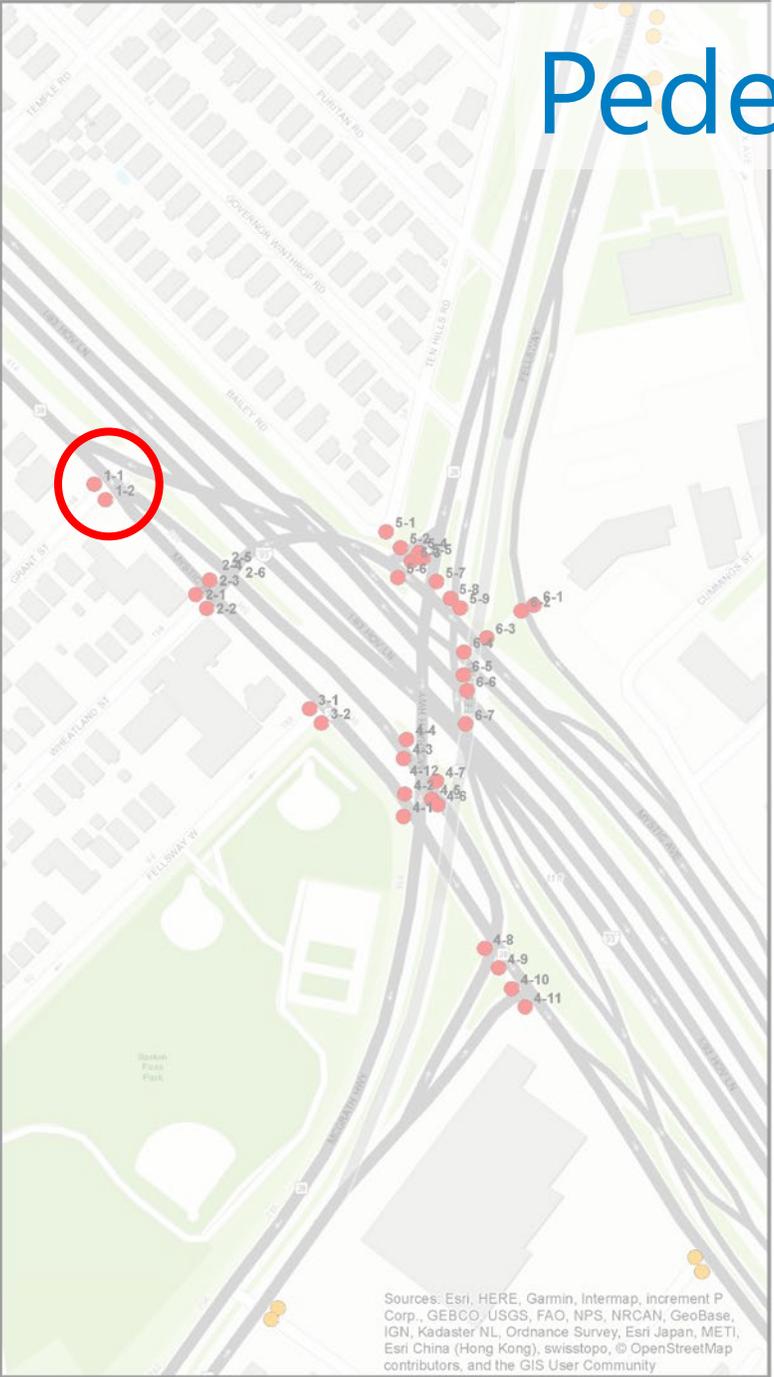
Pedestrian Ramp Inventory
Somerville, Massachusetts



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

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Pedestrian Accessibility

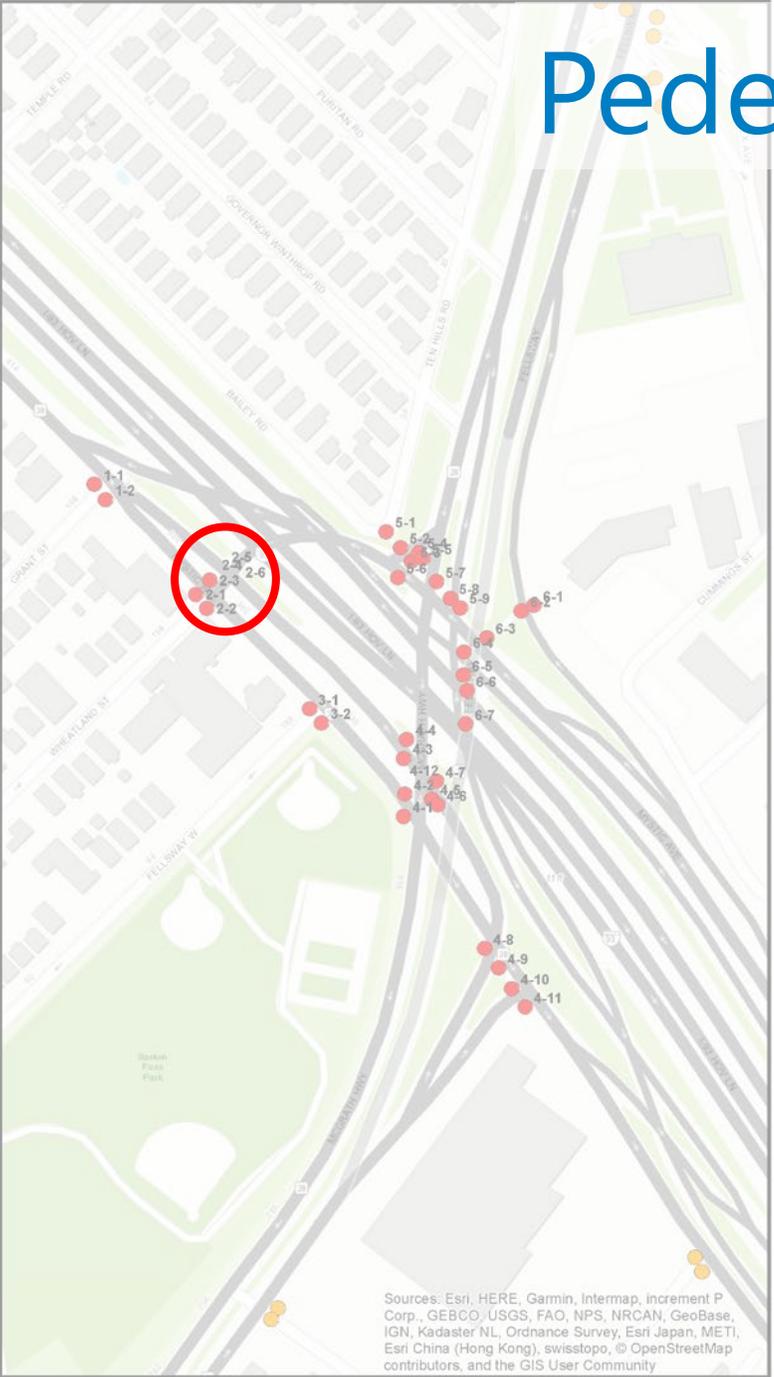


Pedestrian Accessibility



Figure 1

Pedestrian Ramp Inventory
Somerville, Massachusetts



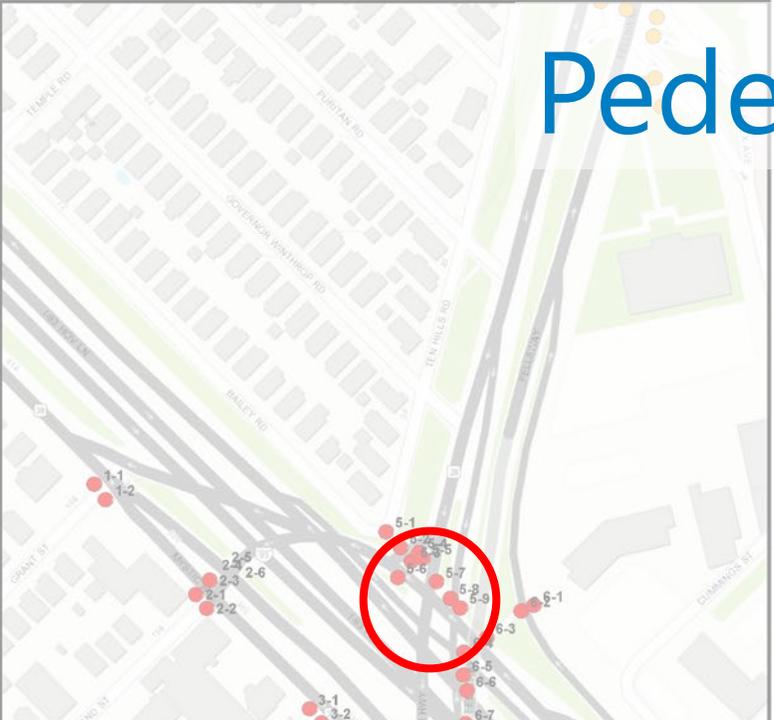
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Mystic Ave @ Wheatland Street



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Pedestrian Accessibility



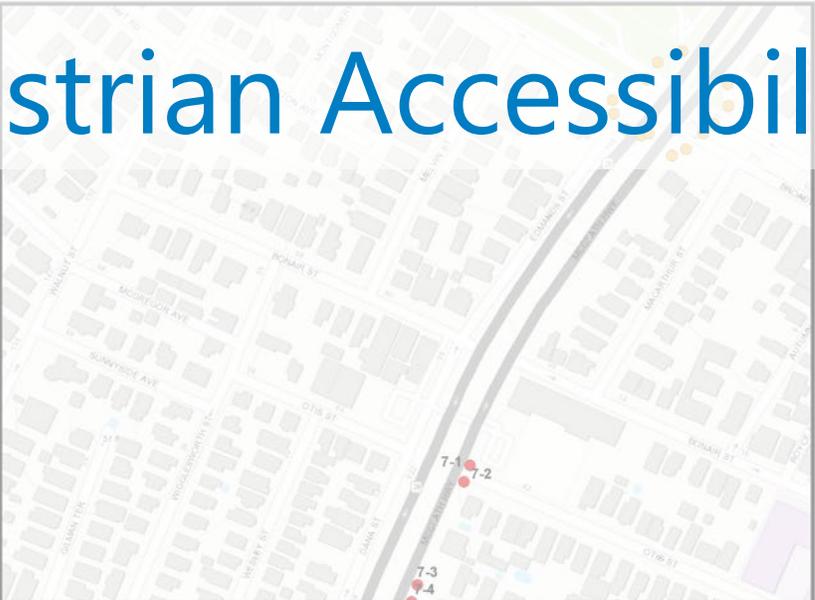
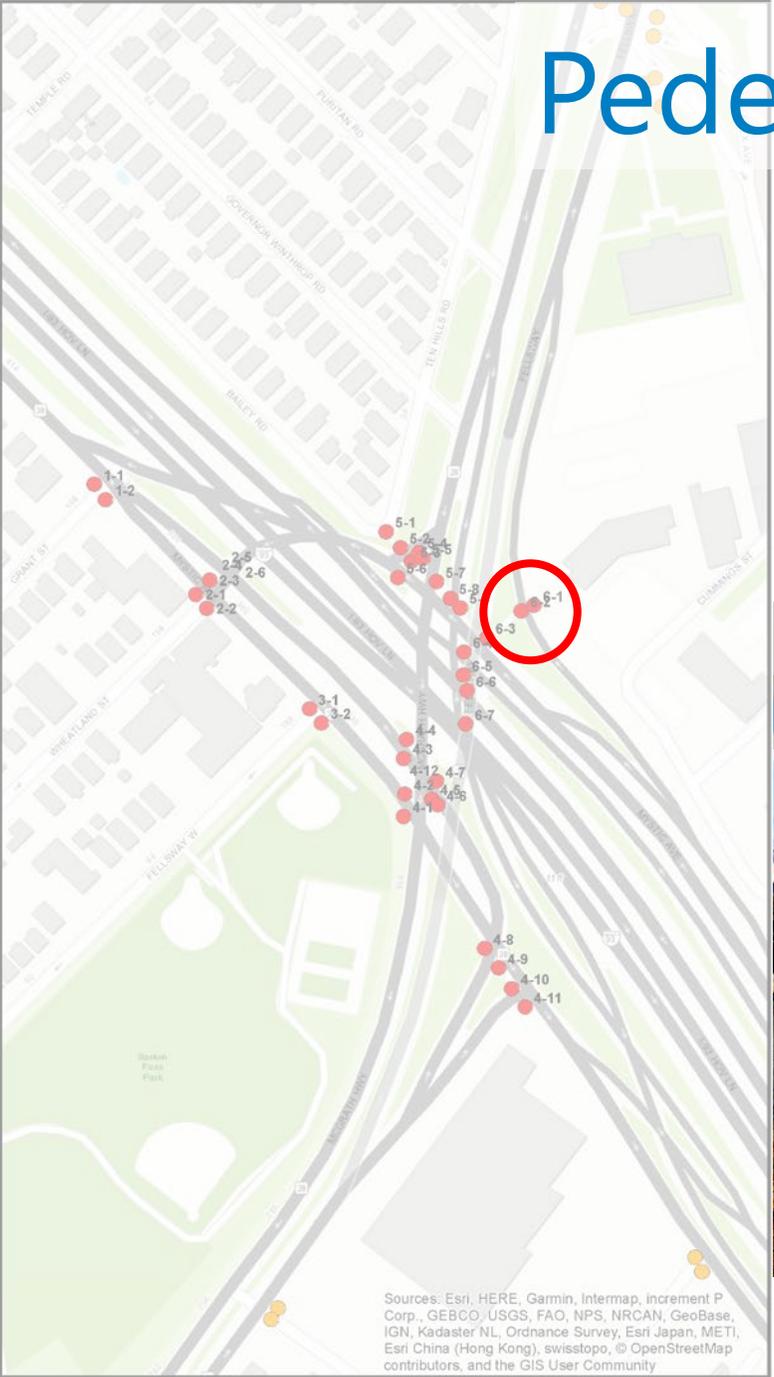
Mystic Ave @ McGrath Hwy/Fellsway



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

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Pedestrian Accessibility



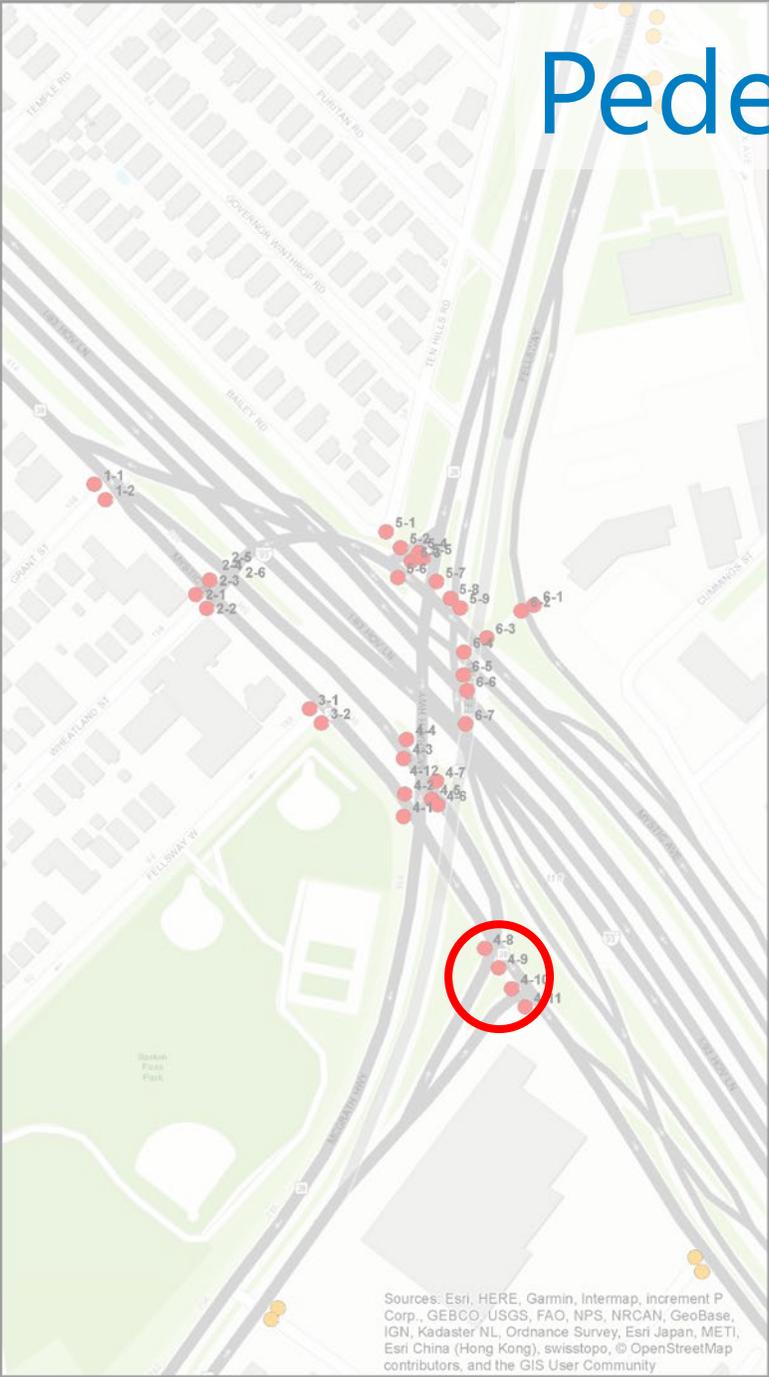
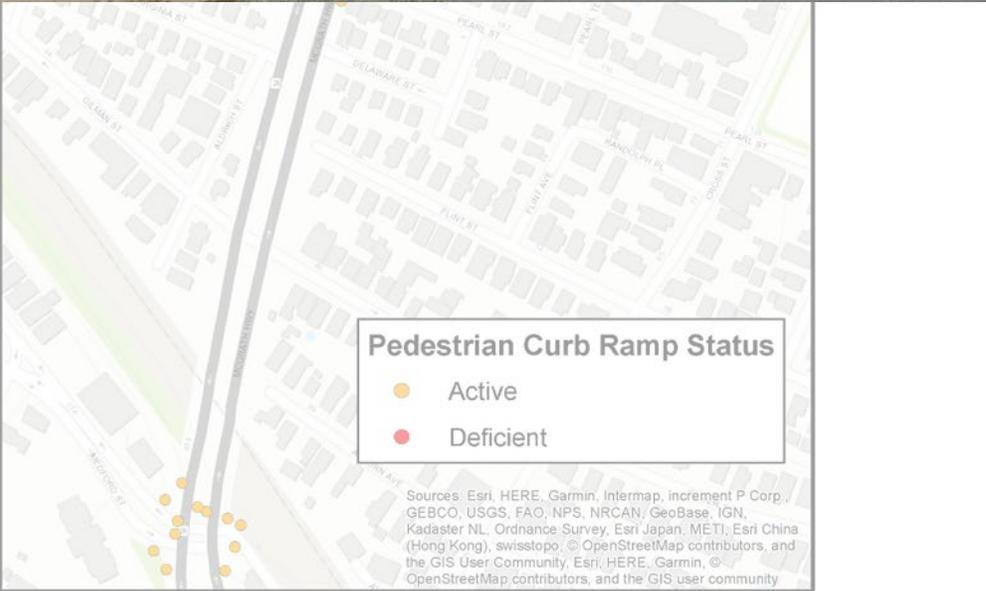
I-93NB Off-Ramp / Mystic Ave @ McGrath Highway



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community, Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Pedestrian Accessibility

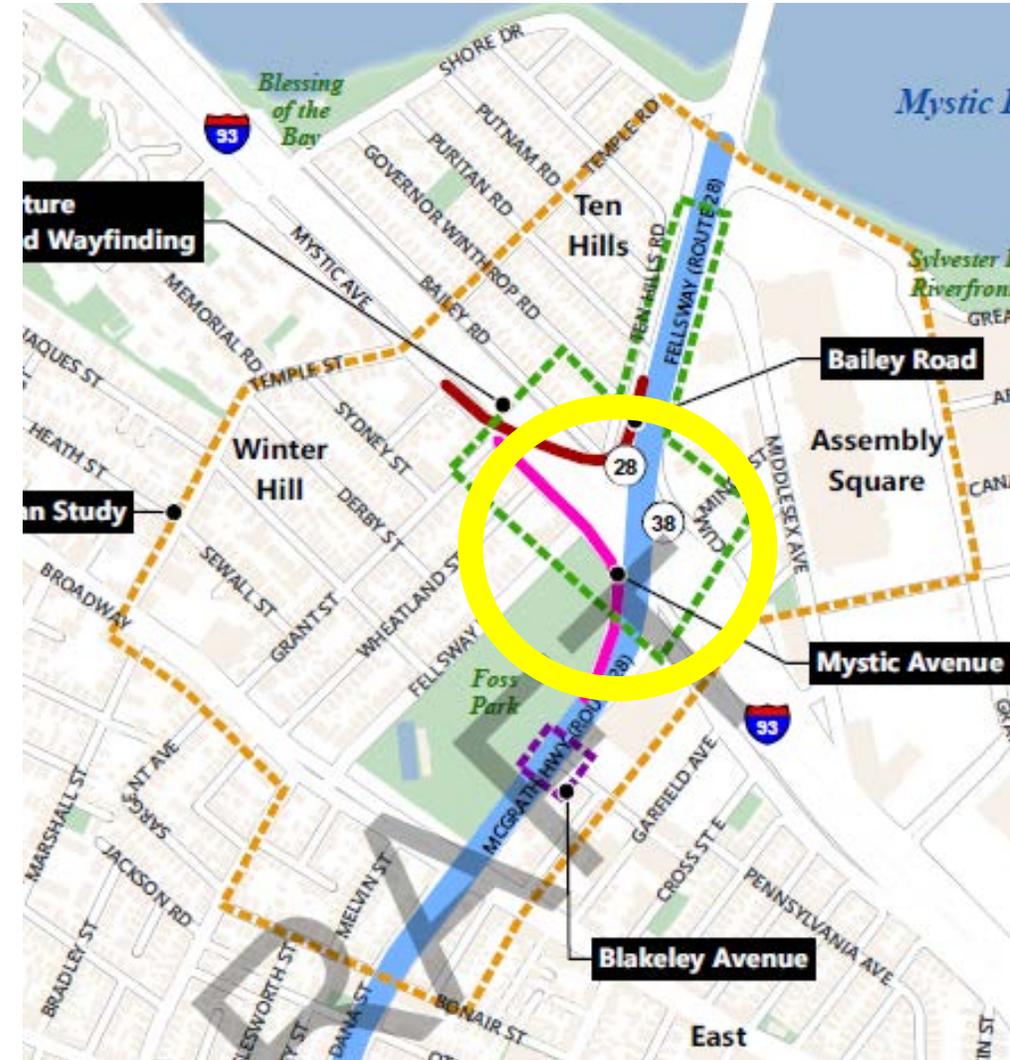
McGrath Hwy @ Mystic Ave



Pedestrian Accessibility

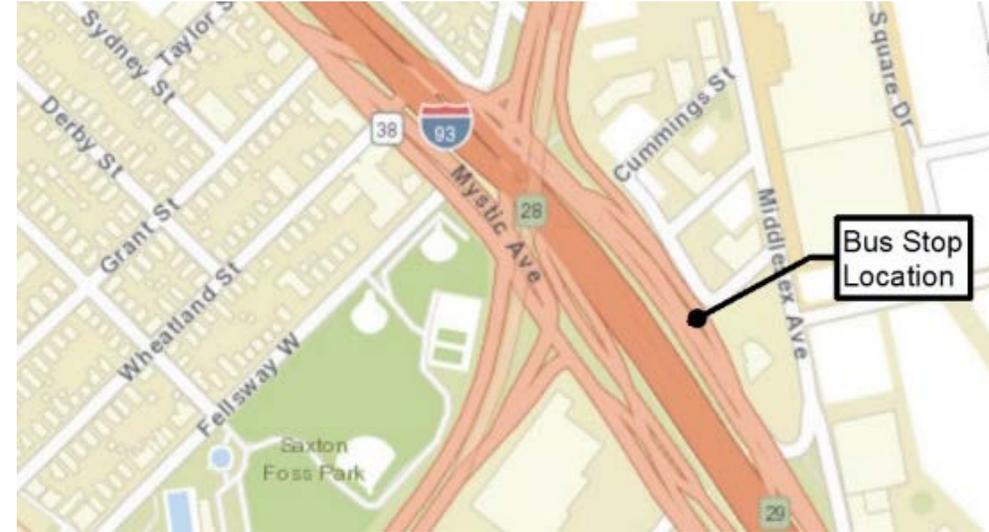
RECOMMENDATIONS

- Install ADA compliant curb ramps where missing
- Replace deficient curb ramps
- Remove impediments to pedestrians (signal posts, guard rails)
- To be included in next phase of design
- Specific locations to be detailed as part of next phase



