



# I-90 ALLSTON INTERCHANGE

## A MULTIMODAL TRANSPORTATION PROJECT

Cambridgeport Neighborhood Association

January 19 – Central Square Library

# Meeting Agenda

- **Welcome & Introductions**
- **Project Purpose**
- **Project Area**
- **Project History Since 12/15/15**
- **MassDOT Concept 3K Refined**
- **City of Cambridge Specifics**
  - Traffic impacts
  - Noise impacts
- **Ongoing Public Involvement**

# Shared Priorities

- ✓ *Improve safety for all modes: walking, cycling, driving, transit*
- ✓ **Realign I-90**
- ✓ **Context sensitive design or:**
  - ✓ **Lessen impact of interchange**
  - ✓ **Avoid inducing cut-through traffic with new configuration**
  - ✓ **Reconnect sections of Allston to each other and the River**
- ✓ **Protect abutting and adjacent neighborhoods during construction**
- ✓ **A more vibrant Cambridge Street that serves all modes**
- ✓ **Accessibility to transit at future West Station**

# Project Purpose

- Replace structurally deficient/functionally obsolete I-90 viaduct
- Straighten main line through Beacon Park Yards (BPY)
  - All Electronic Tolling
  - Rebuild Urban Interchange
  - Geometric and safety improvements
- Realign Soldiers' Field Road (SFR)
- Create a more vibrant Cambridge Street
- Construct urban improvements/accessibility
  - Shared Use Path (SUP) "Peoples' Pike"
  - Rebuild Lincoln Street Pedestrian Bridge
  - Introduce Cycle Tracks on Cambridge Street
- Build BPY Layover and West Station

# Project Area



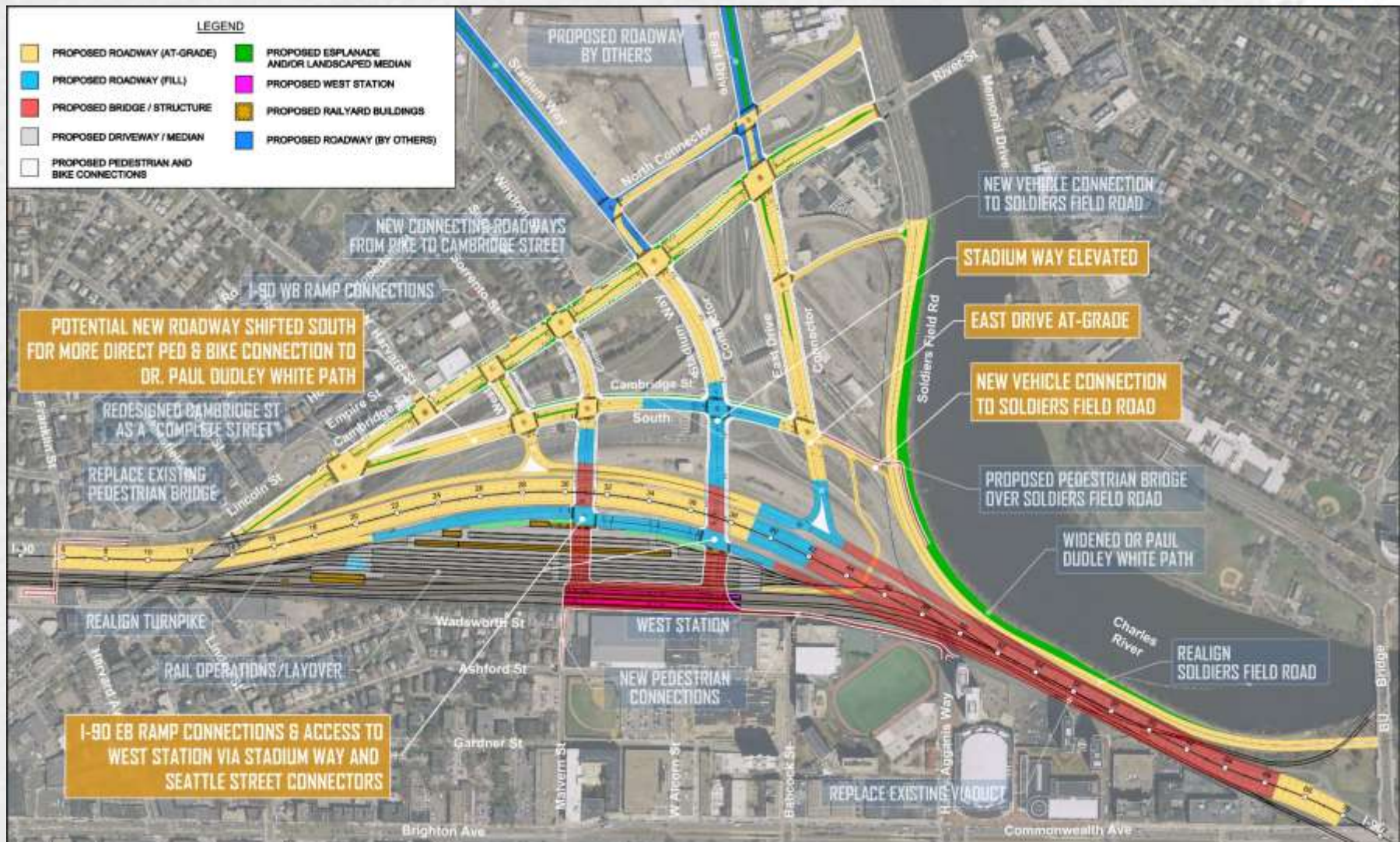
# Since We Last Visited CNA – Ongoing Outreach

- **Taskforce meetings:**
  - February 24<sup>th</sup>, 2016
  - March 10<sup>th</sup>, 2016
  - March 30<sup>th</sup>, 2016 (site walk)
  - April 7<sup>th</sup>, 2016
  - April 28<sup>th</sup>, 2016
  - May 19<sup>th</sup>, 2016
  - October 13<sup>th</sup>, 2016
- **Targeted briefings:**
  - February 29<sup>th</sup>, 2016 – Brookline Transportation Committee
  - April 22<sup>nd</sup>, 2016 – Allston Village Main Streets
- **Public information meeting: December 8<sup>th</sup>, 2016**

# Since We Last Visited CNA - BPDA

- **Boston Planning & Development Agency (BPDA) (nee BRA) place-making process:**
  - Used Option 3K4 as a baseline for analysis
  - “Test the district to ensure a wide range of successful outcomes”
  - Looked at:
    - Public Realm/Open Space
    - Mobility/Connectivity
    - Development Potential/Flexibility
    - Distinctive Place/Context Sensitive
    - Energy Efficiency/Sustainability
  - Meetings with I-90 Allston Taskforce on:
    - December 17<sup>th</sup>, 2015
    - January 11<sup>th</sup>, 2016
    - January 20<sup>th</sup>, 2016
    - February 3<sup>rd</sup>, 2016
    - June 27<sup>th</sup>, 2016
    - July 14<sup>th</sup>, 2016

# MassDOT Concept 3K-4



# Major Placemaking Standards



## Organizing the Placemaking Standards

- Charles River Edges and Connections
- Areas Along and Above the Highway and Rail Alignment
- Cambridge Street and Connections to the North
- Areas within the New District
- Area-Wide Standards
- Guidelines for Future Master Planning



# Placemaking Study – Major Standards



## • Charles River Edges and Connections

Charles River Edges and Connections

**1. Add I-90 and Soldiers Field Road connections**

*Provide additional connections in order to help support the interchange.*

- The intersection of Cambridge St. is simplified.
- The Paul D. Campello Path can be near River Street.
- The land in the "corner" near Charles River can be more adaptively reused.

✓

I-90 Allston Interchange

Charles River Edges and Connections

**2. Realign portions of Soldiers Field Road along the River**

*Soldiers Field Road open space, public.*

Realignment will require new solution to access to Houghton Chemical and the MBTA maintenance facility.

✓

I-90 Allston Interchange

Charles River Edges and Connections

**3. Create Park Space on the Charles**

*Provide the space alignments. \*\**

The space along the Charles will expand the Esplanade and a neighborhood and district destination.

✓

I-90 Allston Interchange

Charles River Edges and Connections

**4. Provide a primary, at-grade pedestrian and bicycle connection to the Charles River edge**

*As part of the roadway interchange and intersection design along Soldiers Field Road, provide a connection to the open space along the River for pedestrians and bicyclists. \*\**

Depressing a section of Soldiers Field Road will create the opportunity for the continuation of at-grade pedestrian and bicycle links directly into the new river edge park land.

✓

I-90 Allston Interchange Placemaking Study

# Placemaking Study – Major Standards



- Areas Along and Above the Highway and Rail Alignment

## Areas Along and Above the Highway and Rail Alignment

### 9. Provide for an additional east/west street connection between Cambridge Street and the West Station Area

*Provide for a direct street connection with bicycle and pedestrian accommodations at or near the Cambridge Street Bridge over I-90.*



DNP



The design of the project should anticipate future, phased construction of a new street above the rail and highway alignment that will connect the West Station area to the Cambridge Street Bridge over I-90.

DNP

## Areas Along and Above the Highway and Rail Alignment

### 15. Provide a north/south link for shuttles and buses

*Provide a north/south transit link between West Station, and areas to the east and west of the station area. \*\**



Buses and shuttles should not terminate their routes at West Station, but should be able to continue across the I-90 and rail alignment. The project should establish feasible ways to accomplish this north/south link by evaluating potential routes and alignments.

DNP

## Areas Along and Above the Highway and Rail Alignment

### 16. Provide added width to the connecting bridges to West Station

*Provide added dimension (such as landscaped aprons) to the bridges that span above the highway and rail alignment to provide visual and landscape amenities to support a pleasant pedestrian and bicycle environment. \**



The Long Street Bridge in Columbus, Ohio is an award-winning solution that widens a highway bridge to create a pedestrian-friendly, landscaped crossing.



