

# Green Line Workshop

## on the Draft Environmental Impact Report

**SOMERVILLE**  
TRANSPORTATION EQUITY  
**PARTNERSHIP**



## Today's agenda

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- Overview presentation (30 minutes)
  - Green Line and DEIR introduction
  - Green Line project status and stations
- Green Line brainstorming (30 minutes)
  - Questions, priorities, concerns, ideas

*BREAK (10 minutes)*

- DEIR presentation (40 minutes)
    - Project mitigation
    - Maintenance facility
    - Station area design issues and examples
  - Group breakout sessions (40 minutes)
    - Detailed discussions by topic
  - Wrap up (10 minutes)
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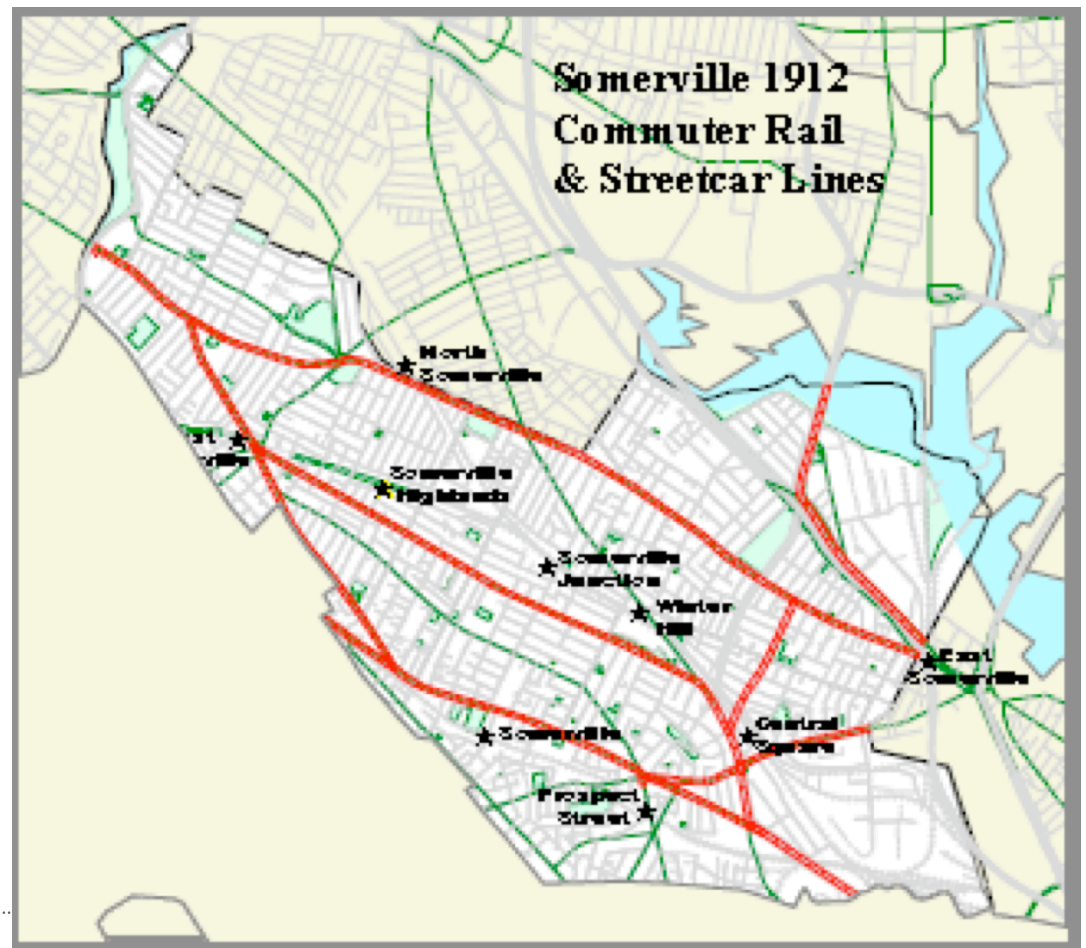
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# Introduction

## Brief history of the Green Line Extension

- Somerville grew as a streetcar suburb.
- In 1912, nine train stations and six streetcar lines served the city.
- Every Somerville resident was within a ten-minute walk of a rail connection.



## Brief history of the Green Line Extension

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- Over the past 50 years the following regional transportation improvement studies have been conducted:
  - The 1962 North Terminal Area Study was to “design a new transit alignment to permit a future branch extension (of the Green Line) to Somerville and communities northwest along Lowell line right-of-way
  - The 1973 Boston Transportation Planning Review Northwest Study evaluated bus, commuter rail, and Green Line extension alternatives in the “Somerville Radial Corridor.”
  - In 1981, the MBTA did the Green Line Northwest Project Study, to evaluate transit alternatives beyond Lechmere Station.
  - 2004 Beyond Lechmere Feasibility Study
  - 2006 EENF filed and DEIR Study begun



## Brief history of the Green Line Extension

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- The recommendations from these studies were included in the SIP and ACO, two legally binding commitments.
  - The State Implementation Plan (SIP) to meet Federal air quality regulations and
  - A transit mitigation project in the Administrative Consent Order (ACO) from the Central Artery/Third Tunnel project.

## Brief history of the Green Line Extension

- Both commitments required the State to plan, design, fund, construct and begin operating the project by December 31, 2001. But....nothing was happening to make this a reality.
- The successful community 2004 letter writing campaign to the Metropolitan Planning Organization moved the MBTA to hold several public meetings on extending the Green Line.
- Who can forget the public meeting on the night the Sox won the World Series and Somerville residents put the Green Line extension back on track to be built!



## Key dates and next steps for DEIR process

- **Wednesday, Nov 18 (6 pm)** – DEIR public hearing at Somerville High School Auditorium
  - Verbal comments can be made at this hearing and written comments can be submitted
- **Dec 9** – deadline for submitting written comments to MEPA
  - Written comments can be submitted by US Mail to:  
Secretary Ian Bowles  
Executive Office of Energy & Environmental Affairs  
MEPA Office, Attn: Holly Johnson, MEPA Analyst  
100 Cambridge, St., Suite 900  
Boston, MA 02114
  - Or by email to: [holly.s.johnson@state.ma.us](mailto:holly.s.johnson@state.ma.us)
  - Copies of comments can be sent to Kate Fichter at EOT  
[katherine.fichter@eot.state.ma.us](mailto:katherine.fichter@eot.state.ma.us)

## Key dates and next steps for DEIR process

- The Secretary of Environmental Affairs is required to issue a MEPA certificate by December 16, 2009, unless the DEIR is not approved as a Final EIR.
- The Conservation Law Foundation and other parties have requested an extension to the comment period for the DEIR. If this is approved the final date for submission will be in early January.
  - STEP will post the revised dates for submitting comments on its website if the comment period is extended.