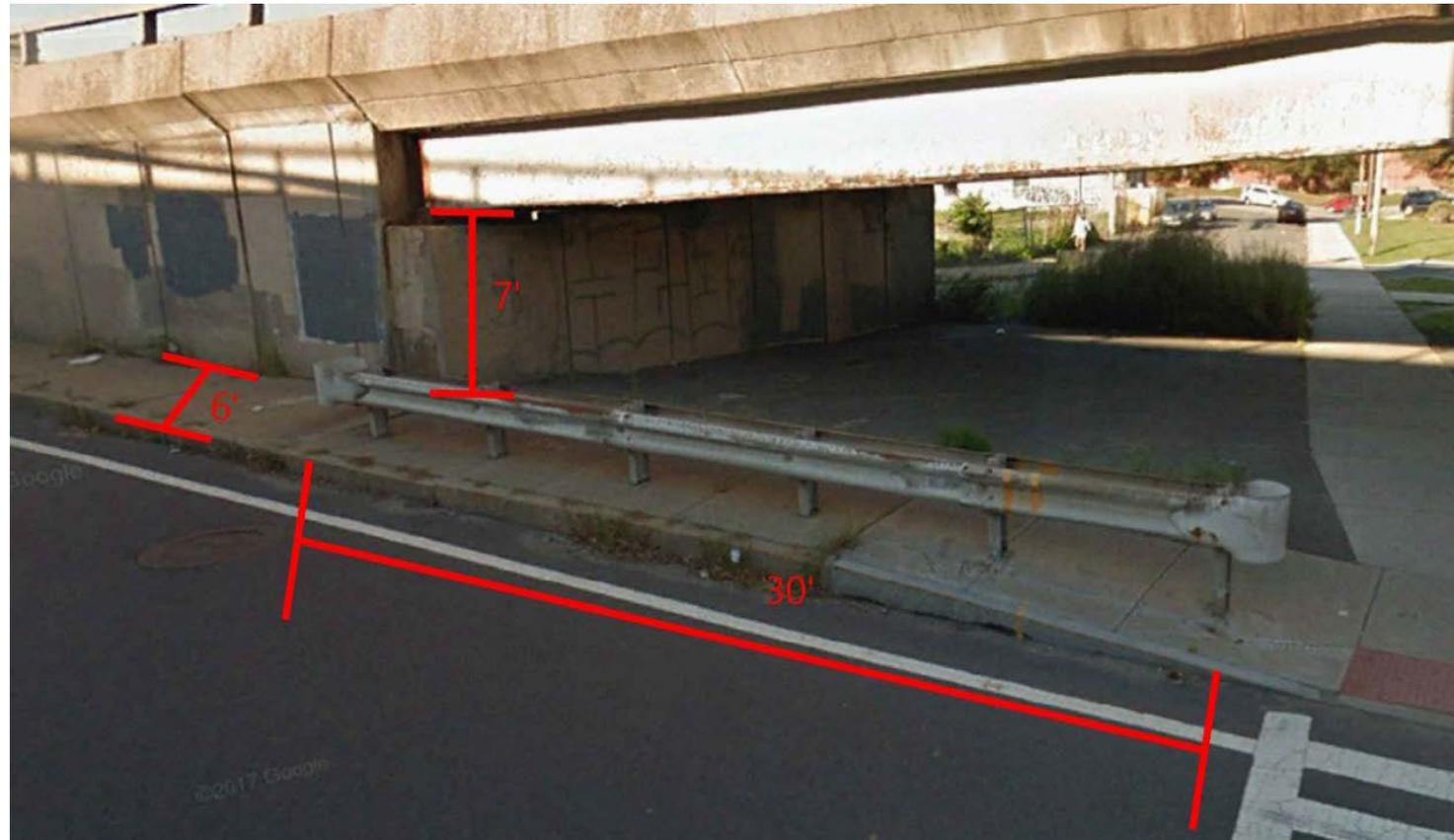
Kensington Connector Bus Stop

- MBTA Route 95 between Arlington/West Medford/Sullivan Square
- Near-side (before) crosswalk location
- Obscures driver's view of pedestrian
- Wide cross section



Kensington Connector Bus Stop

- MBTA Bus Stop Design Guidelines:
 - 70' for far-side stop
 - 8' landing pad



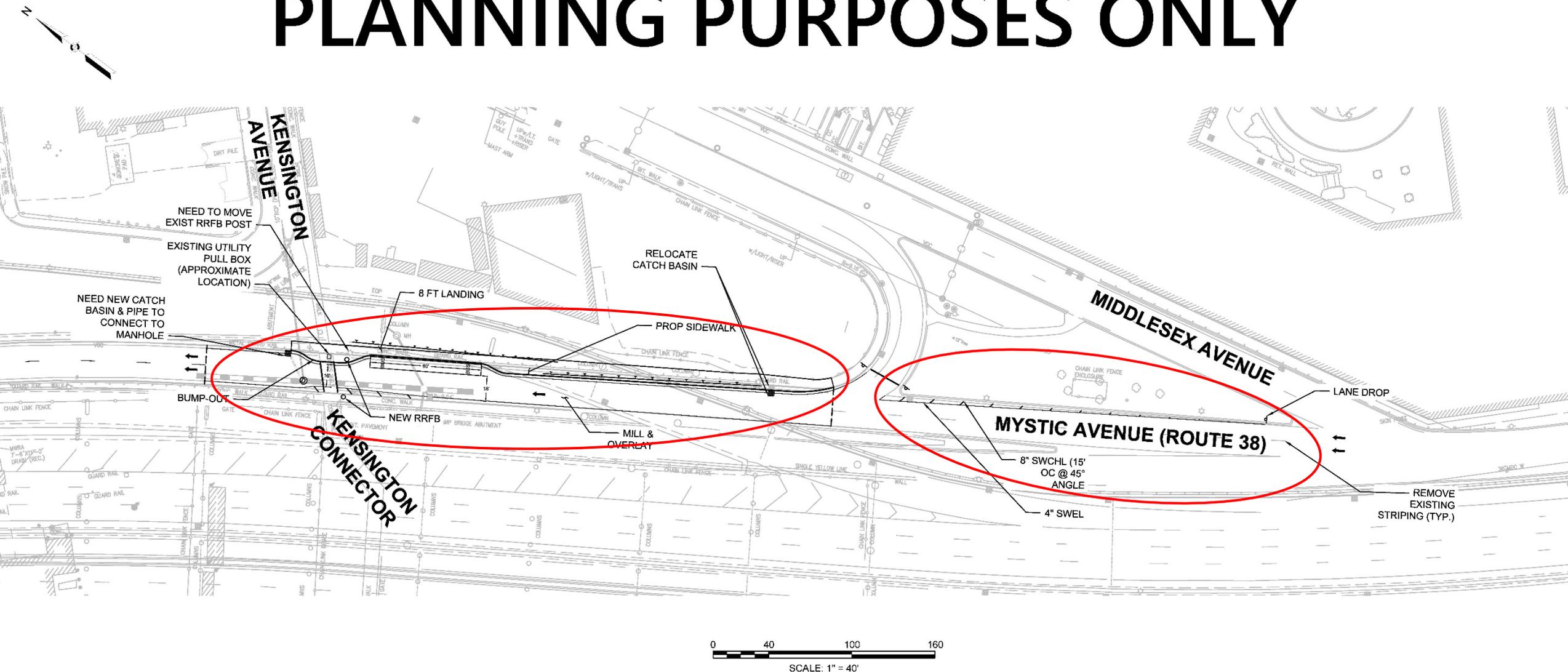
Kensington Connector Bus Stop

Distance from Edge of Crossing (a)	Vertical Clearance (b)	Depth (c)
0'	8'	6'
5'	7' 9-3/5"	6'
10'	7' 5-1/5"	6'
15'	7'	6'



Kensington Connector Bus Stop

PLANNING PURPOSES ONLY

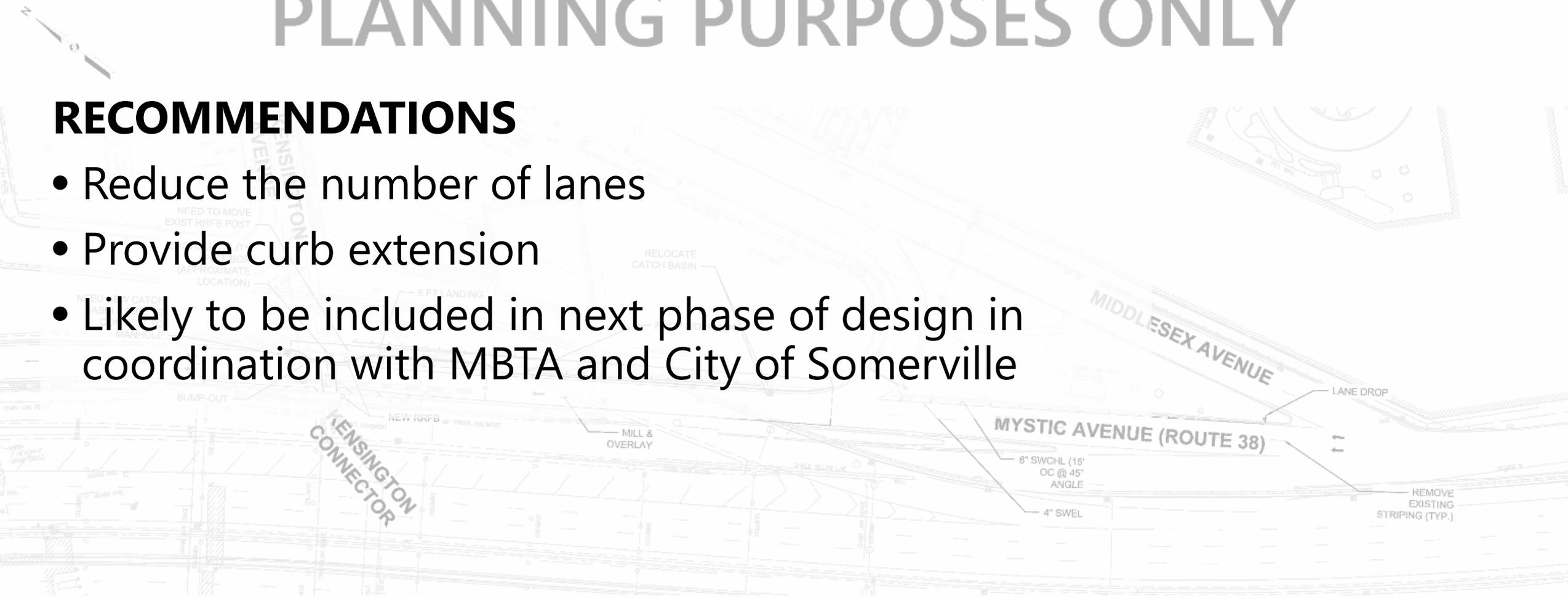


Kensington Connector Bus Stop

PLANNING PURPOSES ONLY

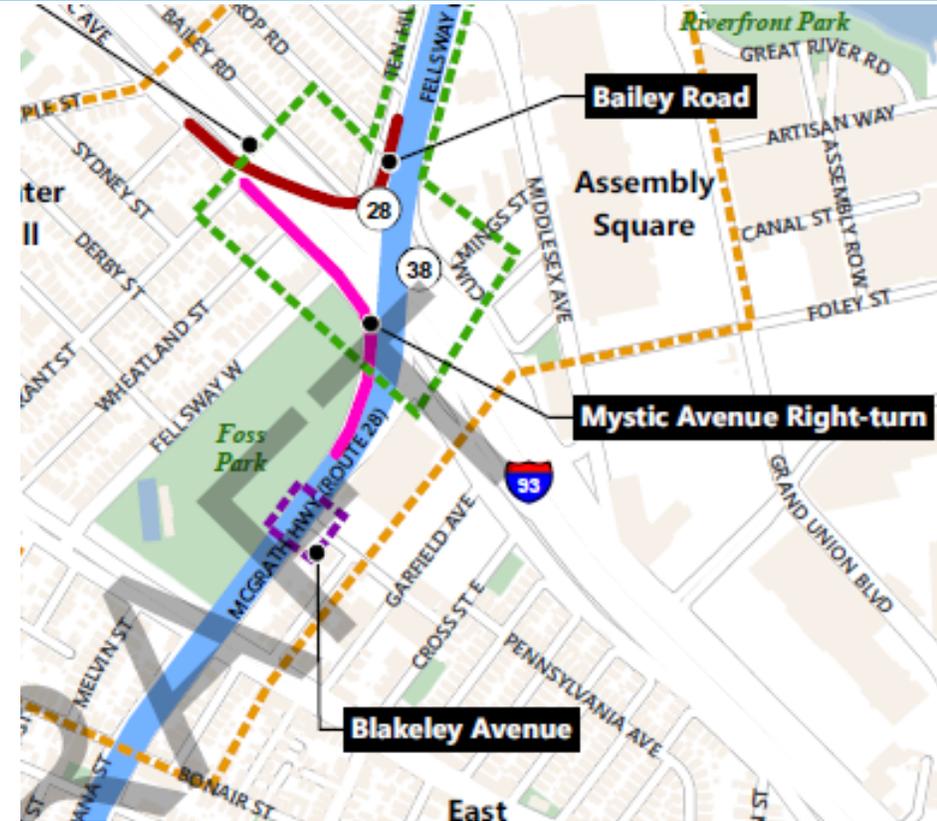
RECOMMENDATIONS

- Reduce the number of lanes
- Provide curb extension
- Likely to be included in next phase of design in coordination with MBTA and City of Somerville



Mystic Ave Right Turn

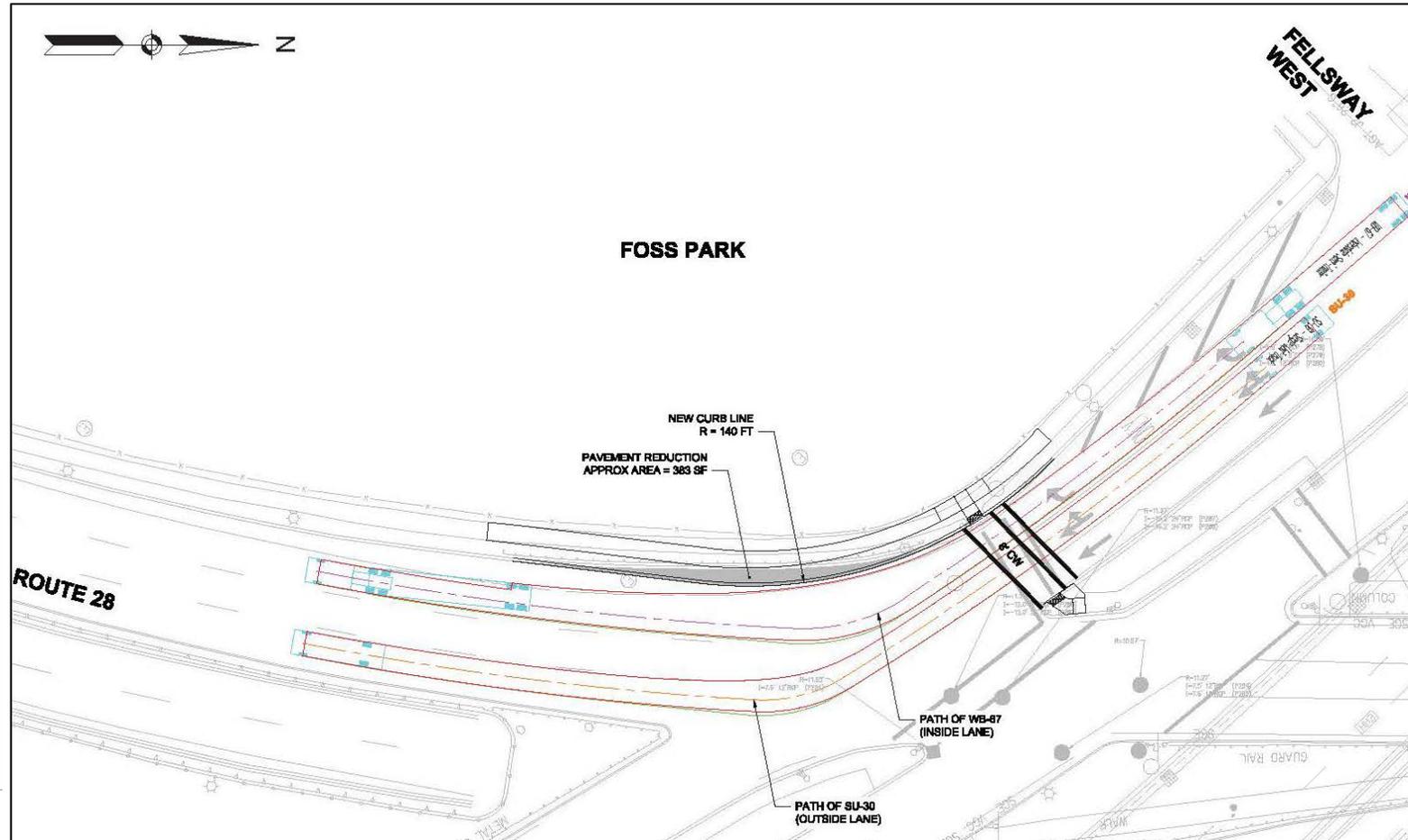
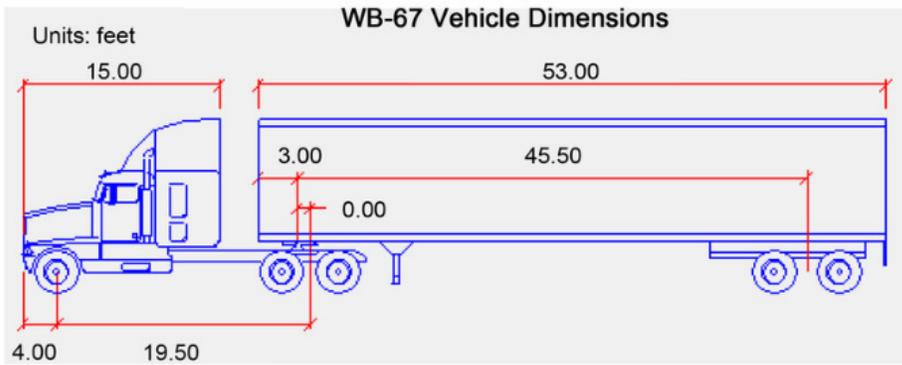
- Analyze opportunity to reduce the radius of the right turn from southbound Mystic Ave to southbound McGrath Highway
- Looked at (4) concepts
 - Vary in design vehicle and lane adjustment



Mystic Ave Right Turn

Concept 1

- WB-67 and SU-30 making concurrent turn
- Most conservative
- 385 sf reduction in pavement