NRCA Landscape Architects



# Placemaking Study - Major Standards



- Cambridge Street and Connections to the North

Cambridge Street and Connections to the North



## 18. Provide a third north/south arterial Street

*Provide three north-south arterial streets across Beacon Yards aligned with three north-south streets now being planned*

Cambridge Street and Connections to the North



## 20. Consider a direct North Harvard Street intersection alignment

*A more direct intersection between Cambridge Street South and North Harvard Street at Cambridge Street would limit neighborhood impacts and street and intersection widths along*

Cambridge Street and Connections to the North



## 21. Strengthen Cambridge Street for early redevelopment along its southern edges

*Provide the opportunity for an improved Cambridge Street as an early phase redevelopment target. \*\**



Creating an active and developed edge along Cambridge Street will occur better and sooner if the blocks are well proportioned and have adequate depth for retail uses

Updated planning will result in 3 connecting streets, better distributing traffic, transit routes and creating better blocks in the new district

If a more direct alignment proves to have fewer impacts, then the odd-shaped blocks in Concept 3K-4 can be reorganized to provide better opportunities for development

I-90 Allston Interchange: Placemaking

I-90 Allston Interchange: Placemaking Study

I-90 Allston Interchange: Placemaking Study

The Cecil Group | Markie | Nelson\Nygaard

June 27, 2016

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# Placemaking Study – Major Standards



- Areas within the New District

Areas within the New District



## 31. Limit slopes of new streets and associated sidewalks and bike facilities

Limit the maximum slopes for the new roadway network to less than 5%.\*

Areas within the New District



## 32. Organize streets to create blocks that can be flexibly and efficiently developed

Provide a street grid that defines 1 block width and length.\*\*

Areas within the New District

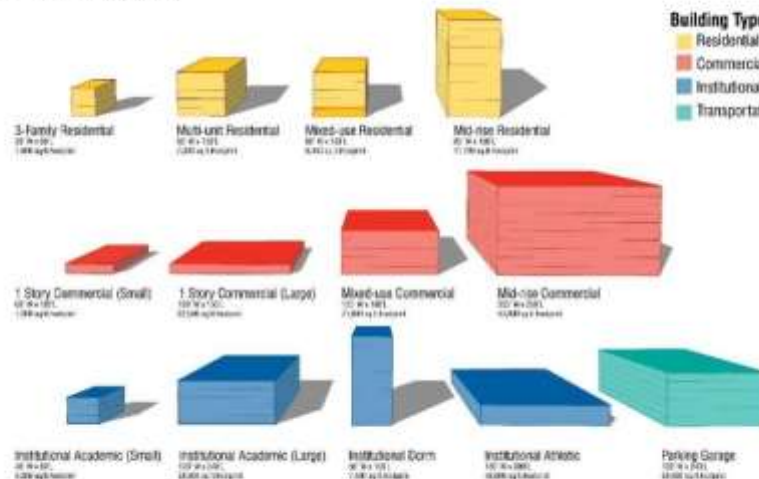


## 37. Create a framework for adaptable and well sized blocks

The street layout should allow block sizes and dimensions that can be adapted to a broad range of building and use types.\*\*

Building Typologies

- Residential
- Commercial
- Institutional
- Transportation



Slopes with grades less than 5% accommodate easy walking, people in wheel chairs and bicyclists.

The placemaking standards for street alignment and connectivity will lead to better proportioned blocks that can be adapted to a wide variety of development and open space solutions.

1-10 Allston Interchange Placemaking

1-10 Allston Interchange Placemaking Study

1-10 Allston Interchange Placemaking Study

The Grid Group | Sterling | Nelson\Akyoud

June 27, 2016

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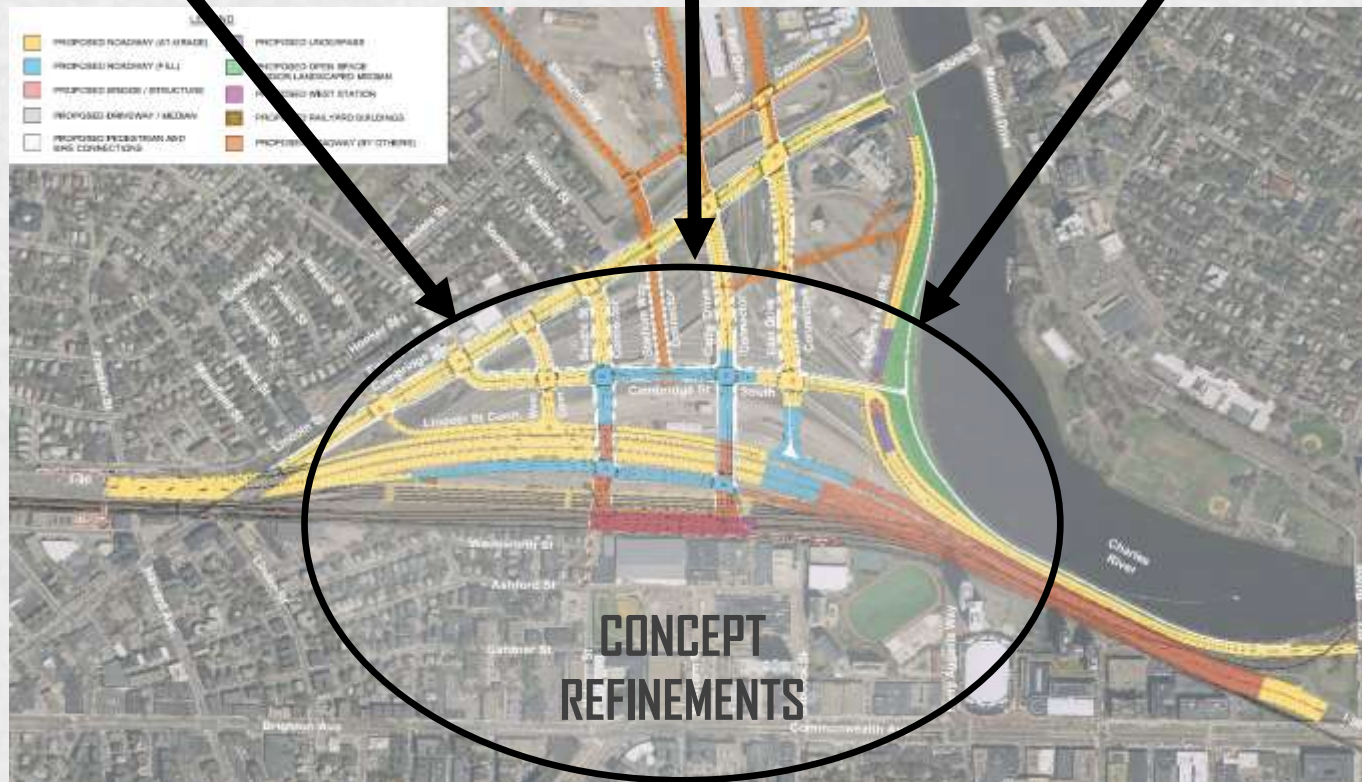
# Concept Refinements – Contributing Factors