## Intro to Environmental Impact Report (EIR)

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- **MEPA jurisdiction** covers all aspects of the project that may cause significant damage to the environment including storm water, air quality, traffic & transportation, noise, vibration, open space, historic resources, hazardous waste, contaminated soils and construction period impacts.
- **EOT has requested MEPA to submit a Single EIR to fulfill its EIR obligations**
  - Single EIR may be allowed by MEPA when the EENF:
    - (a) describes and analyzes all aspects of the Project and all feasible alternatives, regardless of any jurisdictional or other limitation that may apply to the Scope;
    - Provides a detailed baseline in relation to which potential environmental impacts and mitigation measures can be assessed; and
    - Demonstrates that the planning and design for the Project use all feasible means to avoid potential environmental impacts

## Intro to Environmental Impact Report (EIR)

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### Criteria for an Single Environmental Impact Report (SEIR)

- If the DEIR provides a reasonably complete and stand-alone description and analysis of the project, project alternatives and environmental impacts, and adequately addresses mitigation, the regulations allow the DEIR to be reviewed as a FEIR.
  - If the DEIR is thorough, then it is very likely that the DEIR will be deemed adequate to serve as the FEIR, after public review and comment. (P. 4 expanded EENF)
  - Serious community concerns in about inadequate or unacceptable decisions and recommendations in the DEIR can prevent MEPA from issuing an SEIR.
  - Rejection of a Draft would require EOT to file a supplemental draft EIR in accordance with 301 CMR 11.07.

## Intro to Environmental Impact Report (EIR)

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### Smart Growth Land Use

- The overarching MEPA policy goal is for use and reuse of land to direct public infrastructure investments to spur revitalization of previously developed urban sites over undeveloped Greenfield sites.
- MEPA and EOT must act consistently with local and regional growth management plans to integrate state responsibility for transportation planning and local responsibility for land use planning. Imic development and long-term ridership potential.
- EOT committed to planning this project with a CAC to facilitate effective and meaningful local participation on all project aspects (land use, project alternatives, ridership, mitigation).
- DEP directed that the CAC include representatives of regional planning agencies, local government, business interests, community groups, reps of EJ areas and the disabled community, abutters, and bicyclist and pedestrian groups.

## Intro to Environmental Impact Report (EIR)

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### Consistency and Coordination with Planning and Projects

- The Green Line Extensions should be planned in conjunction with Urban Ring, reconstruction of Route 28/McGrath Highway, the North Point development, relocation of Lechmere Station, the Community Path and the Minuteman to Mystic Valley Parkway Path and construction of the maintenance facility.

### The Community Path

- Designing and building it in conjunction with the Green Line is critical to its overall viability and will certainly reduce its overall cost. The Path, in turn, can provide good access to the Green Line Extension and boost ridership levels for the Green Line Extension. Therefore, I am directing EOT to work proactively with the proponents of the Community Path and to include conceptual designs in the DEIR.



## Intro to Environmental Impact Report (EIR)

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### Environmental Justice

- Should ensure that no segment of the populations should be denied environmental benefits, or bear a disproportionate burden of environmental impacts. Particularly station locations and siting of the storage and maintenance facility should be carefully considered and community impacts carefully assessed and mitigated. In addition, the land use study and planning should consider strategies for allowing housing affordability.

### Environmental Impacts

- The DEIR should include an overall drainage plan and it should discuss the consistency of the post-development construction and drainage plan with the DEP Stormwater

## Intro to Environmental Impact Report (EIR)

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### Management Policy

- The Green Line Extensions should provide erosion and sediment controls and the drainage system that comply with the DEP Stormwater Management Policy and standards for water quality and quantity during construction and post-development.
- The Green Line to Medford Hillside extension remains a Commonwealth transit commitment codified in the DEP Transit System Improvement Regulations (310 CMR 7.36) in 1991 and is included as an element of the Commonwealth's State Implementation Plan (SIP) for ozone.

## Intro to Environmental Impact Report (EIR)

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- MEPA cited that the Green Line is a legal commitment for EOT to extend Green Line Service using light-rail vehicles from Lechrnere Station to Medford Hillside and a spur to Union Square before December 31 2014.
  - The regulations do not specify the terminus of the line within Medford Hillside. Final project designs will be dependent upon attainment of specific emissions reductions.
  - The DEIR should propose specific station locations based on this analysis and describe how they support ridership goals and other objectives of the project.
  - The DEIR should provide more detailed designs and renderings of the stations, It should identify how the station design will provide safe and efficient loading and unloading of passengers and its consistency with ADA and universal design principals.
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## Intro to Environmental Impact Report (EIR)

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### **Air Quality**

- The DEIR should describe the air quality benefits associated with this project and its consistency with the State Implementation Plan (SIP) and MassDEP's Transit Regulations.

### **Ridership**

- The DEIR should propose a design and operating plan that generates the highest level of ridership possible and include impacts and/or benefits associated with achieving various ridership levels and benefits to impacts on the central subway and Green Line operations.



# Intro to Environmental Impact Report (EIR)

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## Construction Period Impacts

- The EIR should include a discussion of construction phasing, evaluate potential impacts associated with construction activities and propose feasible measures to avoid or eliminate these impacts.

## Mitigation

- During construction and after completion

**Project status**

Where is the Green Line?

In the Boston MPO  
Regional Transportation  
Plan for the first time.





Where is the Green Line?