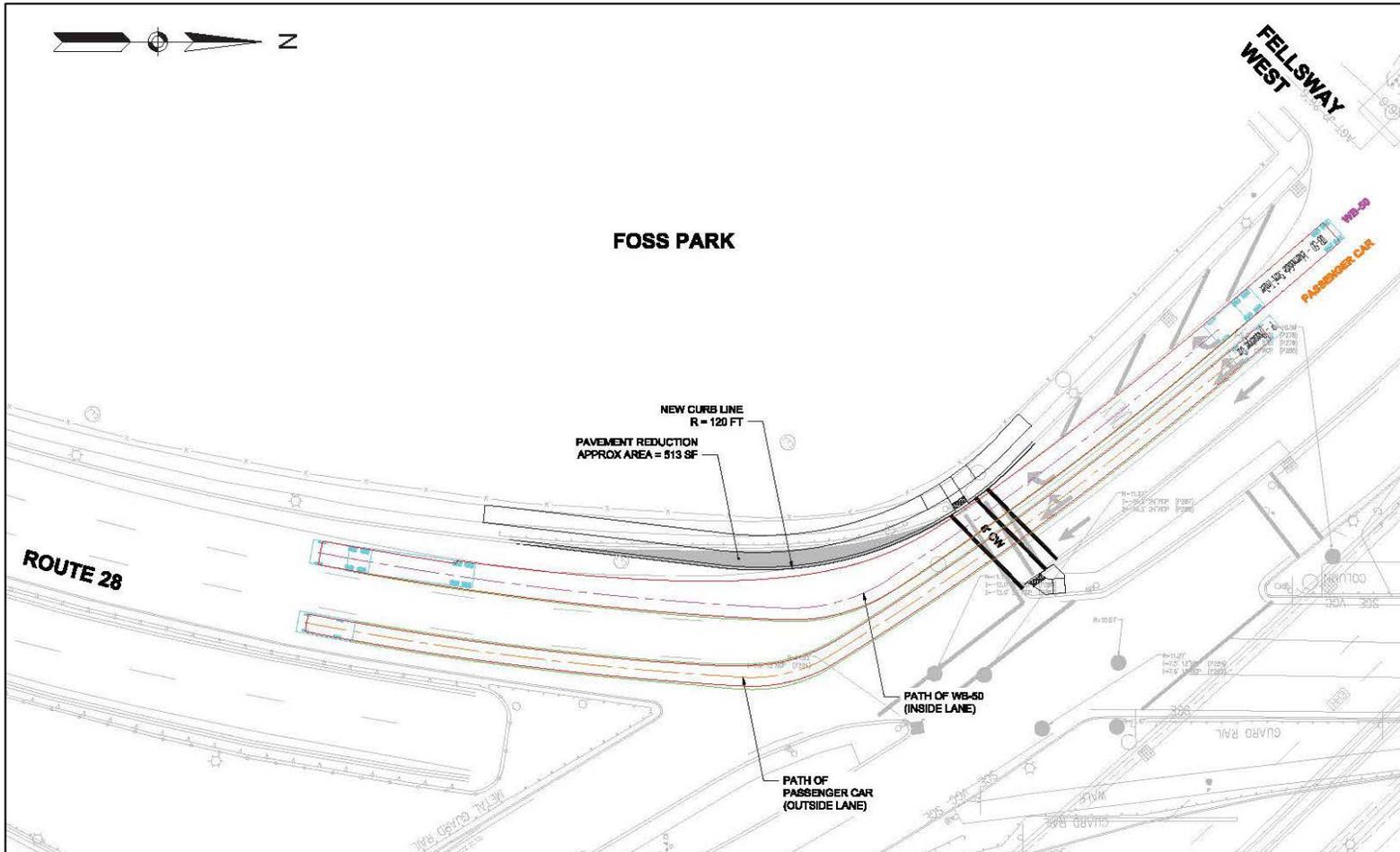
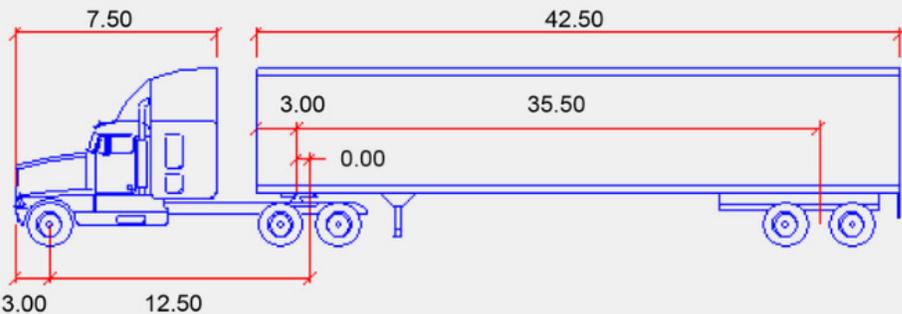
Mystic Ave Right Turn

Concept 2

- WB-50 and passenger car making concurrent turn
- Allow for tighter curb radius
- 513 sf reduction in pavement

WB-50 Vehicle Dimensions

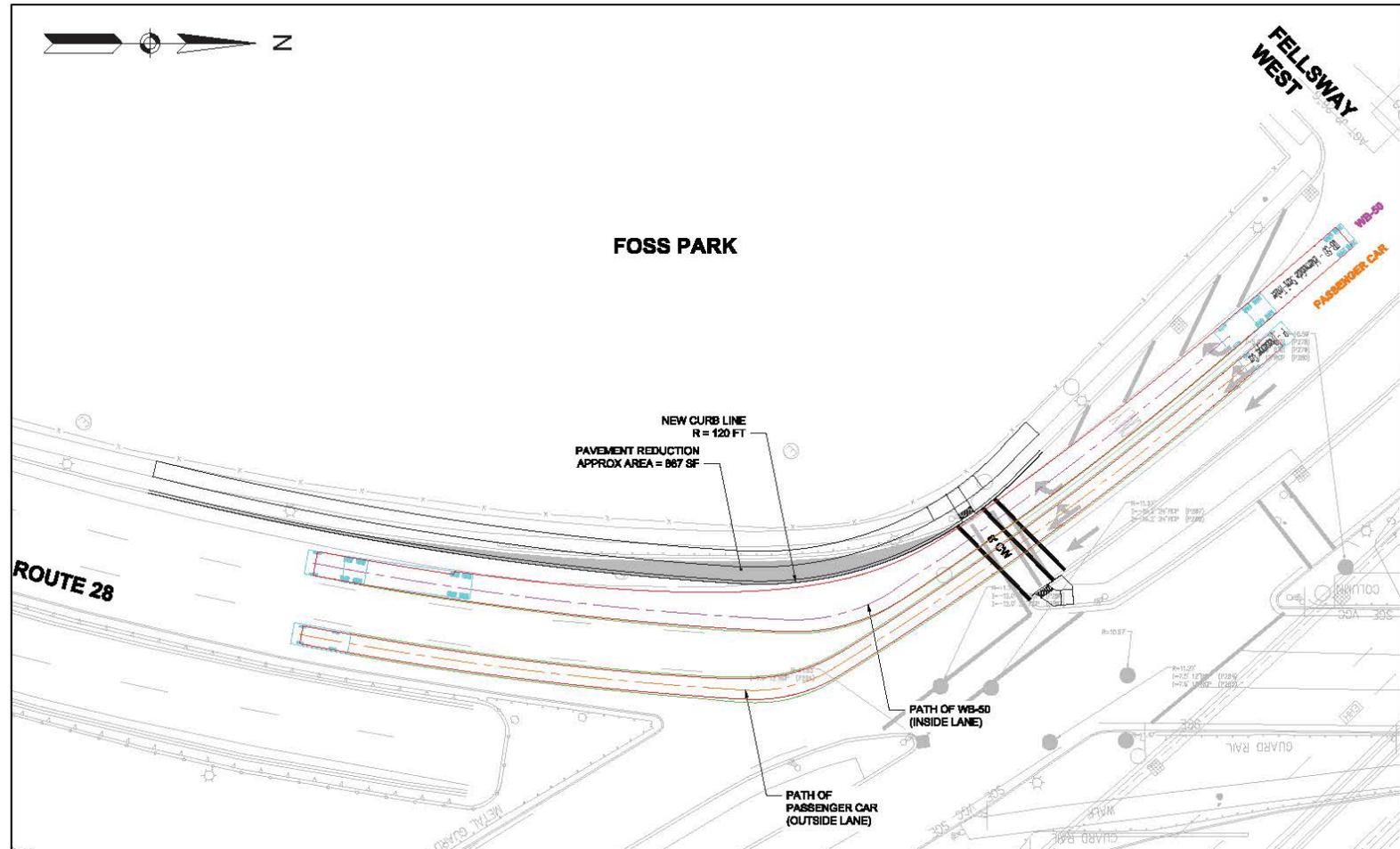
Units: feet



Mystic Ave Right Turn

Concept 3

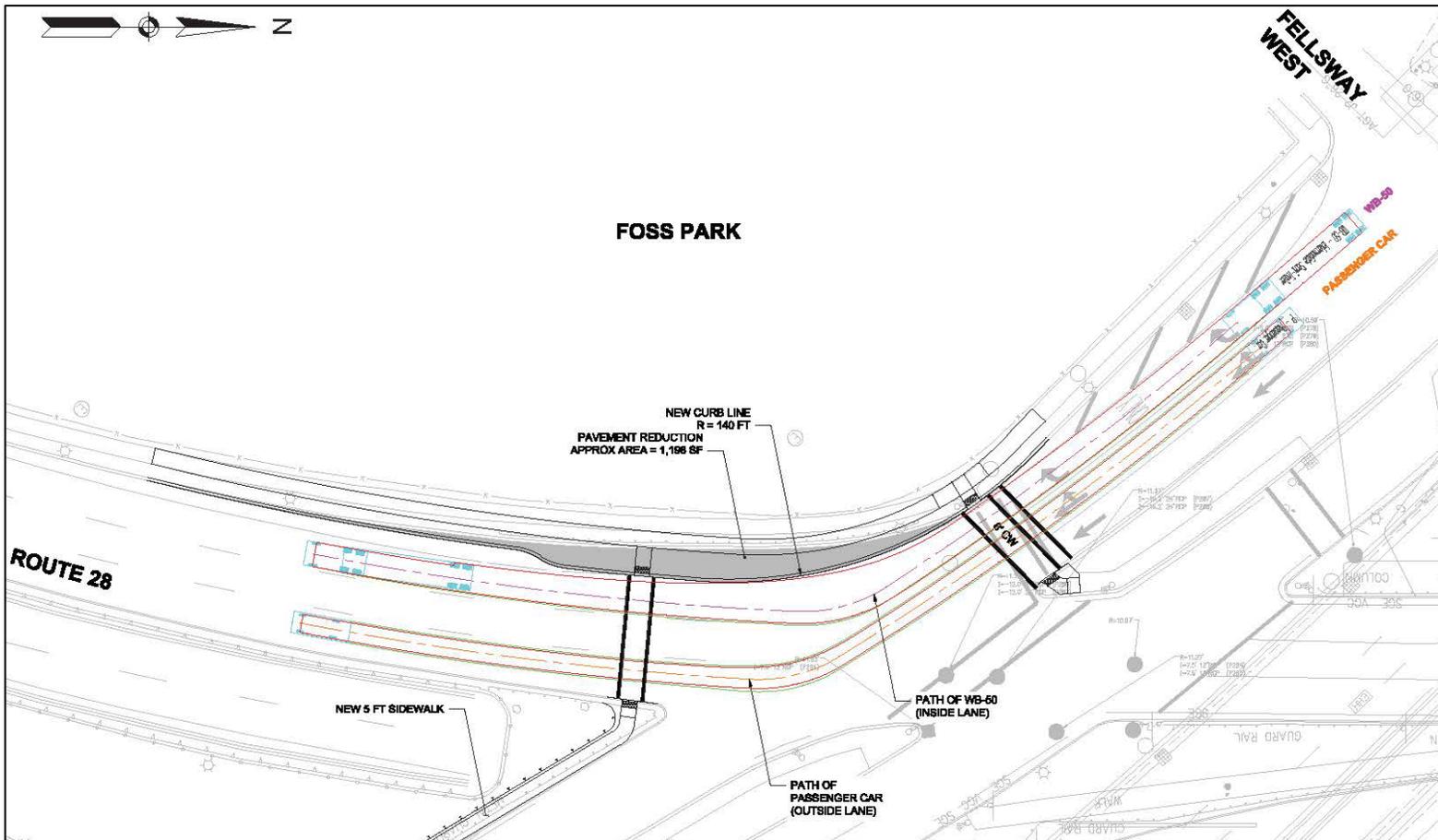
- WB-50 and passenger car making concurrent turn
- Reduction in Route 28 shoulder width
- 867 sf reduction in pavement



Mystic Ave Right Turn

Concept 4

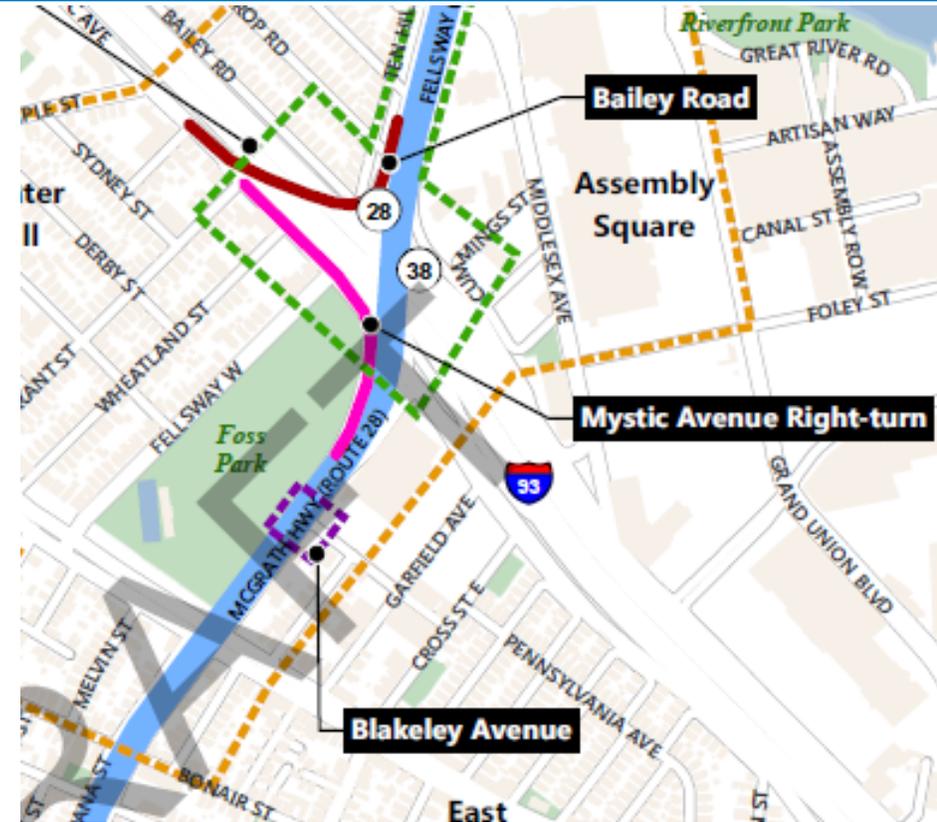
- WB-50 and passenger car making concurrent turn
- Reduction in Route 28 shoulder width
- Pedestrian accommodations:
 - Curb extension
 - New crosswalk
 - 5' sidewalk connection along Route 38
- 1,200 sf reduction in pavement



Mystic Ave Right Turn

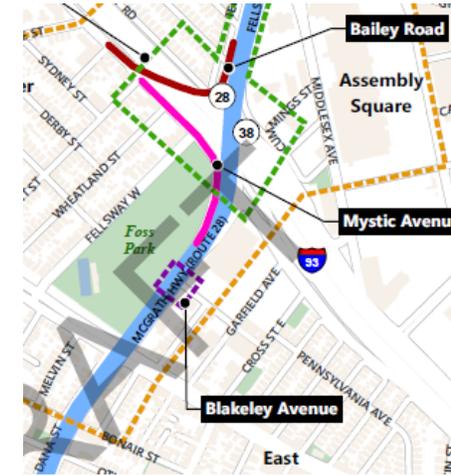
RECOMMENDATIONS

- Likely to be *partially* included in the next phase of design
- Concept 4 to be advanced for further analysis
- Could be incorporated with other area improvements



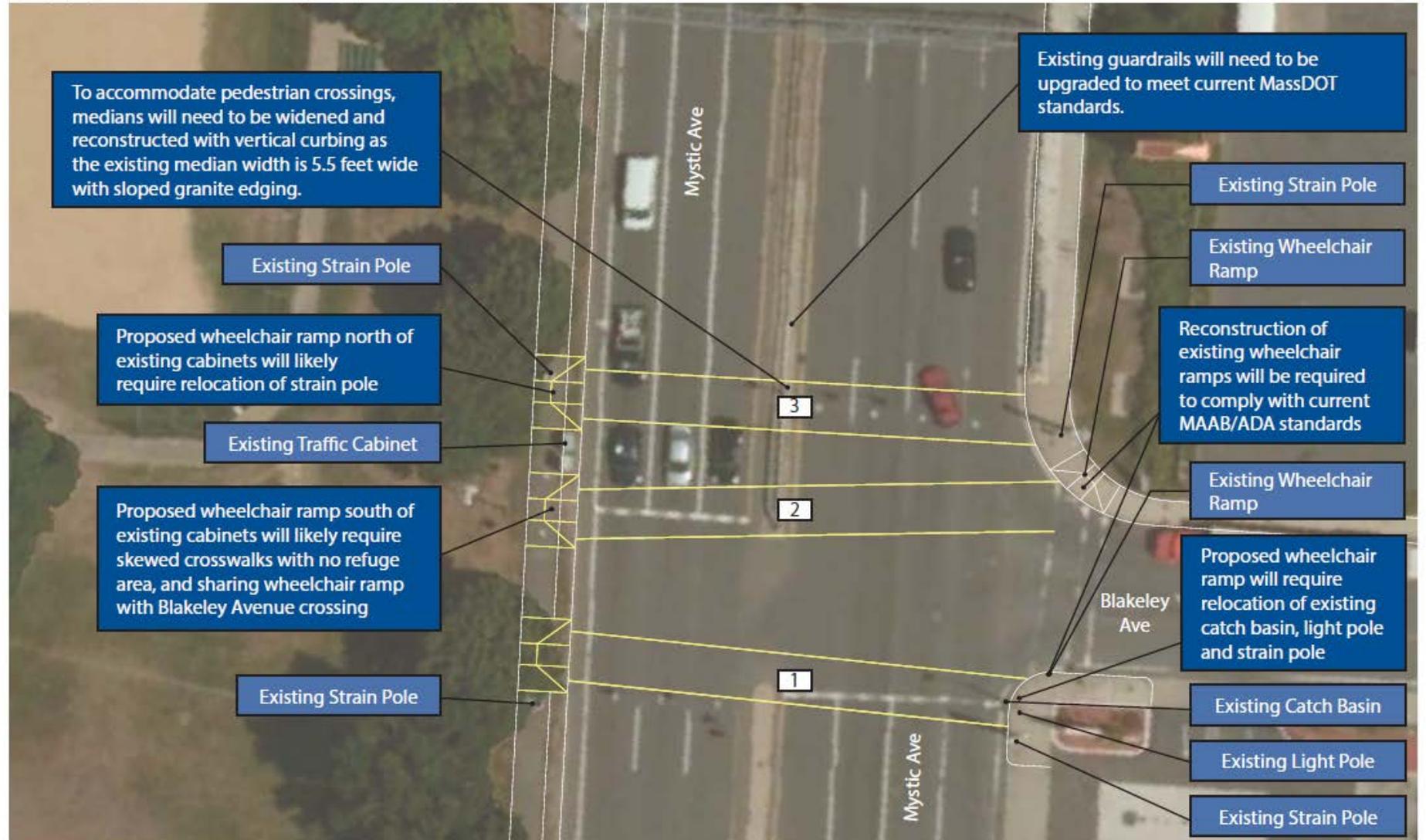
Blakeley Avenue

- Major desire line through Foss Park across McGrath to Blakeley Avenue
- Currently no pedestrian accommodations
- Analyzed 3 different locations for crosswalk



