



**River Street
Reconstruction**



Transit Advisory Committee Update

Wednesday, Oct 2, 2019

Proposed Agenda

- Project process update 5 minutes
- Review of Baseline Concept + Options, Mem Drive to Auburn 20 minutes
- MBTA bus terminal area 50 minutes
- Next Steps 5 minutes

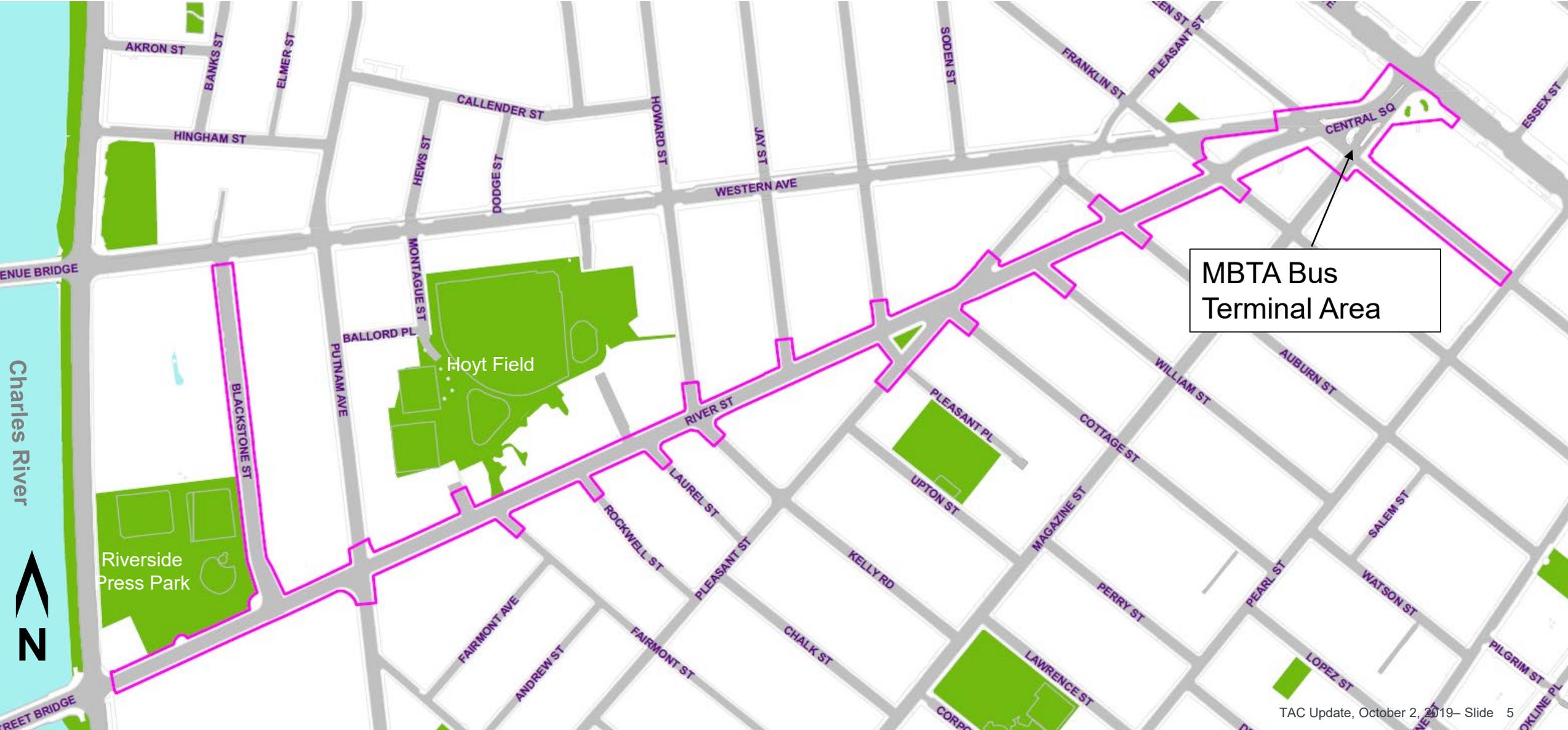
This presentation focused on the transit elements of the evolving draft Conceptual Design. The materials are still IN DEVELOPMENT. Some have not yet been discussed with the Working Group. These topics will be discussed at an October Working Group Meeting and November Public Meeting.

The purpose of this meeting is to get early input from the Transit Advisory Committee on some of the transit-related proposals being discussed.

Please refer to cambridgema.gov/riverstreet for updated materials.

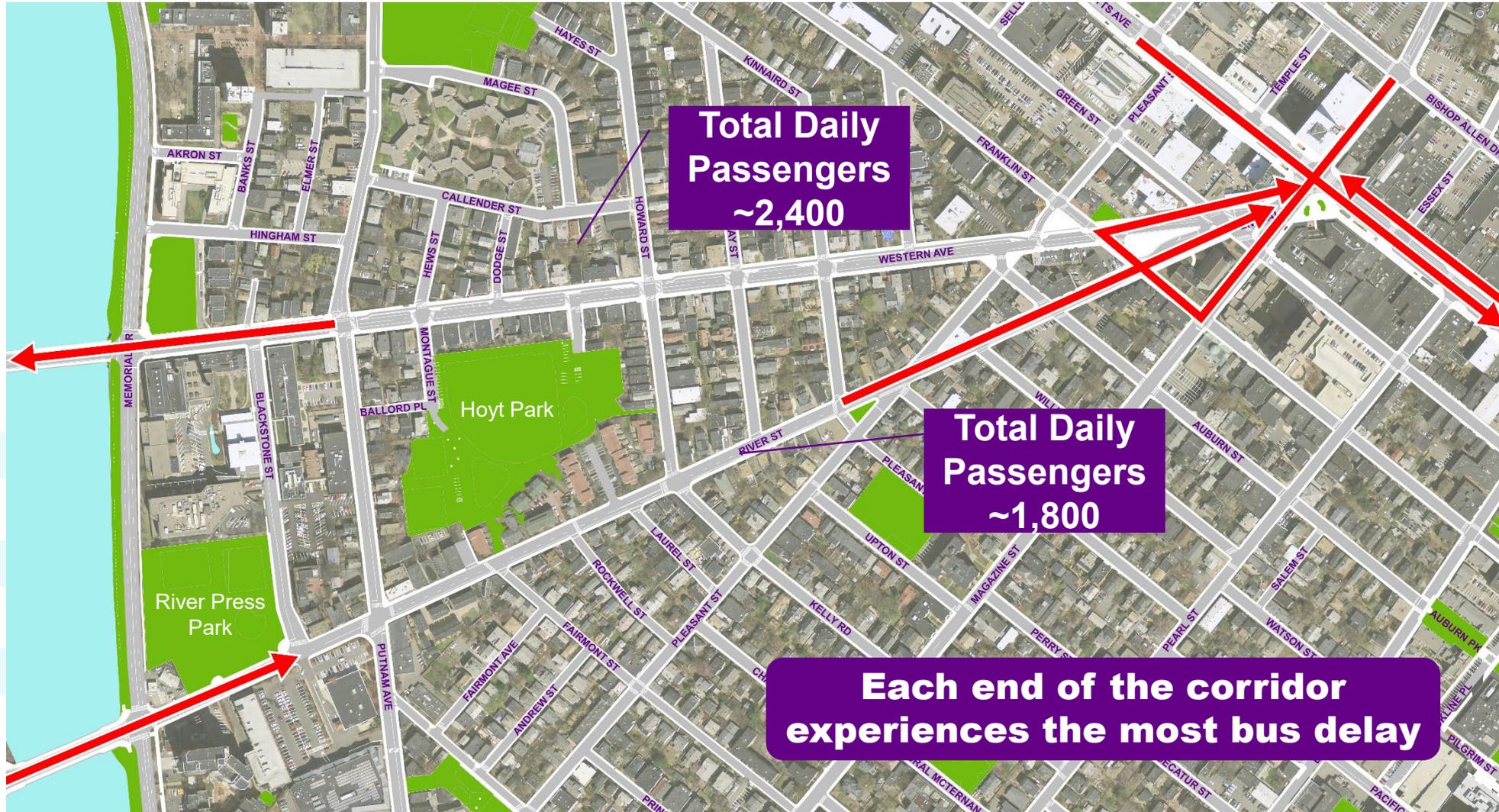
Project Process Update

River St Reconstruction Project Area



MBTA Bus Terminal Area

Highlight – Transit Operations



**Significant
bus delay
and
reliability
issues**

Transit Ridership – River Street



Total Weekday Ridership

Offs # Ons

Total Riders

Less riders use stops on River Street, but bus routes carry a large number of riders through the corridor



River Opp Blackstone



River @ Fairmont

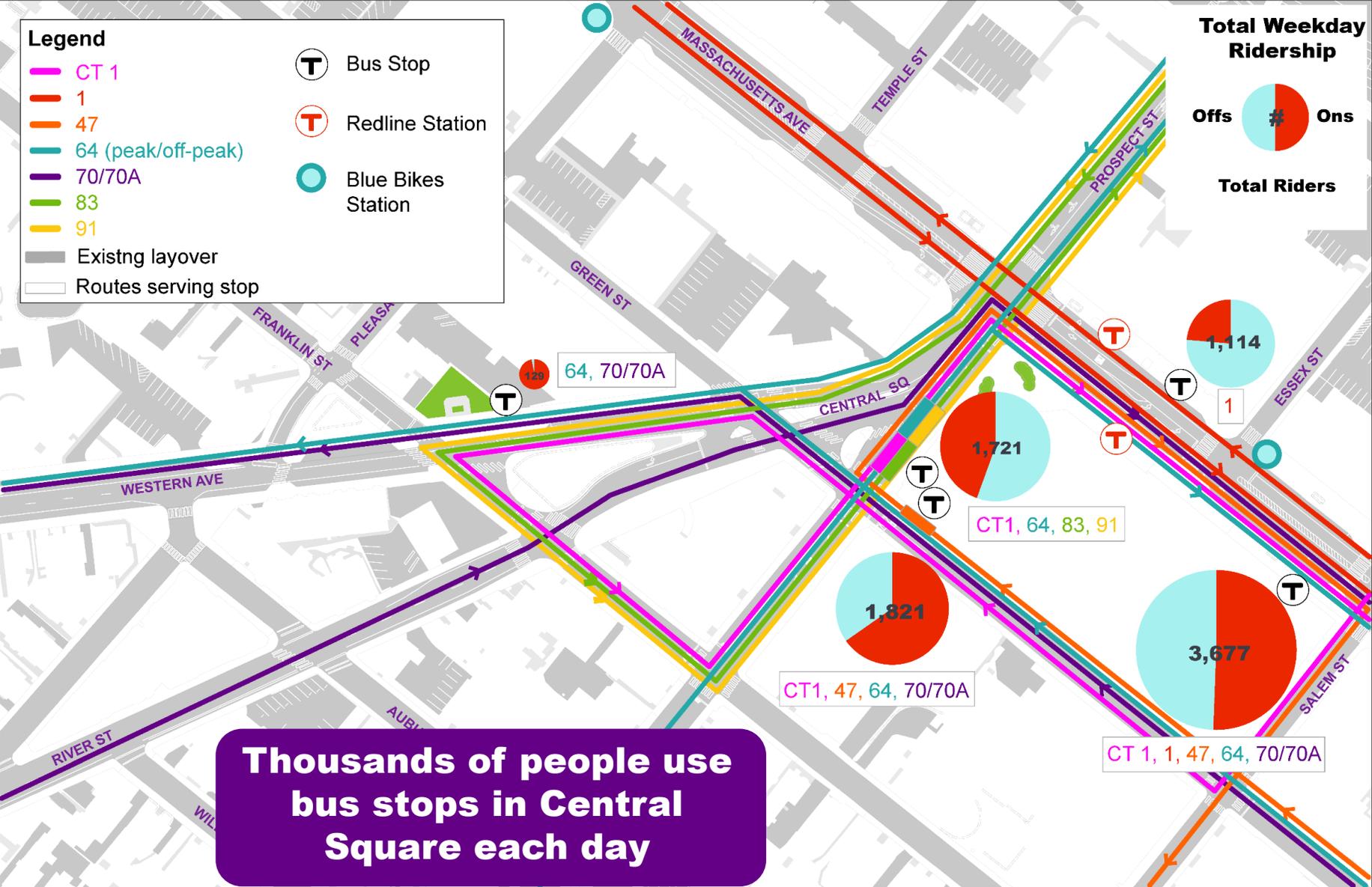


River @ Kelly

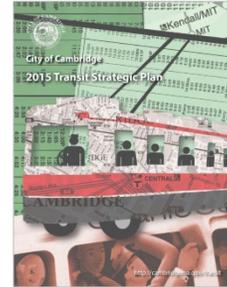
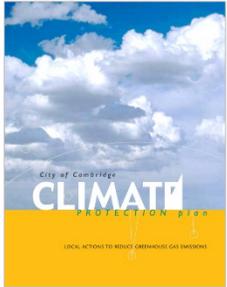


River @ Pleasant

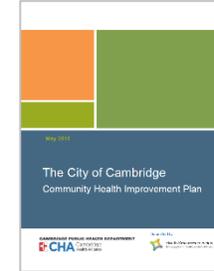
Transit Ridership – Central Square



City Policies and Planning



Better
Bus
Project
Making transit better together



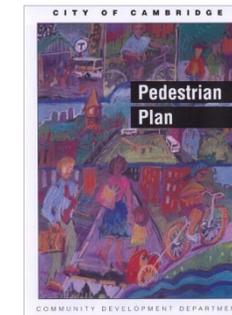
New Mobility Blueprint



Toward A Sustainable Future
Cambridge Growth Policy
UPDATE 2007

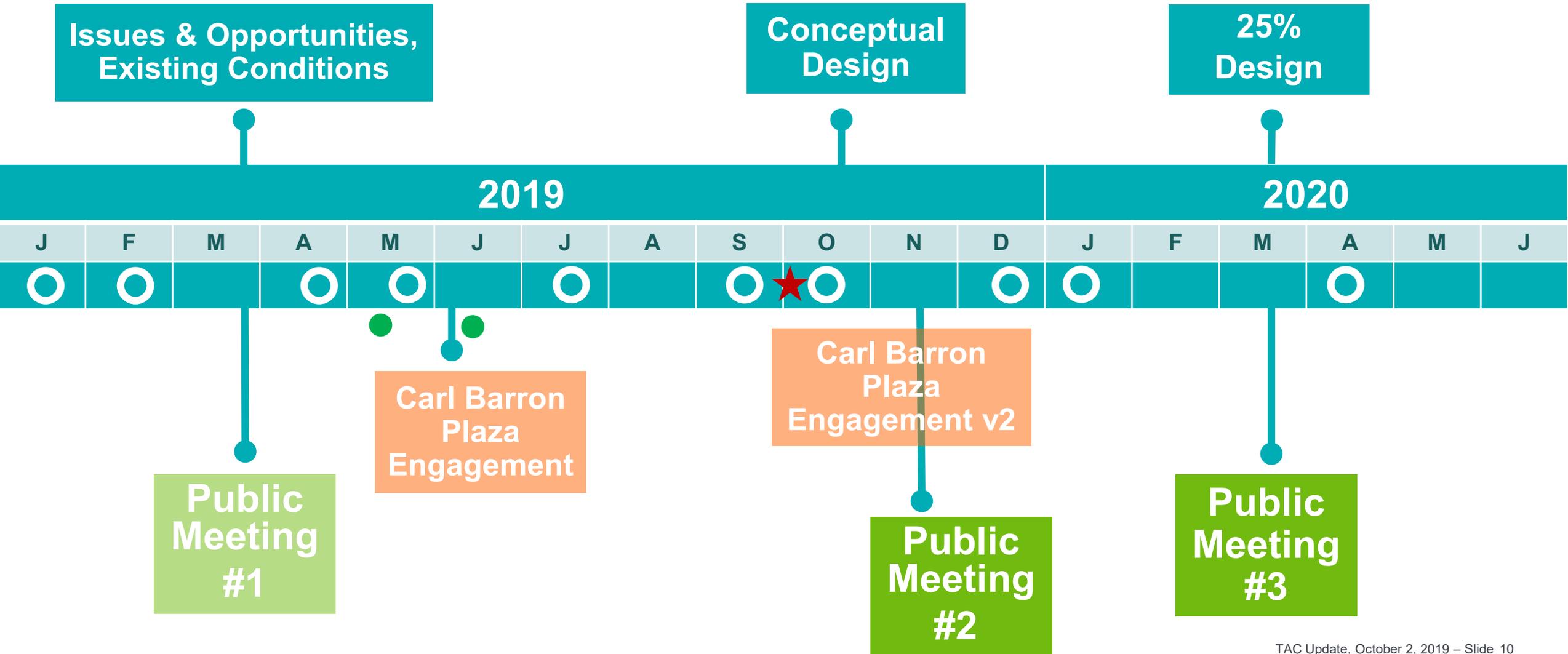


VISION ZERO
CAMBRIDGE

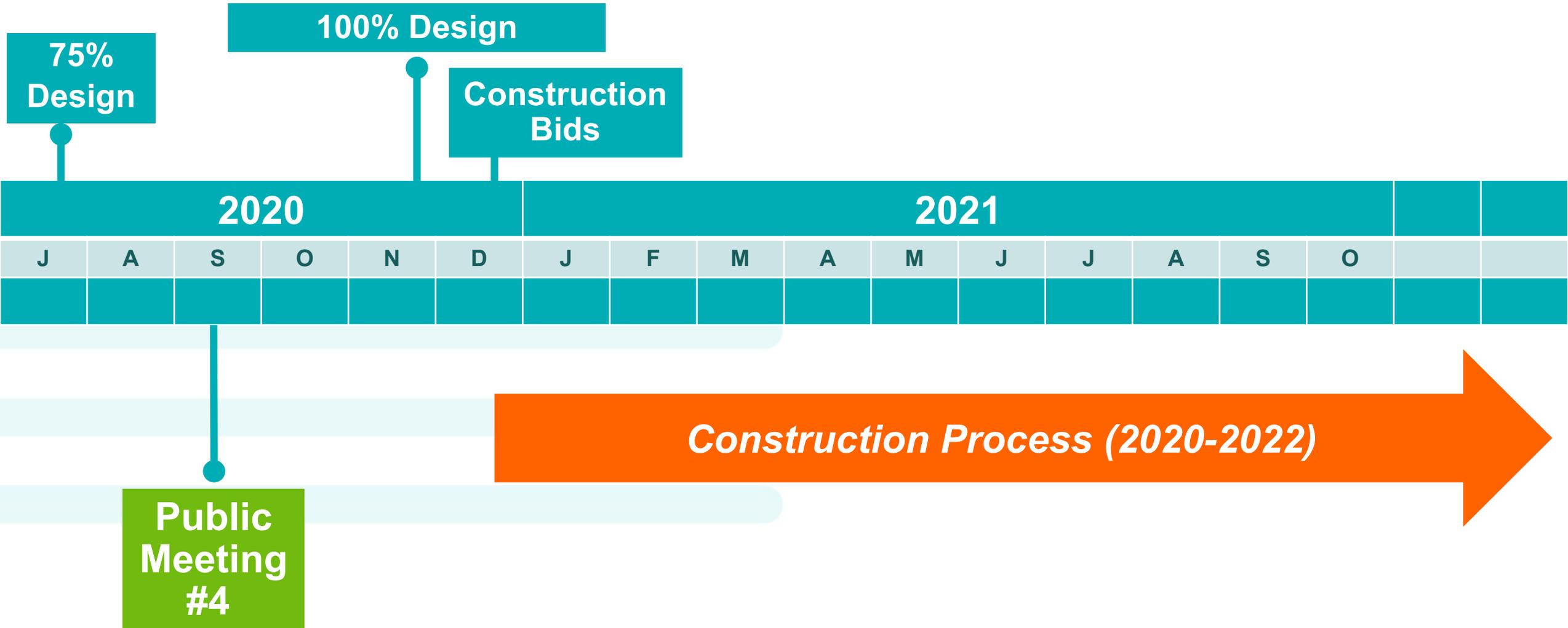


NEW Expected Timeline

- Working Group
- Public Walks
- ★ Today



Expected Timeline



Public Meeting #1 – 81 Attendees



Online Public Input – 93 Commenters



Where do you see issues and opportunities for change on River Street?