In the Boston MPO RTP

Phase 1 - \$934 million 2014

Phase 2 - \$130 million later

Assembly - \$78 million



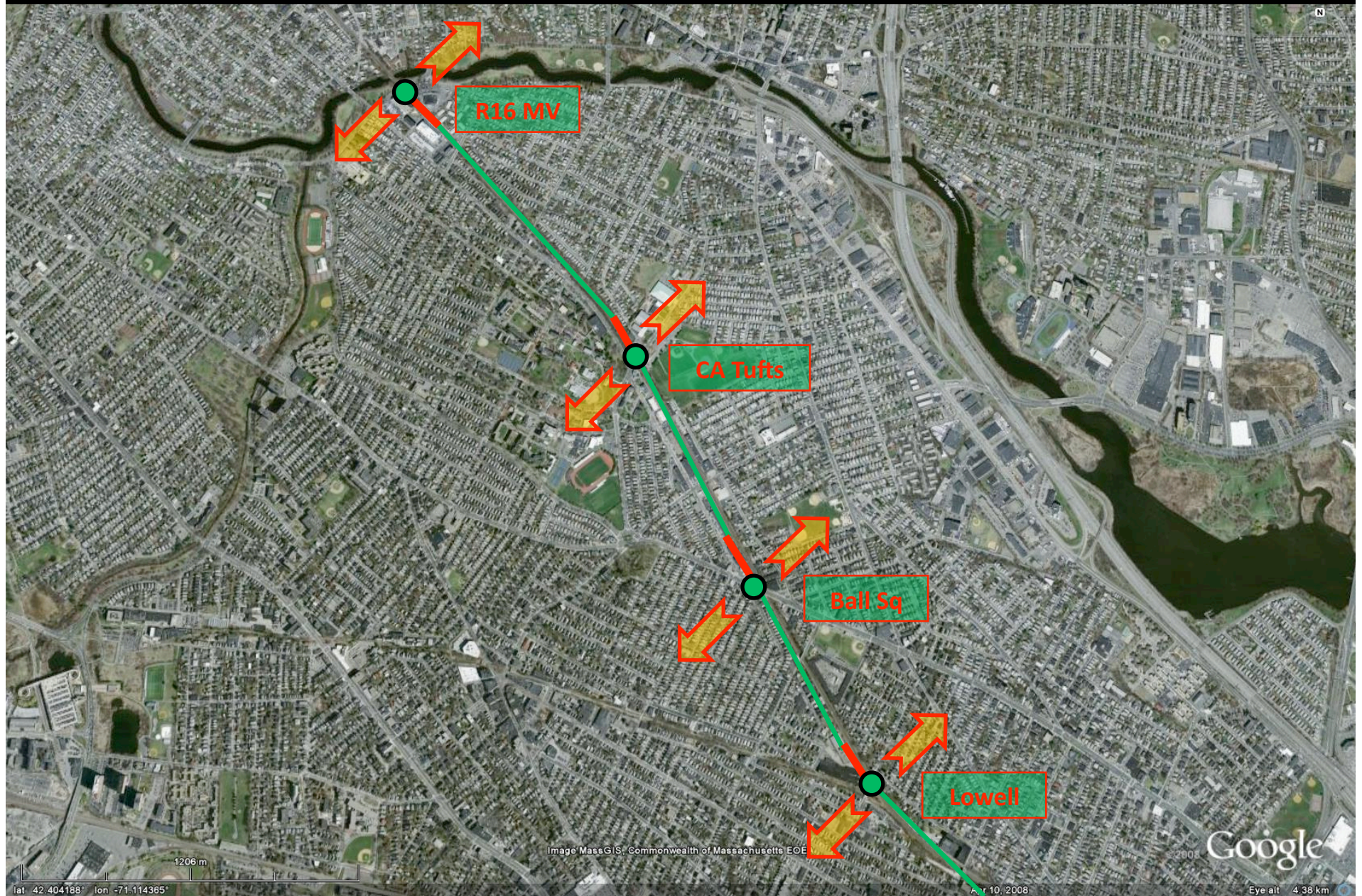
TABLE 13-1

MAJOR INFRASTRUCTURE AND EXPANSION PROJECTS IN THE RECOMMENDED PLAN

PROJECT	TYPE OF PROJECT*	COST
MIDDLESEX TURNPIKE (BEDFORD, BURLINGTON, AND BILLERICA)	MI/EXP	\$19,200,000
PULASKI BOULEVARD (BELLINGHAM)	MI	\$13,006,510
TRAPELO ROAD (BELMONT)	MI	\$13,000,000
EAST BOSTON HAUL ROAD/CHELSEA TRUCK ROUTE (BOSTON) ***	MI/EXP	\$18,000,000
FAIRMOUNT LINE IMPROVEMENTS (BOSTON)	MI/EXP	\$114,000,000
RED LINE/BLEUE LINE CONNECTOR - DESIGN ONLY (BOSTON)	MI/EXP	\$29,000,000
RUSSIA WHARF FERRY TERMINAL (BOSTON)	EXP	\$2,200,000
SULLIVAN SQUARE (BOSTON) ***	MI	\$40,000,000
RUTHERFORD AVENUE (BOSTON)	MI	\$45,507,000
CONSOLIDATED RENTAL CAR FACILITY (LOGAN AIRPORT, BOSTON) **	MI/EXP	\$453,000,000
BRAINTREE SPLIT - I-93/ROUTE 3 INTERCHANGE (BRAINTREE)	MI/EXP	\$36,017,000
I-93/95 INTERCHANGE (CANTON)	MI/EXP	\$190,000,000
I-95 (NB)/DEDHAM STREET RAMP/DEDHAM STREET CORRIDOR (CANTON) **	MI/EXP	\$35,000,000
ROUTE 2/CROSBY'S CORNER (CONCORD AND LINCOLN)	MI/EXP	\$72,000,000
ROUTE 128/ROUTE 35 AND ROUTE 62 (DANVERS)	MI	\$25,982,000
ROUTE 126/135 GRADE SEPARATION (FRAMINGHAM)	MI	\$54,080,000
BRUCE FREEMAN RAIL TRAIL (CONCORD TO WESTFORD)	MI	\$17,250,000
ROUTE 53 FINAL PHASE (HANOVER)	EXP	\$1,000,000
ASSABET RIVER RAIL TRAIL (HUDSON TO ACTON)	MI	\$16,725,000
ROUTE 85 IMPROVEMENTS (HUDSON)	EXP	\$8,400,000
ROUTE 1 IMPROVEMENTS (MALDEN, REVERE, & SAUGUS)	MI/EXP	\$70,304,000
ROUTE 139 WIDENING (MARSHFIELD)	EXP	\$7,150,200
NEEDHAM STREET/HIGHLAND AVENUE (NEWTON AND NEEDHAM)	MI/EXP	\$17,000,000
QUINCY CENTER CONCOURSE, PHASE 2 (QUINCY) ***	EXP	\$7,511,068
I-93/95 INTERCHANGE (READING AND WOBURN)	MI/EXP	\$194,792,000
WONDERLAND PARKING GARAGE (REVERE) **	MI/EXP	\$52,000,000
BRIDGE STREET (SALEM)	EXP	\$10,000,000
1000 ADDITIONAL PARK AND RIDE SPACES (REGIONWIDE)	MI/EXP	\$25,000,000
ASSEMBLY SQUARE ORANGE LINE STATION (SOMERVILLE)	MI/EXP	\$50,000,000
ASSEMBLY SQUARE ROADWAYS (SOMERVILLE) **	MI/EXP	\$28,000,000
GREEN LINE LECHMERE TO COLLEGE AVENUE (SOMERVILLE)	MI/EXP	\$934,000,000
GREEN LINE COLLEGE AVENUE TO MYSTIC VALLEY PARKWAY ROUTE 16 (SOMERVILLE)	MI/EXP	\$130,000,000
SOUTH WEYMOUTH NAVAL AIR STATION ACCESS IMPROVEMENTS (WEYMOUTH, HINGHAM, & ROCKLAND) **	MI/EXP	\$62,014,750
ROUTE 18 CAPACITY IMPROVEMENTS (WEYMOUTH) ***	MI/EXP	\$26,100,000
MONTVALE AVENUE (WOBURN)	EXP	\$3,400,000
NEW BOSTON STREET BRIDGE (WOBURN)	EXP	\$4,500,000