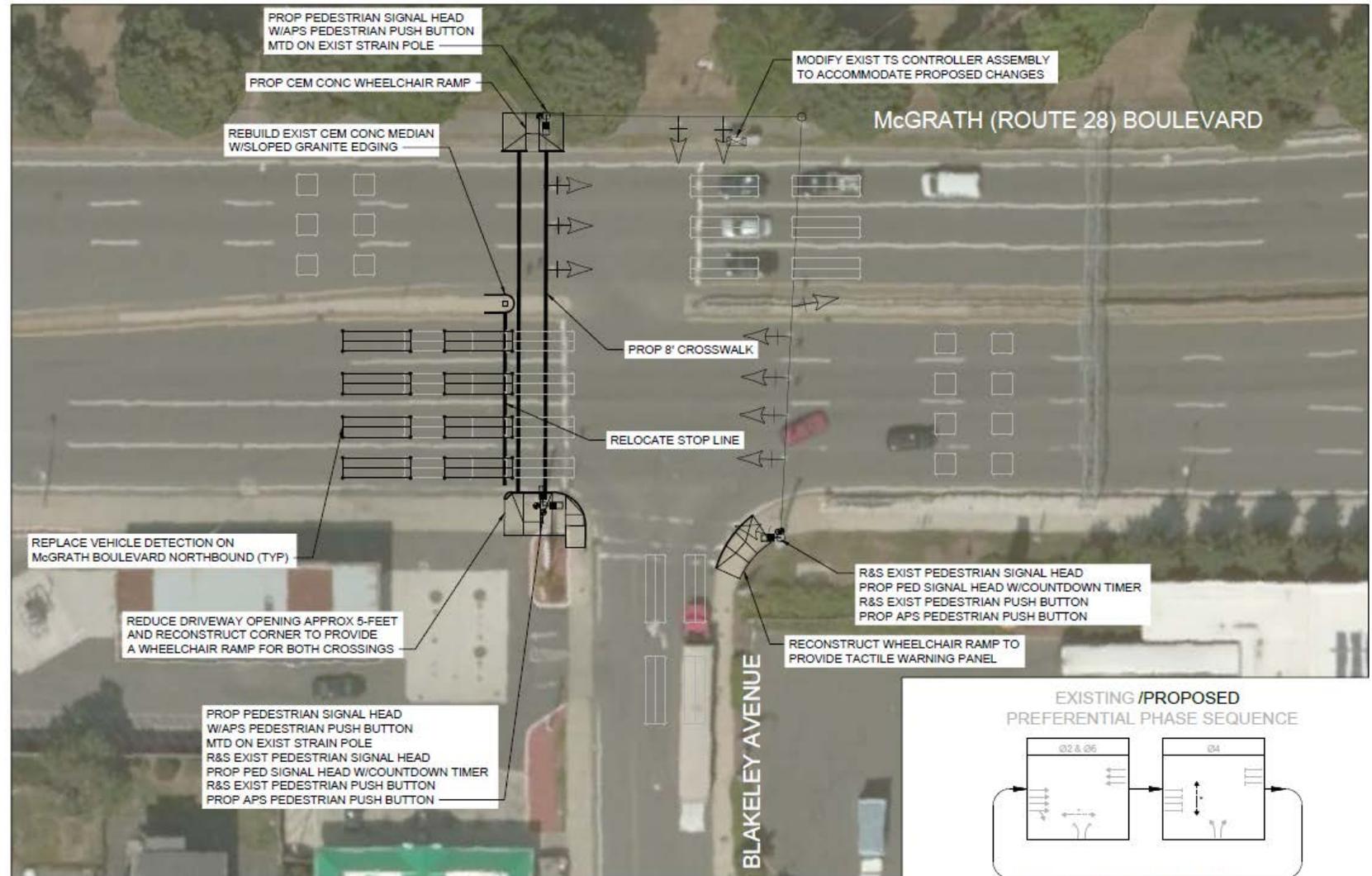
Blakeley Avenue

Three Options



Blakeley Avenue

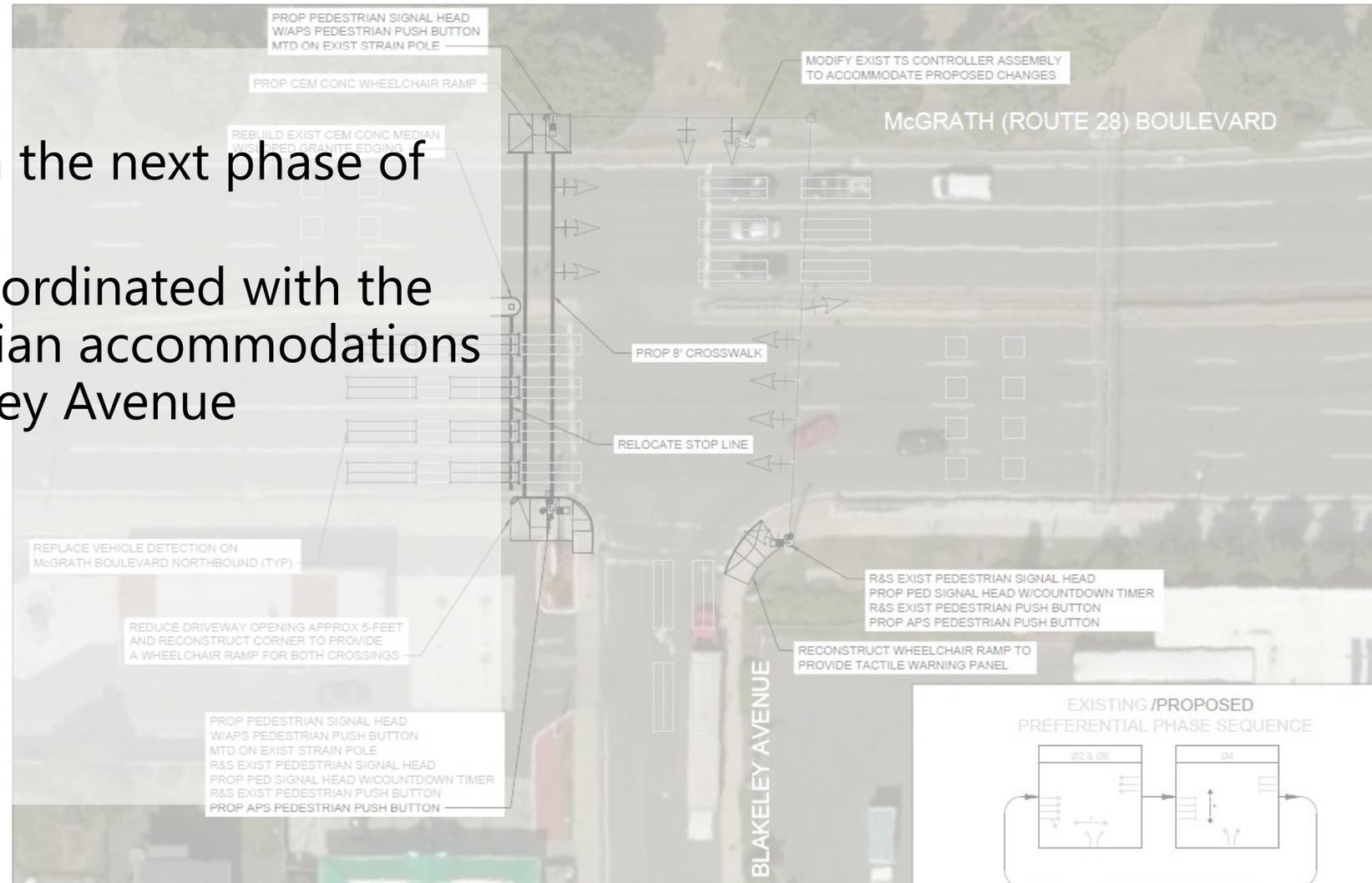
Recommendation



Blakeley Avenue

RECOMMENDATIONS

- Likely to be included in the next phase of design
- Design details to be coordinated with the City to include pedestrian accommodations on both sides of Blakeley Avenue



Signal Systems

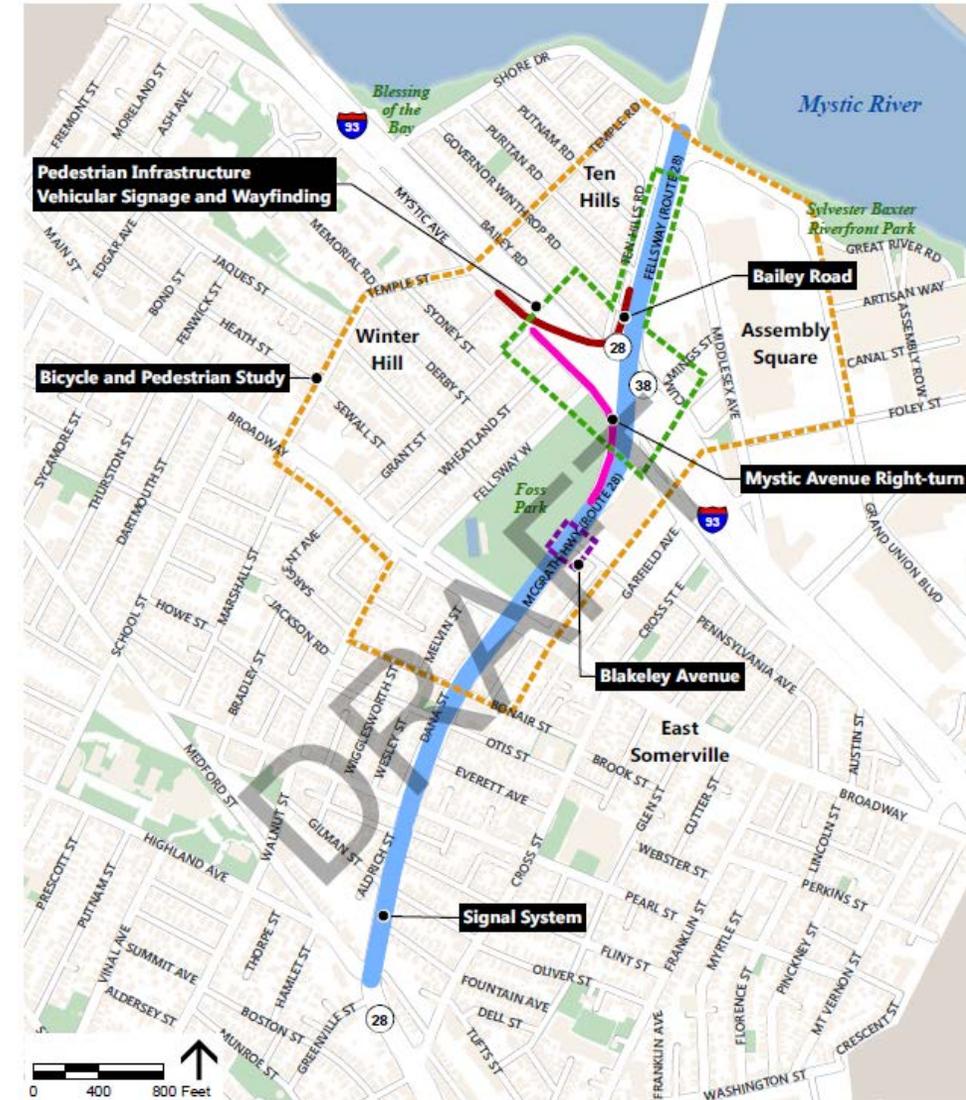
- Five intersections currently operate as a cluster:
 - Mystic Ave @ Wheatland St/Bailey Rd
 - Fellsway SB @ Mystic Ave/I-93 On-ramp
 - Fellsway SB @ Mystic Ave
 - Mystic Ave @ McGrath Hwy NB
 - I-93 SB On-Ramp @ Mystic Ave U-turn



Signal Systems

FINDINGS

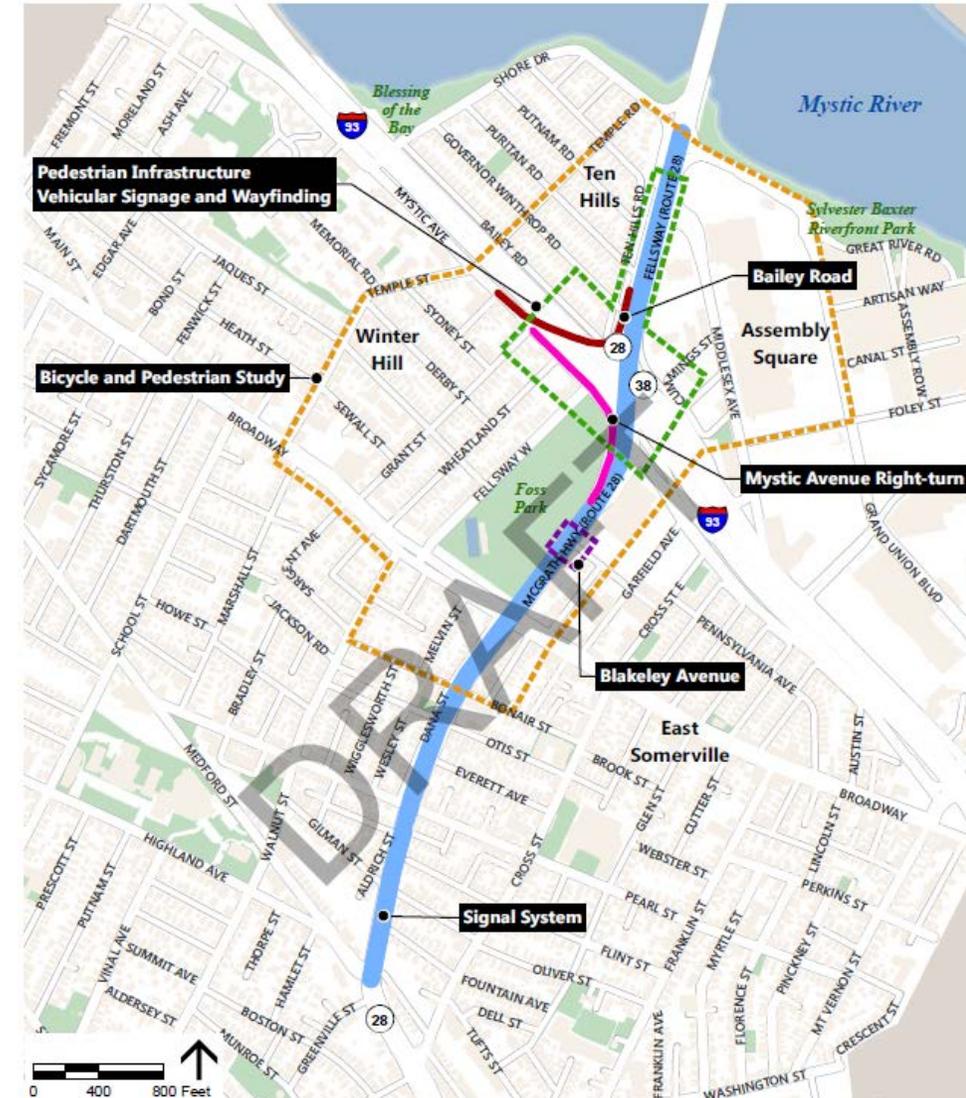
- Pedestrian clearance intervals need to be re-evaluated
- Vehicle clearance intervals vary by movement
- Cluster configuration limits signal flexibility for individual movements/locations



Signal Systems

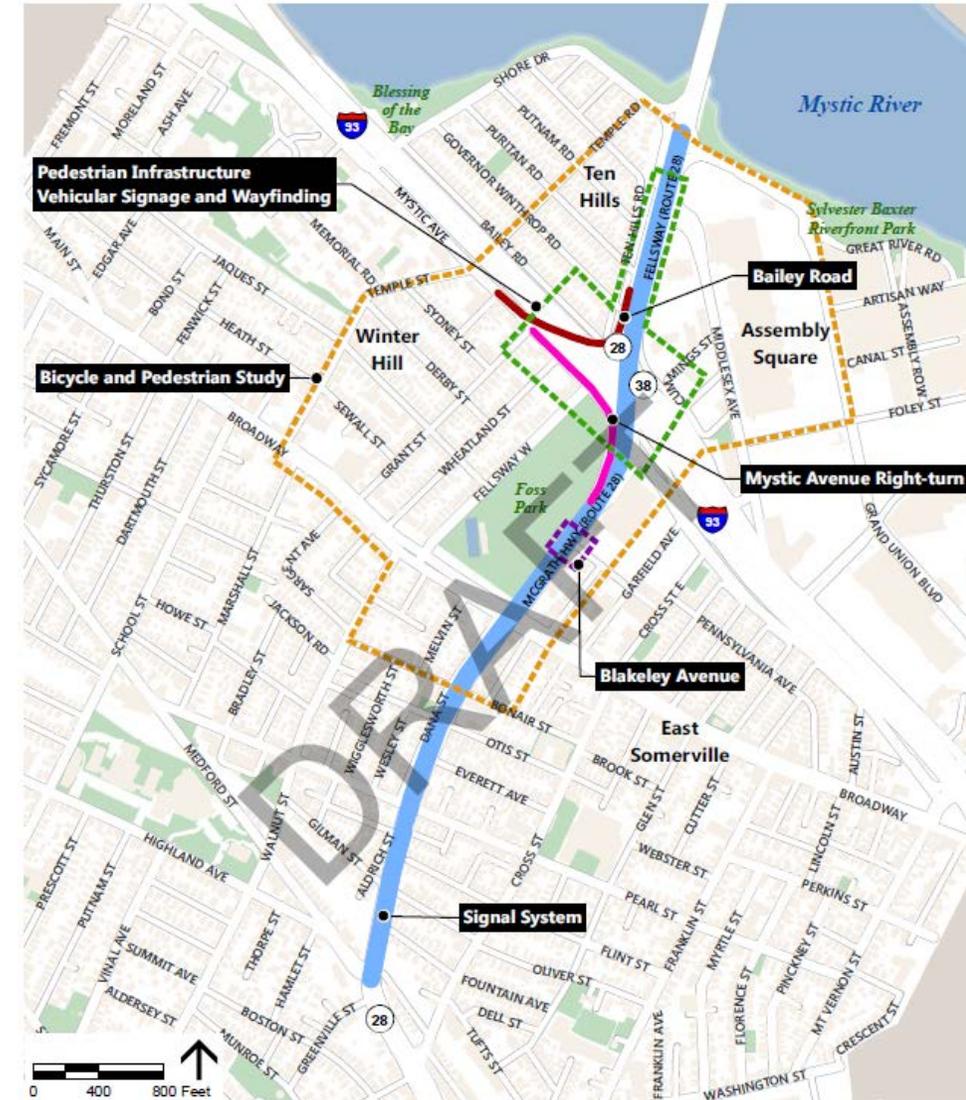
Evaluated multiple concepts:

- Fully actuated operation on all approaches
 - Primary benefits in the off-peak
 - Would require detection equipment on all approaches
- Separate into five individual controllers with coordination
 - Would require maintaining tight coordination through communication and actuation for all approaches
 - Operational benefits
 - Complex infrastructure (conduit, communication, reconstruction of sidewalk & curb ramps)
 - Will be compatible with adaptive signal control



Signal Systems

- Transit Signal Priority (TSP)
 - Can improve service and reduce delay for buses at signalized intersections
 - Can consider optimizing operations for late buses only
 - Potential to incorporate TSP to accommodate Route 95 along Mystic Ave at Route 28
 - Not identified as an MBTA priority at these locations
- Adaptive Signal Control Technology (ASCT)
 - Detect real-time traffic demand data
 - Conditionally adjust traffic signal timing
 - Better anticipates traffic flow
 - Provides flexibility for all modes

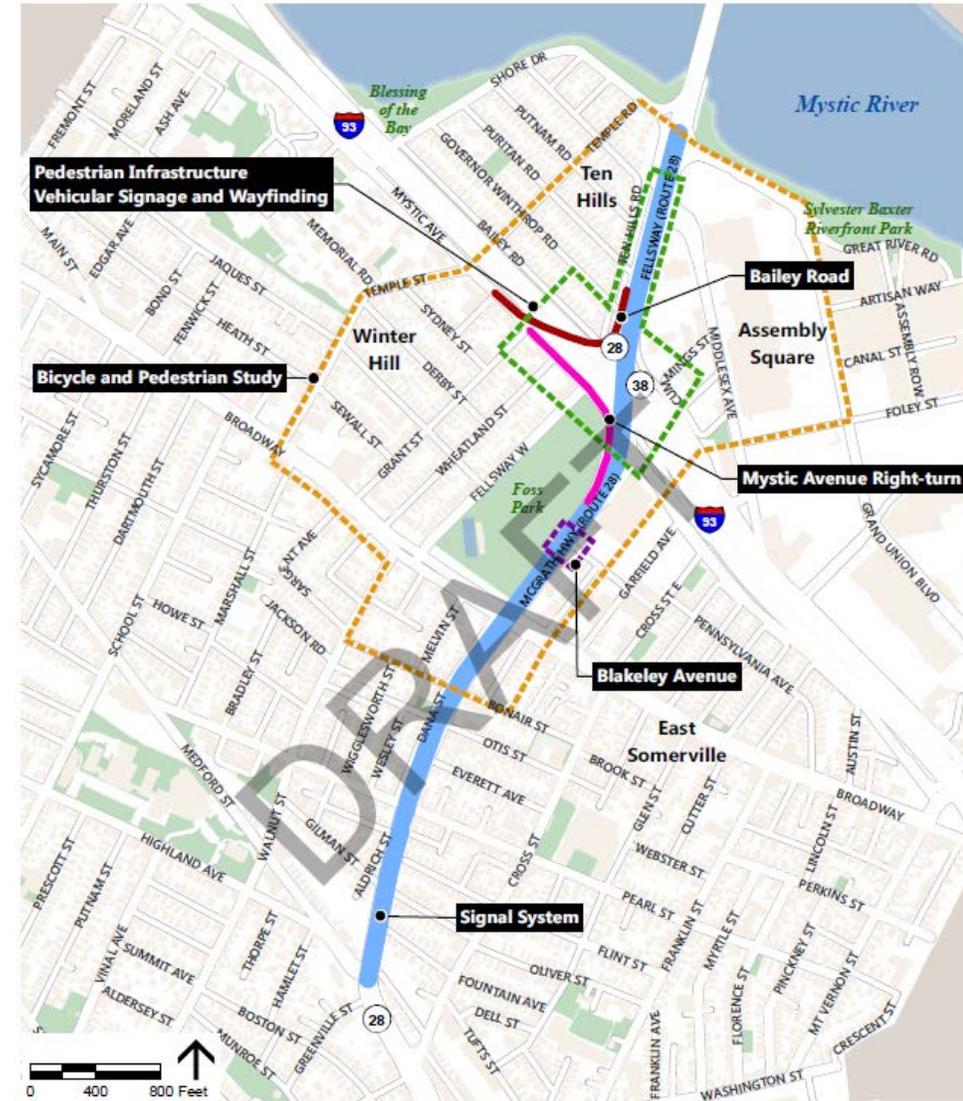


Signal Systems

RECOMMENDATIONS

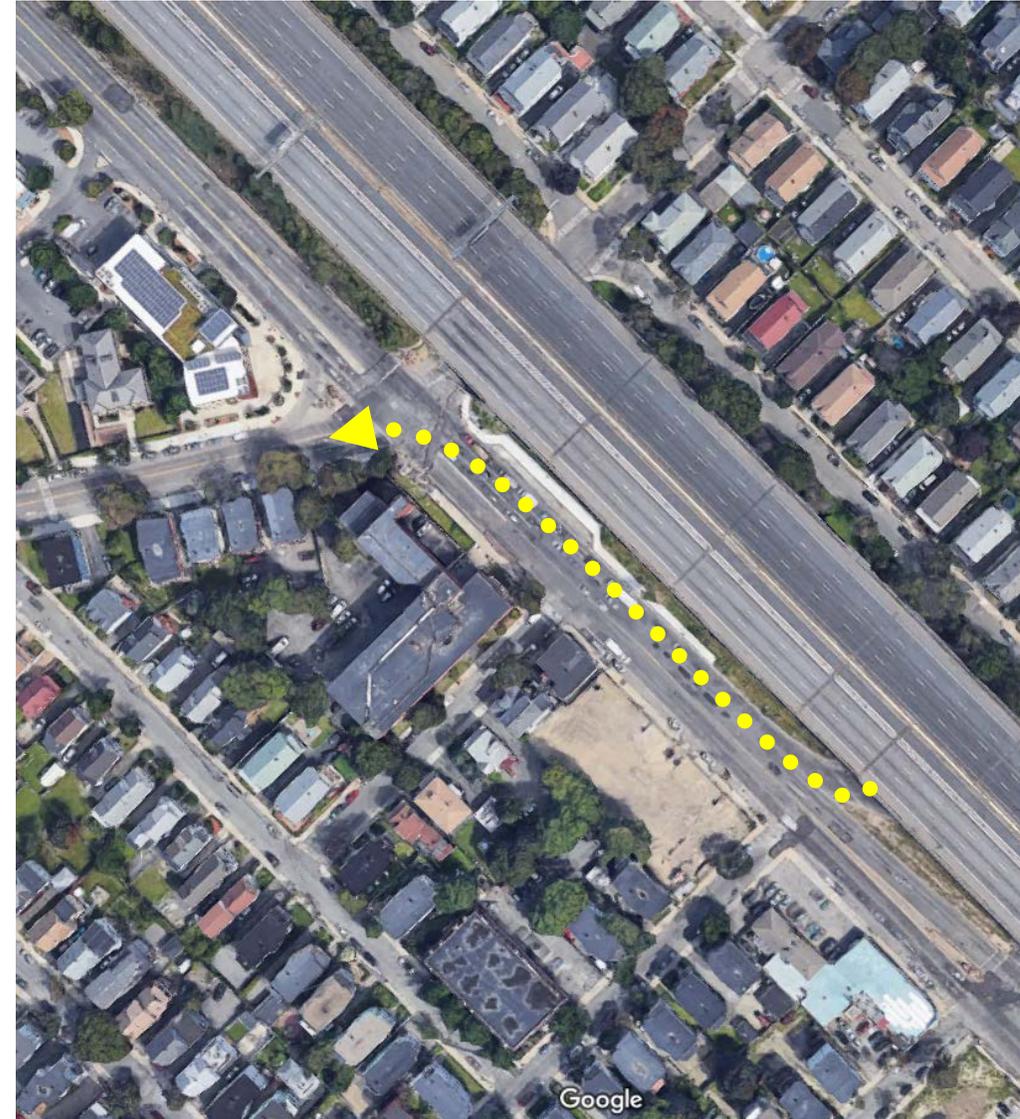
- Update pedestrian and vehicle clearance intervals at Route 28 at Broadway
- Consider installing detection on all approaches for fully actuated operation
- Explore feasibility of separating the five intersection cluster
- Consider ASCT
- Likely to be included as part of the next phase

Note: All concepts would likely require replacement of all signal equipment and would include reconstruction of sidewalks and curb ramps.