Click "Add Points" to add to the map.

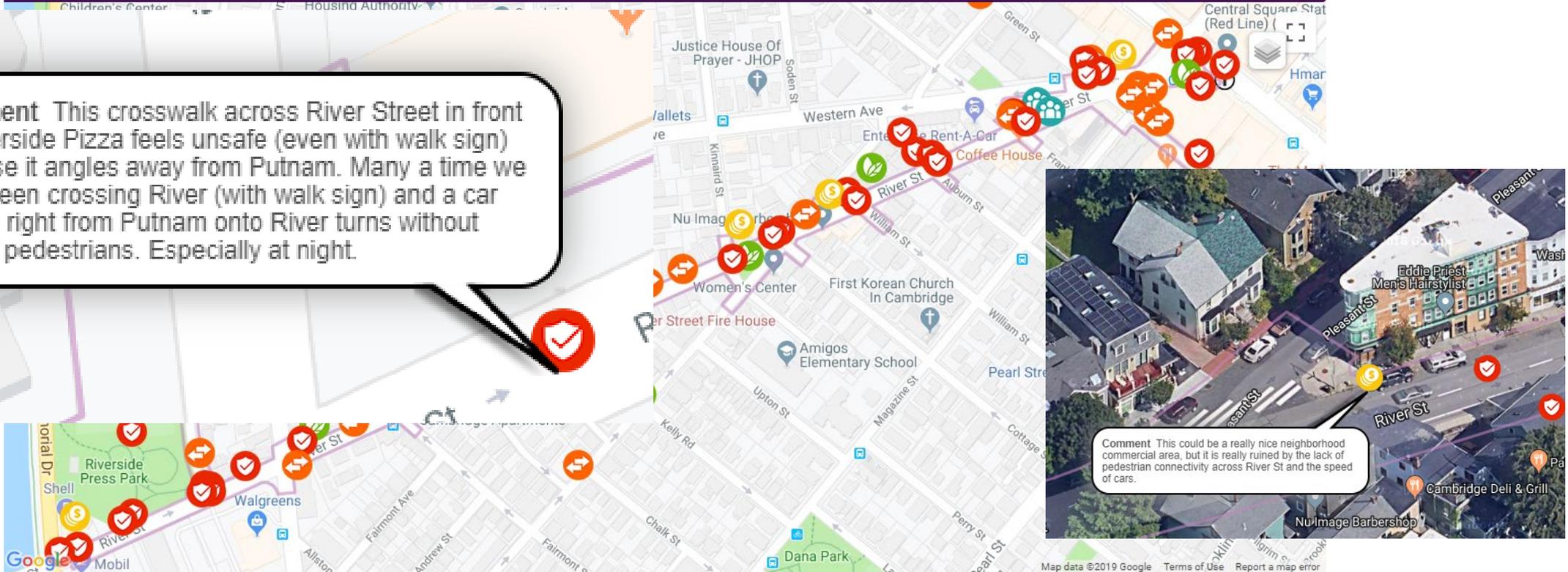
ADD AS MANY POINTS AS YOU WOULD LIKE

- Activity/ Public Realm
- Commerce/ Business
- Greenery/ Landscape
- Mobility/ Access
- Safety/ Comfort
- Other
- Project Limits



Instructions & Help Add Points Project Website

Comment This crosswalk across River Street in front of Riverside Pizza feels unsafe (even with walk sign) because it angles away from Putnam. Many a time we have been crossing River (with walk sign) and a car turning right from Putnam onto River turns without seeing pedestrians. Especially at night.



Comment This could be a really nice neighborhood commercial area, but it is really ruined by the lack of pedestrian connectivity across River St and the speed of cars.

5 Working Group Meetings



Other outreach...

- River Street pre-construction survey (83 respondents so far)
- Cambridge Winter Farmers Market (3/23/19)
- Mobility Walk (5/14/19)
- River Festival (6/1/19)
- Urban Design Walk (6/11/19)
- Parking Day (9/20/19)
- Business focus group outreach (first breakfast in August, lunch in October)
- Ongoing coordination with Department of Human Service Programs and Cambridge Police Department
- Carl Barron outreach (full exploration of Carl Barron outreach scheduled for Working Group #7 October 22, 2019)

Conceptual Design Development

“Givens” for River Street Reconstruction

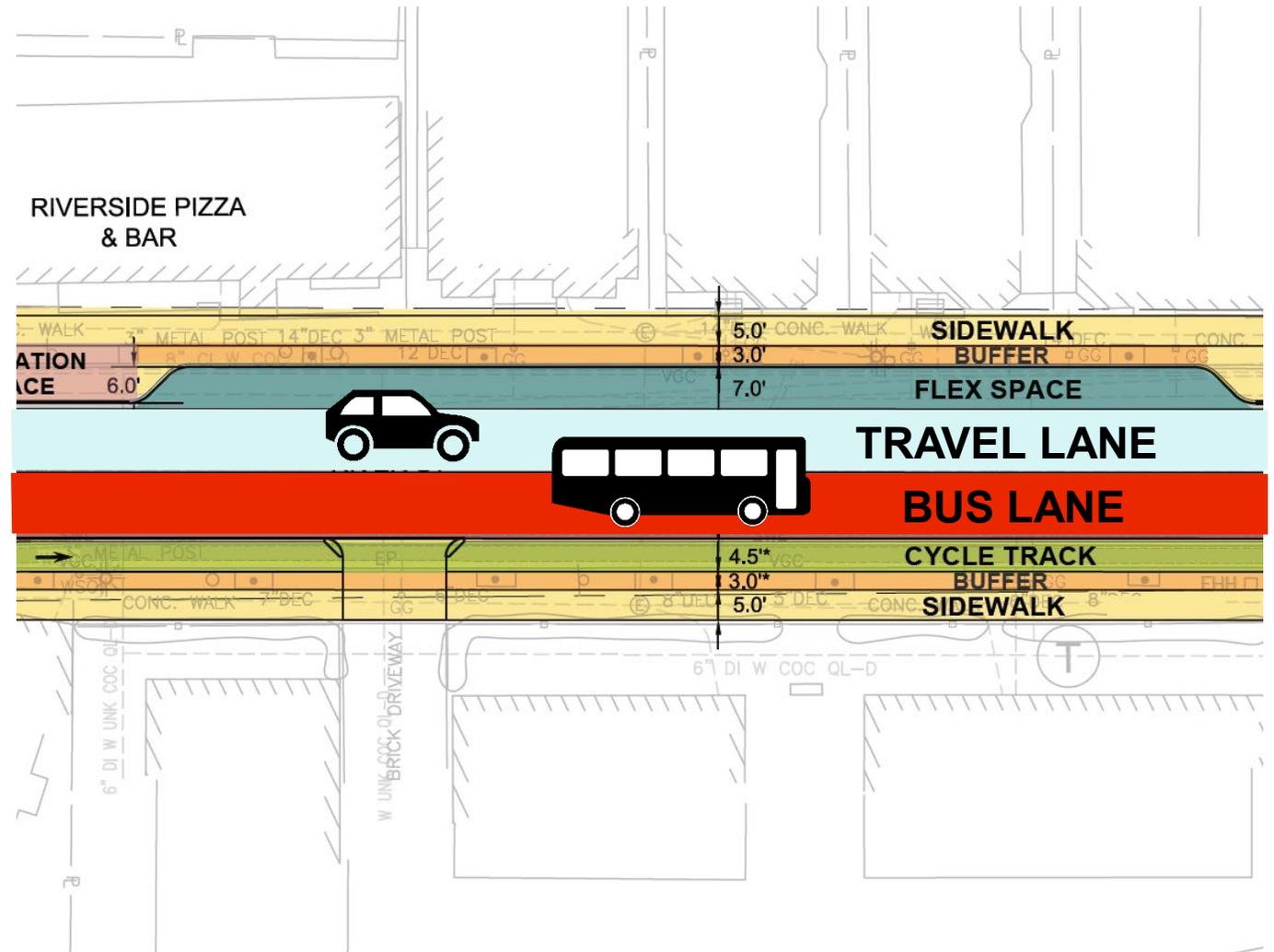
- Address flooding & drainage capacity
- Upgrade aging public and private utility infrastructure
- Protect significant utilities which cannot feasibly be relocated
- Preserve healthy trees
- Maximize future trees & improve soil conditions
- Maintain emergency vehicle access (16 to 18 feet)
- Maintain flexibility when routine maintenance or unexpected incidents block part of road
- Include separated bicycle facility (per Cambridge's "Cycling Safety Ordinance")
- Regulate parking to allow us to use curbside space more efficiently
- Maintain regional freight & hazardous materials truck route
- Raise non-signalized side-street crossings
- Improve intersection geometry (slow turns, improve sightlines) while accommodating buses and trucks

**Conceptual Design
Development:**

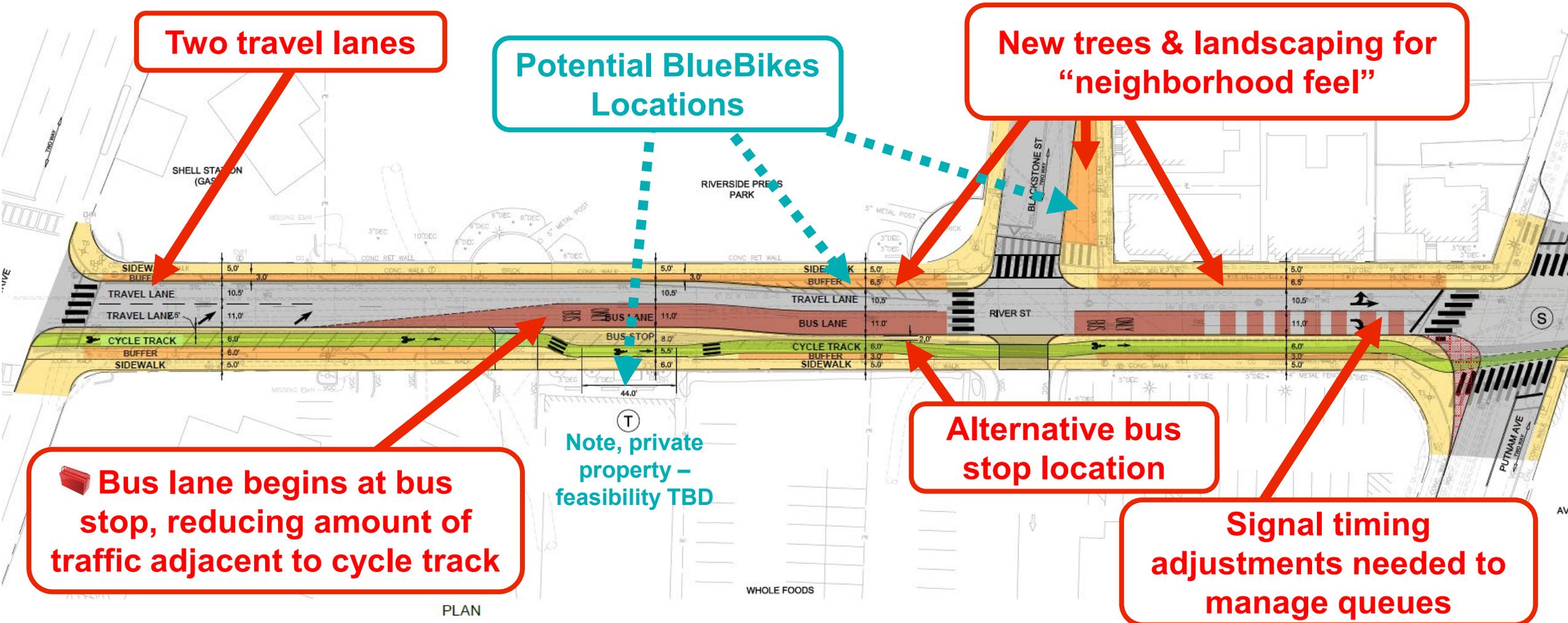
Memorial Drive to Auburn St

General Approach (Transit Focused)

- Two lanes provide flexibility when there is construction, maintenance, trash operations, etc.
- One general use lane handles existing traffic (encouraging slower speeds)
- It is expected that queues can be managed with signal improvements
- Bus only lane to improve bus reliability and reduce delay

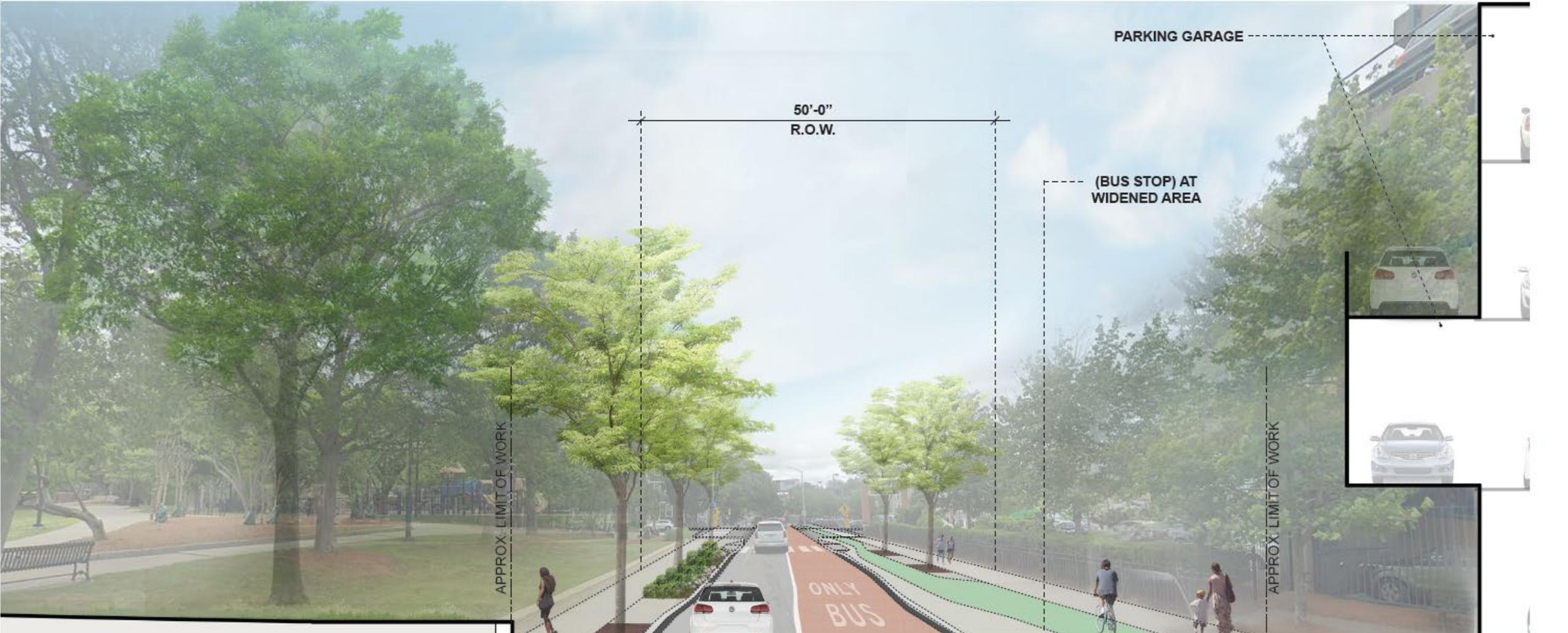


Memorial Drive to Putnam Ave Early Draft Concept for Input



River Street Today





PARKING GARAGE

50'-0"
R.O.W.