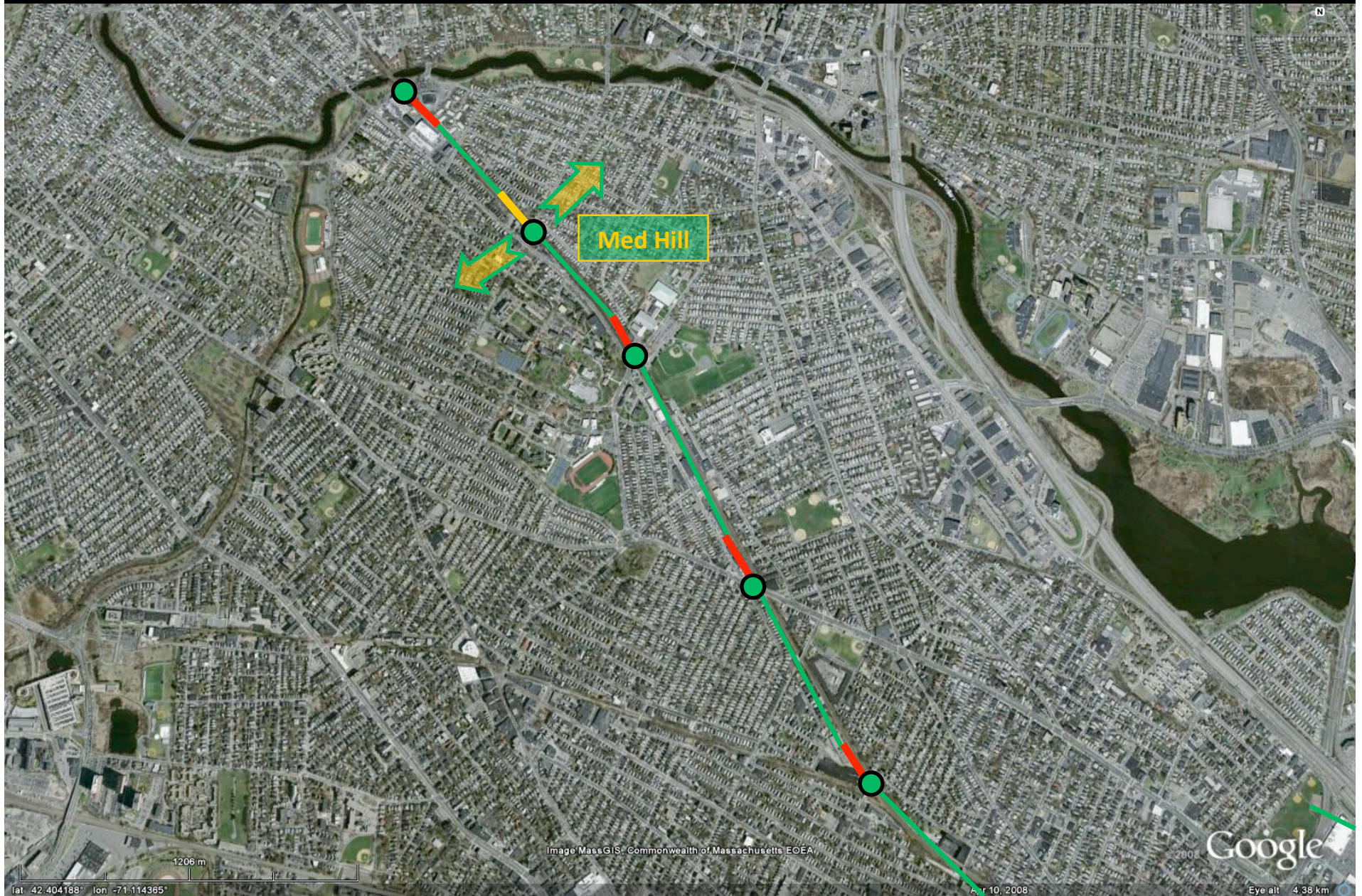


# Preservation of Future Station Opportunities Medford Hillside on Lowell Line Branch