Bailey Road

- Analyze opportunity to improve traffic operations and safety along Mystic Avenue, between Bailey Road merge and Temple Street
- Considered 8 alternatives



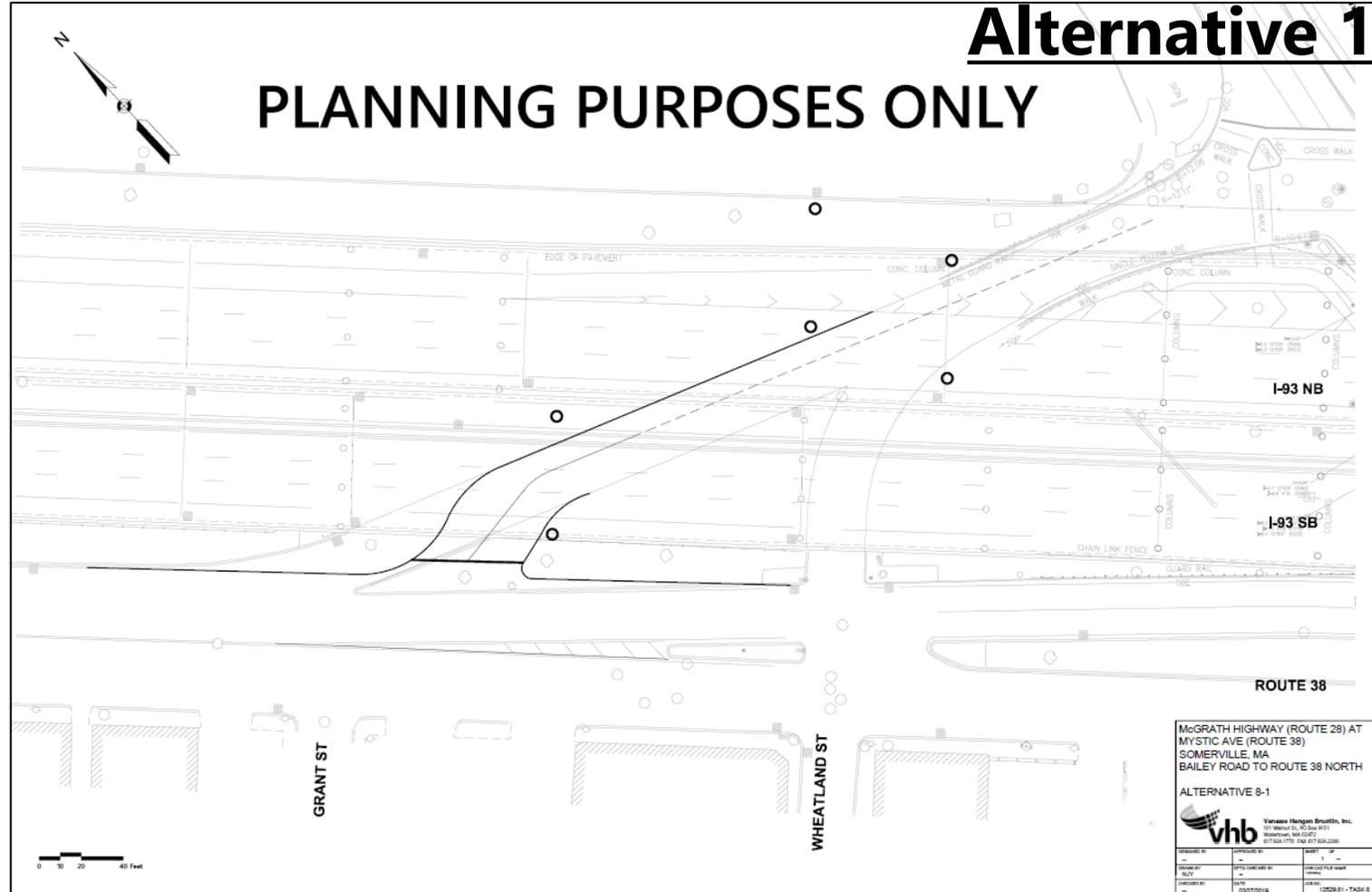
Bailey Road

Alternative 1

- Perpendicular approach with Mystic Avenue

Alternative 2

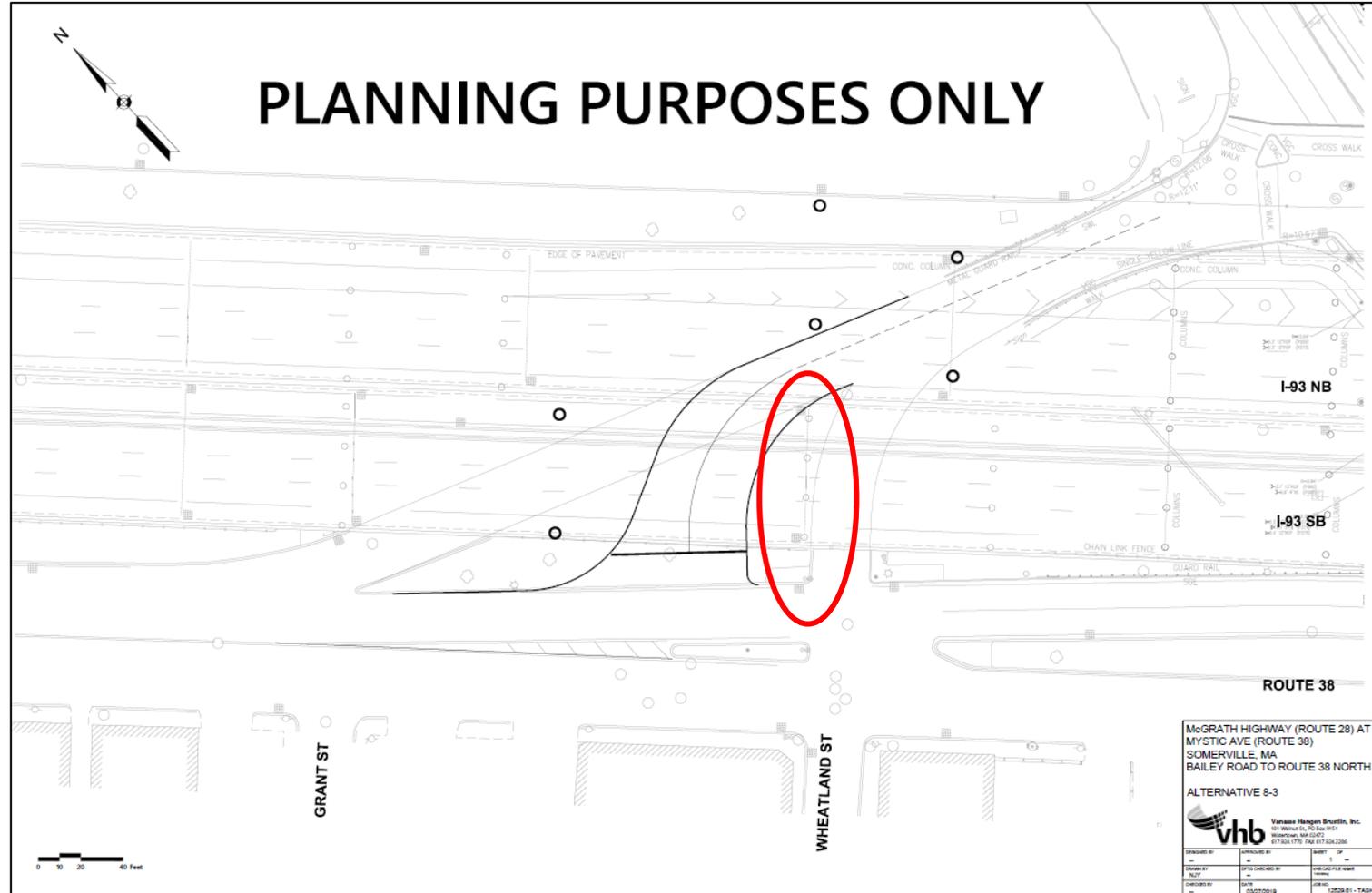
- Signaling Alternative 1 (Bailey Road merge with Mystic Ave)



Bailey Road

Alternative 3

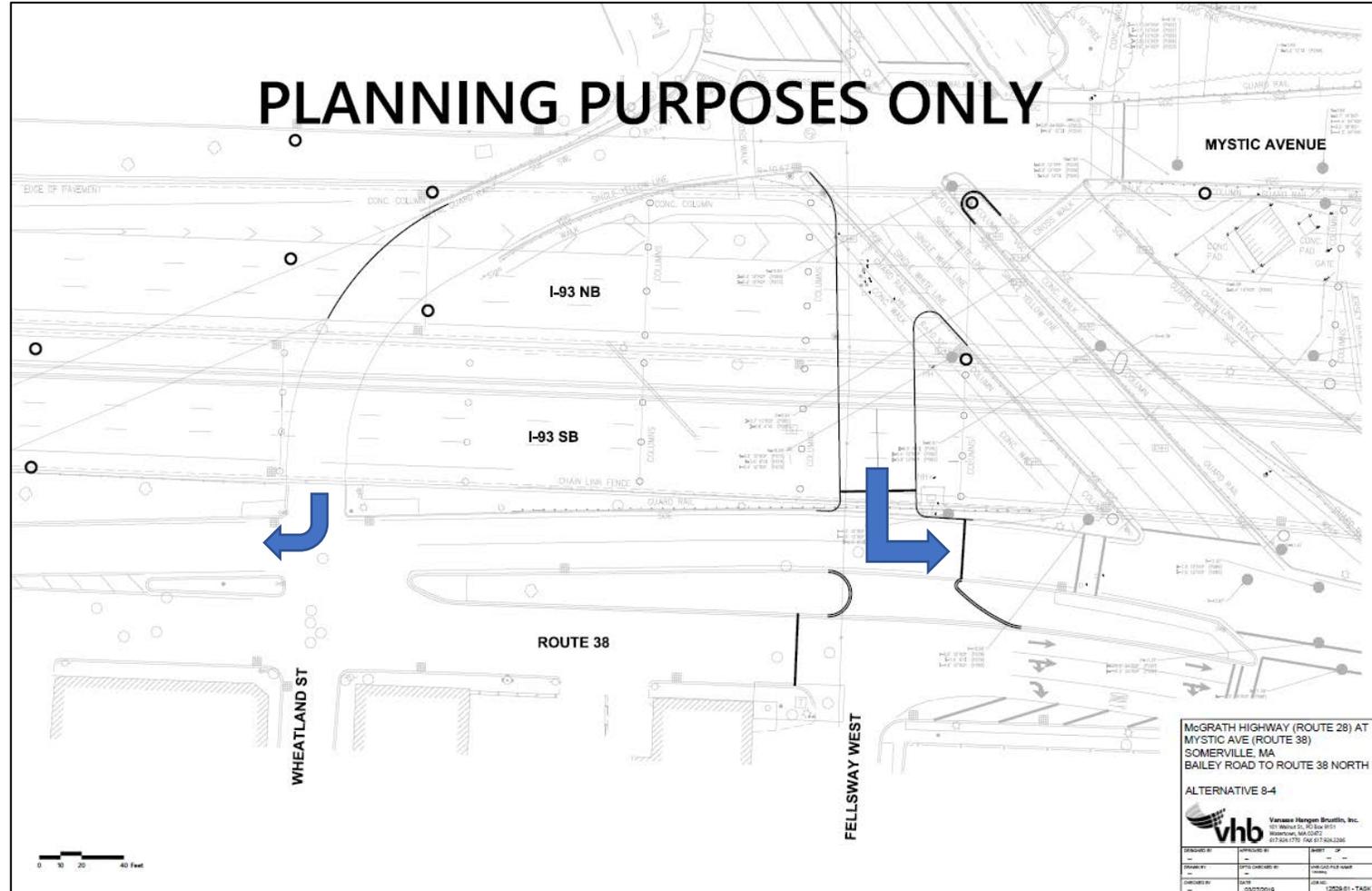
- Eliminate merge roadway and add right-turn across from Wheatland Street
- Need to avoid existing support columns



Bailey Road

Alternative 4

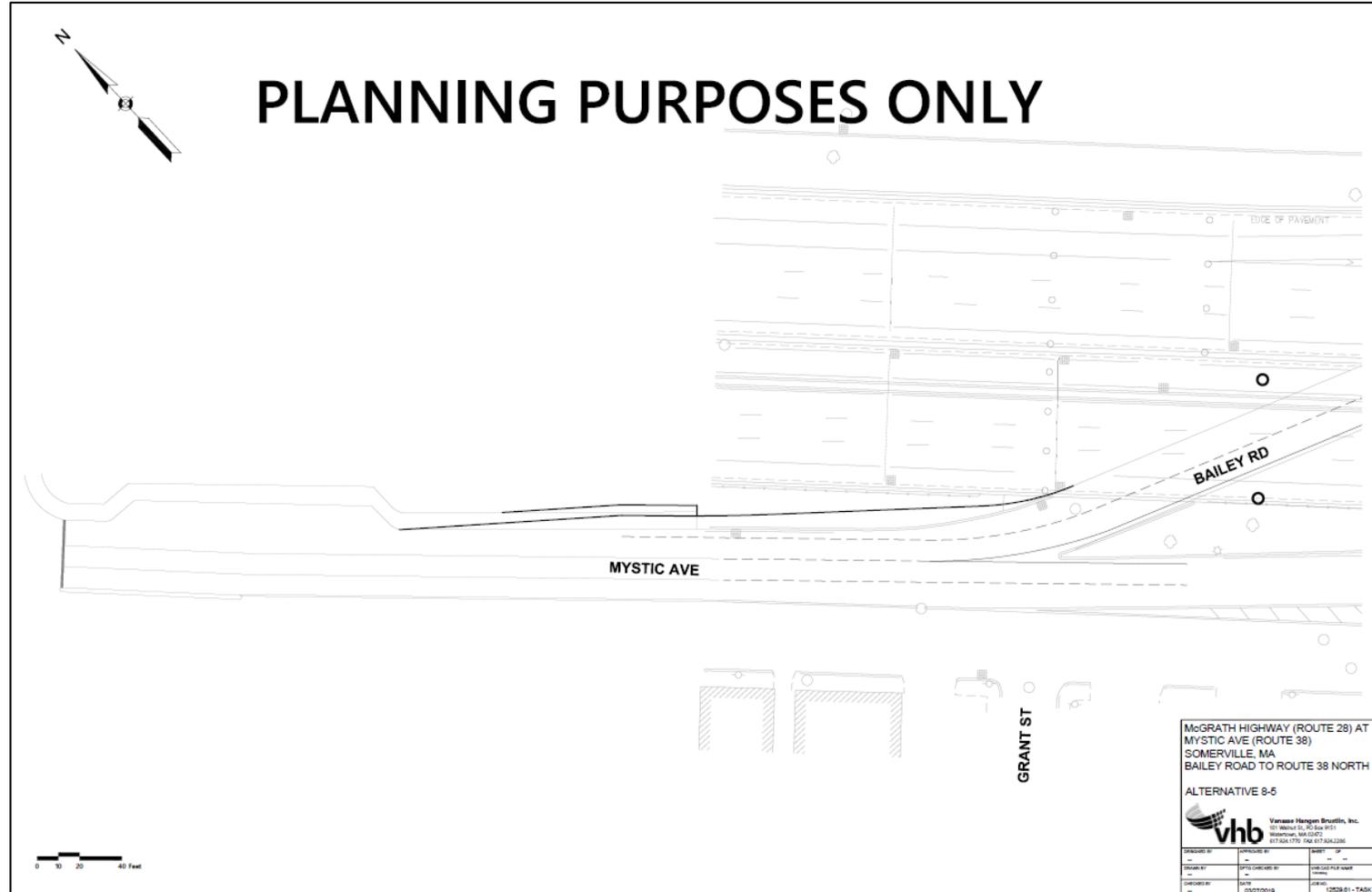
- Move left-turns closer to Route 28/38 intersection (across from Fellsway West)
- Move right turns across from Wheatland St
- Eliminate merge



Bailey Road

Alternative 5

- Add acceleration lanes from Bailey Road onto Mystic Avenue
- Requires shifting Mystic Ave cross section south



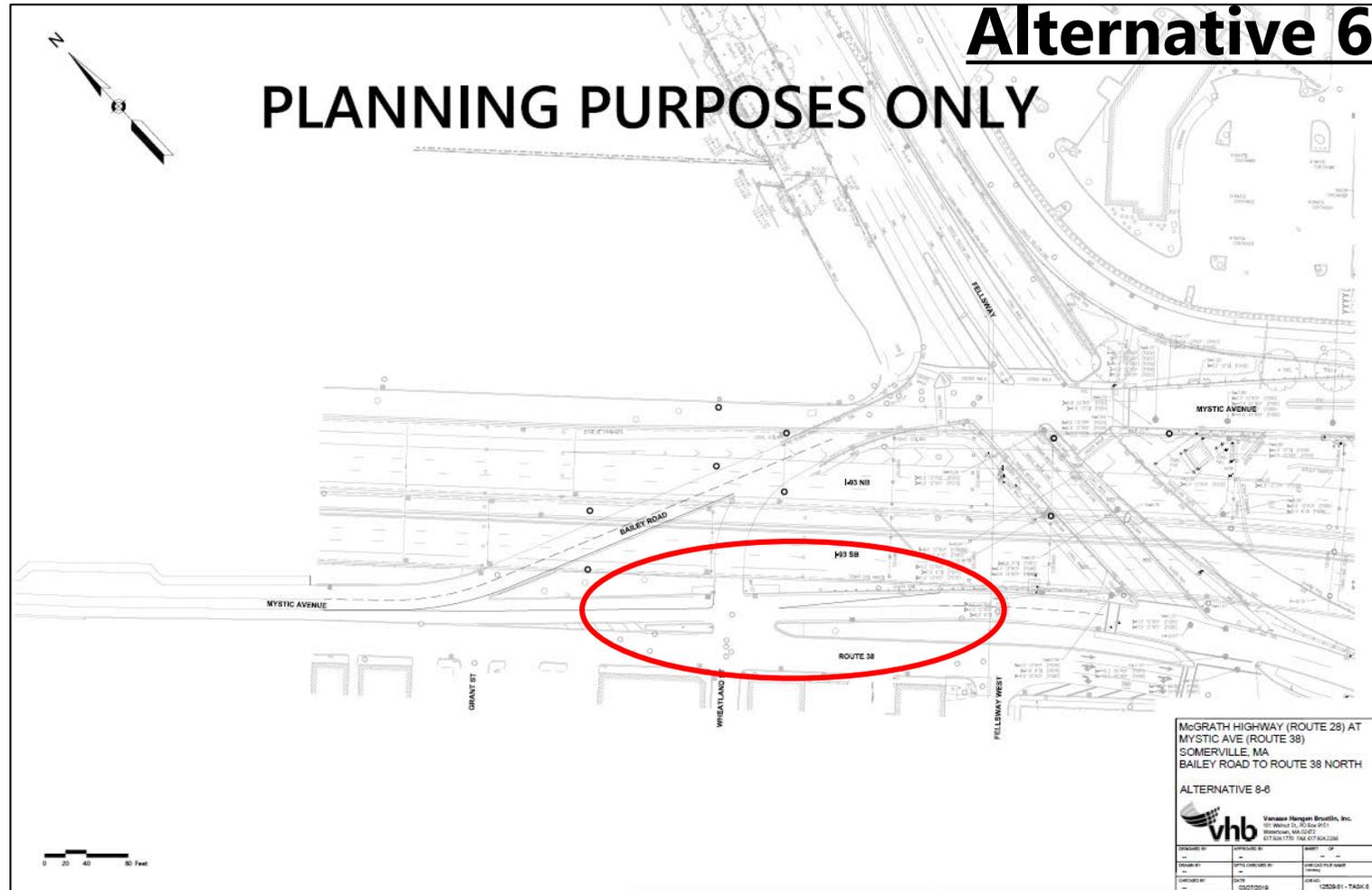
Bailey Road

Alternative 6

- Mystic Avenue westbound lane drop (one lane until Bailey Road merge)