LAND  
OWNER

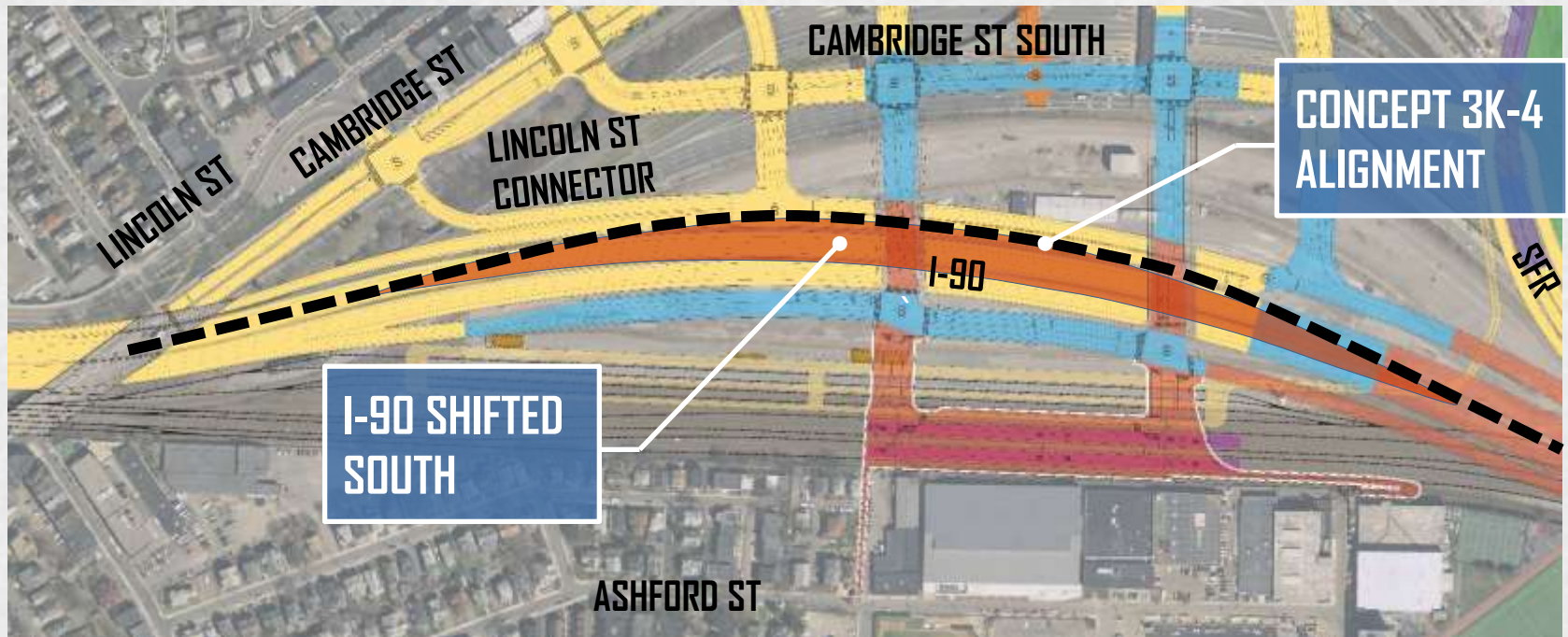
PLACEMAKING  
STANDARDS

REMOVAL OF  
HOUGHTON RR  
SPUR

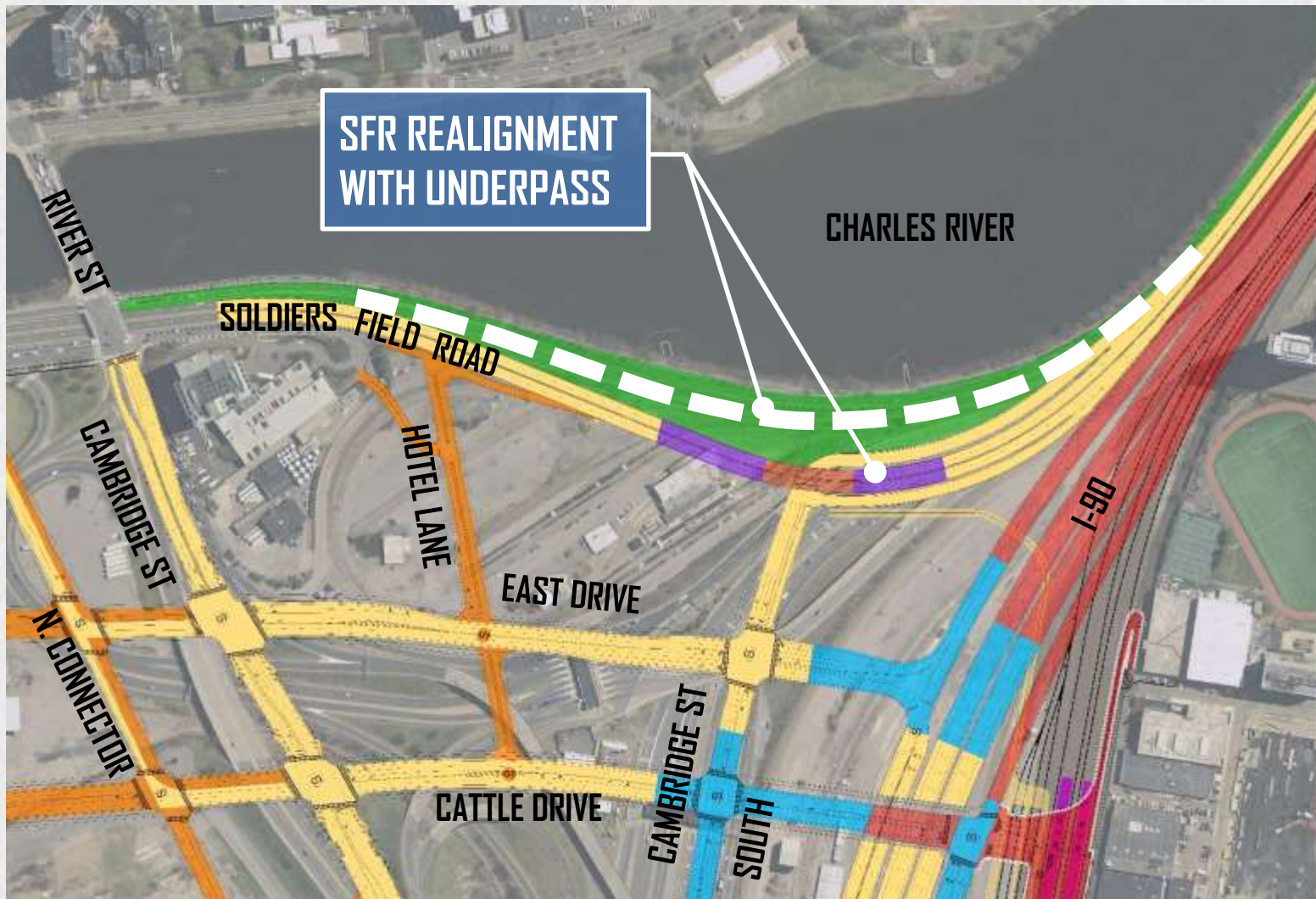


# Concept Refinements – I-90 Realignment

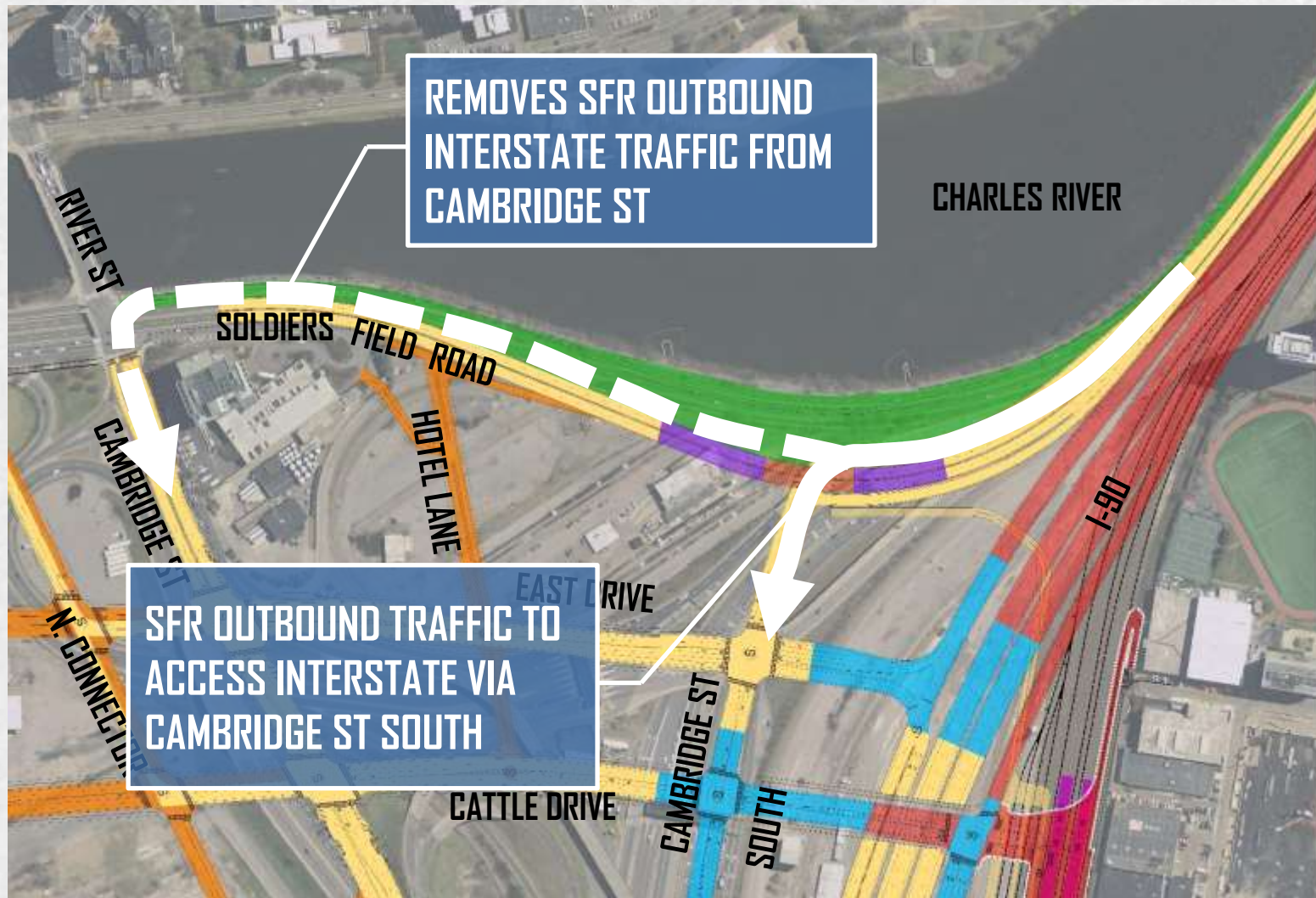
- Shifted 100 ft south
- Allows for adjusted Street Network
- Decreases slopes between Cambridge St and West Station