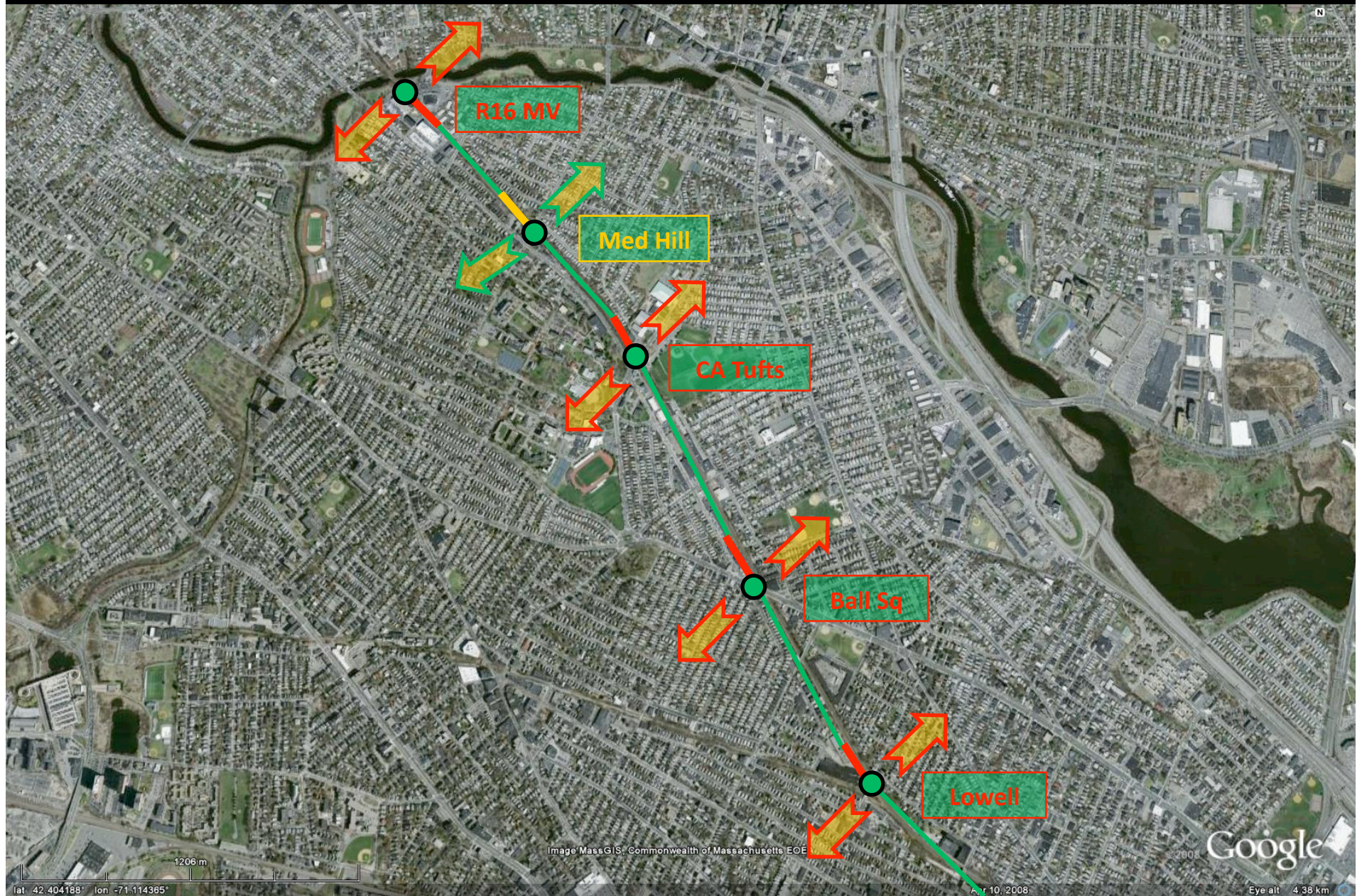


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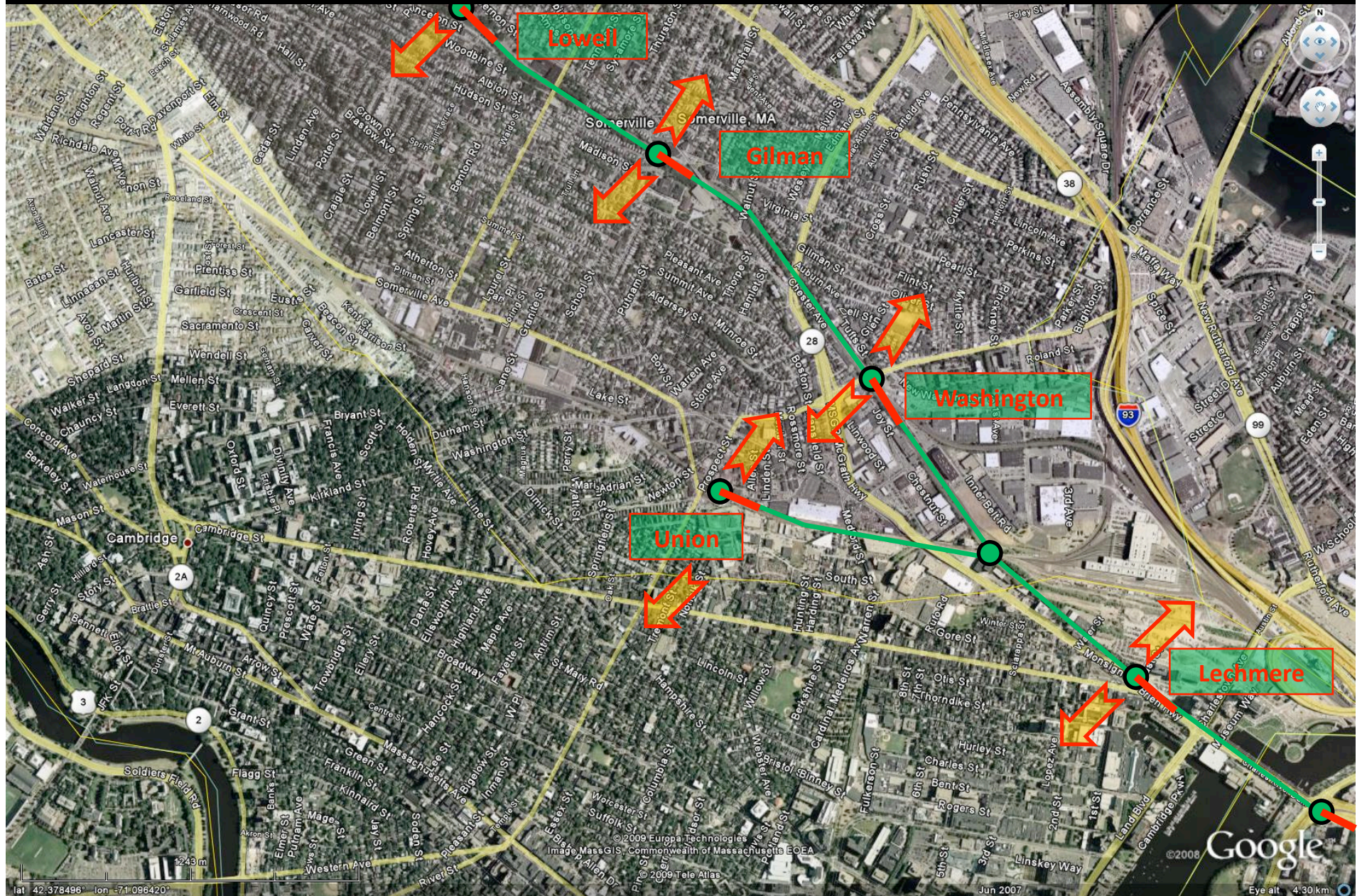