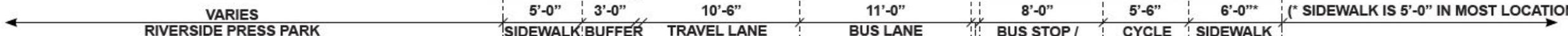
(BUS STOP) AT
WIDENED AREA

APPROX. LIMIT OF WORK

APPROX. LIMIT OF WORK



EXISTING GAS
TRANSMISSION LINE



VARIES
RIVERSIDE PRESS PARK

- SIDEWALK
- TRAVEL LANE
- BIKE LANE
- BUFFER
- BUS LANE

(* SIDEWALK IS 5'-0" IN MOST LOCATIONS)

Putnam Avenue to Kelly/Howard Streets

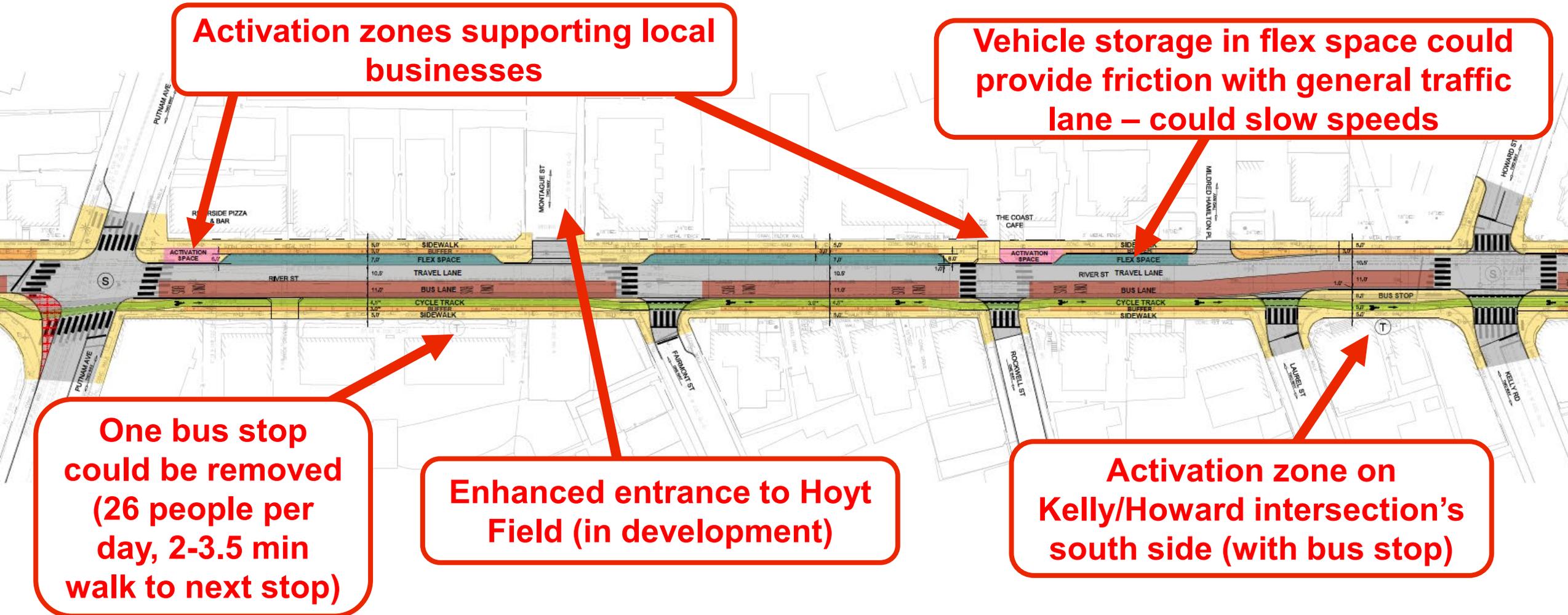
Activation zones supporting local businesses

Vehicle storage in flex space could provide friction with general traffic lane – could slow speeds

One bus stop could be removed (26 people per day, 2-3.5 min walk to next stop)

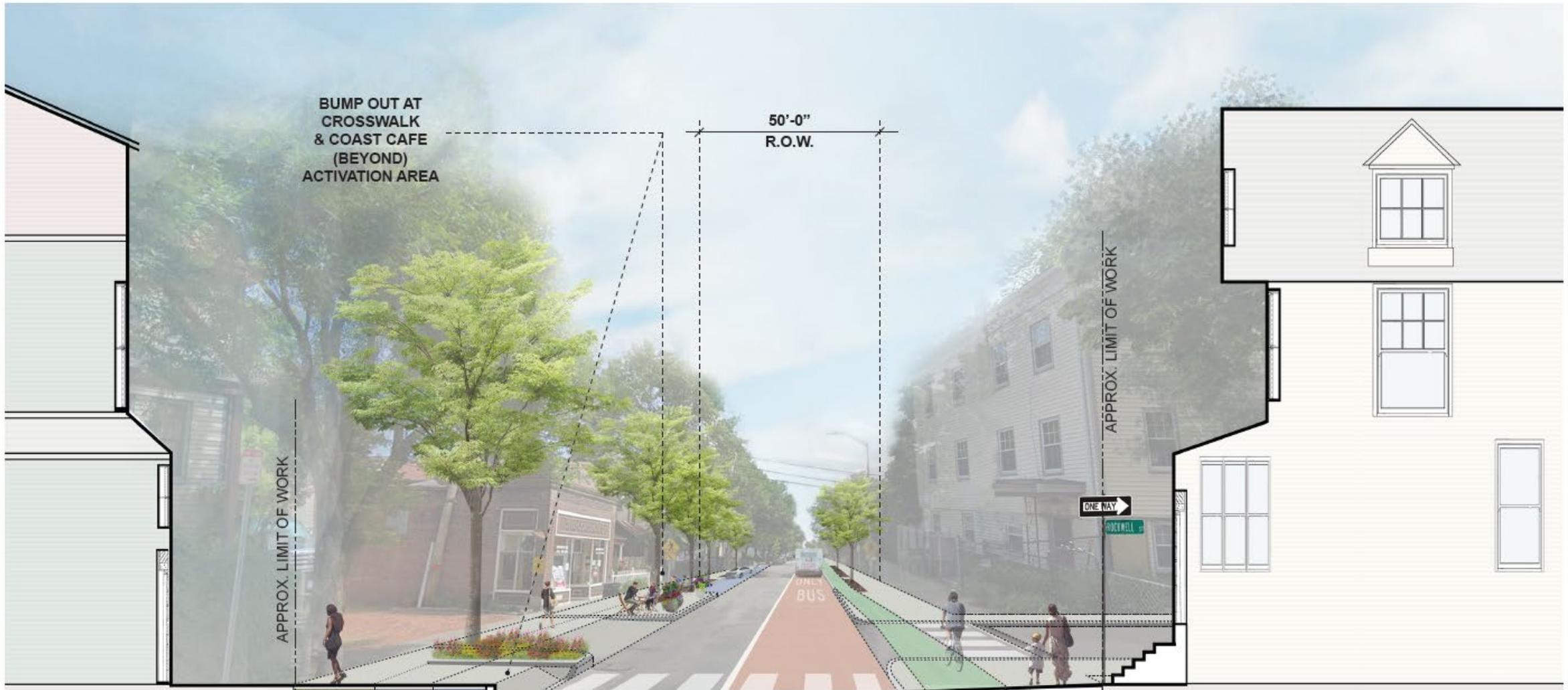
Enhanced entrance to Hoyt Field (in development)

Activation zone on Kelly/Howard intersection's south side (with bus stop)



Coast Café Area Today





BUMP OUT AT
CROSSWALK
& COAST CAFE
(BEYOND)
ACTIVATION AREA

50'-0"
R.O.W.

APPROX. LIMIT OF WORK

APPROX. LIMIT OF WORK

ONE WAY

ROCKWELL ST

EXISTING GAS
TRANSMISSION LINE

VARIES

5'-0"

SIDEWALK

3'-0"

BUFFER

7'-0"

FLEX ZONE
(CURB
EXTENSIONS)
VARIES

10'-6"

TRAVEL LANE

11'-0"

BUS LANE

5'-0"

6" CURB

5'-0"

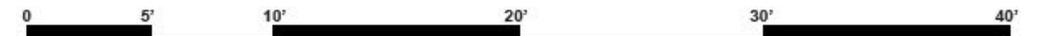
2'-0" BUFFER

5'-6"

SIDEWALK

(* SIDEWALK IS 5'-0" IN MOST LOCATIONS)

-
 SIDEWALK
-
 TRAVEL LANE
-
 BIKE LANE
-
 BUFFER
-
 BUS LANE
-
 FLEX ZONE



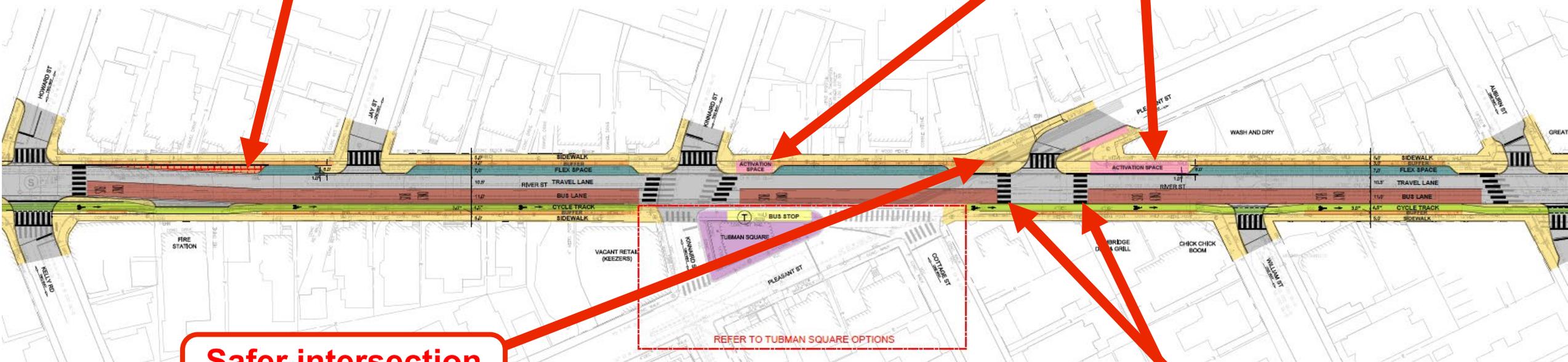
Kelly/Howard to Auburn Street

Mountable area for fire truck movements

Activation zones supporting local businesses

Safer intersection geometry

New pedestrian crossings



“Flatiron” Building Area Today





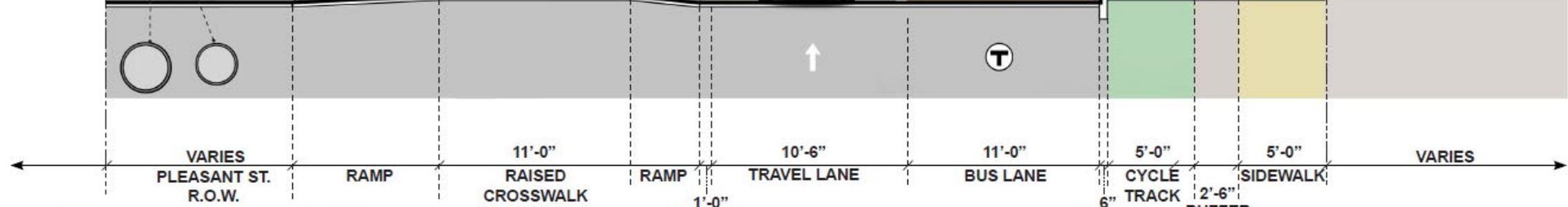
/ 5'-0" SIDEWALK / 9'-0" BUFFER / ACTIVATION ZONE / 6" CURB /

50'-0"
R.O.W.

APPROX. LIMIT OF WORK

EXISTING GAS
TRANSMISSION LINE

APPROX. LIMIT OF WORK



VARIES
PLEASANT ST.
R.O.W.

RAMP

11'-0"
RAISED
CROSSWALK
& ACTIVATION
@ FLATIRON

RAMP
1'-0"
FOG LINE

10'-6"
TRAVEL LANE

11'-0"
BUS LANE

5'-0"
CYCLE
TRACK
6"
CURB

2'-6"
BUFFER
VARIES

5'-0"
SIDEWALK

VARIES

-
 SIDEWALK
-
 TRAVEL LANE
-
 BIKE LANE
-
 BUFFER
-
 BUS LANE

0 5' 10' 20' 30'

At Pleasant Street/Tubman Square

- Pleasant Street as shared street/local access only
- No traffic diversions
- Parking impacts
 - 7 unregulated
 - 1 accessible



Street closure



Raised side street crossing



At Pleasant Street/Tubman Square

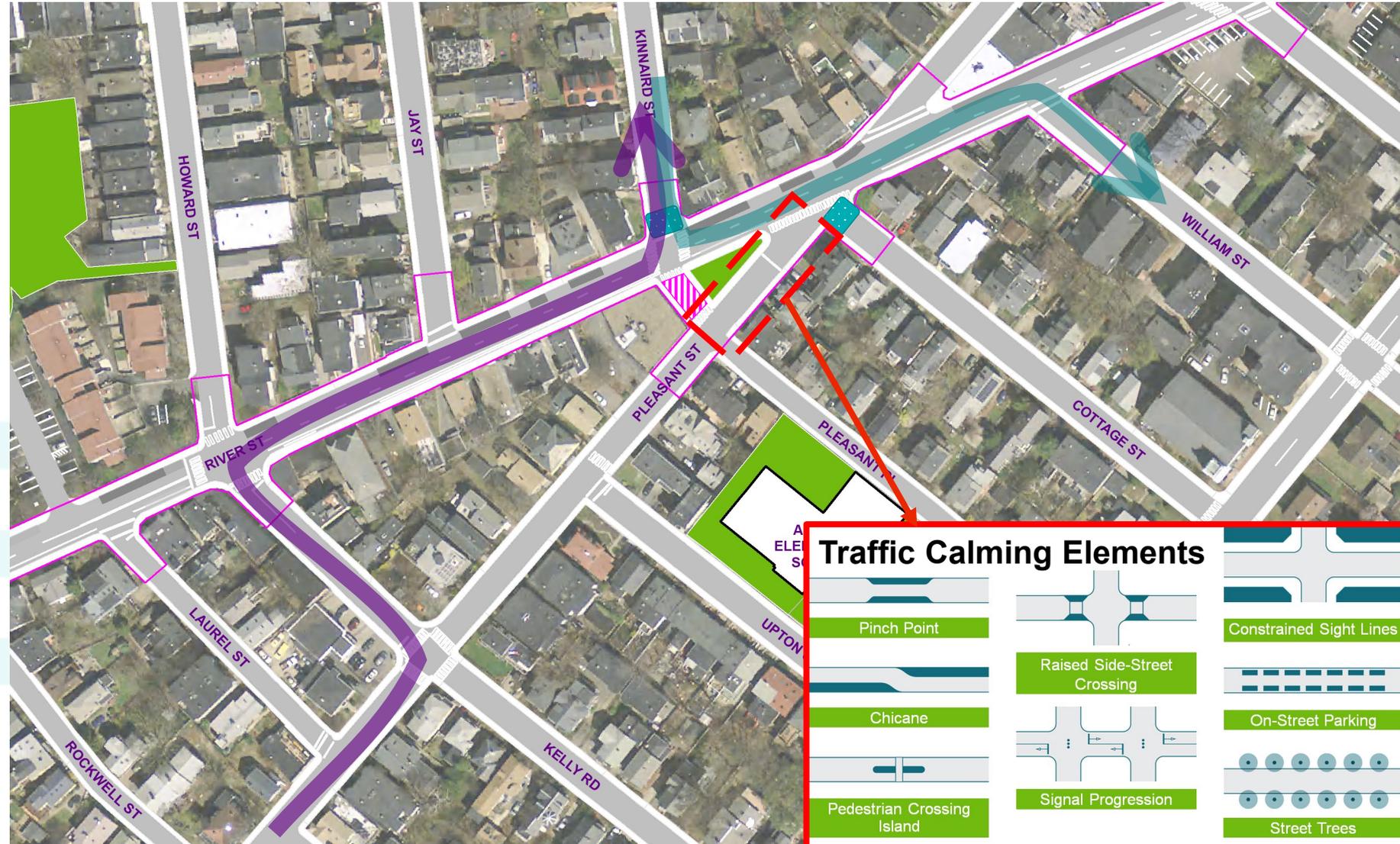
- Close Kinnaird Street
- Traffic calming on Pleasant Street
- Traffic diverted through Howard/Kelly street intersection
- Parking impacts
 - 2 unregulated



Street closure



Raised side street crossing



Summary of Pedestrian Safety and Comfort Features

- Raises all side-street crossings
- Narrows turning radii on most intersections to slow down turns
- Improves visibility at intersections
- Increases vertical elements (trees)
- Moves general traffic in a single lane
- Adds two new crosswalks
- Provides an increased buffer between traffic and people walking and biking (except buses and right-hand turns)
- Simplifies ADA compliant crossings
- Provides more space for people to sit, providing a more neighborhood feeling

**Conceptual Design
Development:
Auburn St to Central Square**

MBTA Bus Terminal Area

- Met 2 times (so far) with MBTA to discuss way to improve transit service and the bus terminal area configuration.
- A few sample questions we have been exploring:
 - Are there more efficient uses of this high demand space (i.e., is this the right space for layovers)
 - How can we improve access and amenities for passengers?
 - How can the terminal area be more effectively integrated with the larger plaza space and the square more generally?

MBTA Bus Terminal Area

Layover locations

- New layover locations for 83/91 allow for more efficient use of bus terminal area
- Significant curb impacts being evaluated, public process and discussion needed

Routing changes

- Allows for more efficient circulation and use of bus terminal area
- Additional public process needed

Roadway closures/operations changes

- Could simplify traffic operations and prioritize transit movements
- Additional public process needed

MBTA Bus Terminal Area

Layover locations

- Magazine Street
- River Street

Routing changes

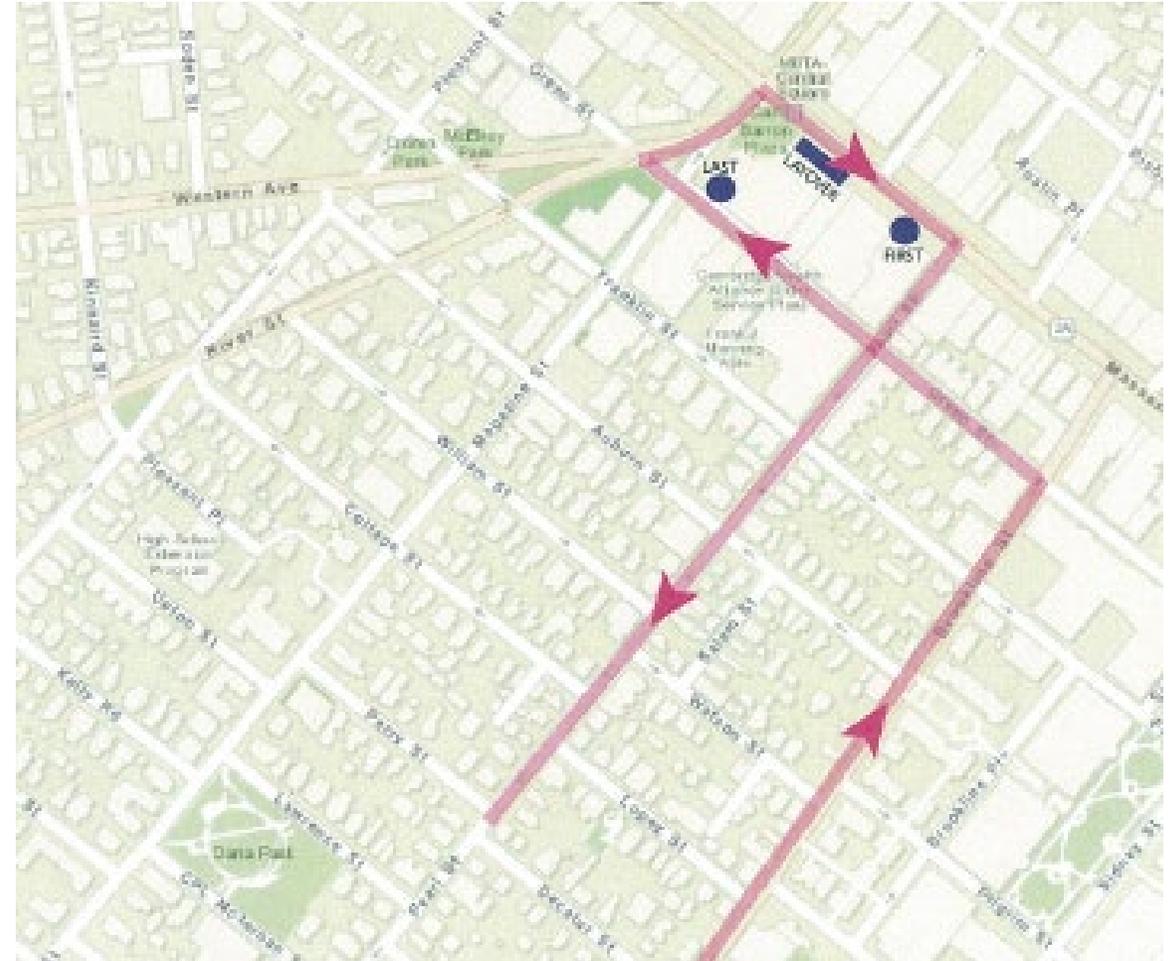
- Route 47 (keep off Mass Ave)
- Route 64 (continue on River instead of Magazine)

Roadway closures/operations changes

- Green Street between Magazine and River (bus/bike only) – Requires
 - Making Franklin Street two-way, signalized at Western/River
 - Making Magazine between Green and Franklin one-way southbound for general vehicles and two-way for buses/bikes.