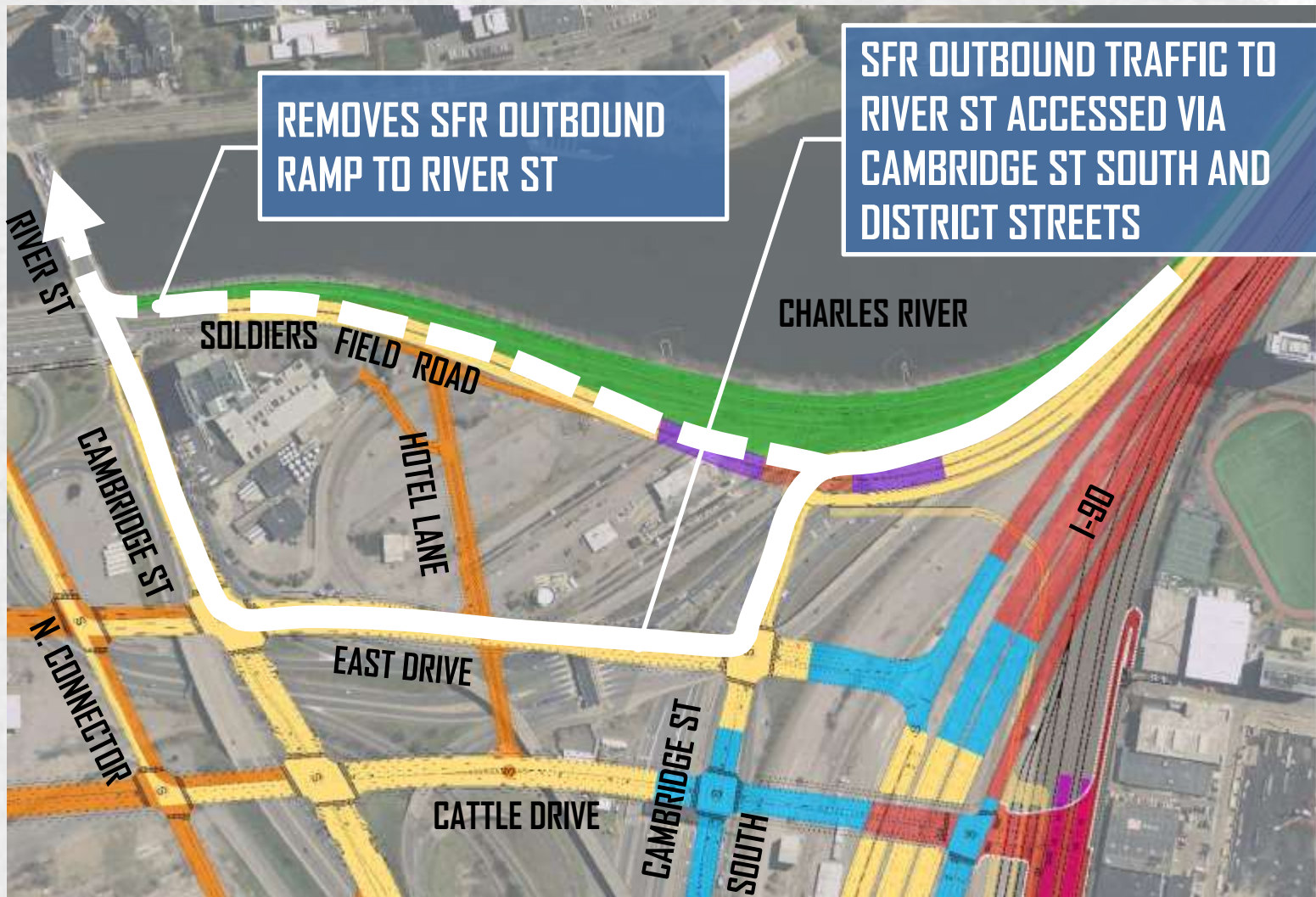
# Concept Refinements – SFR Realignment



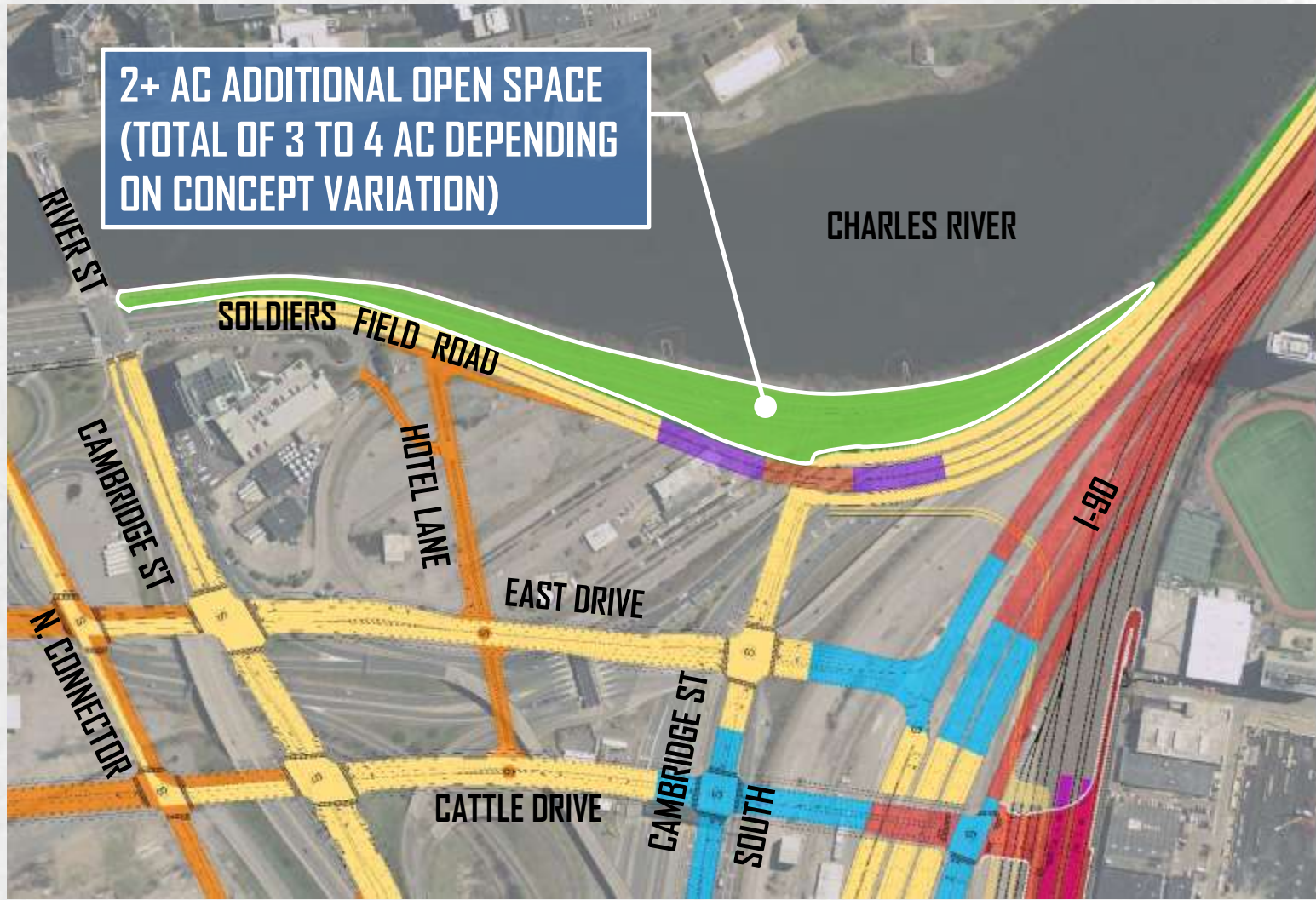
# Concept Refinements – SFR Vehicular Access



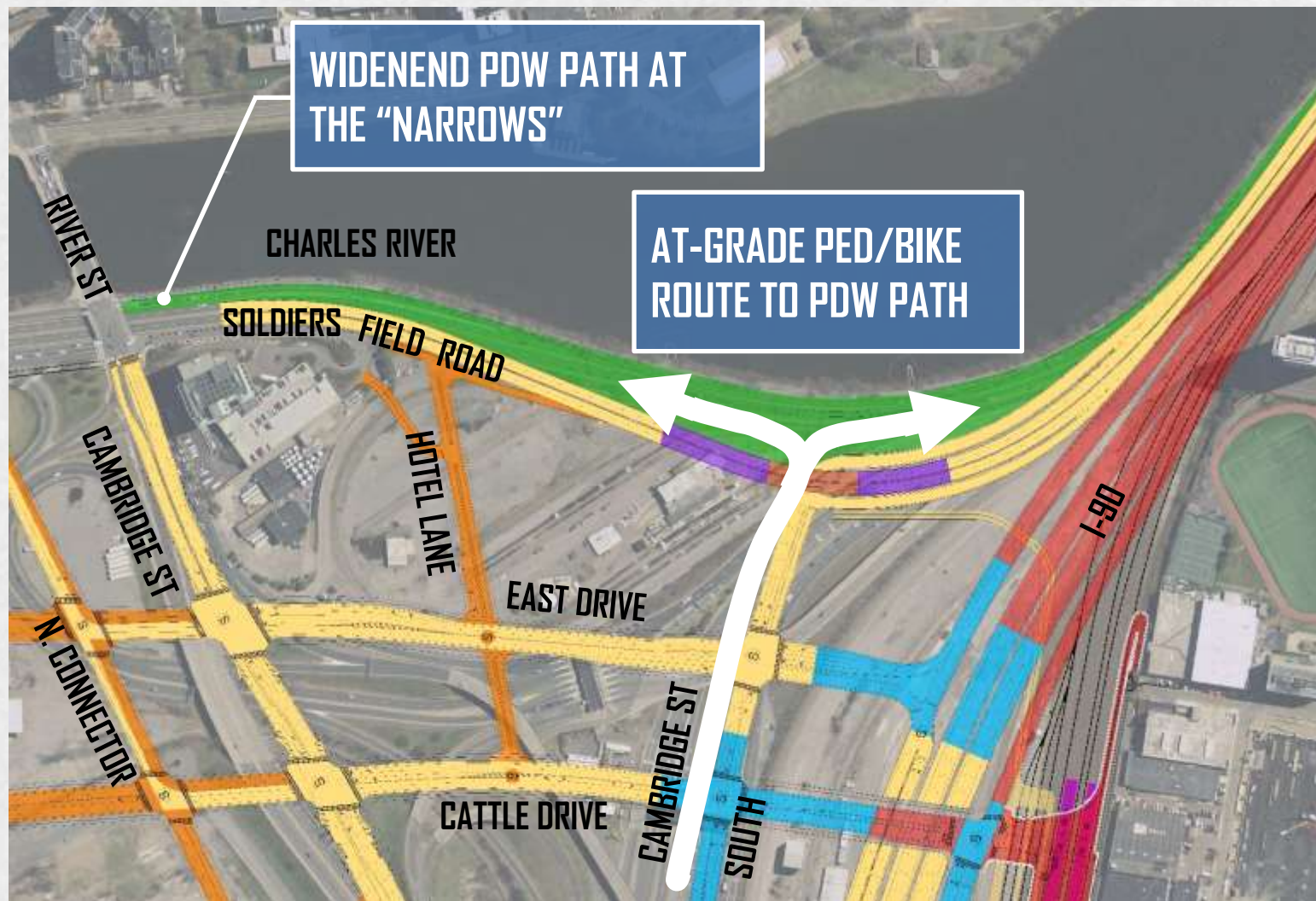
# Concept Refinements – SFR Vehicular Access



# Concept Refinements – SFR Additional Open Space



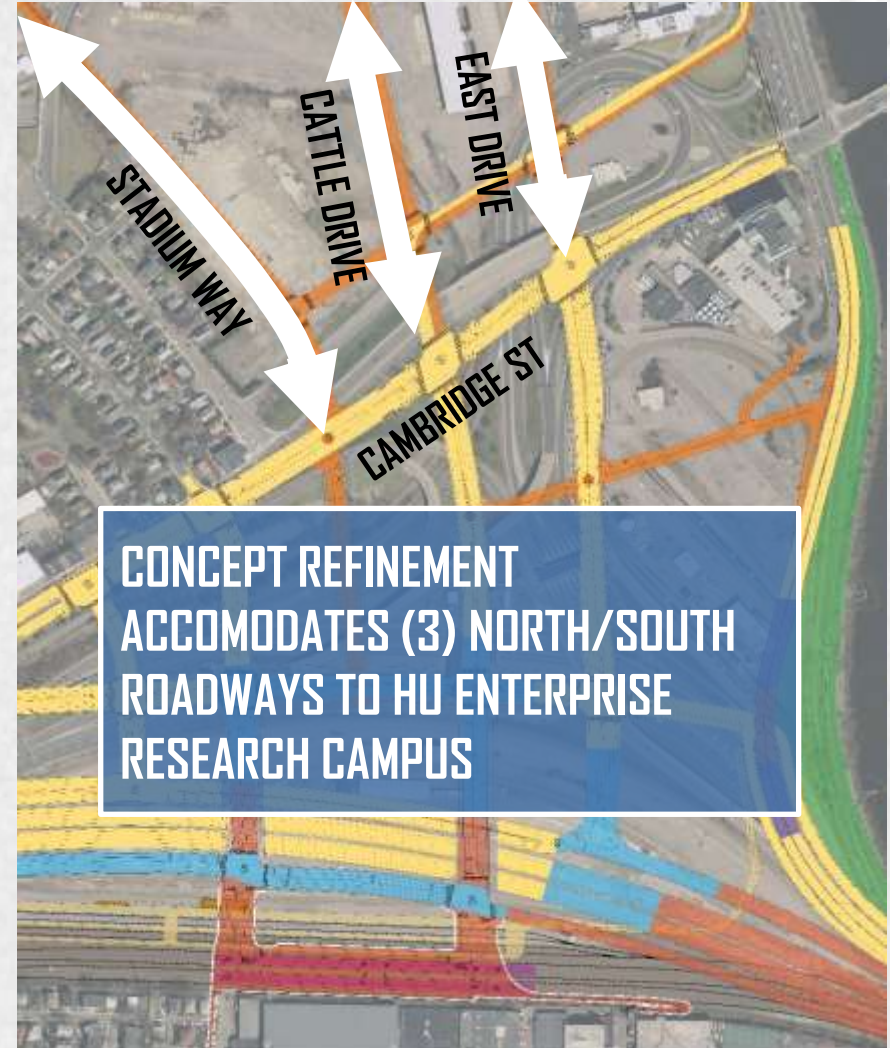
# Concept Refinements – SFR At-Grade Ped/Bike