Alternative 7

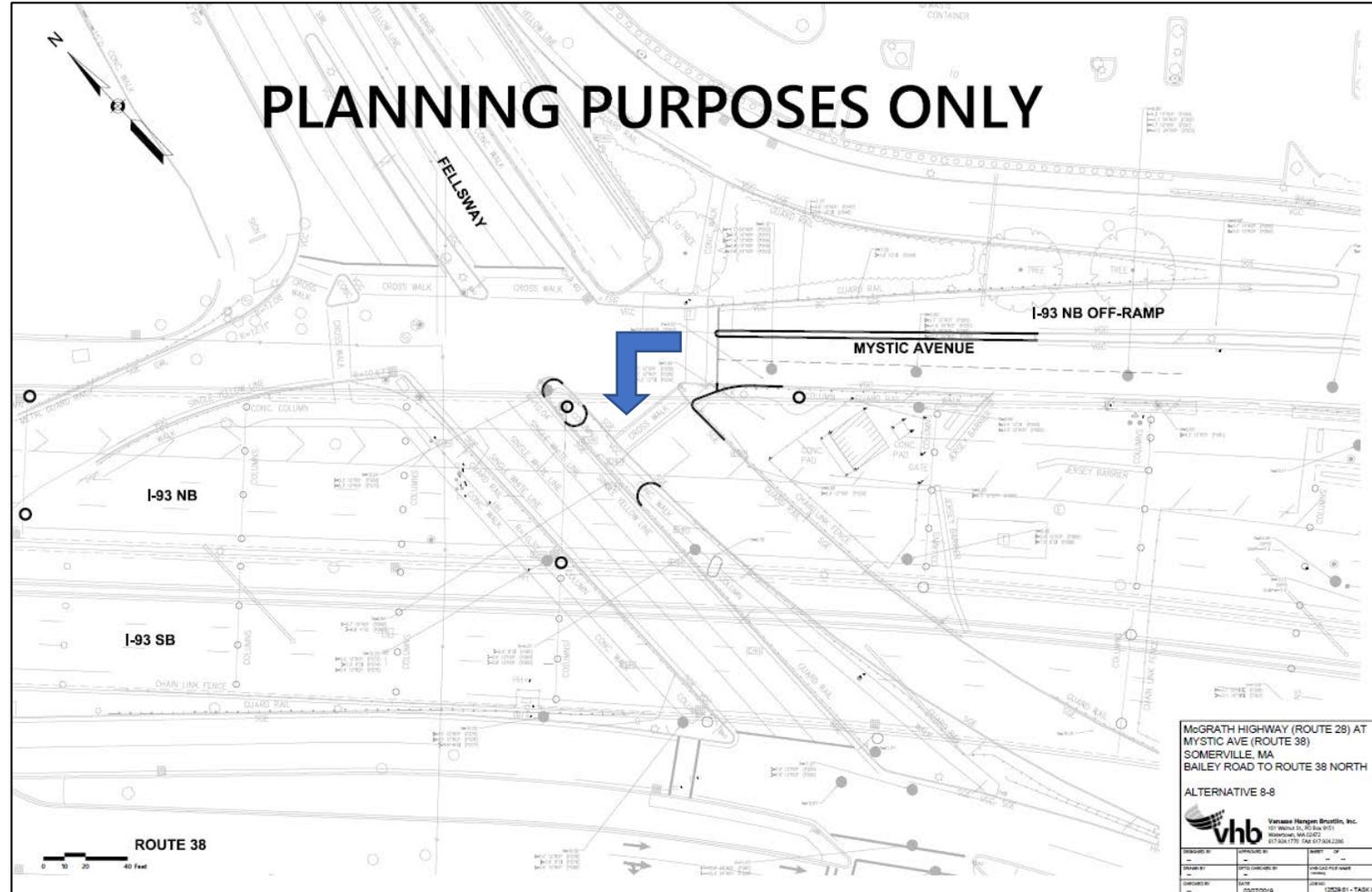
- Reversing one-ways (Grant Street, Wheatland Street)



Bailey Road

Alternative 8

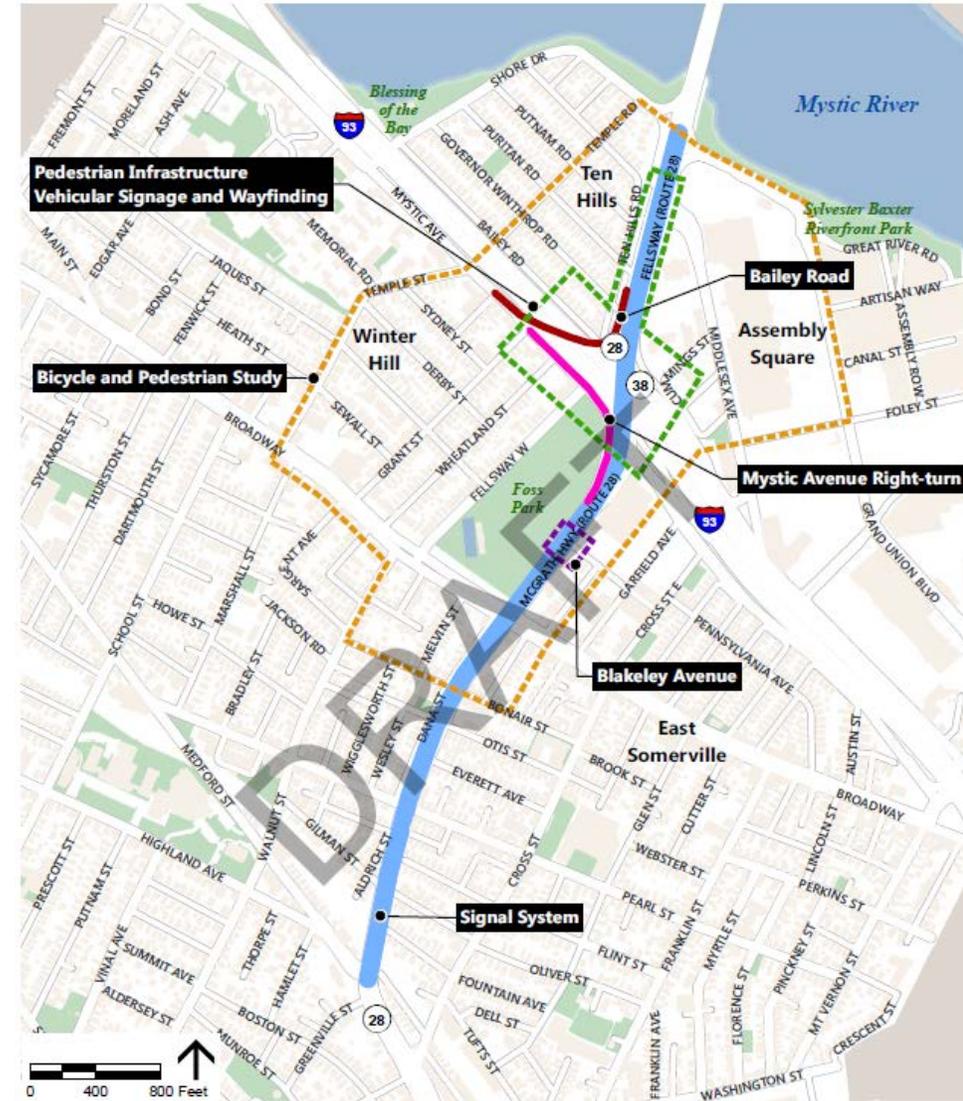
- Allow Route 38 NB and I-93 NB off-ramp traffic to turn left onto McGrath Highway Southbound



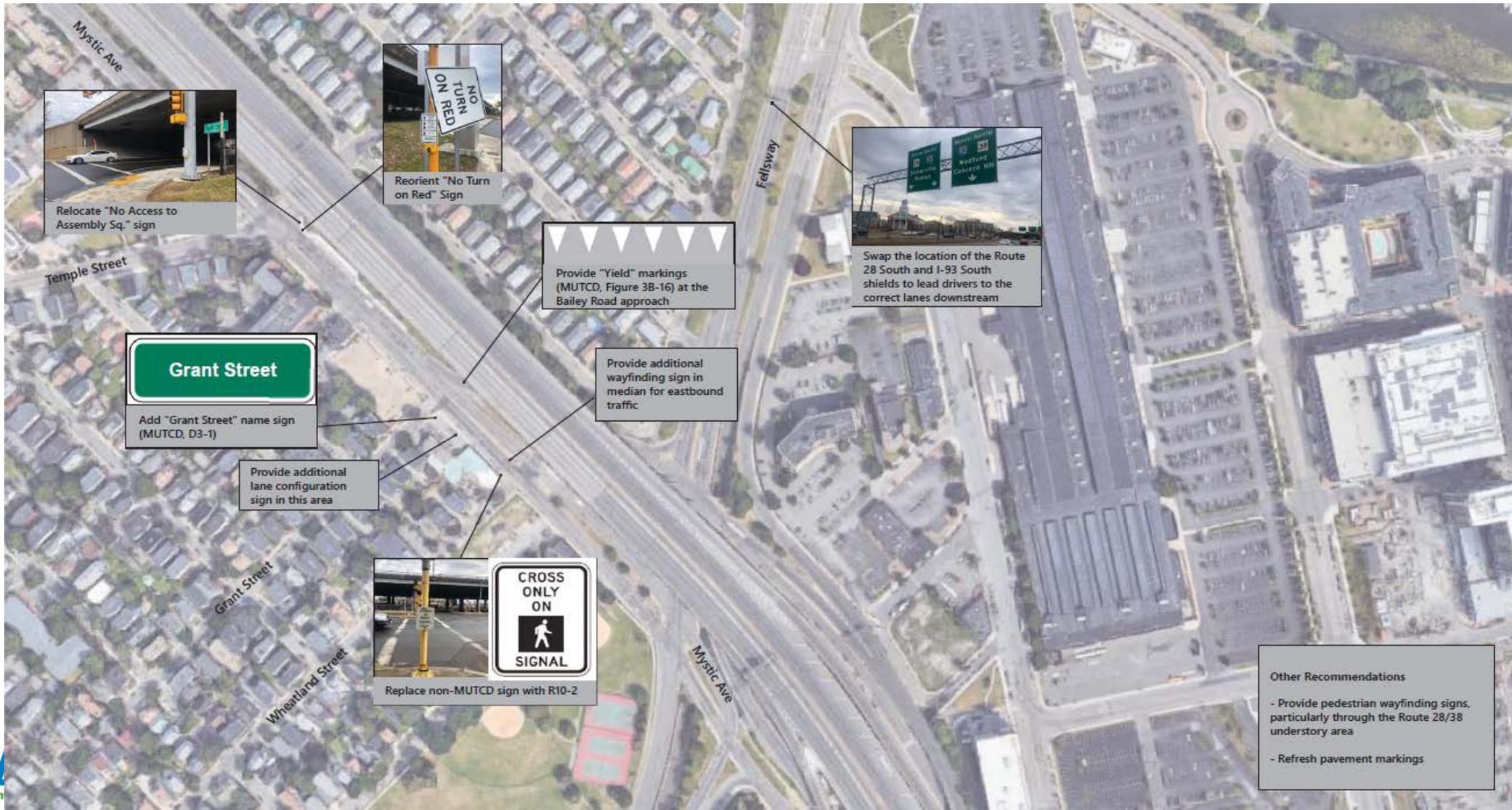
Bailey Road

RECOMMENDATIONS

- Consider realigning Bailey Road merge to be perpendicular with Mystic Avenue (Alternative 1)
- Analyze the potential to signalize Bailey Road merge with Mystic Avenue (Alternative 2)
- To be advanced as part of future project



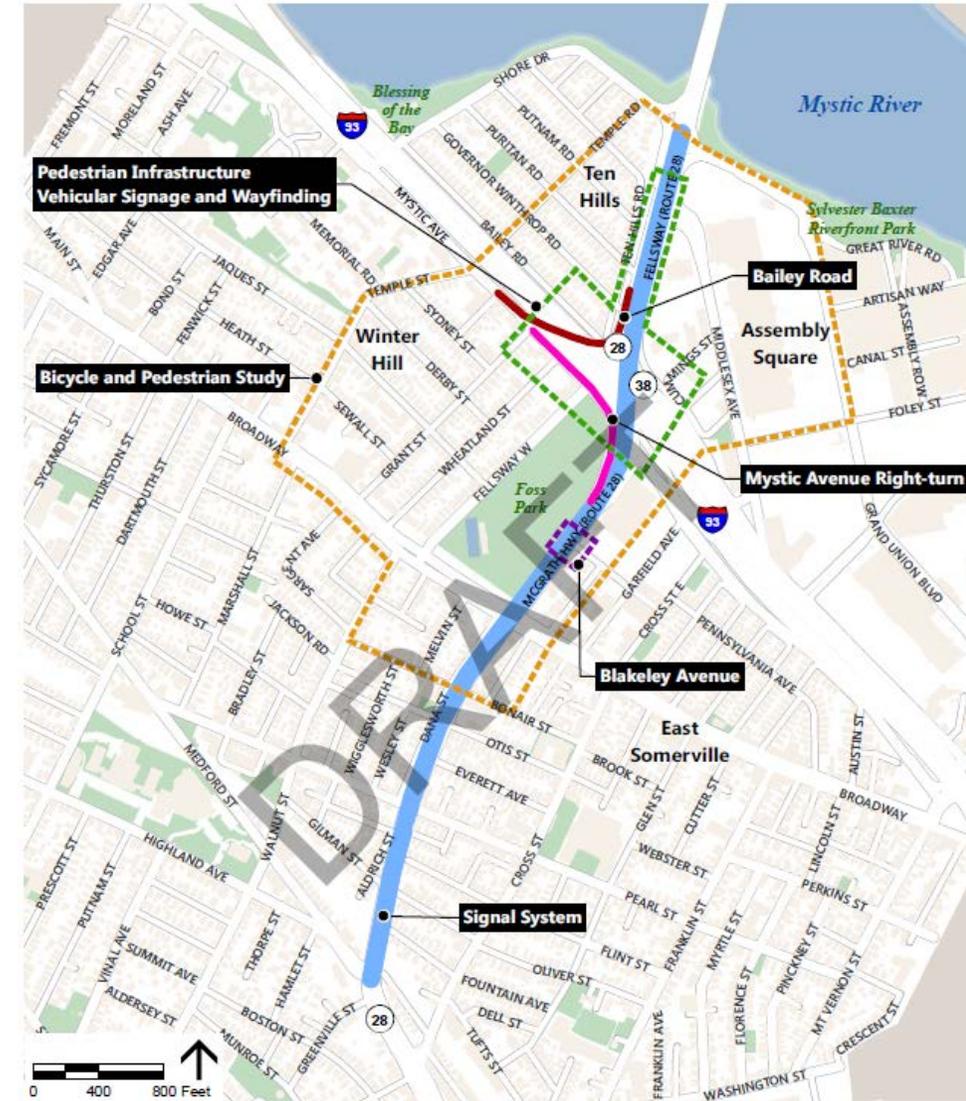
Vehicular Signage & Wayfinding



Vehicular Signage & Wayfinding

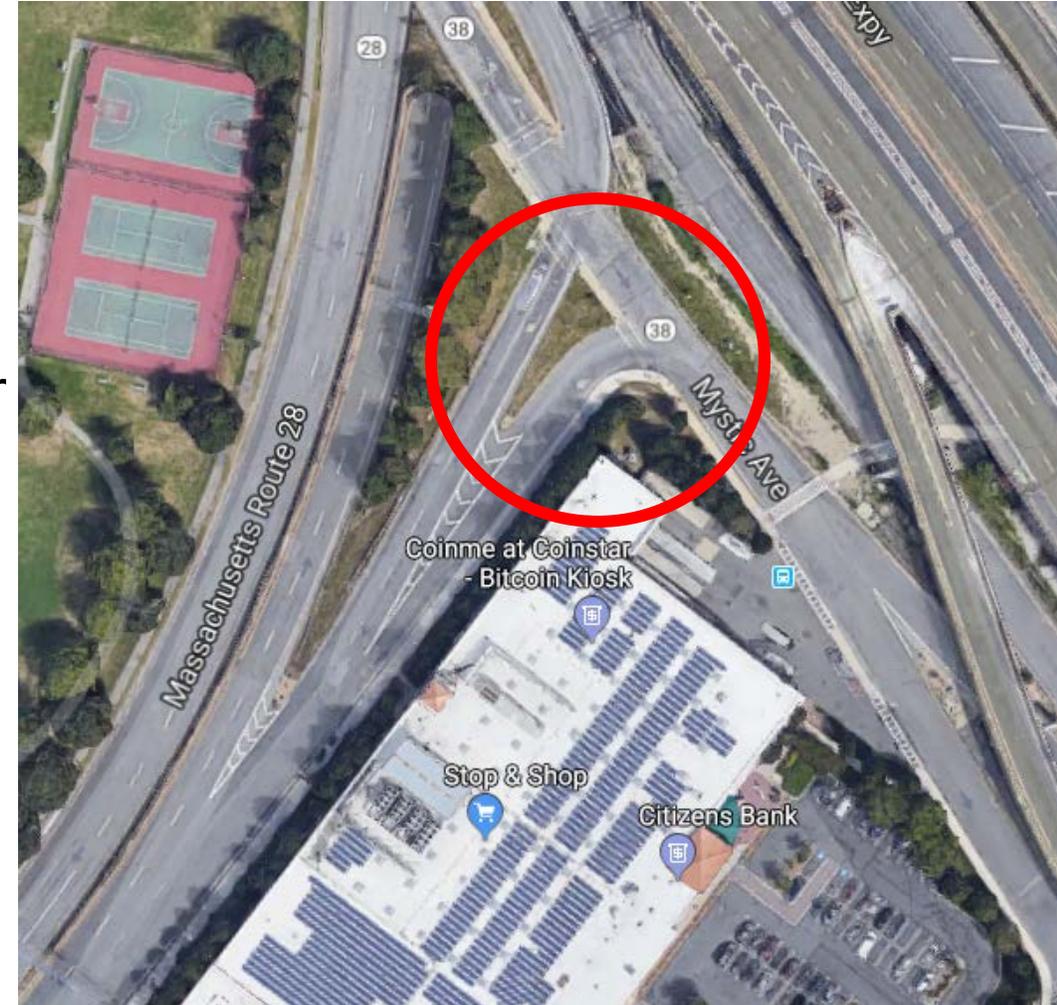
RECOMMENDATIONS

- Minor upgrades to improve drivers' wayfinding experience through this area
- Develop a complete signage & wayfinding program
- To be included as part of the next phase of this project
- Will be developed in line with other recommendations



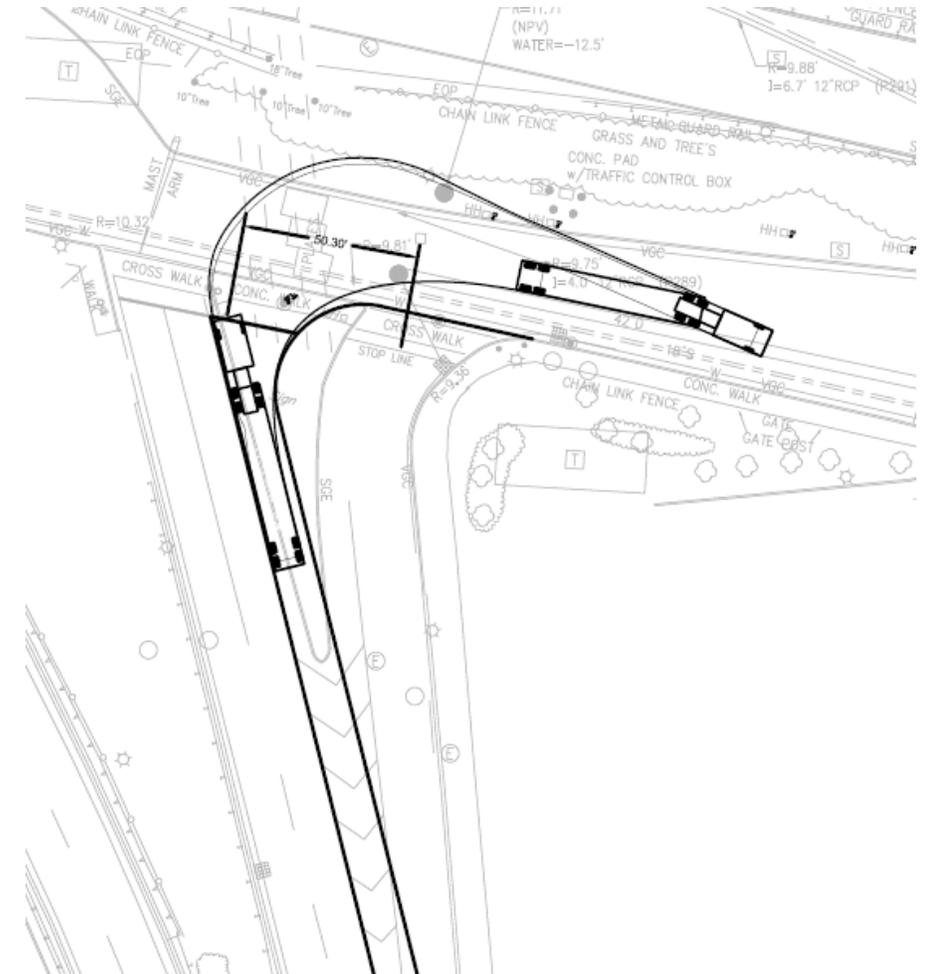
McGrath Right to Mystic Avenue

- Previously under a YIELD condition
- Recently updated to a STOP condition
- Additional pedestrian crossing
- Analyze opportunity to reduce the right turn or incorporate it into the existing intersection