47 Route Change

- Not as close to Mass Ave entrances
- Likely provides better travel time and reliability – need to estimate benefits
- Last stop would be at Green at Pearl
- First pickup would be at Green at Magazine

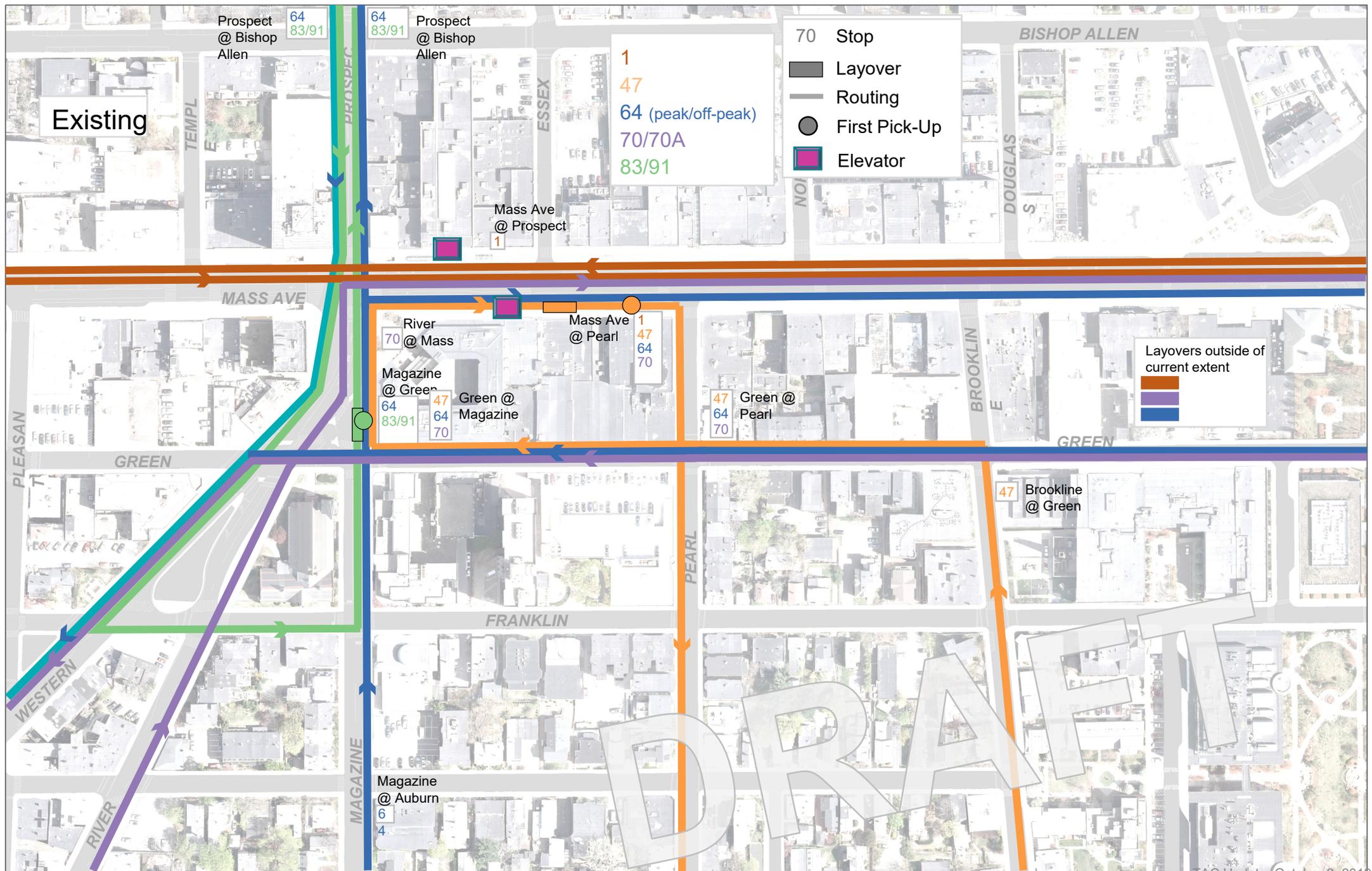


47 Route Change

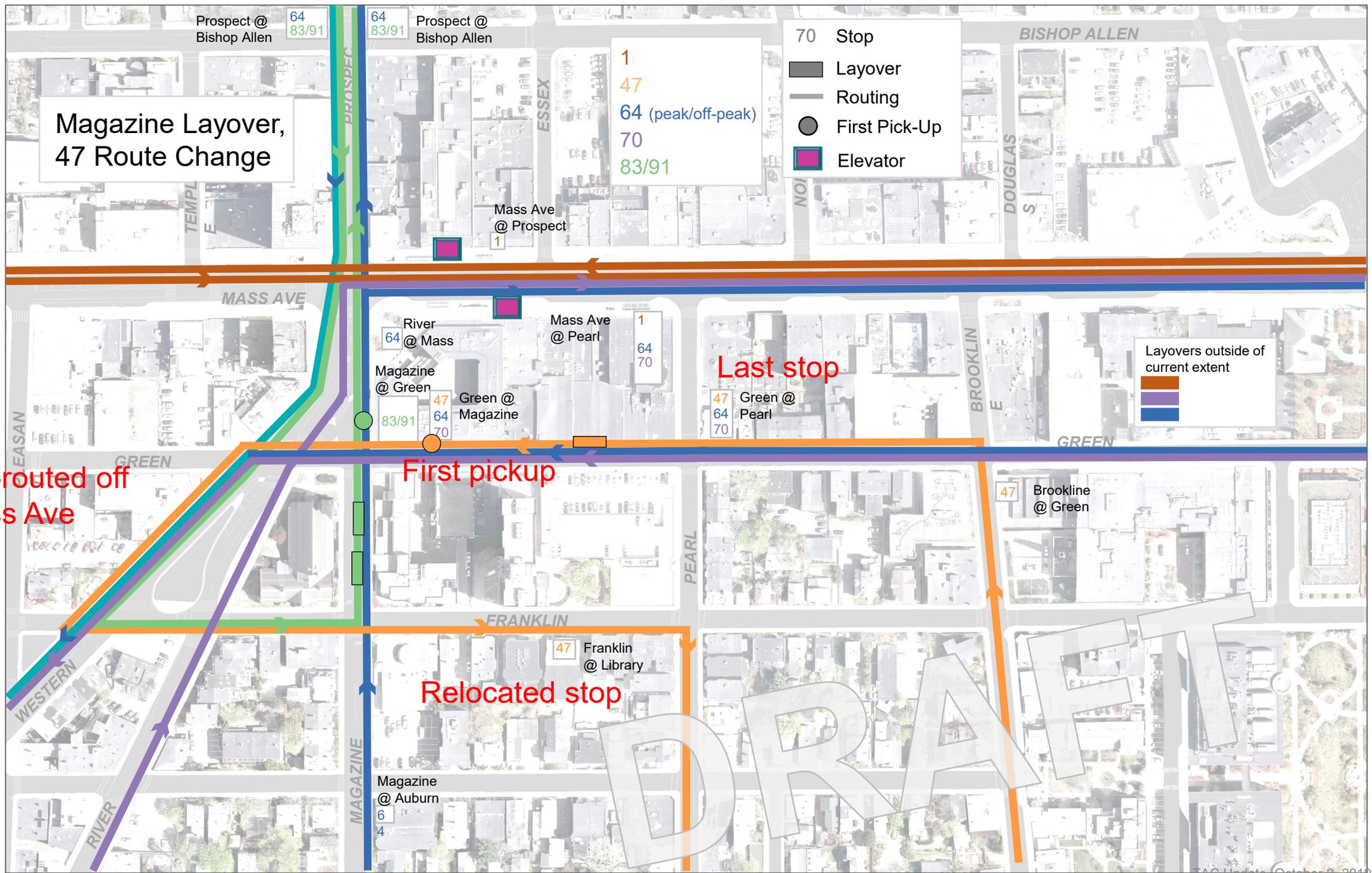
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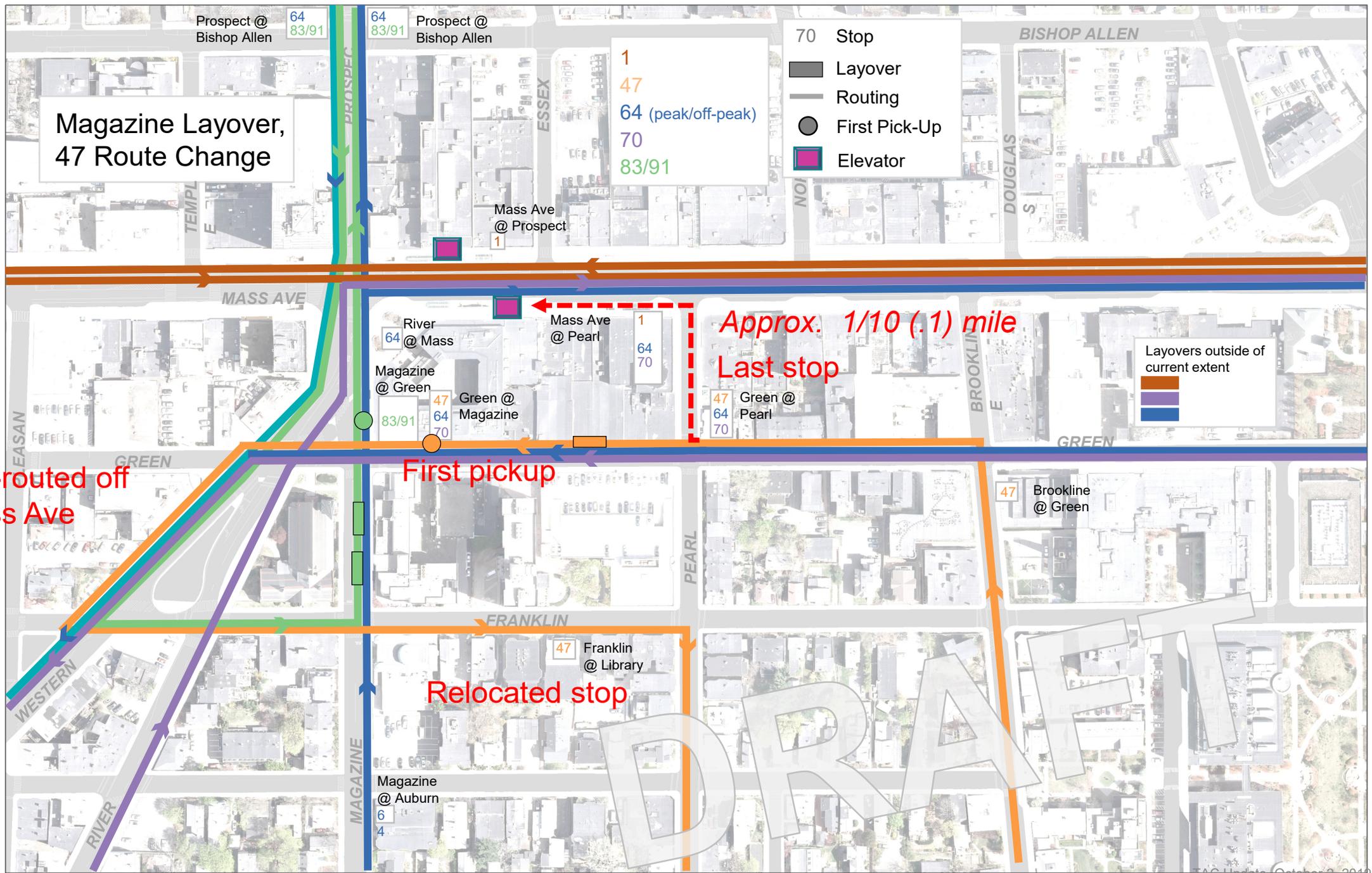
WORK IN PROGRESS