# Concept Refinements – 3 North/South Streets

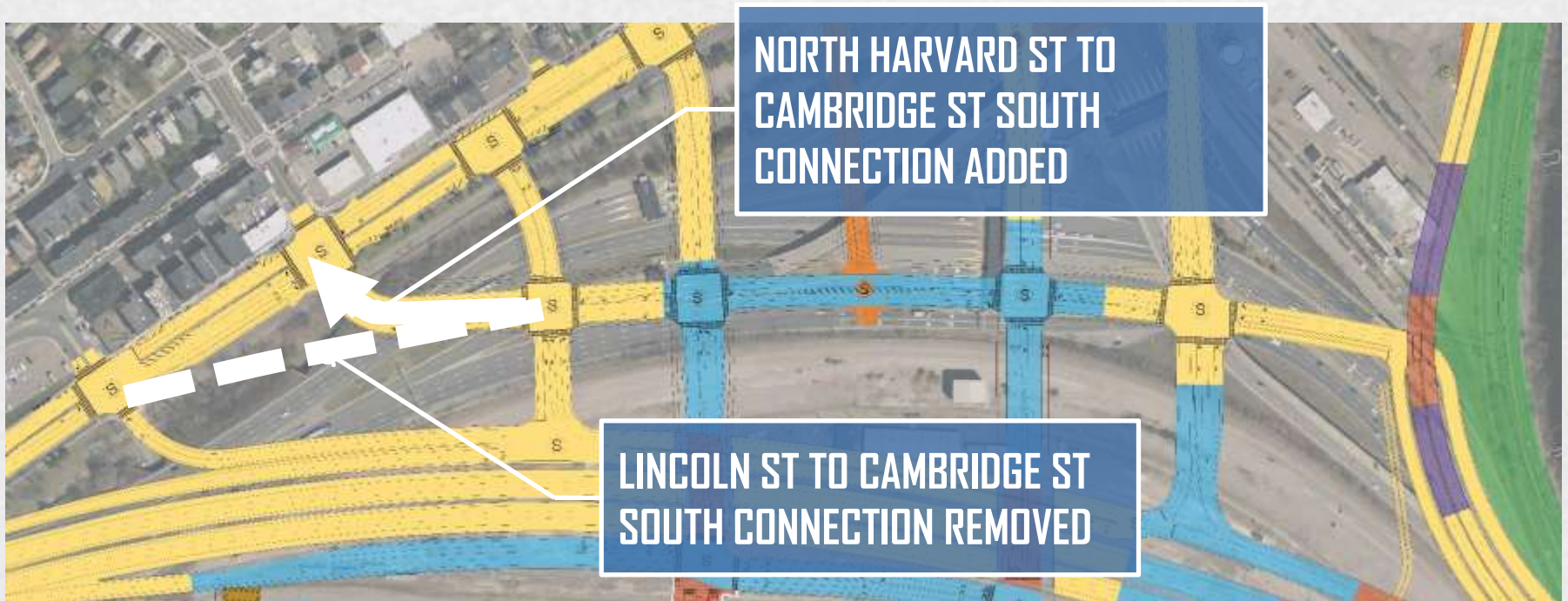


**CONCEPT 3K-4**



**CONCEPT REFINEMENT**

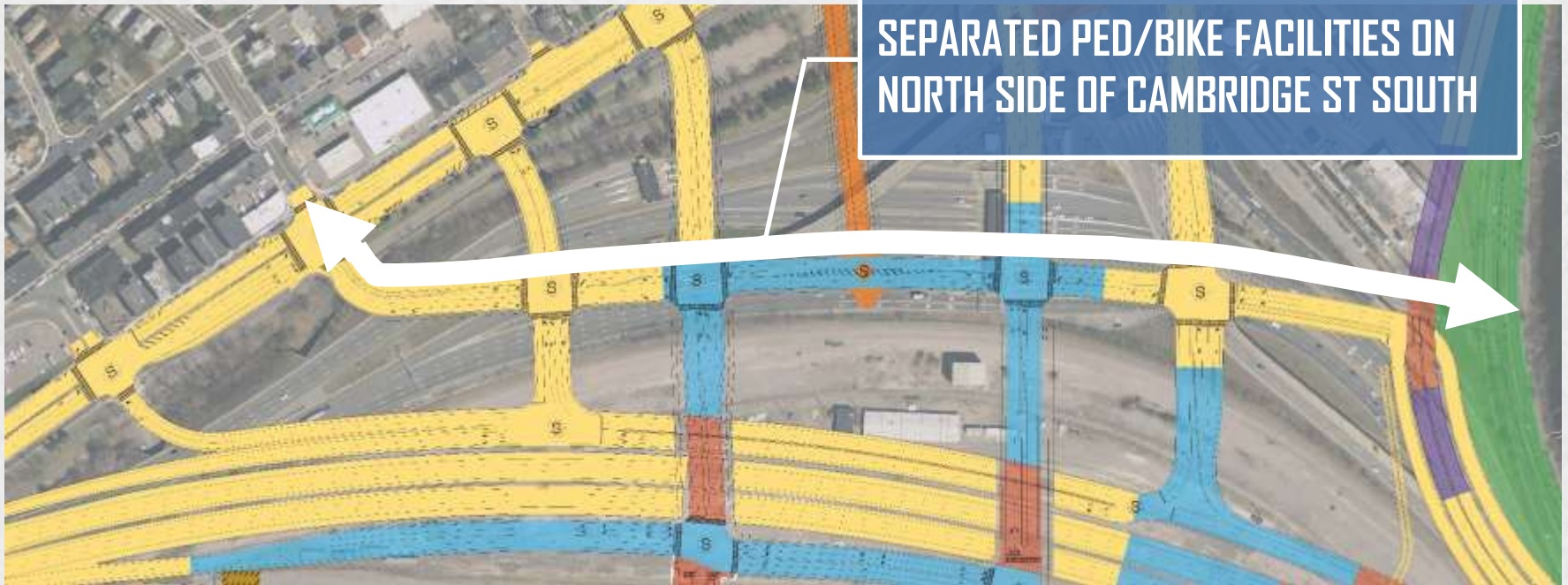
# Concept Refinements – North Harvard St Connection



# Concept Refinements – Cambridge St South Ped/Bike Facilities



PED/BIKE ACCESS TO PDW PATH VIA  
SEPARATED PED/BIKE FACILITIES ON  
NORTH SIDE OF CAMBRIDGE ST SOUTH

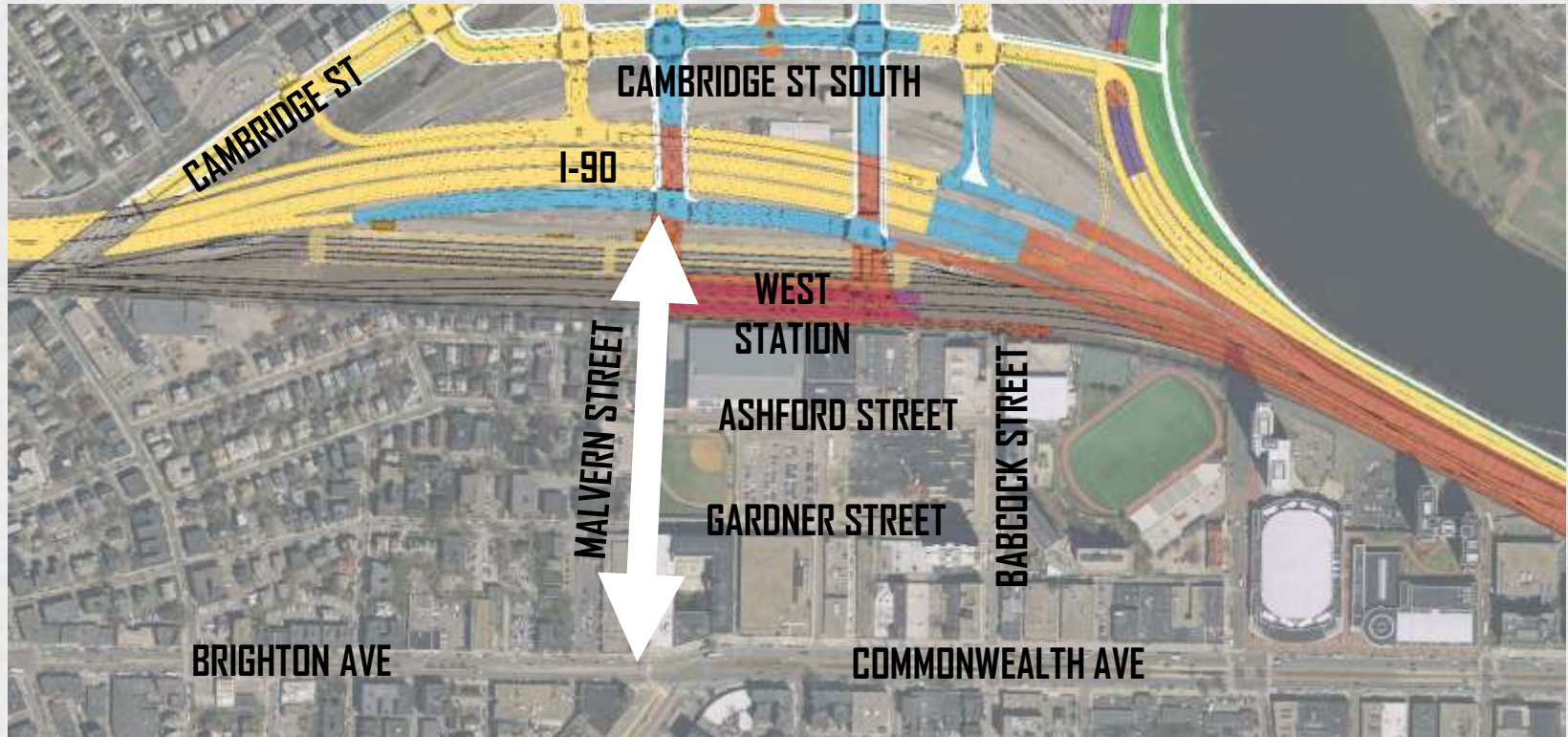


# Summary of Concept Refinements (3K-Refined)



# North/South Vehicular Connection

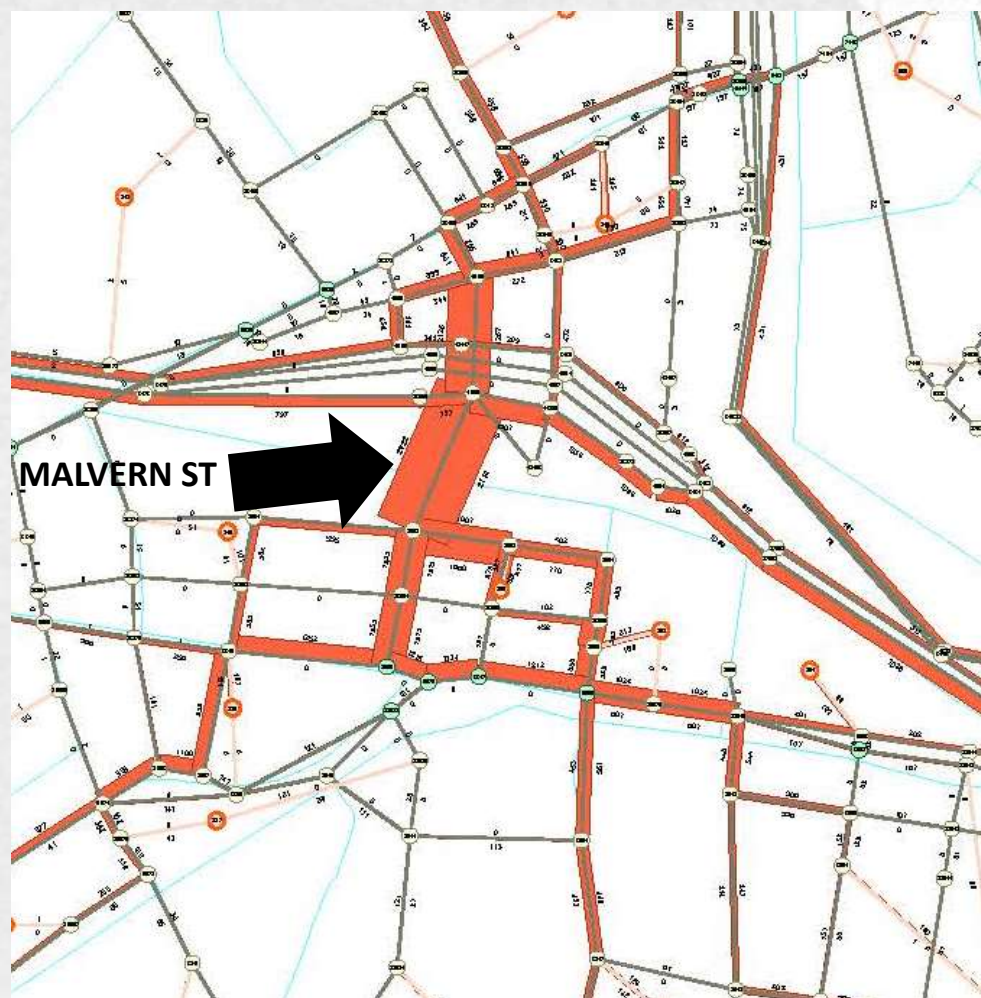
- Malvern Street
- Full two-way connection
- CTPS projected traffic volumes