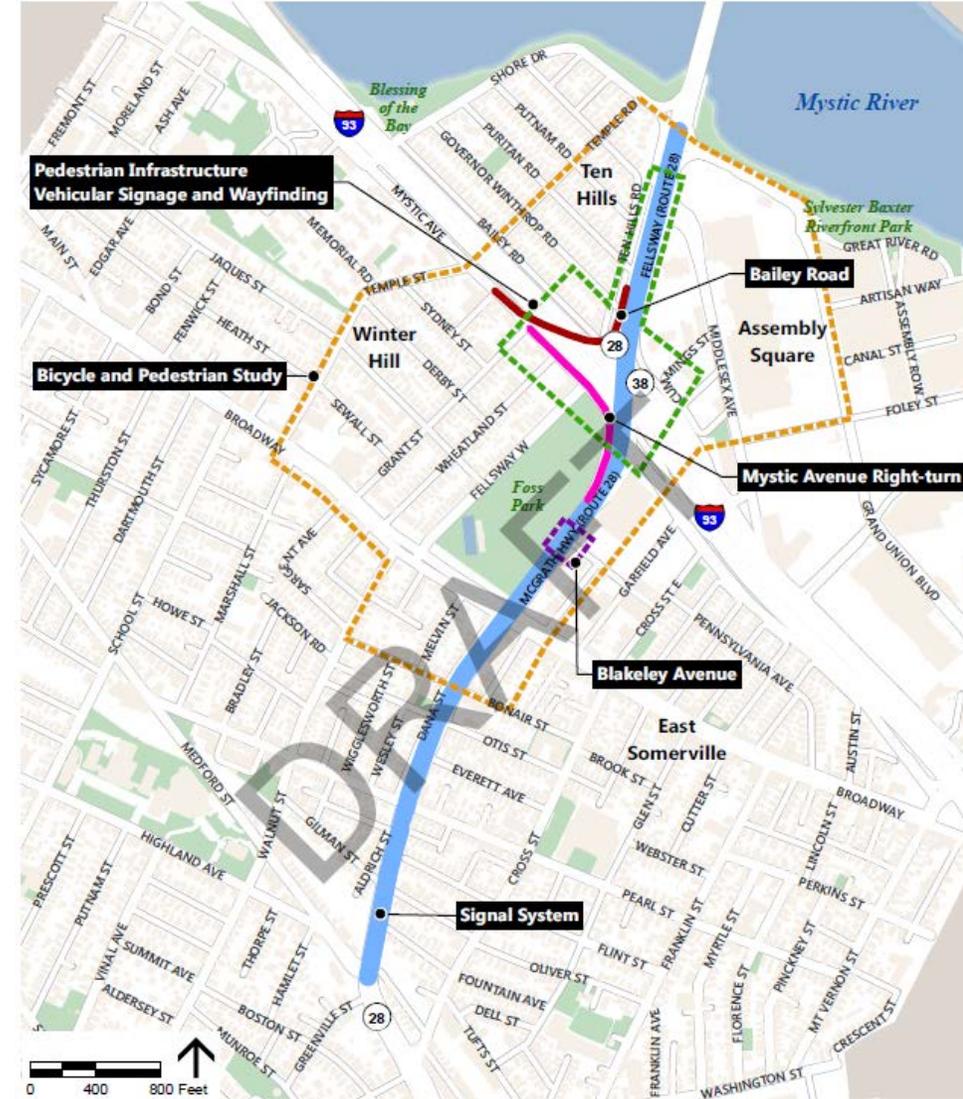
McGrath Right to Mystic Avenue

- Operationally the signal can accommodate the additional move
- Significant modifications to intersection would be necessary to accommodate truck turns
- Improvement Options:
 - Reduce the existing lane width (currently 25')
 - Maintain the control change from YIELD to STOP



Bicycle and Pedestrian Study

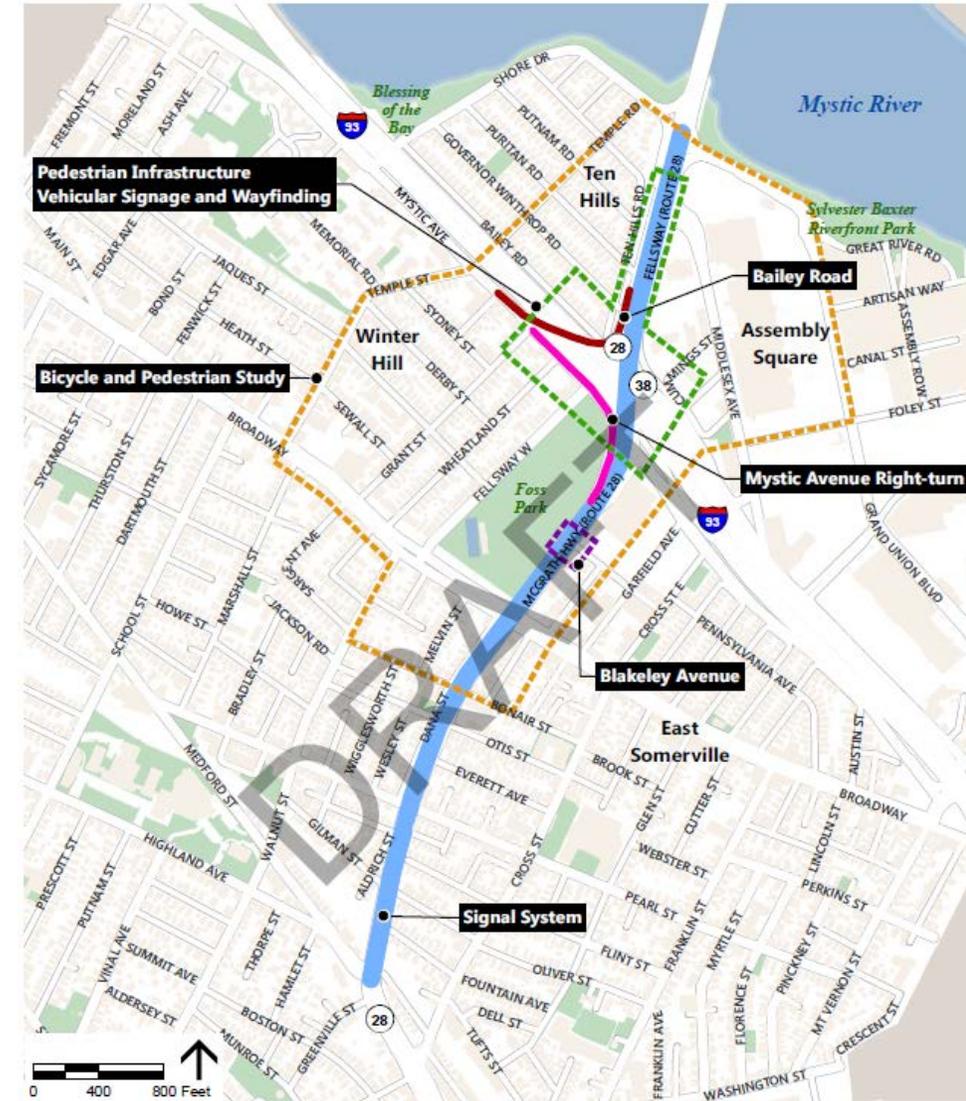
The bicycle and pedestrian planning study identified gaps and deficiencies in the bicycle and pedestrian network in the area surrounding the McGrath Highway (Route 28) and Mystic Avenue (Route 38) intersection and to identify opportunities to improve connectivity. The recommendations that will be advanced to the next phase will be designed to accommodate these recommendations as appropriate.



Bicycle and Pedestrian Study

Universal (Study Area)

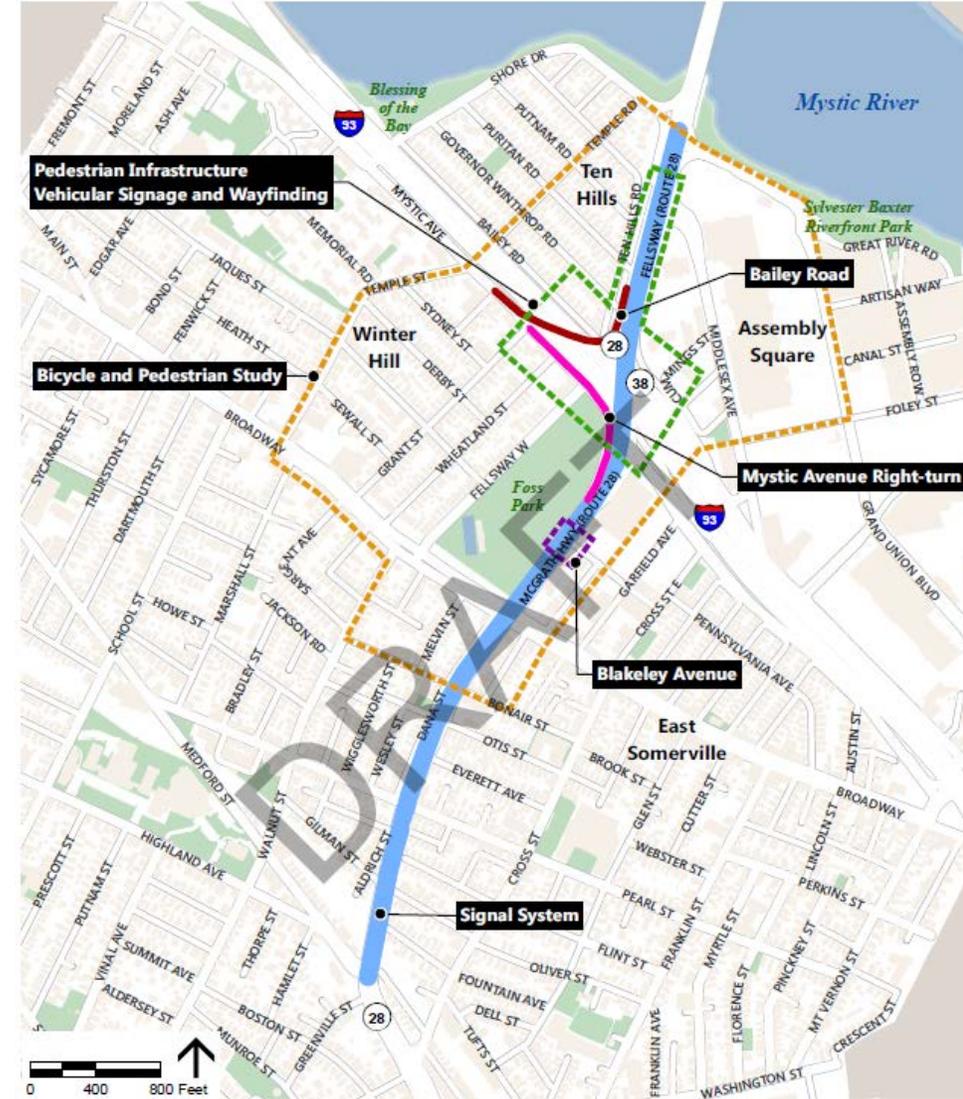
- Investigate/upgrade antiquated pedestrian signals, including push buttons and countdown timers.
- Update all pedestrian crossings to comply with Massachusetts Architectural Access Board (MAAB) and Americans With Disabilities Act (ADA) Standards.
- Provide advanced warning signs where applicable.



Bicycle and Pedestrian Study

Universal (Study Area)

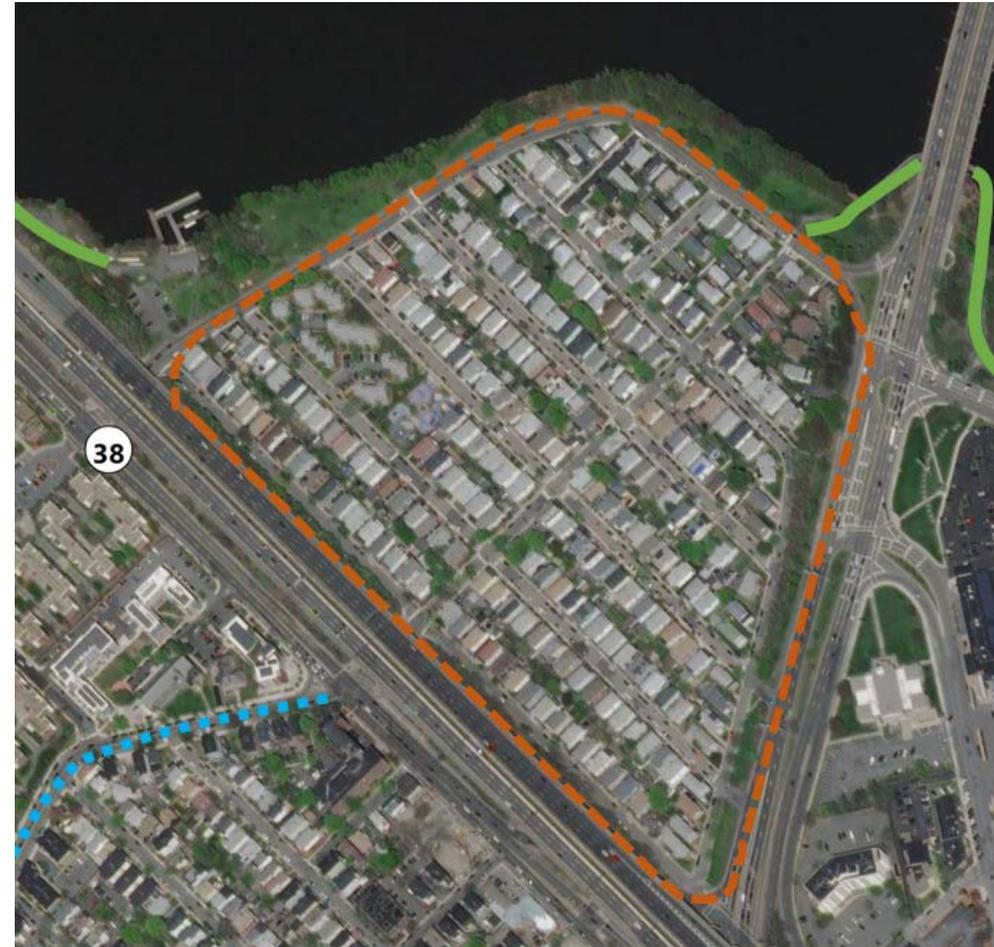
- Determine appropriate **pedestrian signal phasing**.
- Provide appropriate **pedestrian signal clearance timings** per Manual on Uniform Traffic Control Devices (MUTCD) standards.
- Provide **bicycle connectivity** along Broadway and extend **bicycle markings** through the McGrath Highway intersection.
- Consider providing **leading bicycle signal phases**.
- Provide **bicycle box** pavement markings at stop bars.



Bicycle and Pedestrian Study

Ten Hills

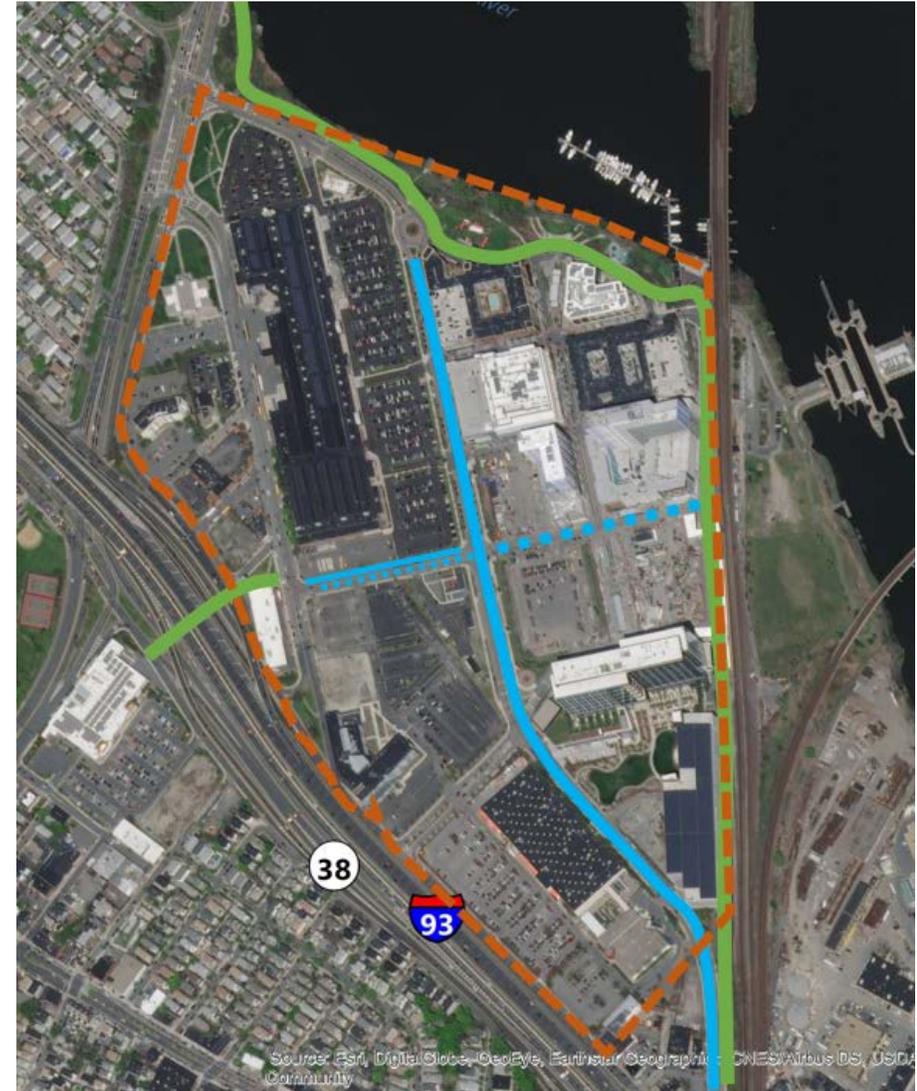
- Provide **continuous two-way bicycle and pedestrian access** along Shore Drive and Fellsway from Temple Rd to the Shore Drive / Mystic Avenue intersection, including upgrading that intersection to accommodate bicycles and pedestrians.
- **Formalize desire lines** around the southern end of the Wellington Bridge (also Assembly Square side); **coordinate with any bicycle infrastructure** added to the bridge.
- Provide **continuous sidewalk connectivity** and ensure **ADA-compliance** for all curb ramps along **Ten Hills Road** as well as those within the **I-93 understorey area**.



Bicycle and Pedestrian Study

Assembly Square

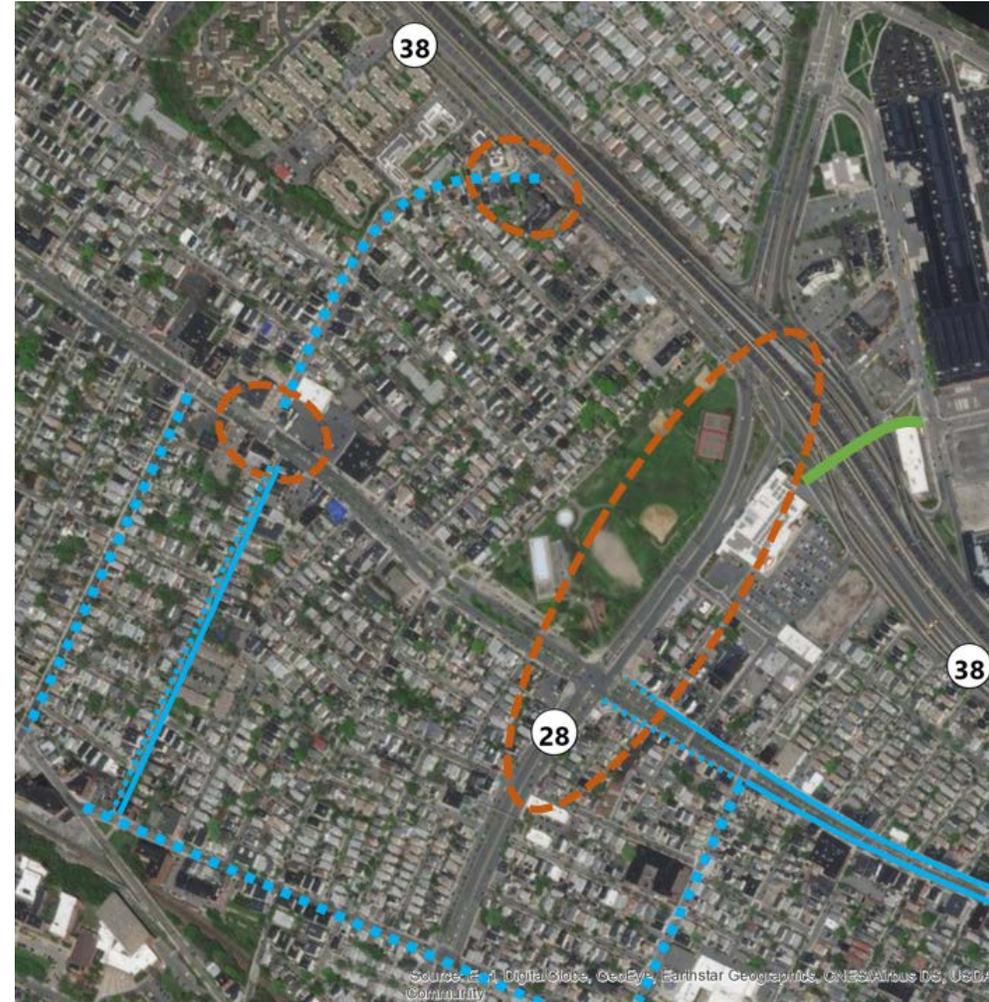
- Provide **continuous bicycle infrastructure** along Foley Street from Middlesex Ave to Great River Road to the Assembly MBTA Station.
- Develop **wayfinding signage** to direct bicyclists and pedestrians to and from the Kensington Connector and the Assembly MBTA Station and other destinations as appropriate.
- Provide **bicycle parking** of appropriate type and number at Assembly MBTA Station.
- Re-install **durable pavement markings** for bicycles and pedestrians (Grand Union Blvd, in particular).