WORK IN PROGRESS



WORK IN PROGRESS



47 Route Change

Prospect @ Bishop Allen
64 83/91

Prospect @ Bishop Allen
64 83/91

Mass Ave @ Prospect
263 Boardings
851 Alightings

- 70 Stop
- Layover
- Routing
- First Pick-Up
- Elevator

1
47
64
70
83/91

Magazine @ Green
766 Boardings
955 Alightings

800

Mass @ Pearl
1,860 Boardings
1,818 Alightings

Green @ Magazine
1,188 Boardings
633 Alightings

Green @ Pearl
615 Boardings
497 Alightings

376

58

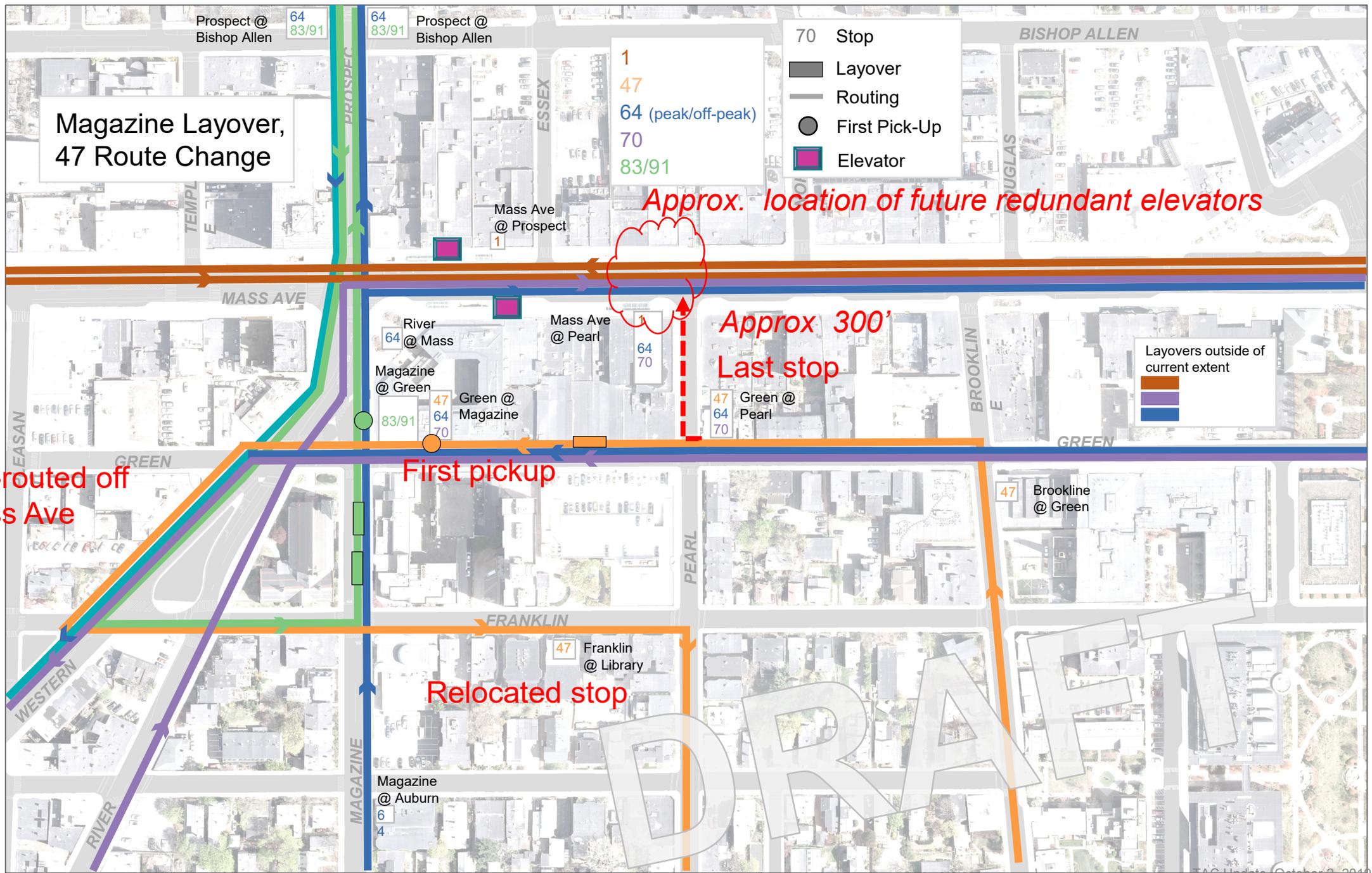
Franklin @ Library
47

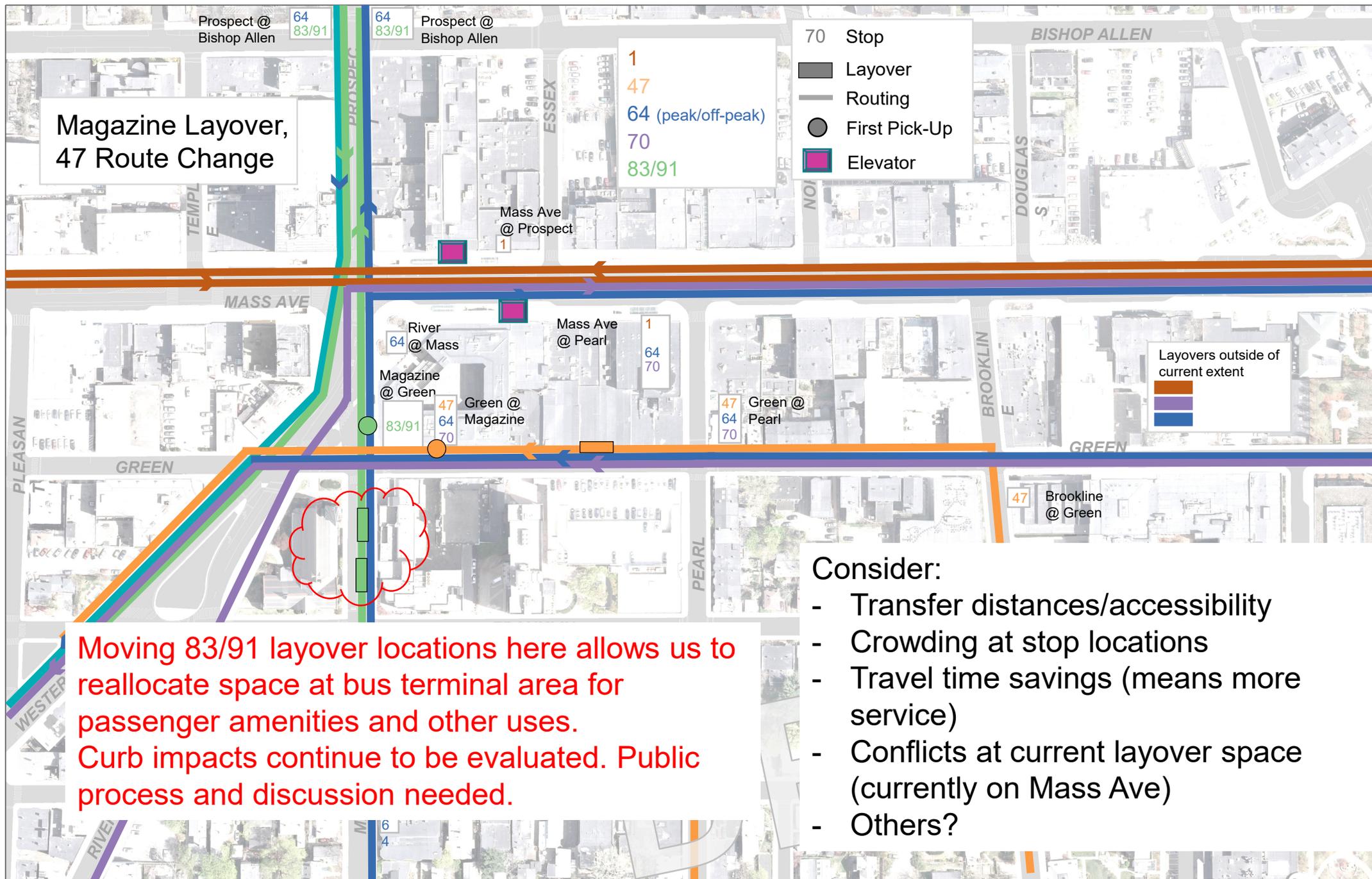
Magazine @ Auburn
64

Layovers outside of current extent

DRAFT

WORK IN PROGRESS





Magazine Layover, 47 Route Change

Moving 83/91 layover locations here allows us to reallocate space at bus terminal area for passenger amenities and other uses. Curb impacts continue to be evaluated. Public process and discussion needed.

Stop Impacts for Route 47 Changes Green @ Pearl

Before 2016 improvements



After 2016 improvements



Route 64 boardings (would be moved to Magazine @ Green): 21 riders

Route 70/70A Boardings (would remain): 430 riders

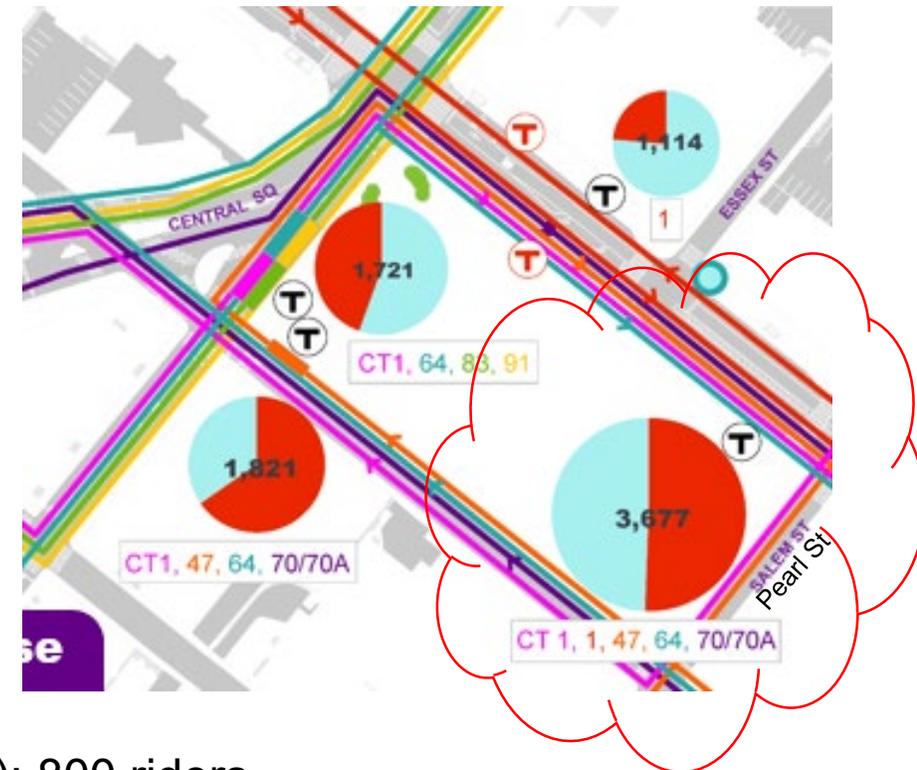
Route 47 alightings at this location (would remain): 477 riders

Route 47 alightings at Mass Ave @ Pearl (would be alighting here instead): 376 riders

Stop Impacts for Route 47 Changes Green @ Pearl



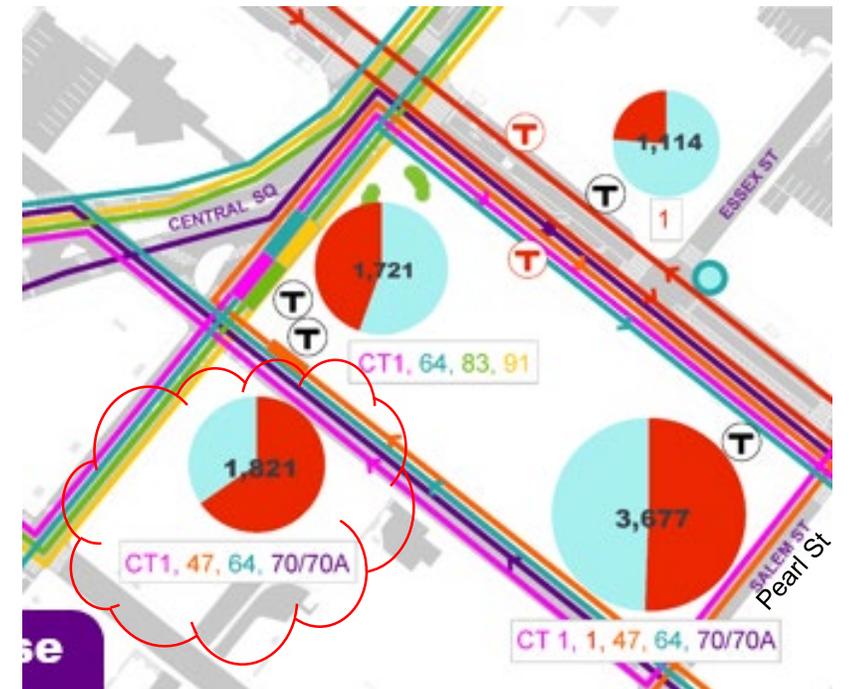
Stop Impacts for Route 47 Changes Mass Ave @ Pearl



Route 47 boardings (would be moved to Green @ Magazine): 800 riders
Route 1 boardings (would remain): 1,089
Route 1 alightings (would remain): 233

Stop Impacts for Route 47 Changes Green @ Magazine

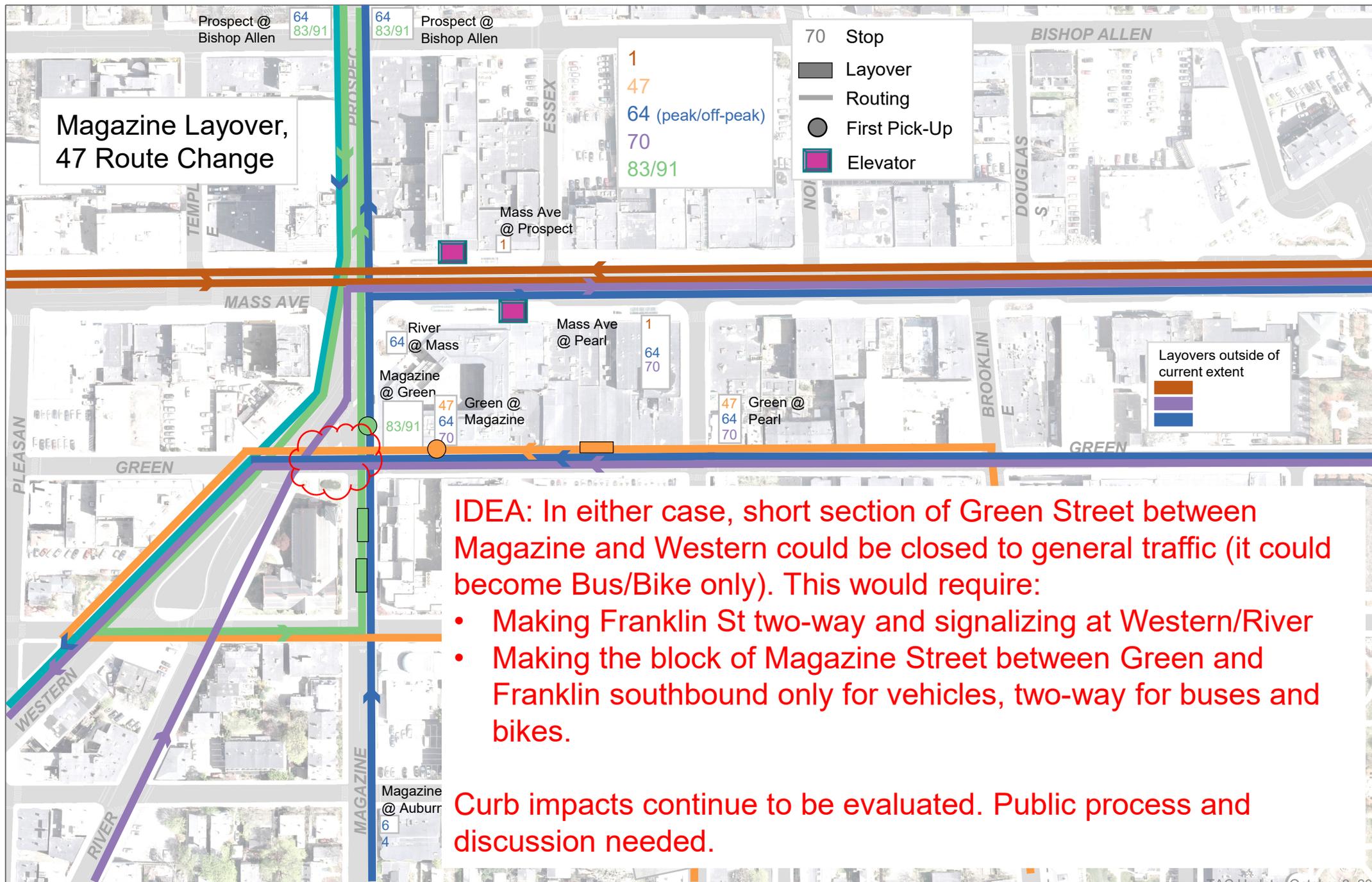
(curb extension/additional waiting area is likely feasible)

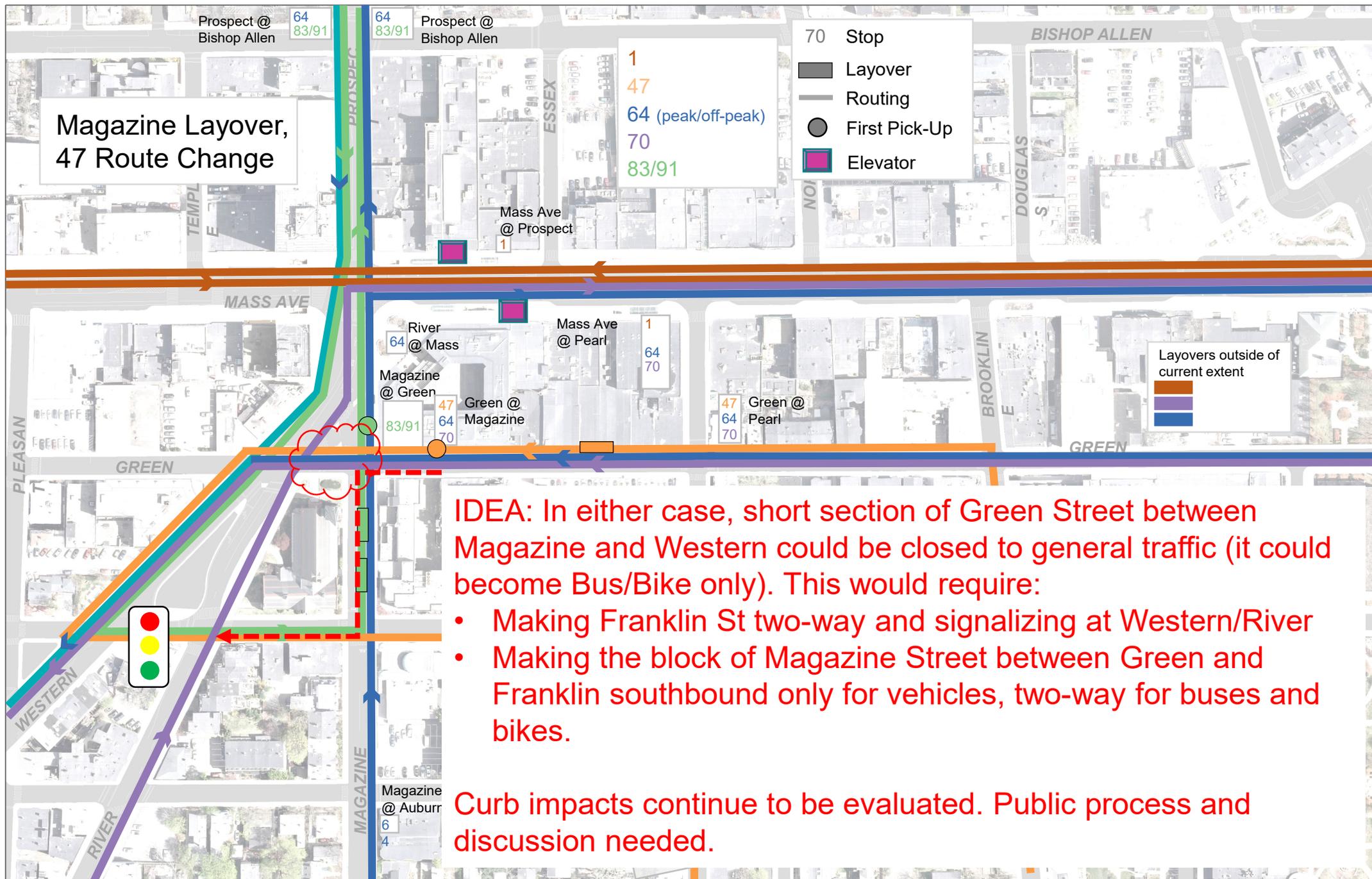


Route 70/70A boardings (would remain): 798 riders

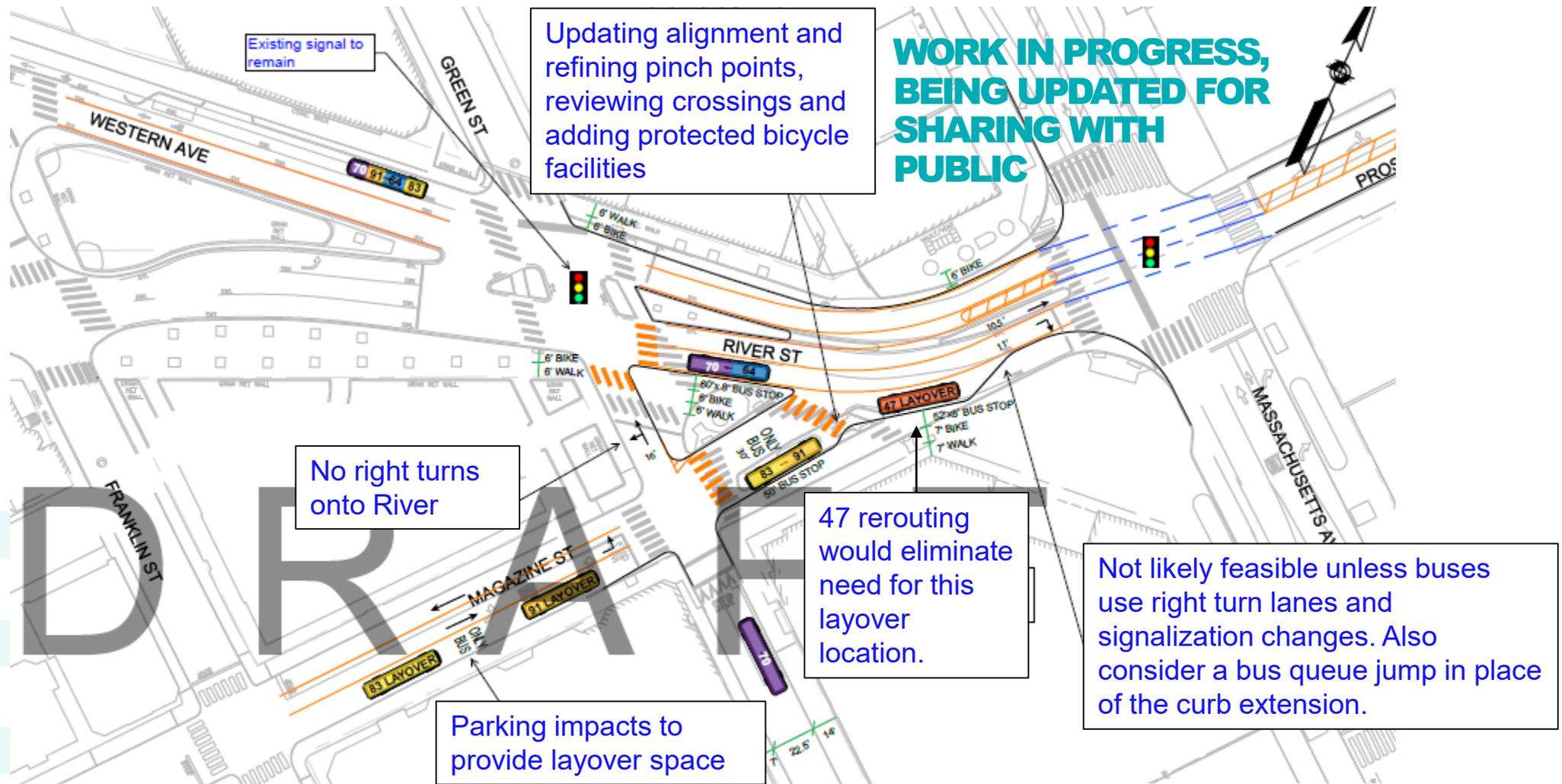
Route 47 boardings at Mass Ave @ Pearl (would move here): 800 riders