# North/South Vehicular Connection -CTPS projected traffic volumes (year 2035)



- AM Peak: 1,640 vph
  - 955 Northbound
  - 685 Southbound
- PM Peak: 2,000 vph
  - 970 Northbound
  - 1,030 Southbound
- Daily: ~20,000+



Source: CTPS select link analysis for Malvern St

# North/South General Purpose Vehicular Connection



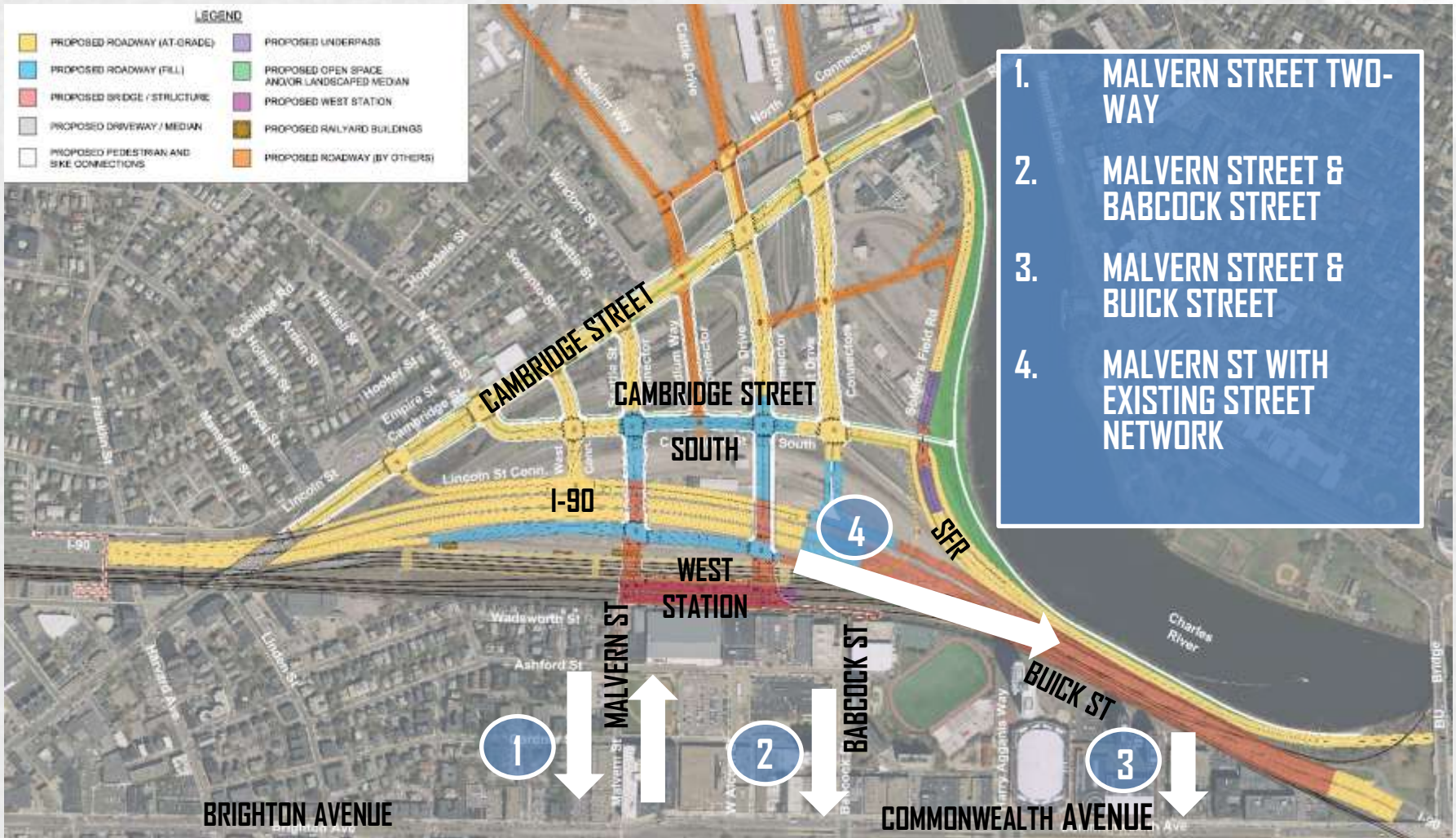
## Summary of Potential Impacts:

- Congestion at I-90 ramps
  - Heavy North-South flow conflict
- Packard's Corner Impact
- Increased Neighborhood Traffic
- BU West Campus Pedestrian Environment



**76 ASHFORD STREET**  
**(LOOKING NORTH)**

# North/South Transit-Only Connection Four Options



# Option 1

## Malvern Street two-way connector



# Option 1: Packard's Corner Signal Impact



**This left turn is currently not allowed at the Packard's Corner intersection.**

300 ft

- Geometric and Signal modifications required
- Traffic Signal delays due to long clearance time for Left turn exit
- Flow out from Malvern conflicts with heavy E-W flow on Comm Ave
- Flow N-S on Malvern conflicts with heavy I-90 ramp movements
- Private Property Takings required

# Option 2

## Malvern St & Babcock St



# Option 2 Additional Impacts



Potential One-Way  
Malvern Street NB  
between Comm Ave  
and Gardner St.

Would then require  
Gardner St  
EB traffic to use W.  
Alcorn Street

Reduces impacts  
to Packard's  
Corner



Requires One-Way  
Gardner St EB and  
parking restrictions  
for Bus Turns  
to Babcock Street

Remove Parking on  
Babcock St to  
Introduce 2<sup>nd</sup> SB Lane

# Option 3

## Malvern St & Buick St



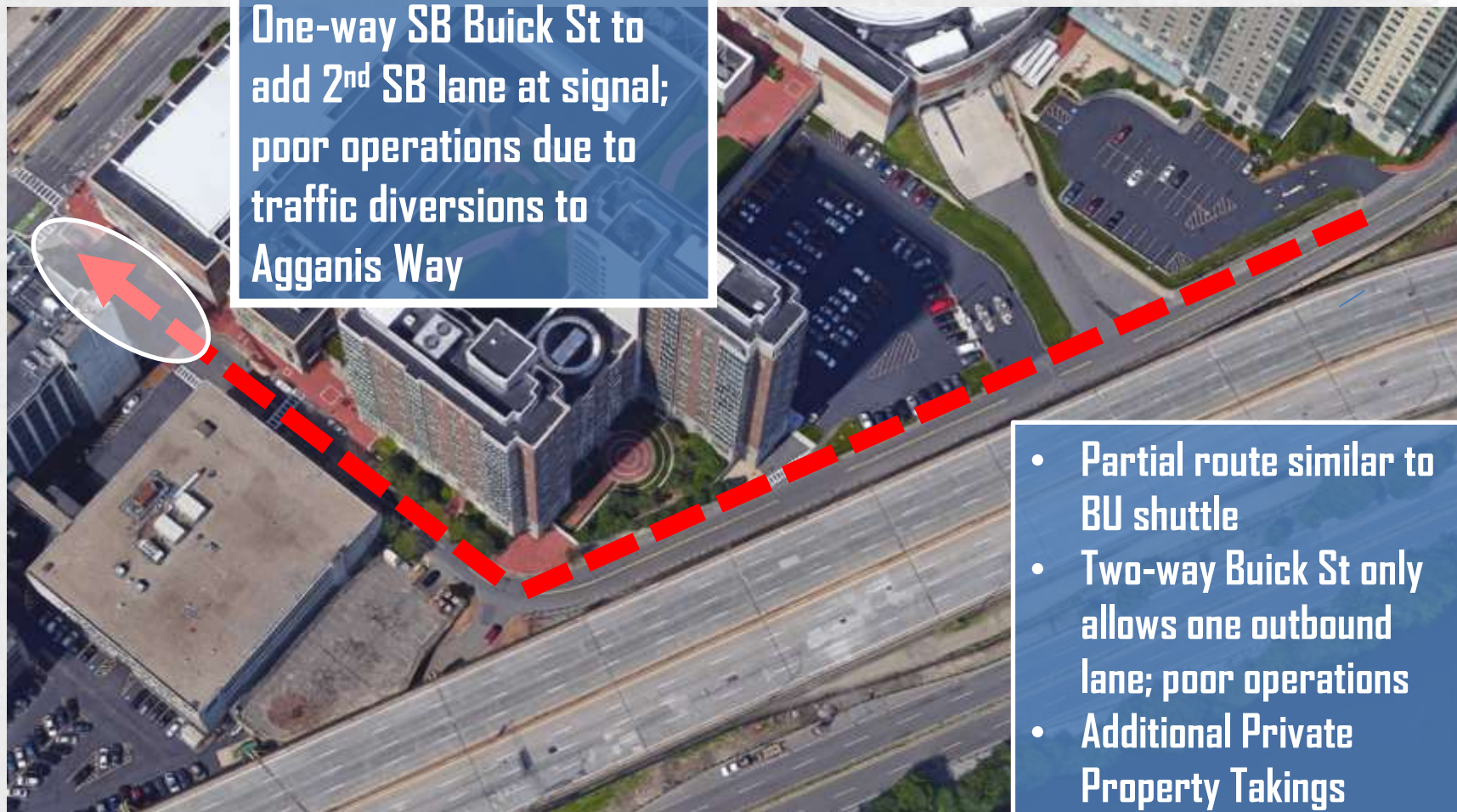
# Option 3

## Impacts Harry Agganis Way & Buick Street



# Option 3

## Impacts Harry Agganis Way & Buick Street



One-way SB Buick St to add 2<sup>nd</sup> SB lane at signal; poor operations due to traffic diversions to Agganis Way

- Partial route similar to BU shuttle
- Two-way Buick St only allows one outbound lane; poor operations
- Additional Private Property Takings