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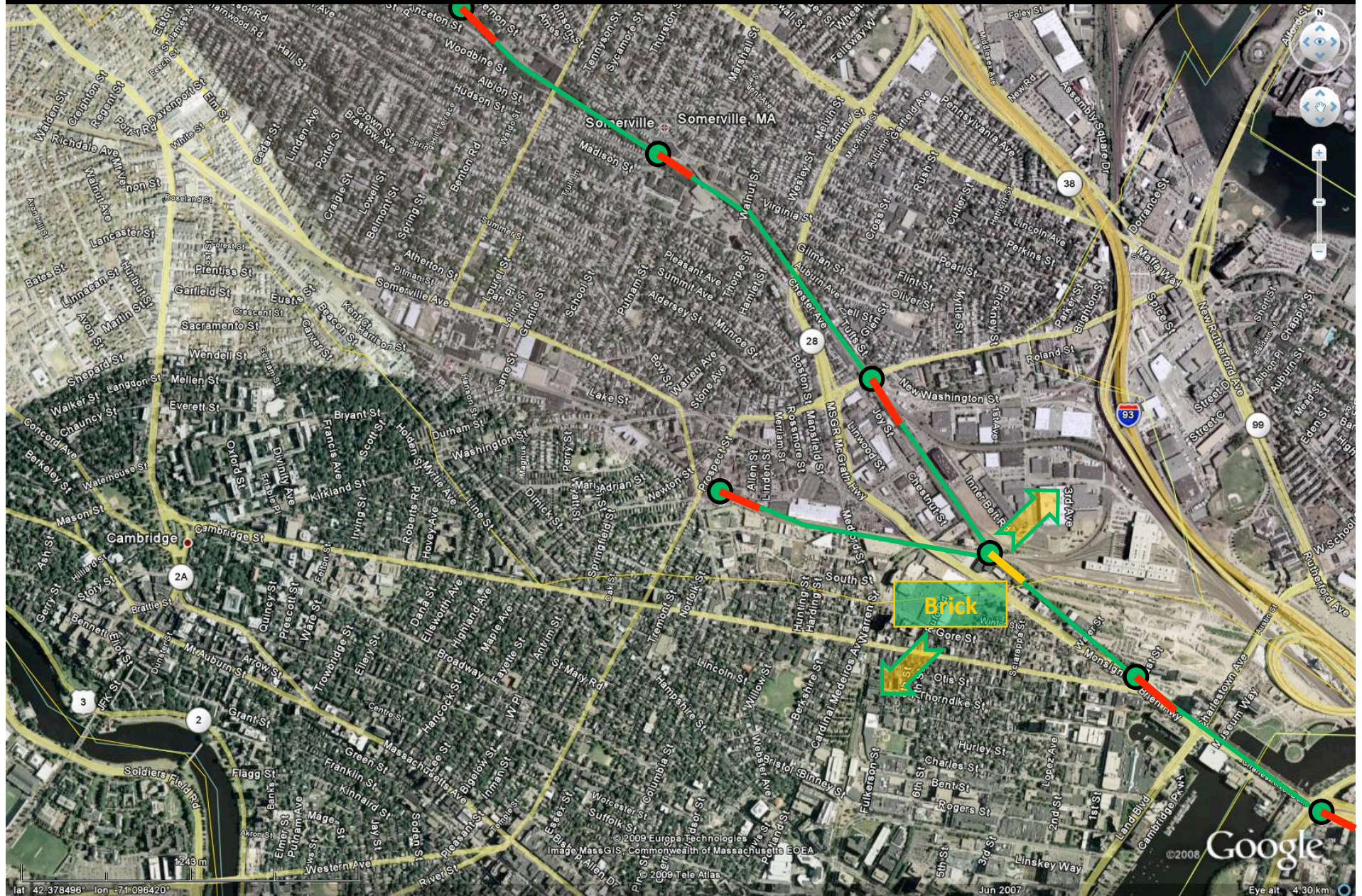


# Preservation of Future Station Opportunities In Between or Branch Station on Union Line or Lowell Line or BOTH



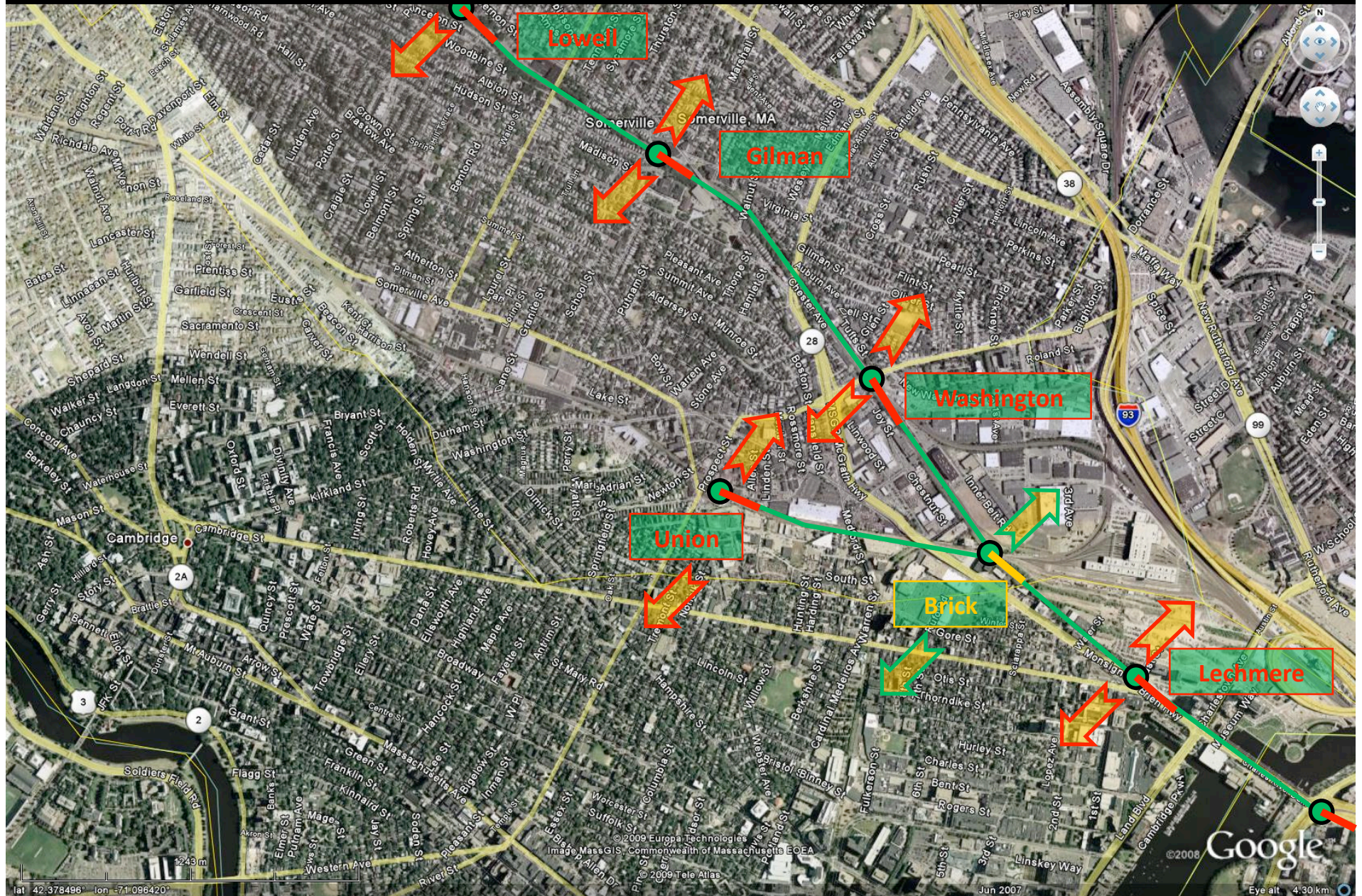


# Preservation of Future Station Opportunities and Transit Oriented Development In Between or Branch Station on Union Line or Lowell Line or BOTH