Route 64 boardings (off-peak only, would be moved): 111 riders



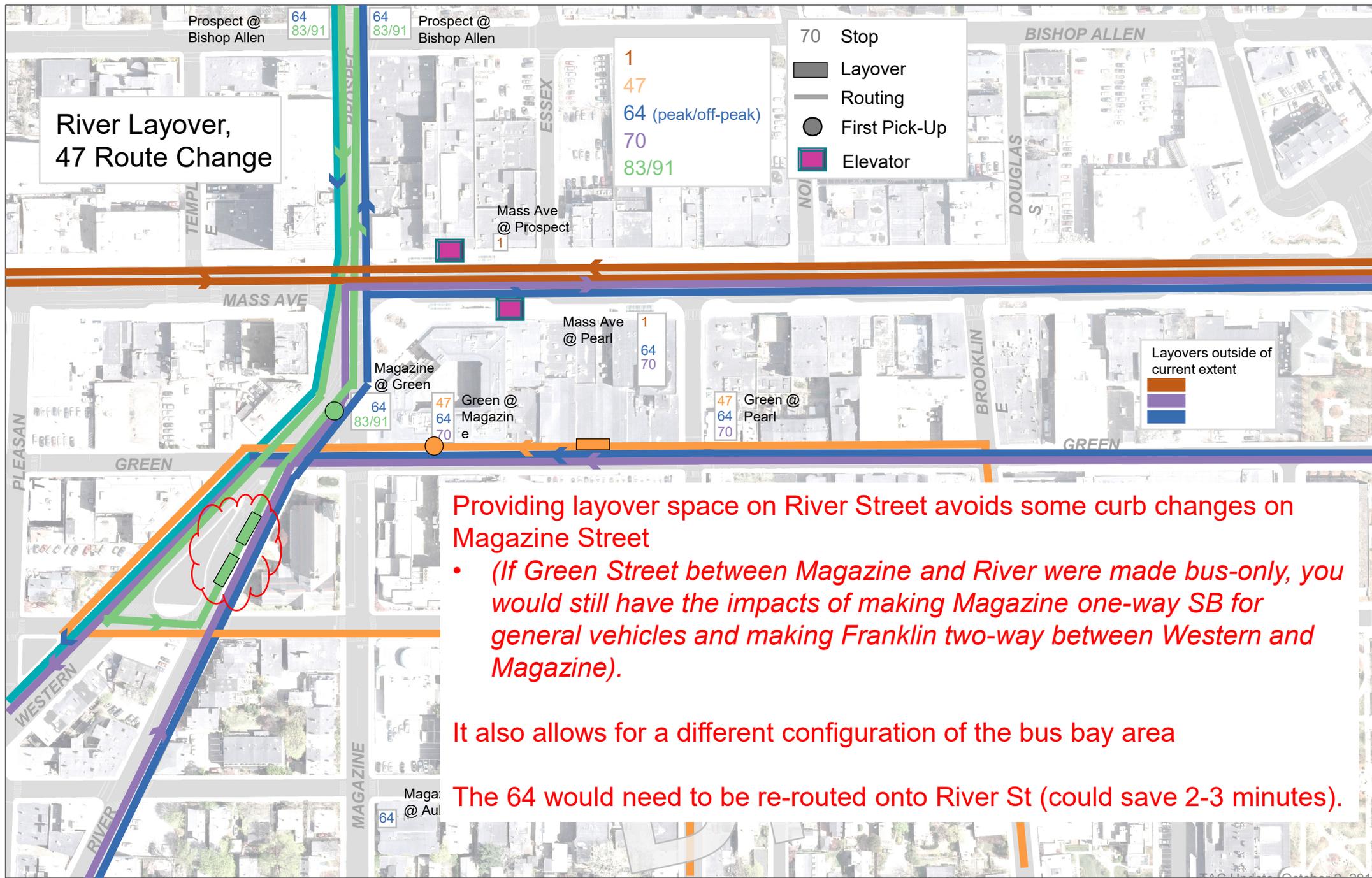


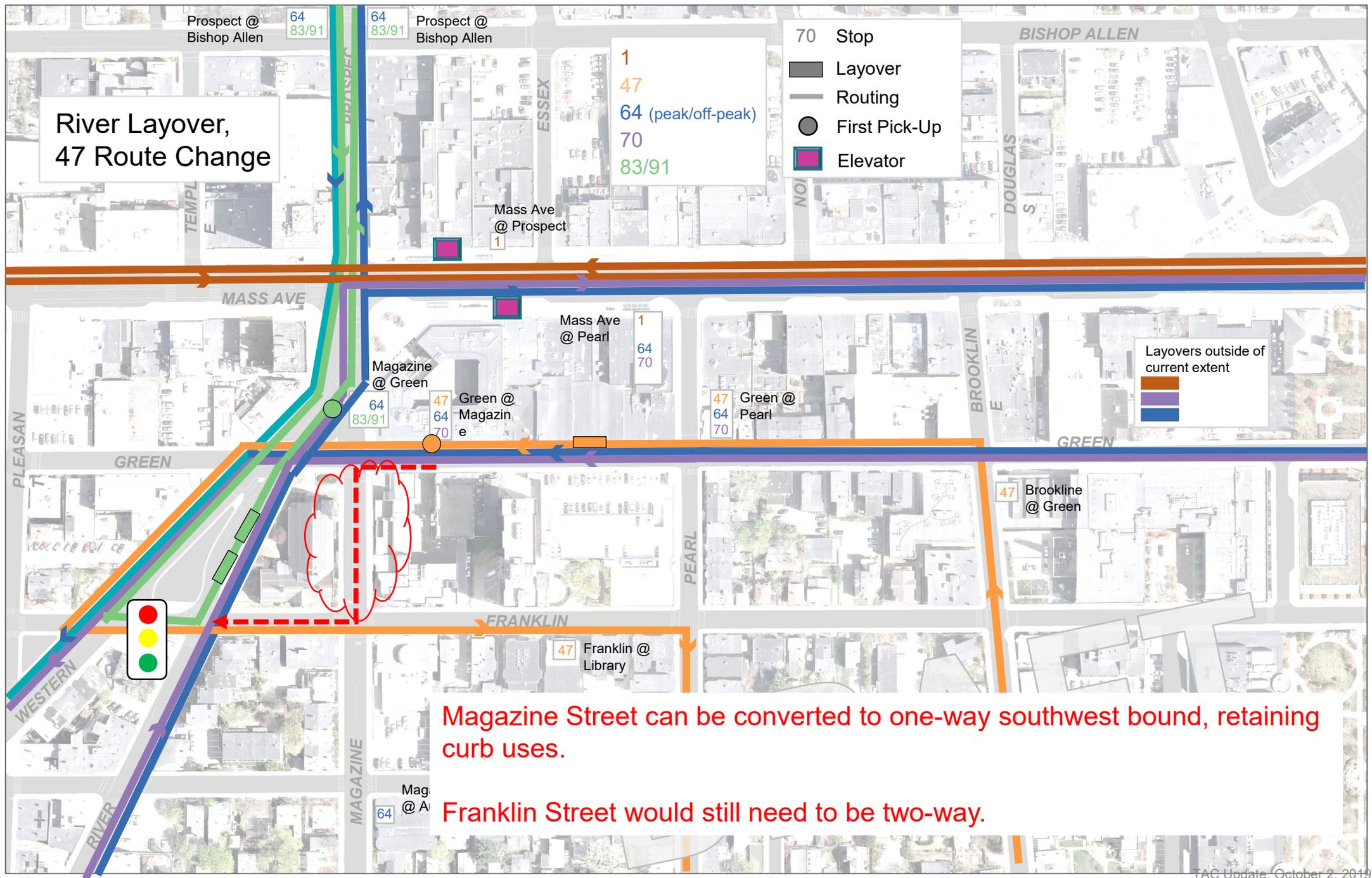
Early draft reconfiguration of bus bay area with Magazine layovers, WITHOUT Route 47 rerouting



Updates since this graphic was produced (not exhaustive):

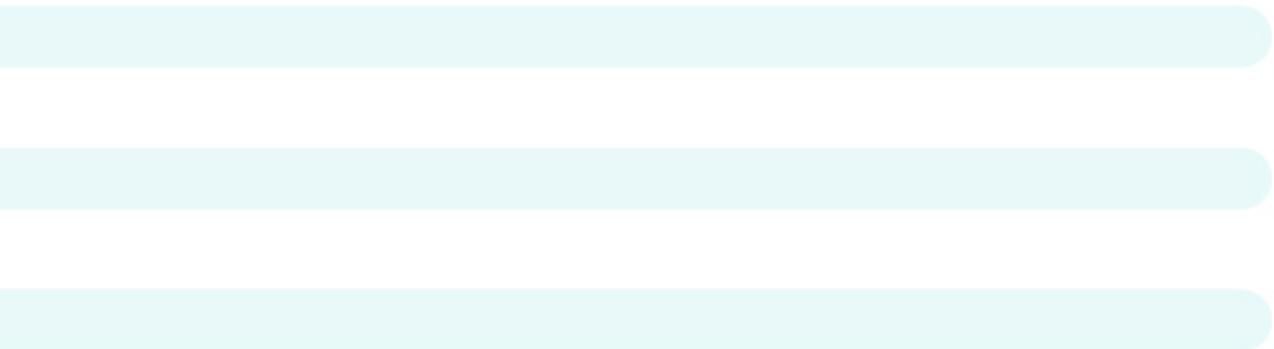
- Considering removal of median between River and Western at Green
- Realignment can ease up pinch points for pedestrians and cyclists
- Indicating likely location of separated bicycle facility





MBTA Bus Terminal Area

- Please share all your concerns and thoughts!
- What makes sense?
- What might we not be thinking about?
- Any other creative ideas?



Next Steps

Next Meetings

- **Working Group #7 Meeting:** Tuesday, October 22, 6-8pm at Manning Apartments
 - Concept plans – Auburn Street to Massachusetts Avenue (including Carl Barron Plaza, MBTA bus terminal area, and Green Street)
- **Public Meeting #2:** Tuesday, November 19, Putnam Ave Upper School, Time and details still TBD
 - Full Concept Design Introduction
 - Public Feedback

Complete and Share the Pre-Construction Survey!!

- Still live at cambridgema.gov/riverstreet!
- Will become the “before” survey for the River Street Reconstruction
- When the post-construction survey is complete, the two will help the City evaluate the project
- **Please help us distribute to your neighbors!**

1. What brings you to River Street? (Check all that apply)

I live nearby

I work nearby

I go to school nearby

I shop or do errands nearby

Other (please specify)

OK

Cambridgema.gov/RiverStreet



[Community Development Calendar](#) [Projects](#) [Publications](#) [Forms](#) [Contact Us](#) [cambridgema.gov](#)

Text Size: [A](#) [A](#) [A](#)

COMMUNITY DEVELOPMENT DEPARTMENT
344 Broadway

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& ENERGY

ECONOMIC
DEVELOPMENT

FACTS
& MAPS

HOUSING

PARKS &
PLAYGROUNDS

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URBAN DESIGN

TRANSPORTATION

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DEVELOPMENT

[CDD](#) > [Projects](#) > [River Street Reconstruction](#)

River Street Reconstruction

Take our [survey](#) and tell us how River Street works for you today!

The River Street Reconstruction project will upgrade the sanitary sewer, stormwater and water subsurface infrastructure while developing a new surface design for River Street, the bus terminal area at River and Magazine Streets near Central Square, and Carl Barron Plaza. The project aims to create a streetscape design that meets the needs of all the various users and in a way that engages the local community, contributes to overall enhancement of the neighborhood, and meets the City's goals related to infrastructure, transportation, and urban design.

The concurrent design of Carl Barron Plaza, the significant open space at the heart of Central Square will include consideration of public art, fixed and/or unfixed furniture, access, plantings, and landscaping. The design must also consider the complexity of transportation needs related to the bus bays adjacent to the Plaza and people moving through the plaza.

The community outreach and design processes will occur throughout 2019 and into early 2020. Construction is anticipated to begin in Spring 2020.

[Click here to sign up for email updates on this project.](#)

[Click here to provide general comments and feedback.](#)

The **Public Input Map** is now closed, but you can still access it through the link to see what input was provided on issues and opportunities along River Street and in Carl Barron Plaza. Soon we will be posting a survey to understand how you use River Street today so that we can use that input in the design and also compare to a similar survey after the construction is complete.

Quick Links

I'd like to learn more about...

Neighborhood or Square

Current Projects...



[Click the Map to
Explore Cambridge](#)

**A 5-STAR Community
and National Leader in
Sustainability**



The Latest	Schedule	Description	Community Process	Documents	Carl Barron Plaza
Contact					

September 2019

THANK YOU!

riverstreet@cambridgema.gov

Extra slides

“Flatiron” Building Area



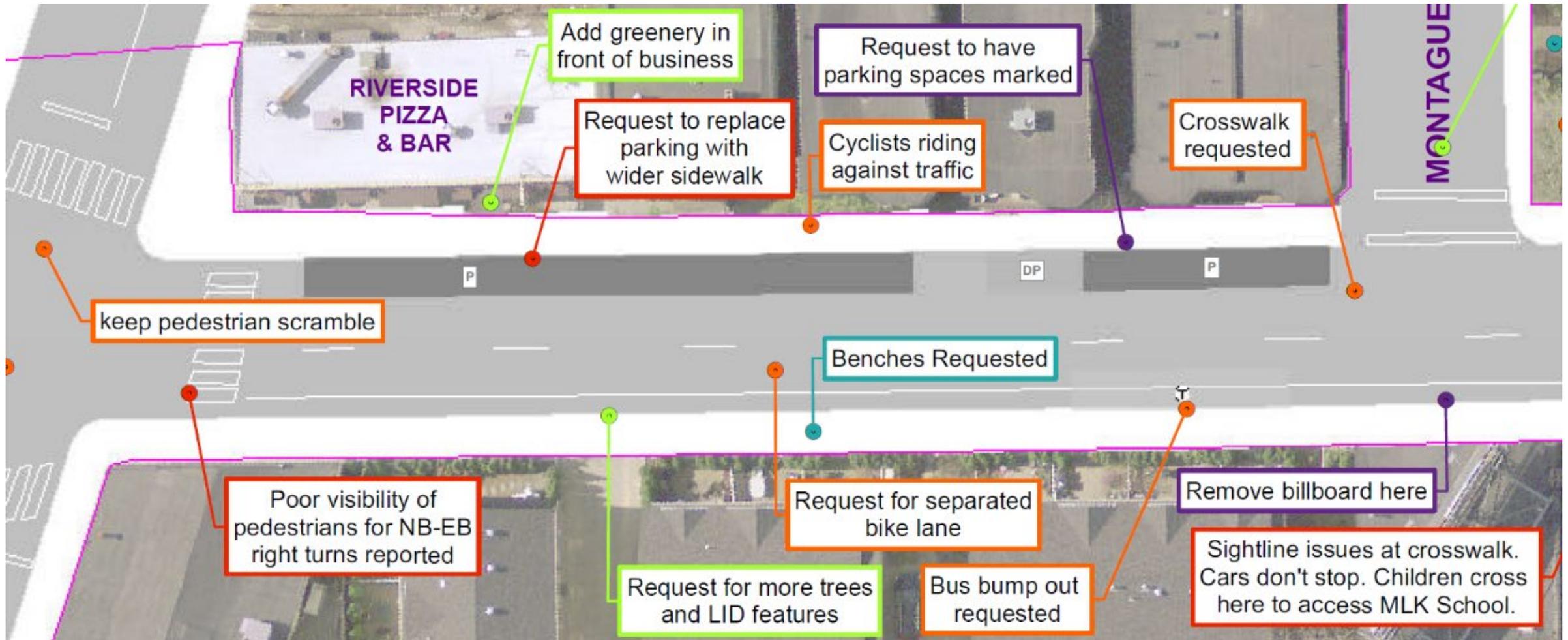
Guidance for Our Designers: Shared Design Goals

- Safe
- Inclusive
- Human Scale
- Ecological
- Multimodal
- Activated
- Resilient



Western Avenue

Guidance for Our Designers: Location-Specific Comment Map



The Street Design Exercise

Things we noticed on working group members' layouts of a generic street with the same width as River Street and sample land uses:

- Every group debated reducing the street width to one lane of travel - some wanted it, others were concerned about traffic/queueing impacts
- Most groups alternated green space with parking along the curbside
- Two out of three groups included a one-way bikeway (the third debated it)
- Two out of three groups included a bus lane (the third debated it)



Conceptual Design Development: Idea Exploration

Many Ideas from the Public Process to Explore, Including:

Separated Bicycle Facilities

- Left side cycle track
- Two-way cycle track
- One lane cycle track

Traffic Operations

- Reduce travel lanes to one lane
- Signal timing changes
- Bus only lane

Pedestrian Facilities

- Safer and additional pedestrian crossings

Placemaking and Green Infrastructure

- Gateway treatments
- Repurposing curb space for green infrastructure, seating for businesses, etc.
- Creating places to be