# Option 4

## Malvern St with Existing Street Network



PACKARD'S  
CORNER

TO: I-90 EB on-  
ramp to exit 22  
Prudential

WEST  
STATION

ASHFORD STREET

GARDNER STREET

BABCOCK STREET

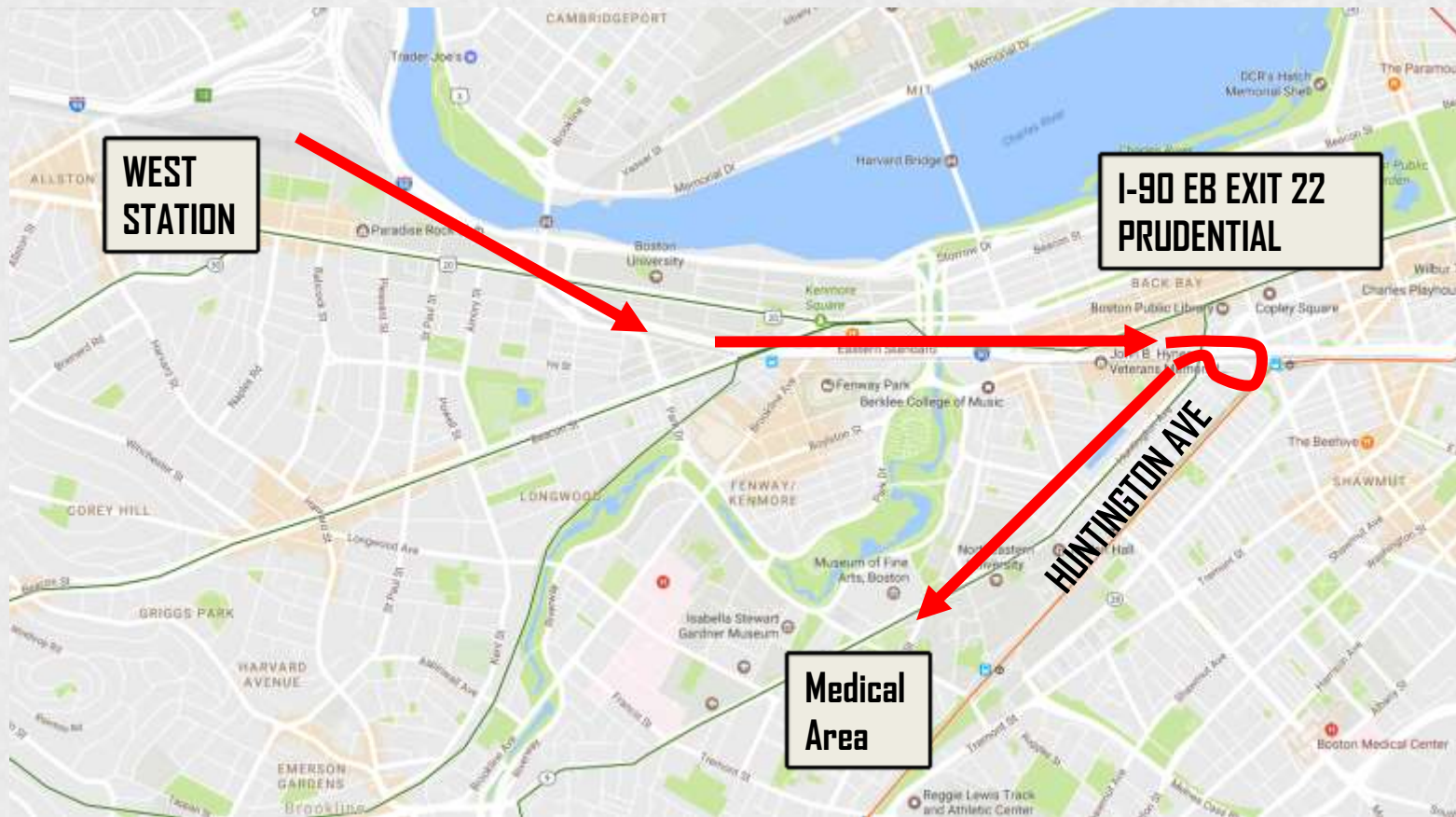
AGGANIS WAY

BUICK ST

COMMONWEALTH AVENUE

# Option 4

## Malvern St with Existing Street Network



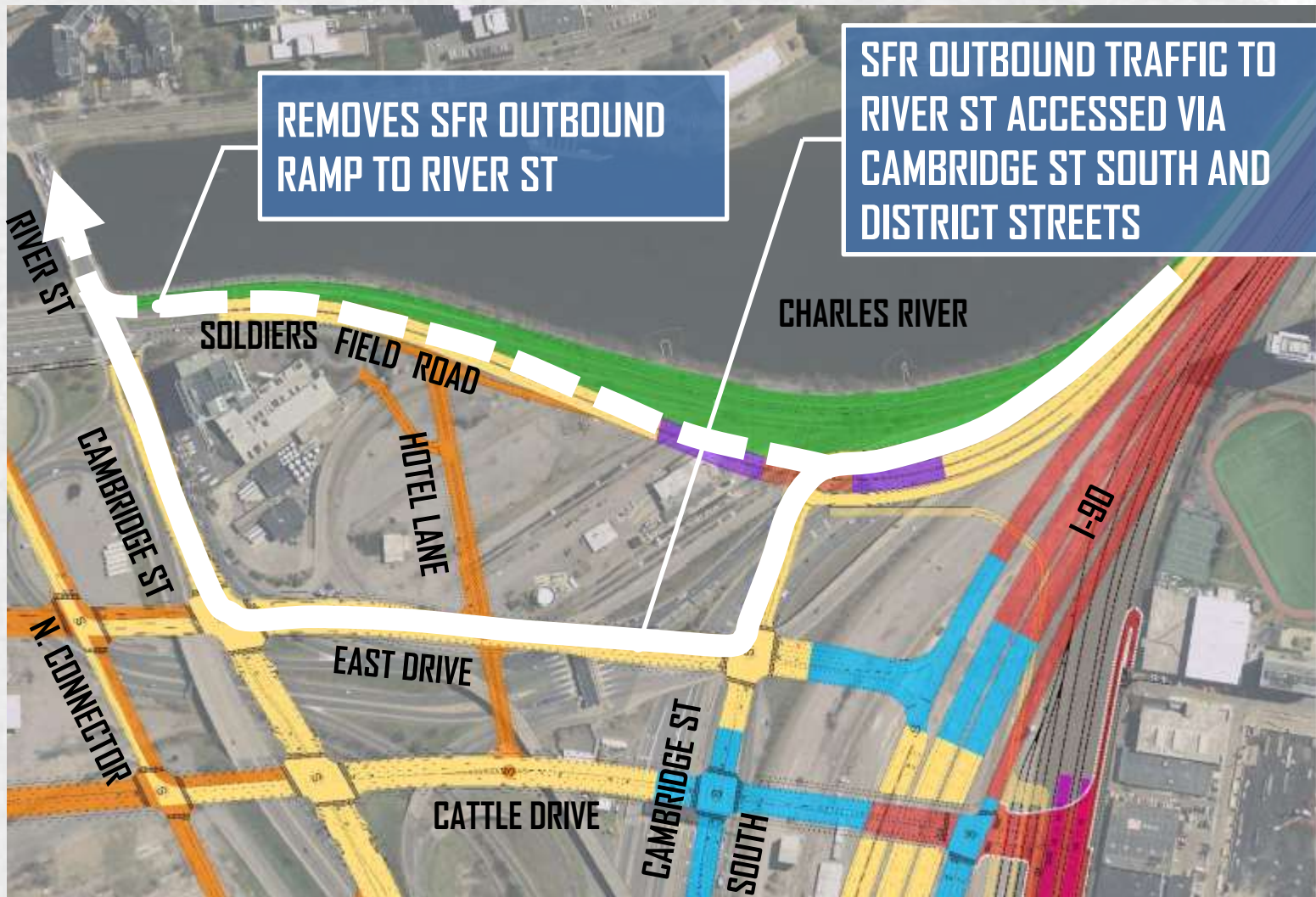
# What to Expect in the DEIR

- The Draft Environmental Impact Report (DEIR) will cover:
  - 3K-Refined
  - Variants opposite Magazine Beach:
    - I-90 roadway viaduct (bridge) like today
    - All at-grade (I-90/SFR/RR Lines) – originally advanced by ABC
    - Rail viaduct over at-grade I-90 – originally advanced by Ari Ofsevit
    - All to be designed to same level for analysis purposes
  - All options to be analyzed for:
    - Noise
    - Traffic
    - Air quality
    - Environmental justice
    - Economic development
    - *And much more*
  - Anticipated filing during 2017

# City of Cambridge Specifics

- **Traffic impacts:**
  - Right turn to River Street from SFR
  - BU Bridge Rotary
  - River intersections
- **Noise impacts**
  - Planned baseline monitoring
  - DEIR Analysis
  - Characteristics of the various options

# Concept Refinements – SFR Vehicular Access



# SFR Access to River Street Change

- **A trade-off:**
  - Allows alleviation of “the narrows” on the Paul Dudley White (PDW) path at River Street
  - Provides Allston cyclists with direct, at-grade connection to (PDW)
  - Provides Cambridge cyclists with a safer turn to Cambridge
  - Roughly speaking:
    - 9,000 vehicles turn right to Cambridge every 24 hours
    - 87 during the AM peak hour
    - 151 during the PM peak hour
    - 3 new signals versus 1 today
    - Roughly 3 minutes of additional delay versus today
  - The bind:
    - A single right-turn exit to Cambridge cannot be maintained due to the width needed (approx. 8 feet clear for emergency vehicles, plus an 11-foot travel lane)
  - New CTPS model run coming in February
  - Will be fully analyzed in the DEIR – Not Set in Stone
  - Give us your thoughts

# BU Bridge Rotary

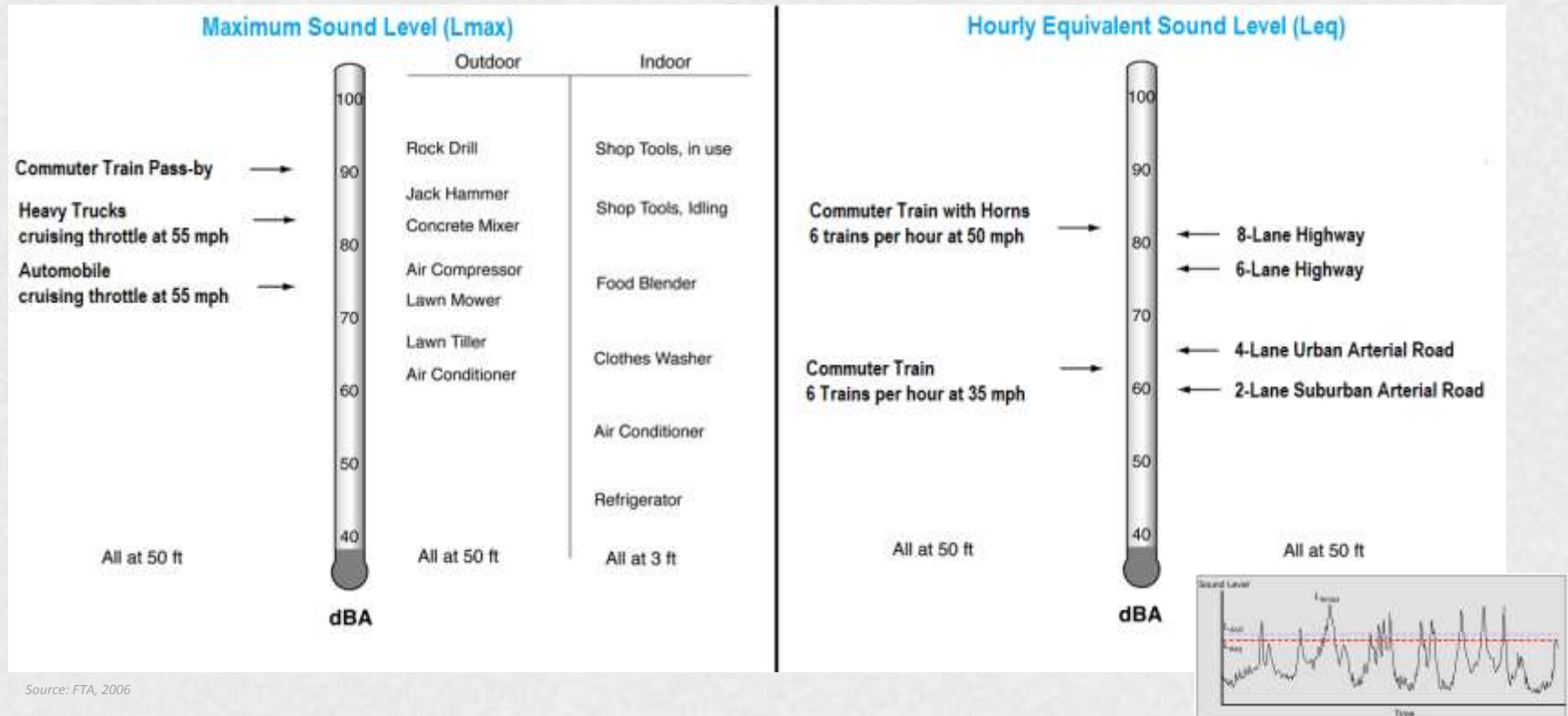
- 3K-Refined not expected to impact BU Bridge Rotary beyond background traffic growth driven by land use.
- Anticipated routes:
  - Cambridgeport to I-90 – via BU Bridge Rotary
  - Harvard Square to I-90 – via Western Avenue
  - Memorial Drive WB to I-90 – via BU Bridge Rotary flyover to Western Avenue
  - Allston and Brighton to I-90 – Via Cambridge Street
- New CTPS model run coming in February
- Will be fully analyzed in the DEIR

# River Intersections

- Will run additional CTPS modeling on:
  - SFR/River Street
  - SFR/Western Avenue
  - Memorial Drive/River Street
  - Memorial Drive/Western Avenue
  - Currently working with LPI on all intersections
  - Ongoing discussions with Cambridge
  - Interchange design does not add traffic to intersections, but land use decisions within the parcel will impact these volumes.