Bicycle and Pedestrian Study

Winter Hill

- Consider **widening the sidewalk** along the southern side of Mystic Avenue to provide width for a continuous and clear 10-foot shared-use path. Currently there are shared lane markings, but the high volume of vehicular traffic on Mystic Avenue deters bicyclists from riding in the shared lane.
- **Upgrade all sidewalks and curb ramps** along Mystic Ave to meet MAAB/ADA standards. This includes **installing sidewalks to close the gaps** along the northern side of Mystic Avenue between Temple Street and McGrath Highway

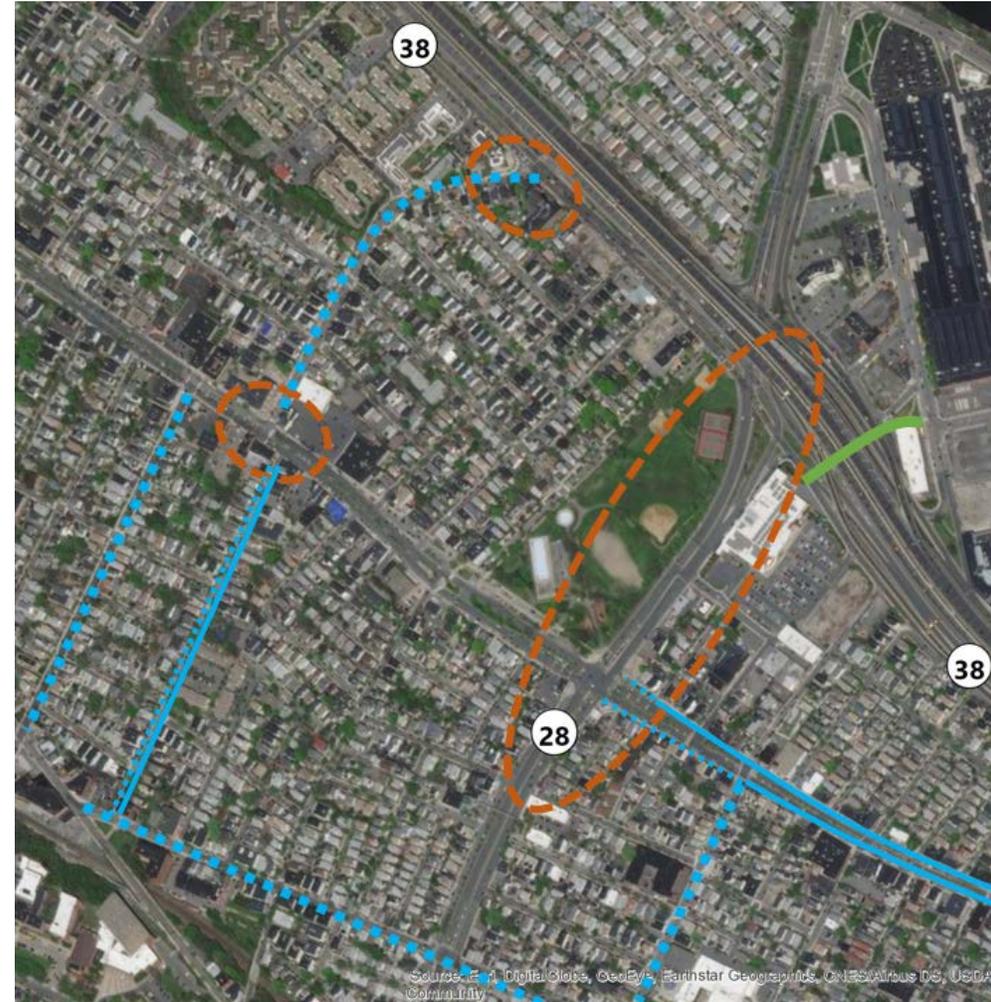


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, Community

Bicycle and Pedestrian Study

Winter Hill

- Work with the Department of Conservation and Recreation (DCR) to **upgrade Foss Park paths to be shared-use paths** (minimum ten feet wide) and **connect the western park entrance** at Jaques St/Fellsway West to the Blakeley Ave/McGrath Highway Intersection and to the McGrath Highway/Mystic Ave intersection.
- Support the City's redesign of **Broadway** west of McGrath Highway to make the busy crossing at the intersection **more bicycle and pedestrian friendly**.

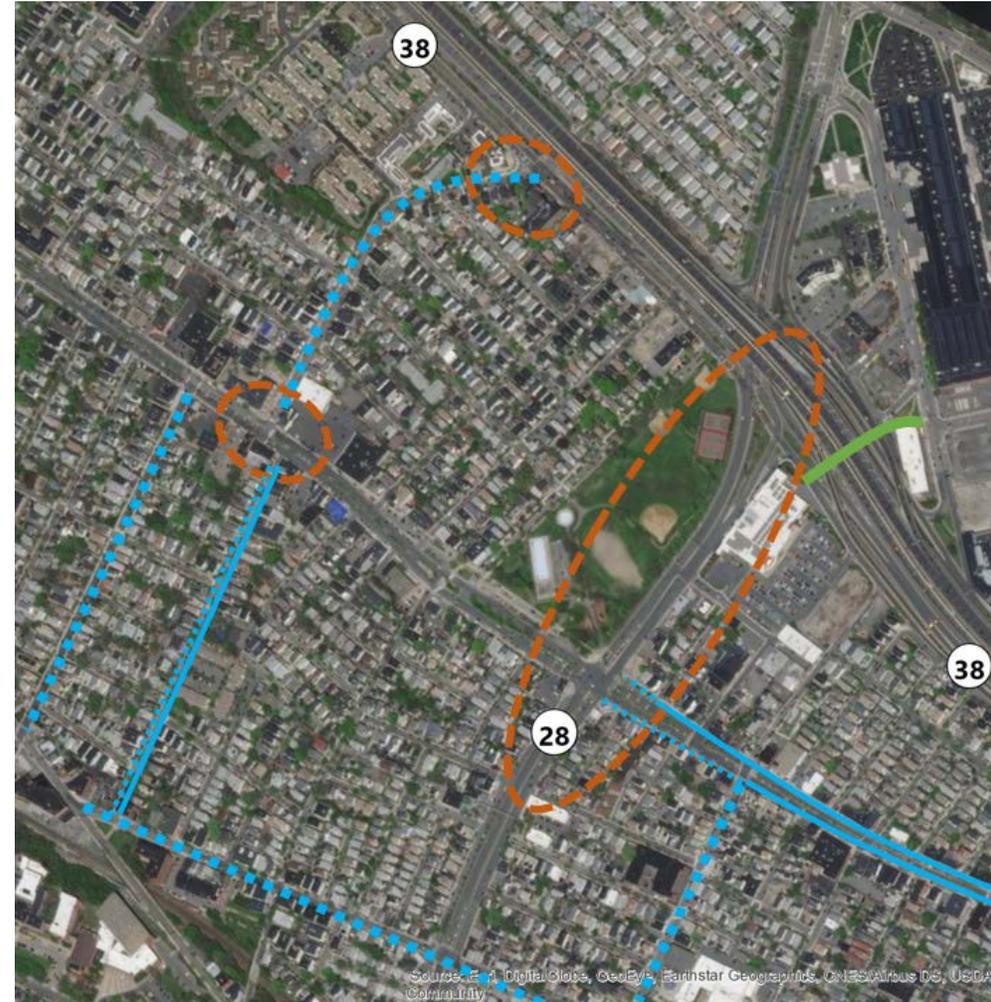


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, Community

Bicycle and Pedestrian Study

Winter Hill

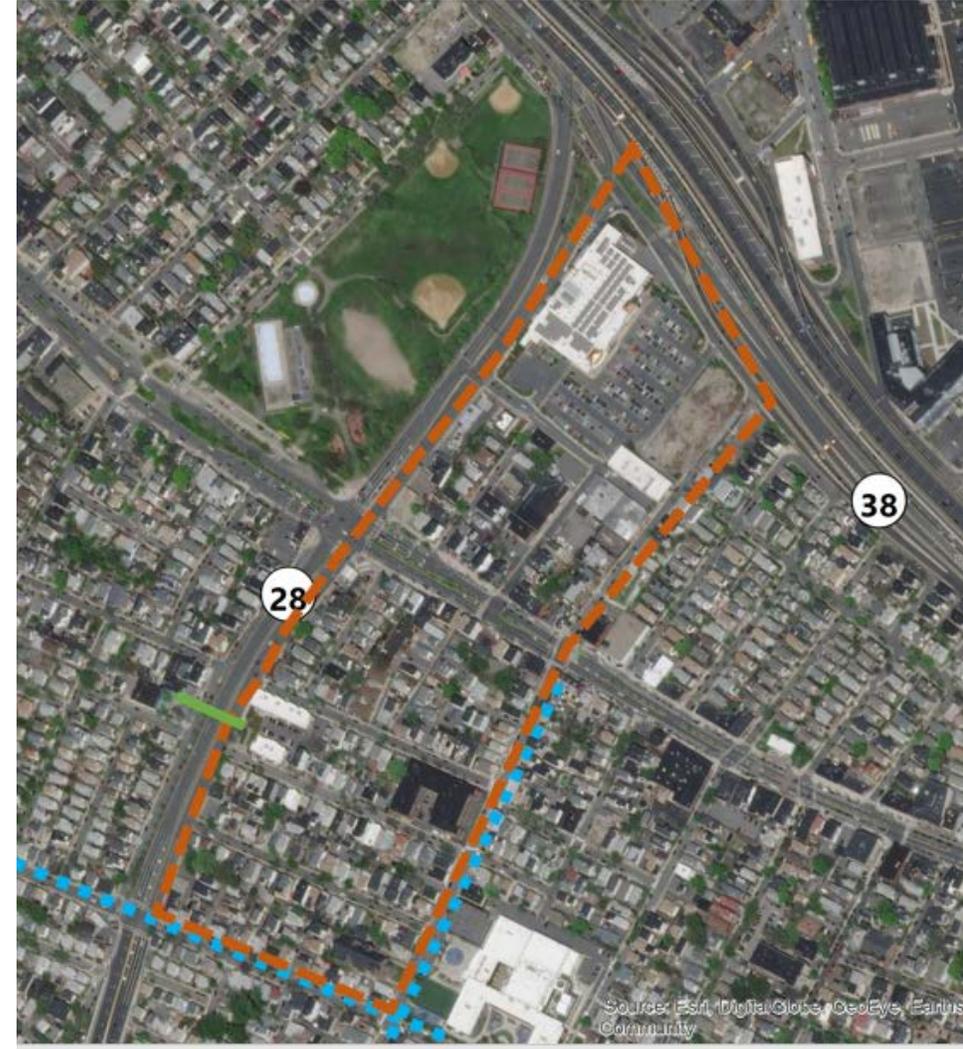
- Upgrade the pedestrian accommodations, including ramps and push button, to meet MAAB/ADA standards at the south side of the Temple Street/Broadway intersection.
- Consider additional crosswalks and high visibility markings along Broadway between Temple Street and McGrath Highway. The long distance between crosswalks results in many pedestrians crossing outside of marked crossings.
- Conduct a study of the Otis Street pedestrian bridge to determine how best to improve the functionality for the neighborhood.



Bicycle and Pedestrian Study

East Somerville

- Provide [bicycle/pedestrian access](#) along Cross Street East, Mystic Avenue Corridor and the Kensington Connector to connect Broadway to Assembly Square.
- Develop [wayfinding signage](#) to direct bicyclists and pedestrians between the Kensington Connector and East Somerville.
- Formalize [east-west pedestrian connection](#) at Cross Street East / Pennsylvania Avenue that is temporarily in place.
- [Alter the gate](#) at Blakeley Ave/Cross Street to allow [for bicycle access](#).

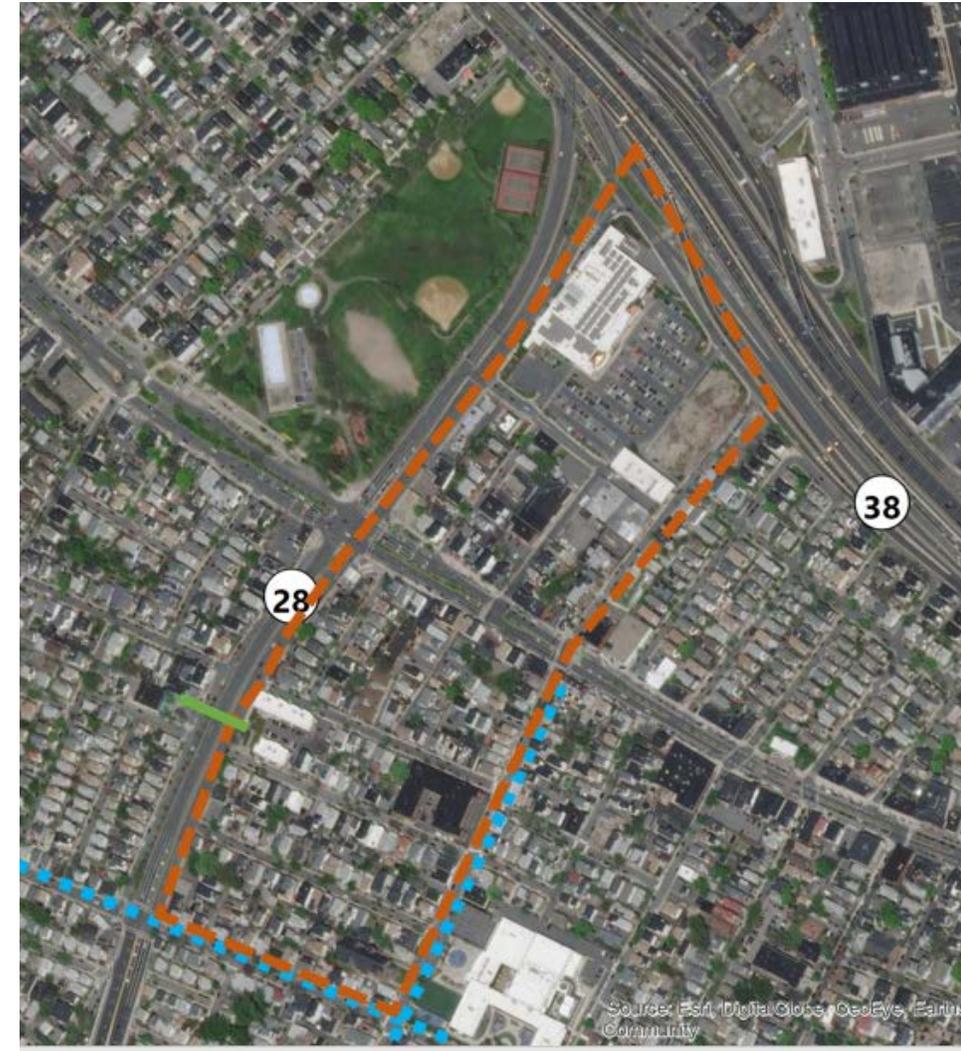


Source: Esri, DigitalGlobe, GeoEye, Earth
Community

Bicycle and Pedestrian Study

East Somerville

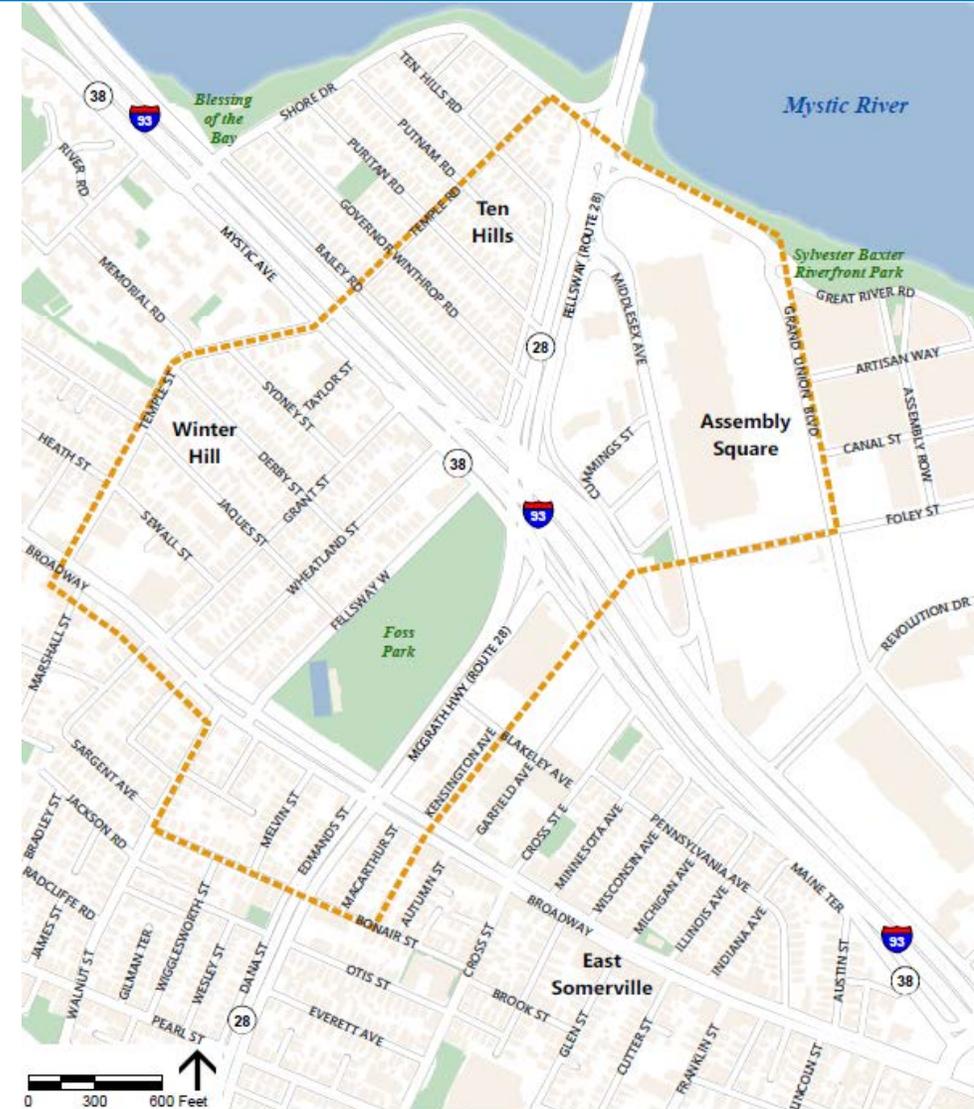
- Provide a **high-quality bicycle approach** to the McGrath Highway/Broadway intersection in the westbound direction.
- Consider **eliminating channelized right-turn lane** at the westbound approach from Broadway onto McGrath Highway. Broadway has between 13-14,000 vehicles per day; it may not be necessary.
- Consider **upgrading the pedestrian infrastructure** at the Pearl Street / McGrath Highway intersection, including: ramps, crosswalks, signals and a central refuge point for the long crossings of McGrath Highway.



Bicycle and Pedestrian Study

Fellsway

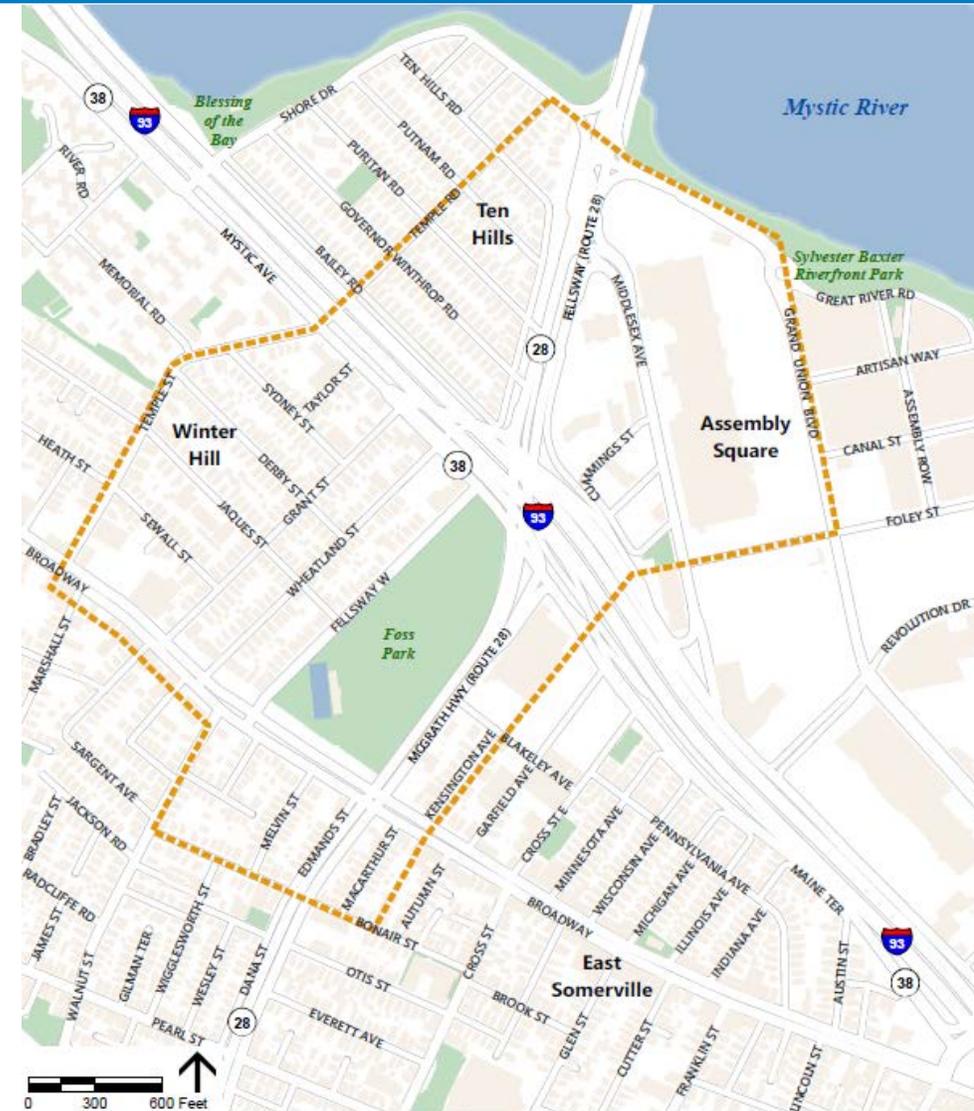
- Install **pedestrian crossing warning signs and advanced warning signs** at slip lanes at Middlesex Ave and Grand Union Blvd.
- **Upgrade all elements of crossings** at Middlesex Ave and Grand Union Blvd to meet MAAB/ADA standards.
- **Establish bike lanes** (preferably separated) on the Wellington Bridge north of the Grand Union Blvd intersection. **Provide access points to the bike lanes** on both sides and both ends of the bridge to allow bicyclists to enter and exit the bike lanes for this segment.



Bicycle and Pedestrian Study

McGrath Highway

- Establish continuous pedestrian access on the south side of Mystic Avenue from Foss Park to the Stop & Shop grocery store and the Kensington Connector.
- Reduce curb radius and improve pedestrian environment at northeast corner of Foss Park to the greatest extent possible.
- Upgrade all pedestrian infrastructure at the intersection of Broadway/McGrath Highway to meet MAAB/ADA standards. Install overhead lighting at this intersection.



Bicycle and Pedestrian Study

Route 28/38 Intersection & I-93 Understory

- Consider a wholesale **rethinking of the existing infrastructure** prior to upgrading, including consolidating routes, establishing more direct routes, formalizing desire lines and creative use of the existing understory spaces.
- **Support City of Somerville efforts** to upgrade the Kensington Connector.
- **Work with MBTA** to improve access to and location of the multiple bus stops located in this area.
- **Consider other improvements** to the understory, such as better lighting and provision of emergency call boxes.