A Few Ideas Were Tough to Implement

Separated Bicycle Facilities

- *Left side cycle track*
- *Two-way cycle track*
- One lane cycle track

Traffic Operations

- *Reduce travel lanes to one lane*
- Signal timing changes
- Bus lane

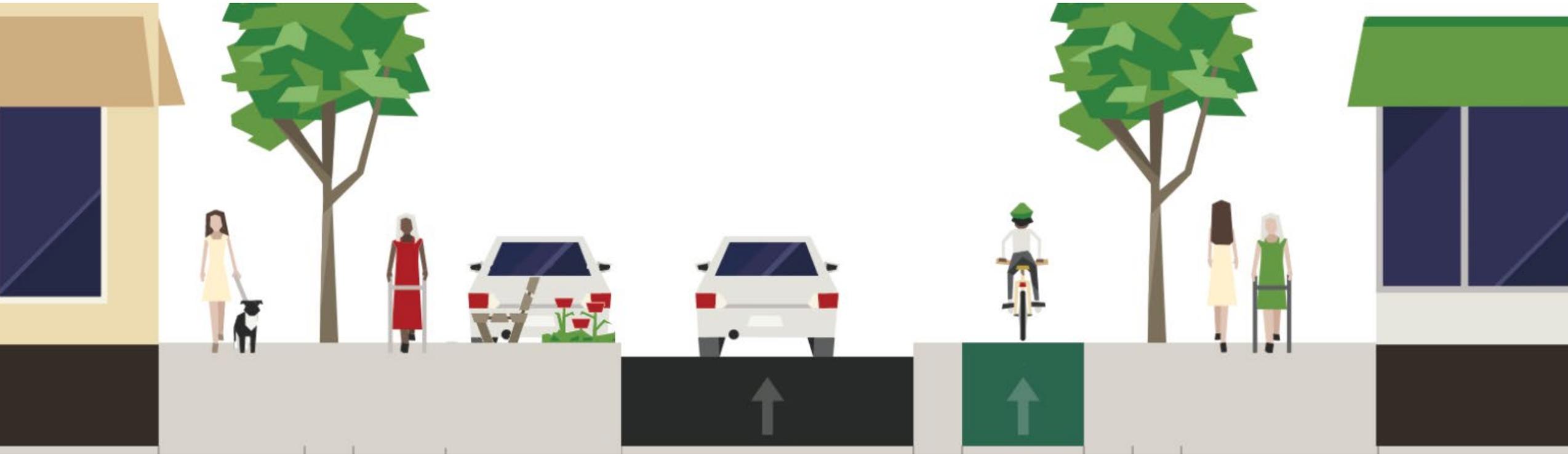
Pedestrian Facilities

- Safer and additional pedestrian crossings

Placemaking and Green Infrastructure

- Gateway treatments
- Repurposing curb space for green infrastructure, seating for businesses, etc.
- Creating places to be

One-lane between Putnam Avenue and Fire Station and Fire Station



One-lane between Putnam Avenue and Fire Station

Pros

- 4' to 6' more for activation/buffer on north side
- Shorter pedestrian crossings
- Wider bicycle facility/wider buffer
- Easier bicycle facility maintenance

Cons

- Requires raised cycle track to be mountable (emergency vehicle access) which could exacerbate illegal parking/stopping/loading



Early rendering of Beacon Street cycle track (Somerville)

One-lane between Putnam Avenue and Fire Station

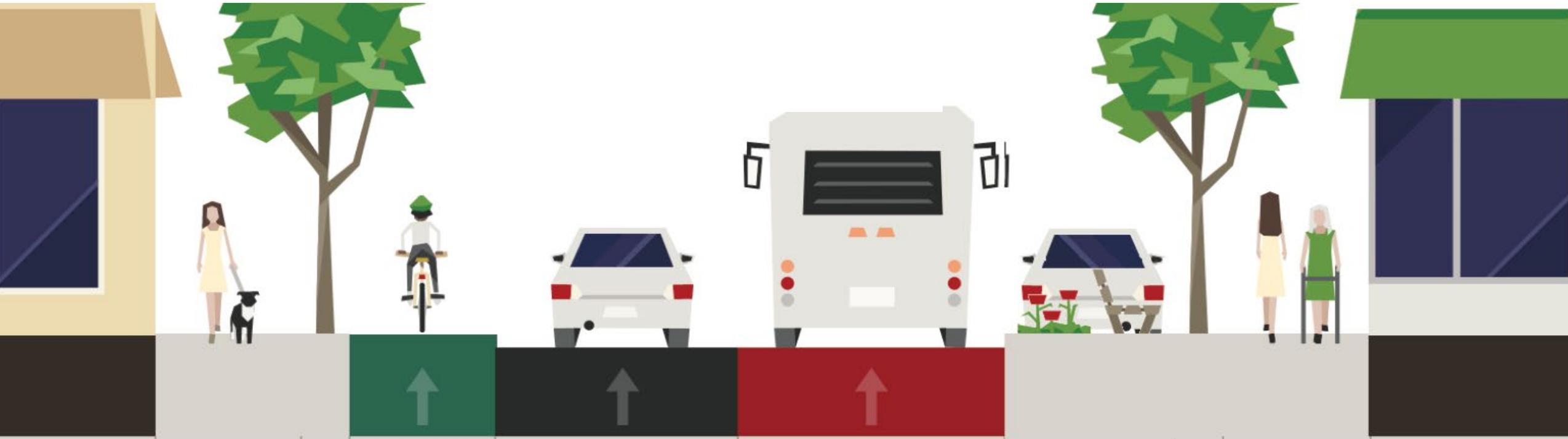
Pros

- 4' to 6' more for activation/buffer on north side
- Shorter pedestrian crossings
- Wider bicycle facility/wider buffer
- Easier bicycle facility maintenance

Cons

- Requires raised cycle track to be mountable (emergency vehicle access) which could exacerbate illegal parking/stopping/loading
- Maintaining clear width and mountable feature would be challenging during and after snow events
- Buses experience same congestion as general vehicles
- Street/utility repairs would block entire street
- Routine operations including trash collection and street sweeping would block street

Left-side Cycle Track



Left-side Cycle Track

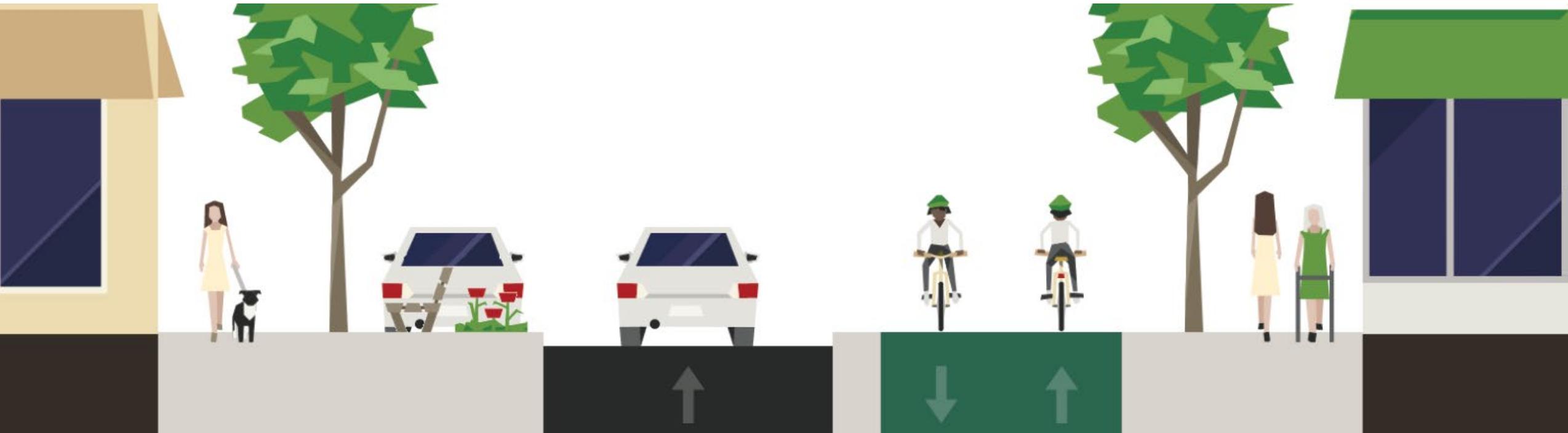
Pros

- Reduces number of potential bus stop conflicts
- Sunny side of the street (melts ice quicker)
- Fewer major driveway conflicts

Cons

- Cyclists would cross more conflict points/travel lanes
- Transitions at each end of corridor would cause more delay for cyclists
- Uncommon design
- Adjacent to general travel lane (as opposed to a bus lane, which has fewer vehicles and trucks)

Two-way Cycle Track



Two-way Cycle Track

Pros

- Allows for two-way travel and accommodates desire line to/from Allston neighborhood
- Creates a wider buffer between pedestrians and street

Cons

- Retaining two travel lanes requires removal of most curbside uses, including commercial loading and disabled parking
- Reduces opportunity to provide activation spaces for local businesses
- Significant conflict points for cyclists who are travelling contraflow to traffic

Memorial Drive to Putnam Ave

Two travel lanes

Potential BlueBikes Locations

New trees & landscaping for “neighborhood feel”

Question: Will reducing to one lane for general travel cause traffic congestion, similar to when a lane is closed now?

Bus lane begins at bus stop, reducing amount of traffic adjacent to cycle track

Alternative bus stop location

Combined turn lane & bus lane

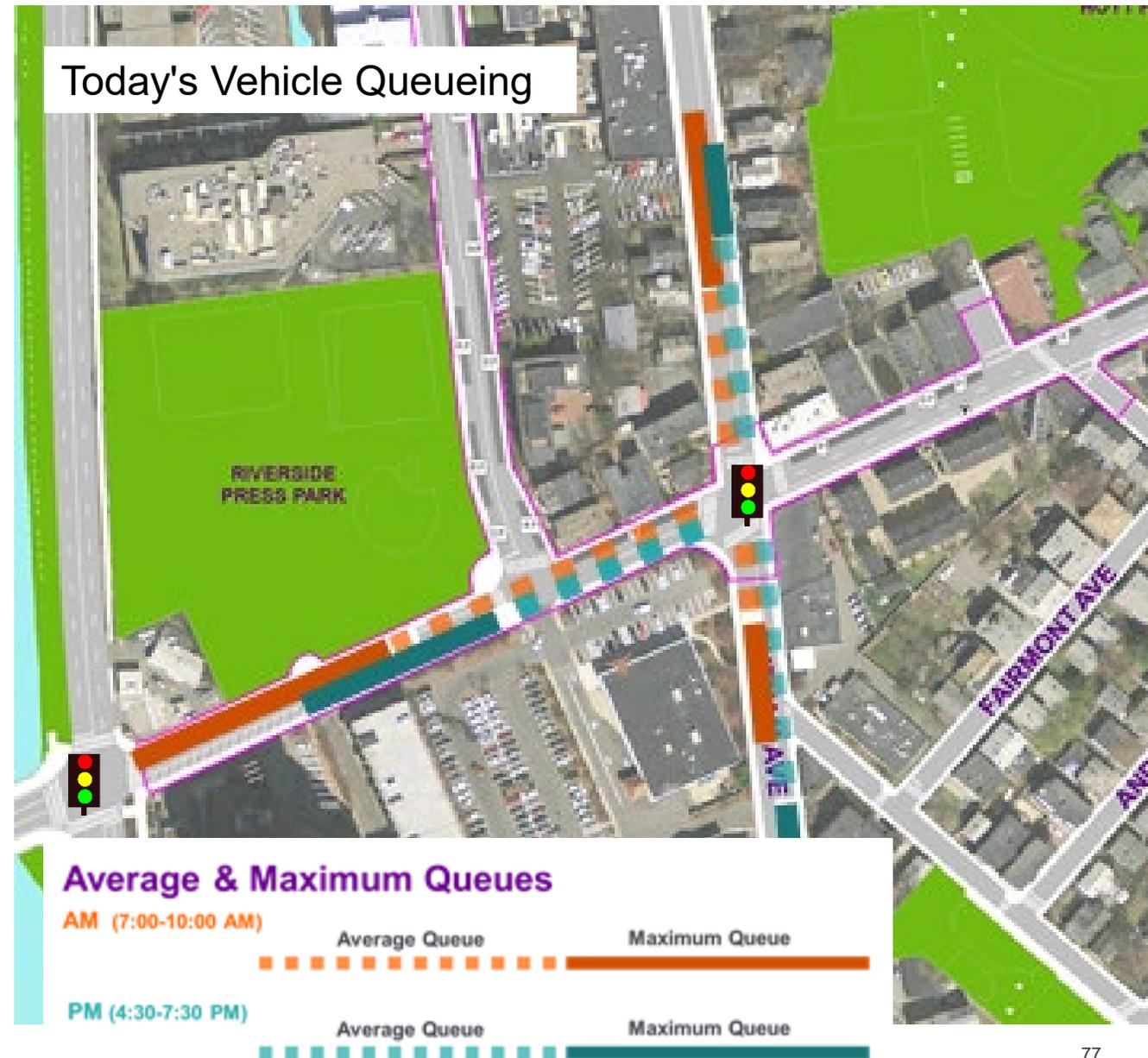
PLAN

WHOLE FOODS

The impact of signal timing

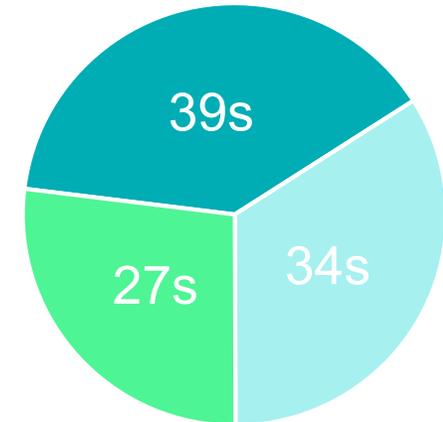
- Signals control how many people can get through an intersection
- Today, there is an "all stop" pedestrian crossing phase, which forces pedestrians to wait two phases to cross (73 seconds)
- "Concurrent" pedestrian phasing can help move everyone (people walking, biking taking the bus, and driving) through the intersection with less delay

Based on field measurements of vehicle queues

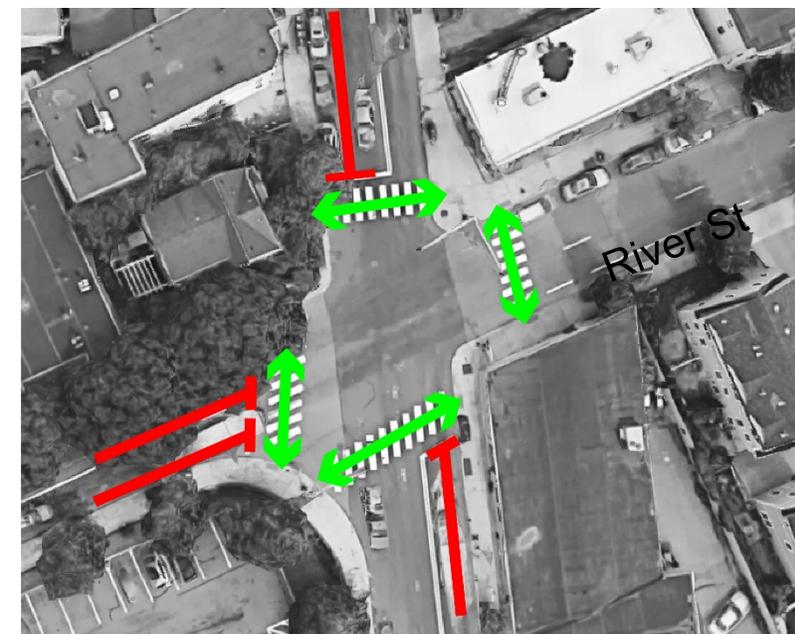
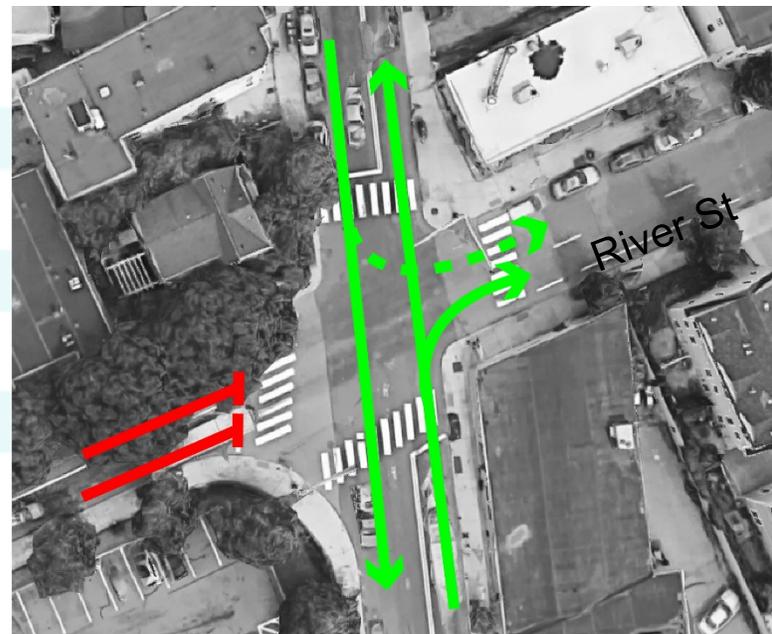
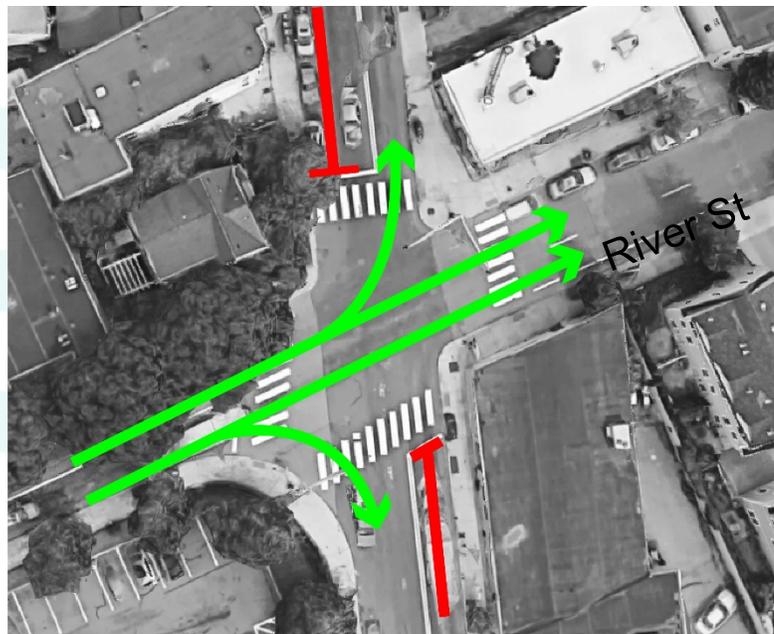


Today's signal timing at Putnam limits all users of River St.