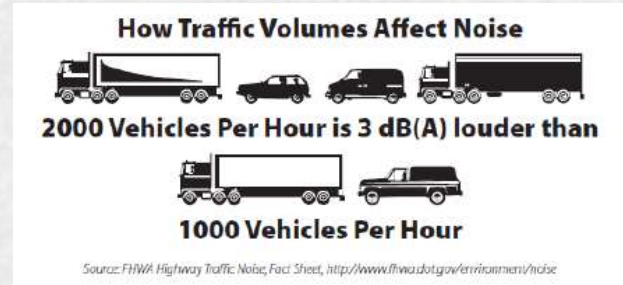
# Noise Background

- Noise is measured in A-weighted decibels (dBA)
  - Noise impact is assessed according to loudest-hour Leq sound level
  - Leq is a single value that represents the equivalent amount of acoustic energy as the time varying sound levels



# Noise Background

- Highway noise levels depend on:
  - Traffic volume and speed
  - Number of trucks
  - Distance from highway
  - Intervening terrain/barriers



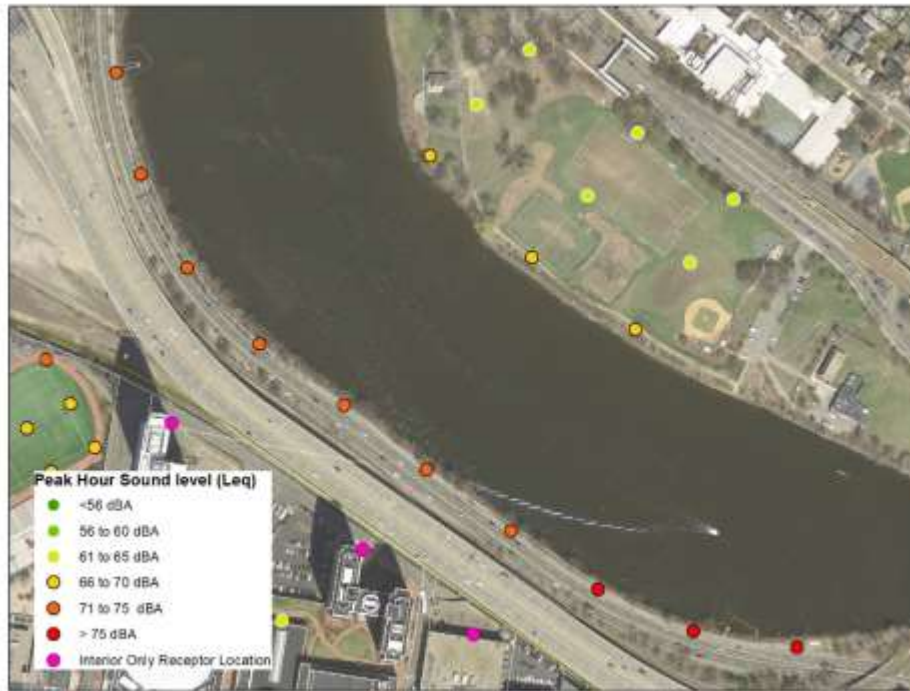
Source: ADOT

# Update on Noise Study

- Noise and vibration measurements have been conducted throughout the study area to characterize existing conditions and to validate the highway and rail noise modeling
- Noise impact being assessed for future conditions (project options being refined, traffic data are being analyzed)
- Noise is assessed at receptors as categorized by FHWA / MassDOT
  - Residential
  - Schools
  - Parks
- MassDOT Noise Abatement Criteria (NAC) is 66 dBA

# Paul Dudley Path and Magazine Beach

- Future build noise levels for all design options are expected to exceed NAC on Paul Dudley Path due to SFR, I-90 and trains
- Future noise levels at Magazine Beach may exceed NAC near the shore of the Charles River, not expected to exceed farther back



# Cambridgeport

- Future build noise levels for all design options are not expected to exceed NAC in residential areas near Granite St, Glenwood Ave, Rockingham St and the Morse School



At receptors ~1500'+ from SFR and I-90, non-project roads such as Memorial Drive and local roads significantly contribute to noise



# Riverside



- Future build noise levels may approach or exceed NAC at Riverside Press Park and residential high-rise buildings on Memorial Drive



Memorial Drive and River Street contribute significantly to the noise environment

Upper floor receptors are analyzed in model



# Cambridge

- Differences in future noise levels among the design options expected to be relatively small for receptors in Cambridge (500'+ away from project roads)
  - Sound reflects off buildings and is attenuated by intervening objects



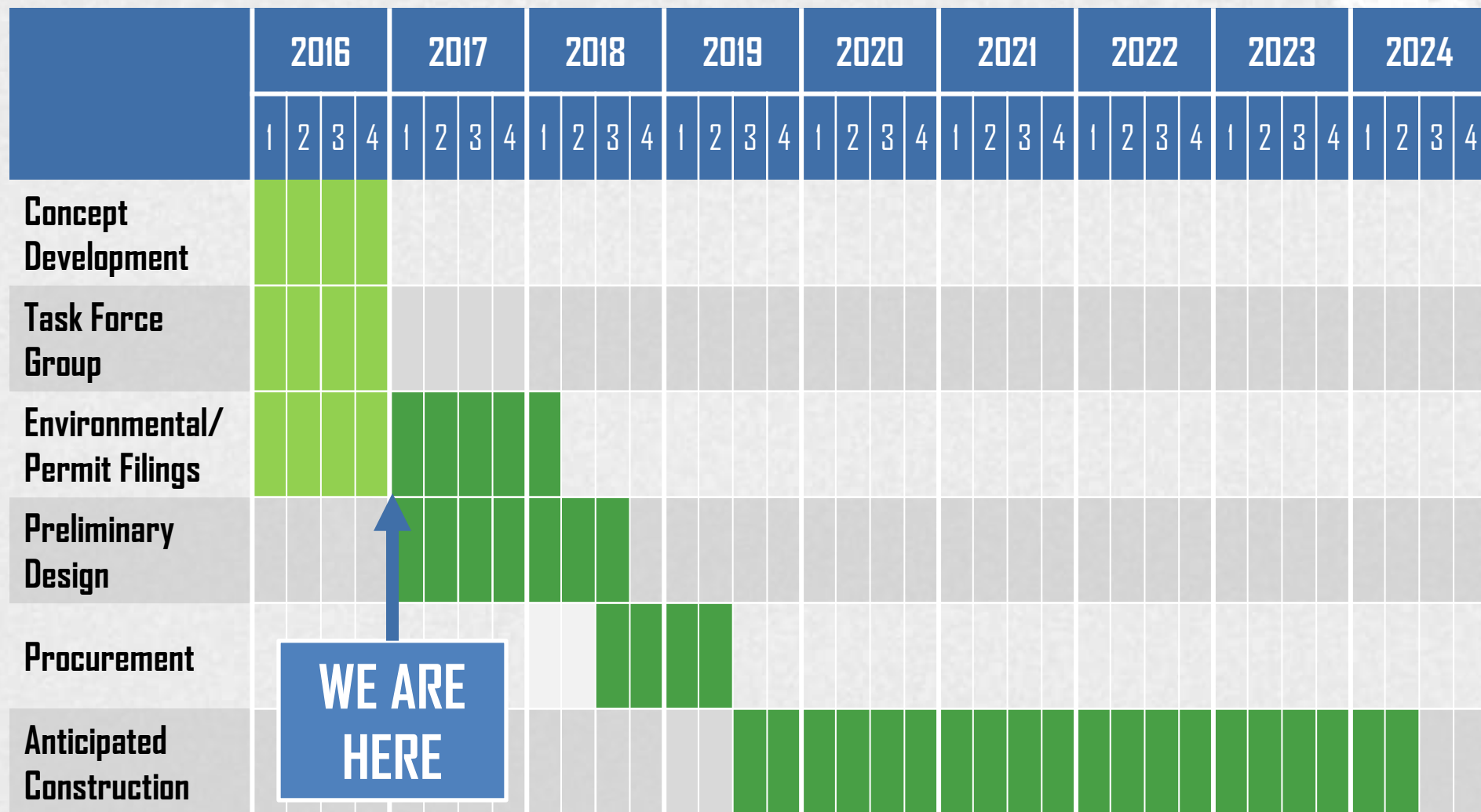
# Noise Impact Assessment and Mitigation

- Noise mitigation must be considered when noise levels meet or exceed MassDOT's Noise Abatement Criteria (NAC) – 66 dBA
- Noise barriers must be feasible and reasonable as defined by:
  - Constructability – must meet highway design specifications for safety, access and maintenance
  - Cost effectiveness criteria - which depends on barrier size/cost, noise reduction it provides and the number of receptors it benefits
  - Acoustical effectiveness – must provide a minimum of 5 dB noise reduction at the majority of impacted 1<sup>st</sup> row receptors
  - Acoustical Design Goal – must provide 10 dB of noise reduction at a minimum of one receptor
  - Property owners must be in favor of barrier – A public meeting would be held and voting survey mailed to property owners and residents

# Next Steps

- Continue periodic public meetings and briefings on Request
  - *Anticipated visit to Brookline Transportation Committee - 2/17*
- Reconvene taskforce in advance of DEIR filing
- Draft Environmental Impact Report (DEIR) to include three refined Urban Interchange Concept 3K variations
  - Highway Viaduct/Rail At-Grade
  - Rail Viaduct/Highway At-Grade
  - Highway/Rail At-Grade
- Advance Preferred Alternative to Preliminary Design

# Preliminary Project Timeline



# Question & Comments

Patricia Leavenworth, PE, **MassDOT, Chief Engineer**

10 Park Plaza, Boston, MA 02116

Attn: Bridge Project Management - Project File No: 606475

Nathaniel Curtis, **Howard Stein Hudson, Public Involvement**

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