- 3-phase signal, total 100 second cycle time
- The all stop or exclusive pedestrian phase forces everyone to wait longer to cross and limits how many vehicles can get through during the green time.

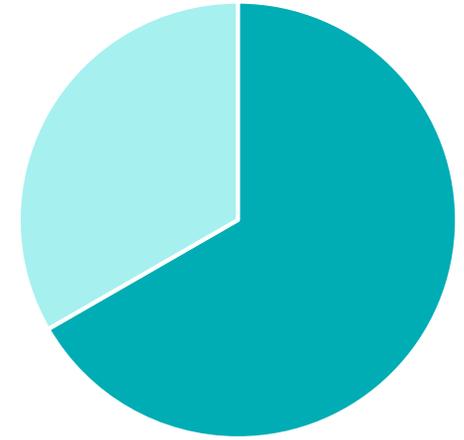


■ River Street ■ Putnam Avenue ■ Pedestrian

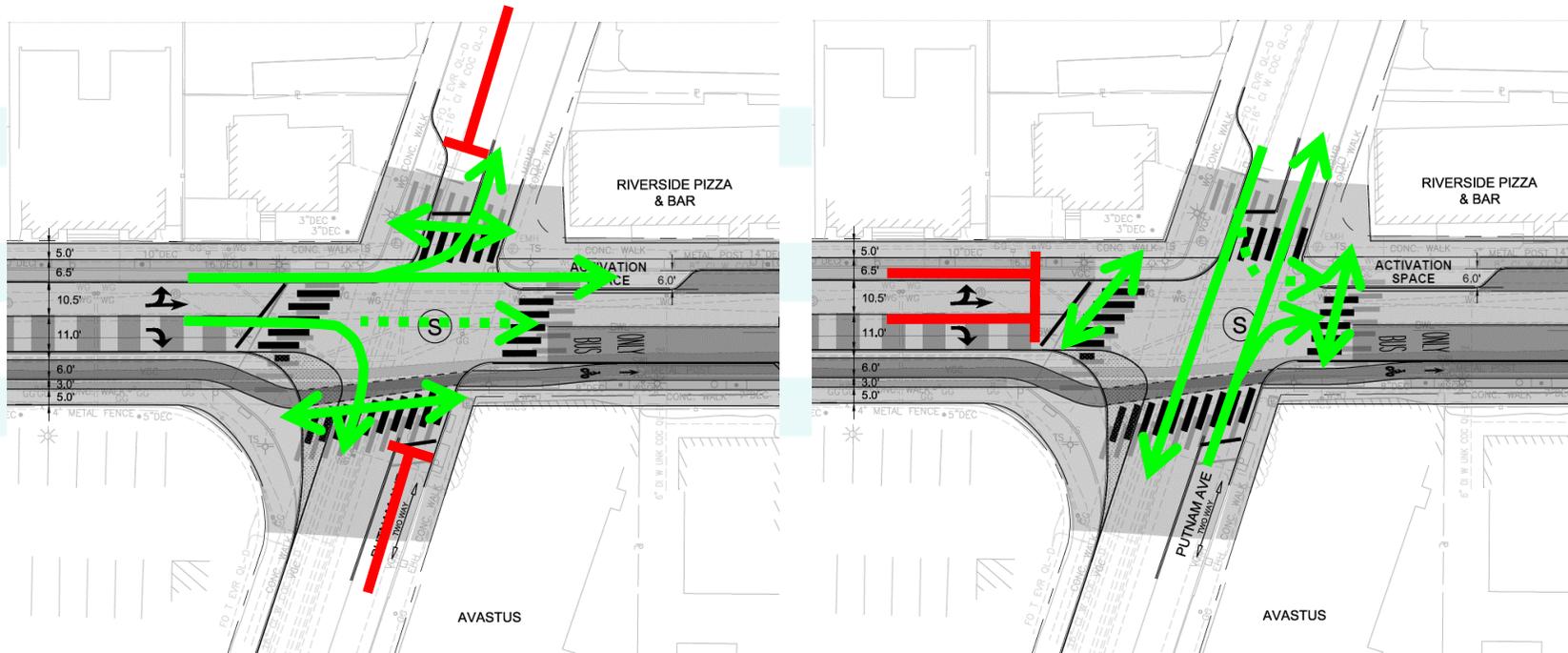


Concurrent phasing at Putnam Avenue could open the valve

- 2-phase signal can be more efficient for everyone
- **What about safety??**
 - Concurrent (pedestrians cross with parallel traffic) with Leading Pedestrian Interval (LPI)
 - Safety can be improved with shorter crossing distances and better sightlines



■ River Street ■ Putnam Avenue



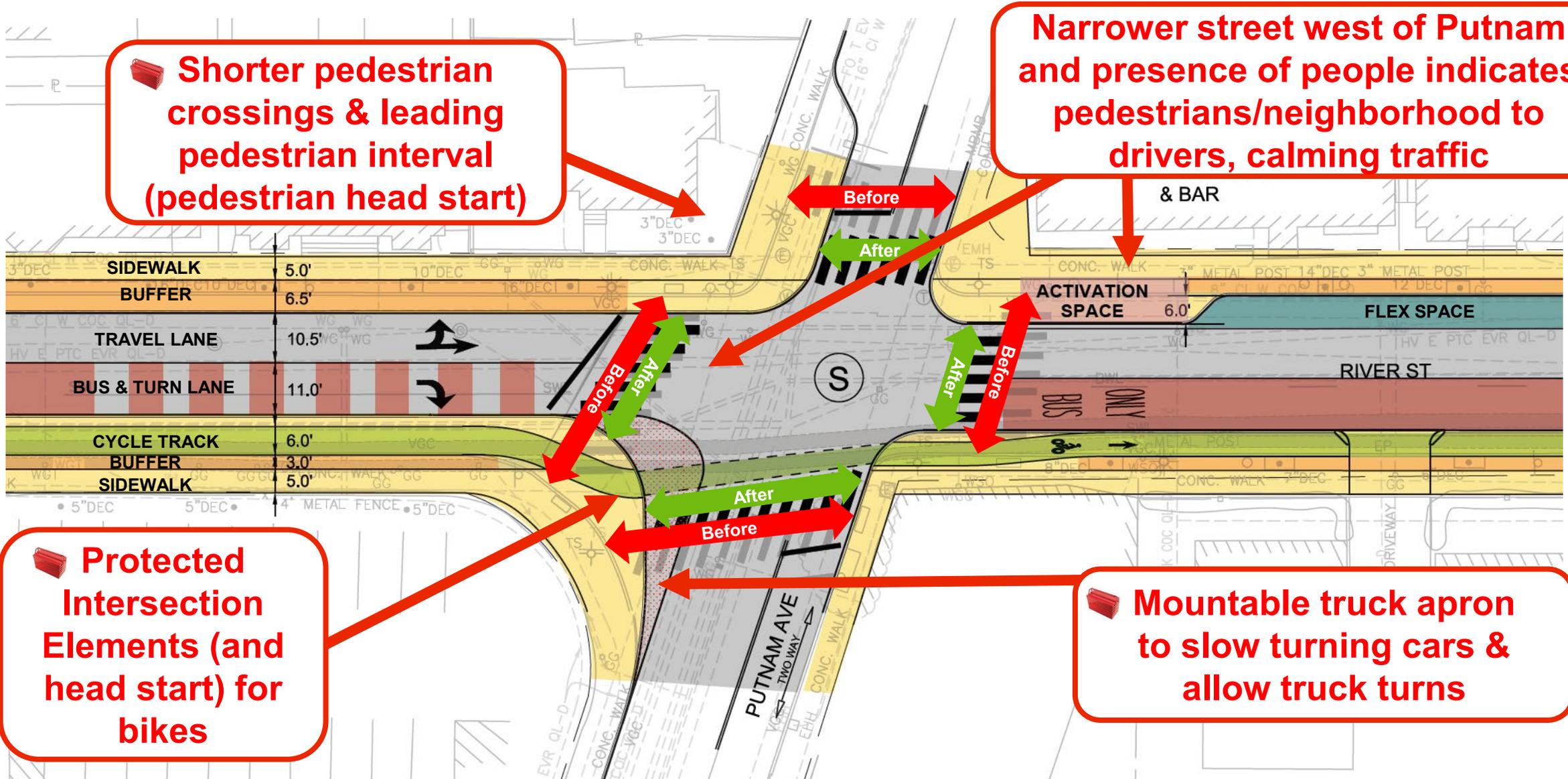
Pedestrians cross concurrently with traffic in an intersection with a safer geometry



Intersection with Putnam Avenue

Shorter pedestrian crossings & leading pedestrian interval (pedestrian head start)

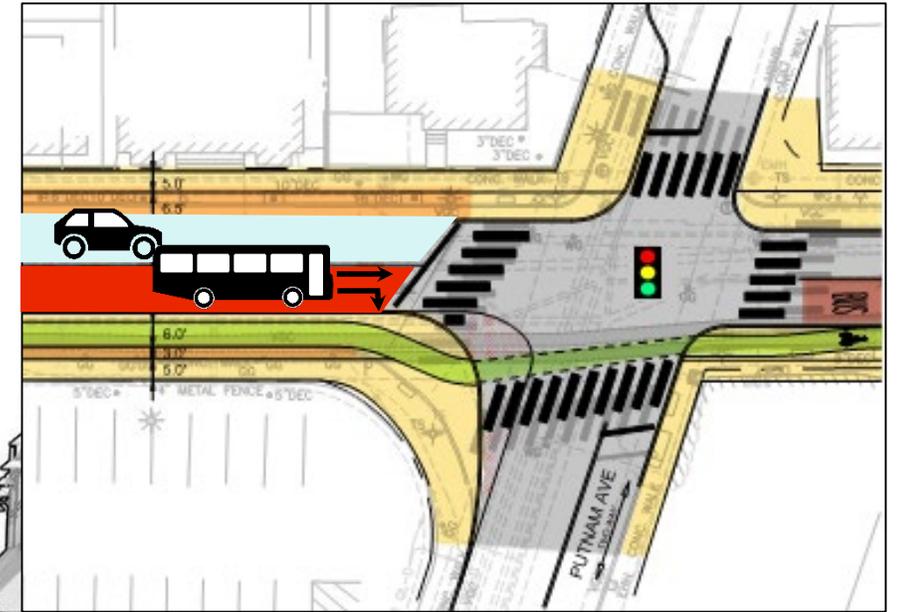
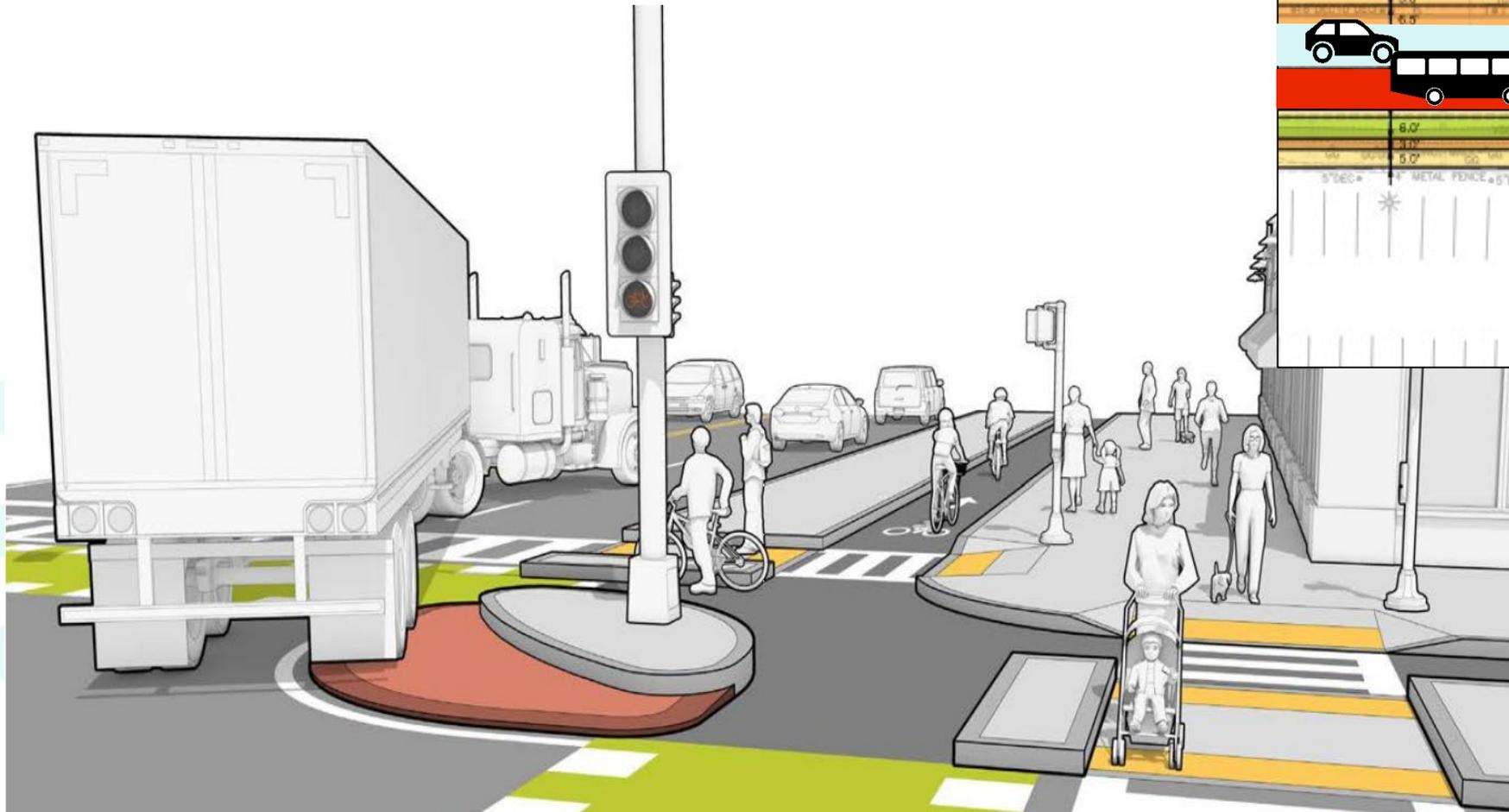
Narrower street west of Putnam and presence of people indicates pedestrians/neighborhood to drivers, calming traffic

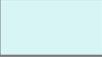


Protected Intersection Elements (and head start) for bikes

Mountable truck apron to slow turning cars & allow truck turns

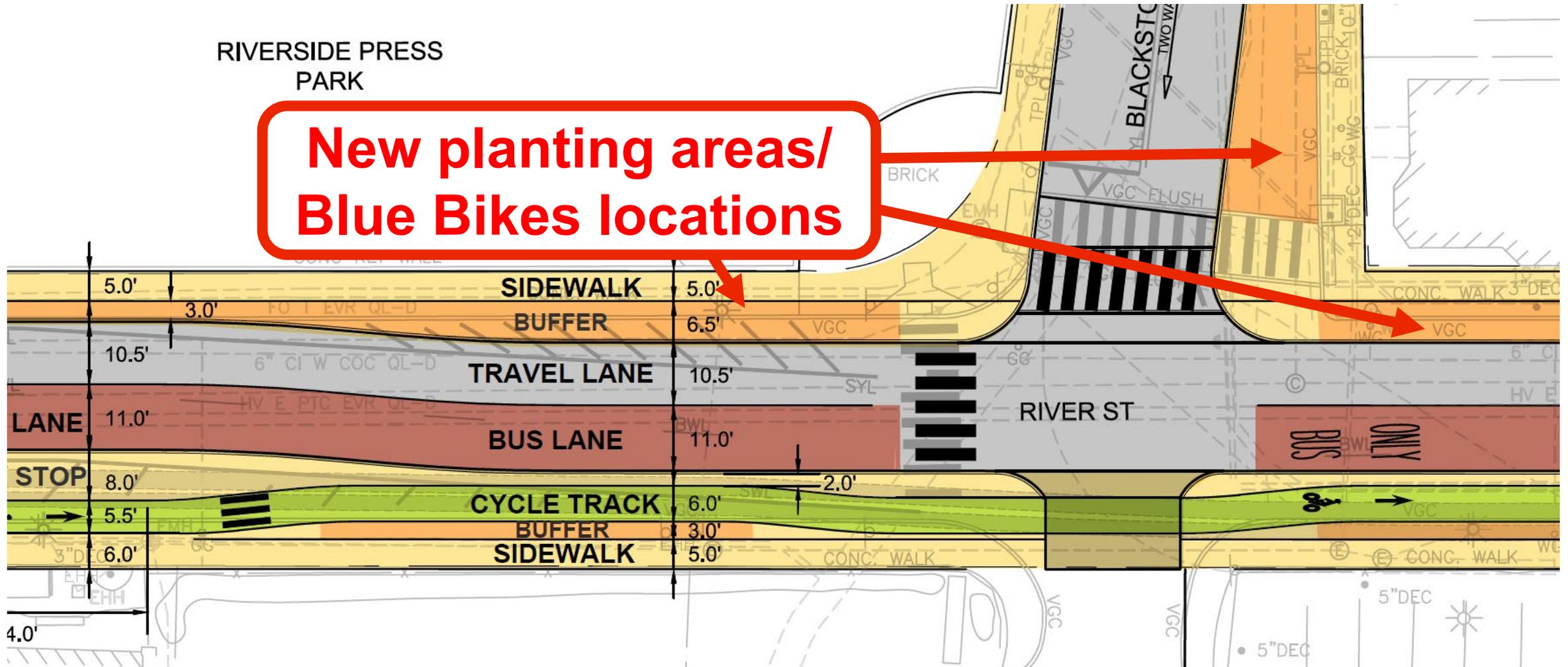
Mountable Turn Apron



-  General purpose lane
-  Transit lane + right turn lane



Extending the Neighborhood Feel



At Howard Street/Kelly Road

Existing signal not warranted based on traffic volumes, but signal serves other uses:

- Provides signalized pedestrian crossing on the Amigos School's designated Safe Route to School
- Stops traffic for Fire Department
- Could help mitigate other implications of the design: traffic volumes could increase with one of two Tubman options