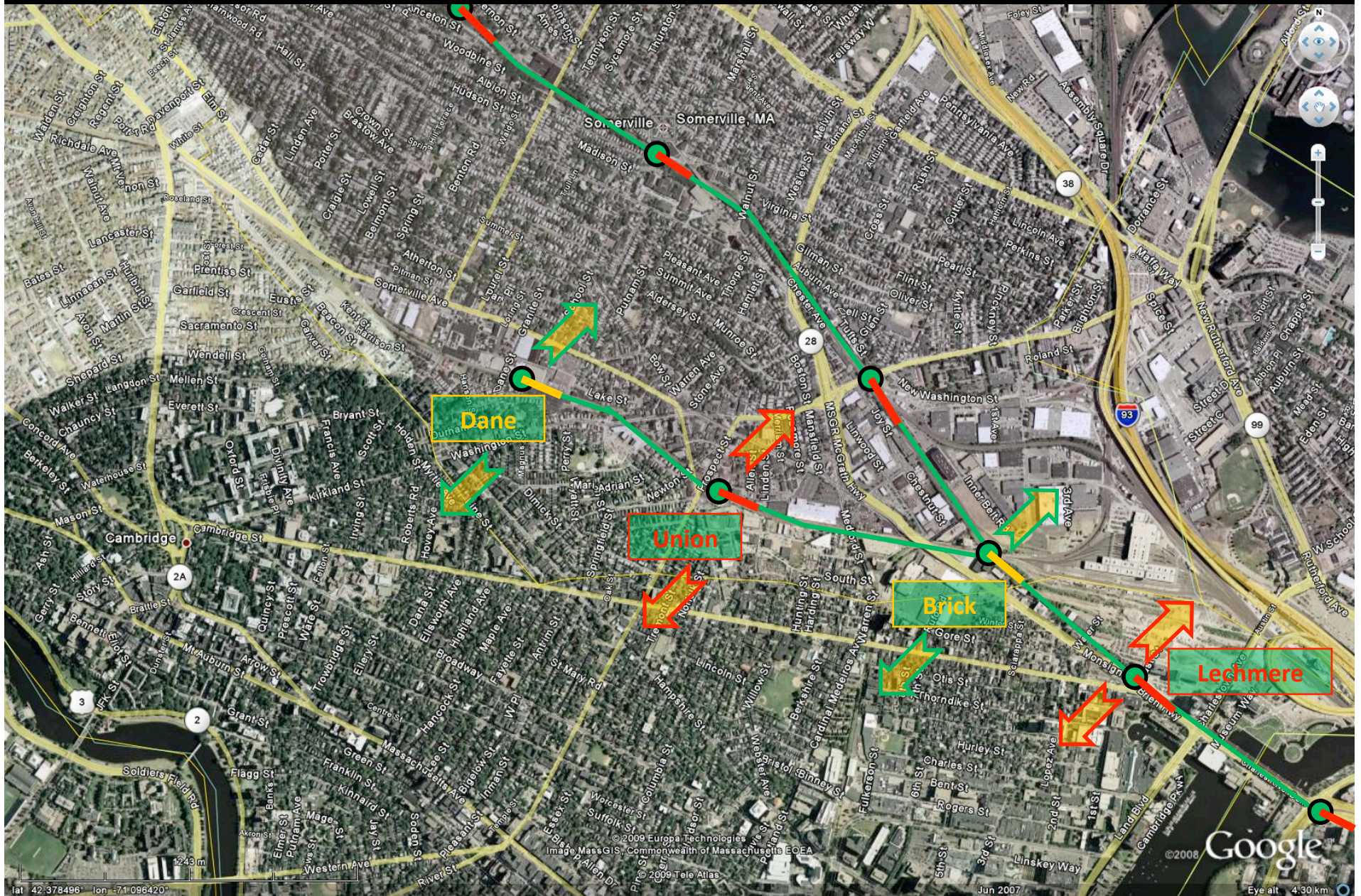


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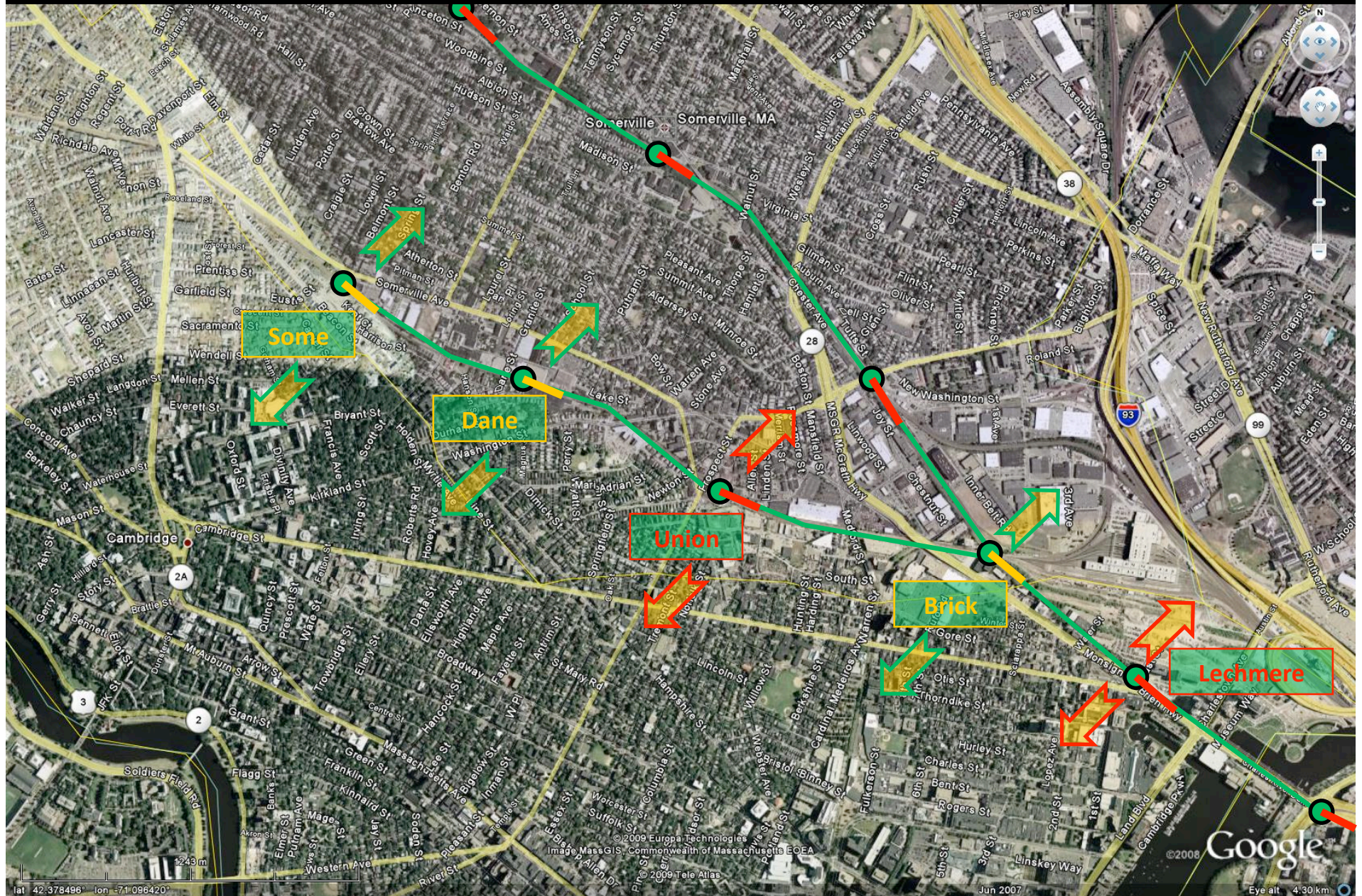


# Green "Border" Line - Lechmere to Porter - Dense Neighborhoods & Small BIZ Cambridge to South - Somerville to North - Unites East and Middle Cambridge



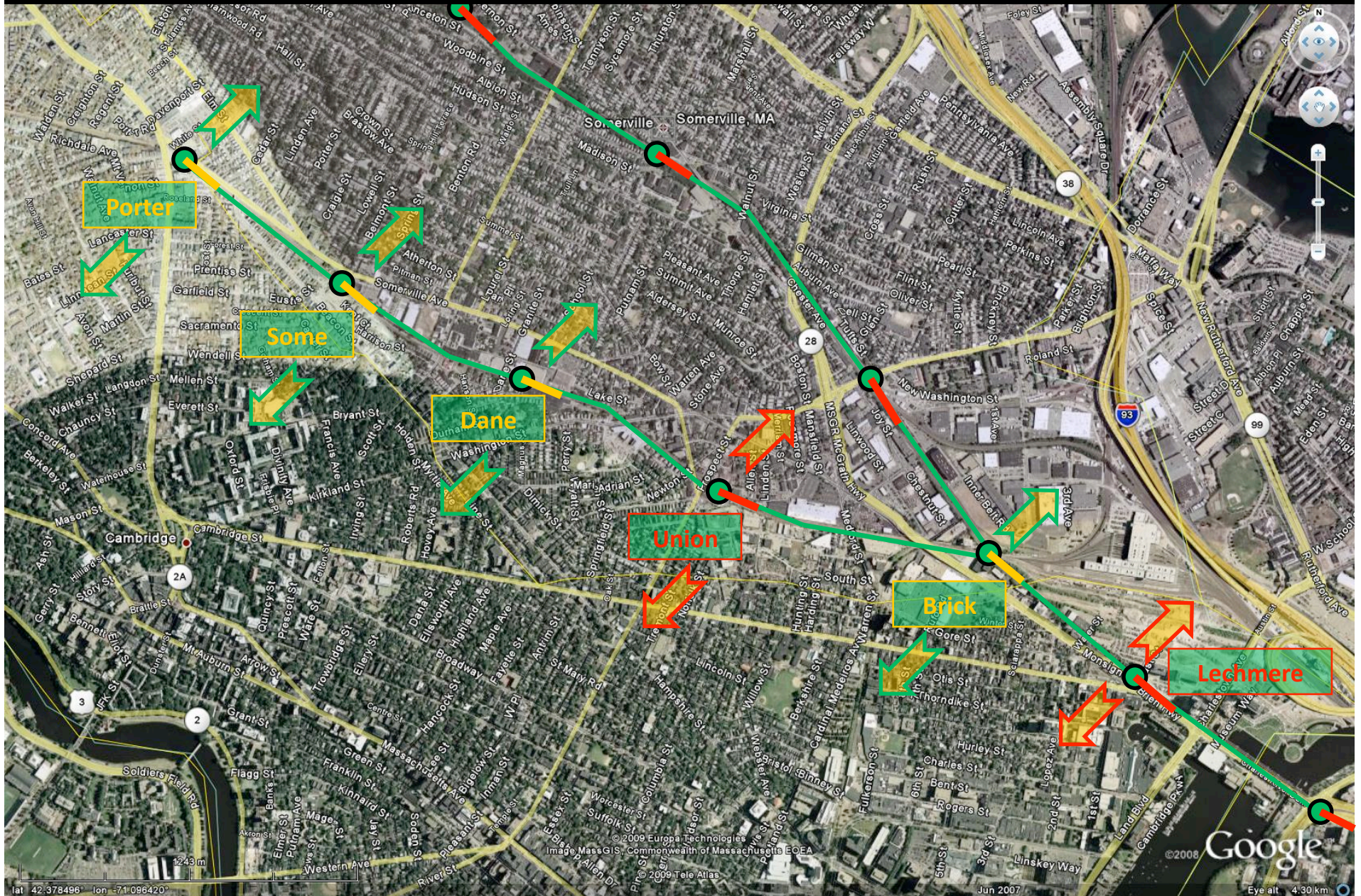


Green "Border" Line - Lechmere to Porter - Dense Neighborhoods & Small BIZ  
Cambridge to South - Somerville to North - Unites East and Middle Cambridge





# Green "Border" Line - Lechmere to Porter - Dense Neighborhoods & Small BIZ Cambridge to South - Somerville to North - Unites East and Middle Cambridge







Why base urban development on walk/bike AND light rail instead of cars?







Why base urban development on light rail instead of commuter rail? More trips. Less pollution.







Why base urban development on light rail instead of commuter rail? More trips. Less pollution.





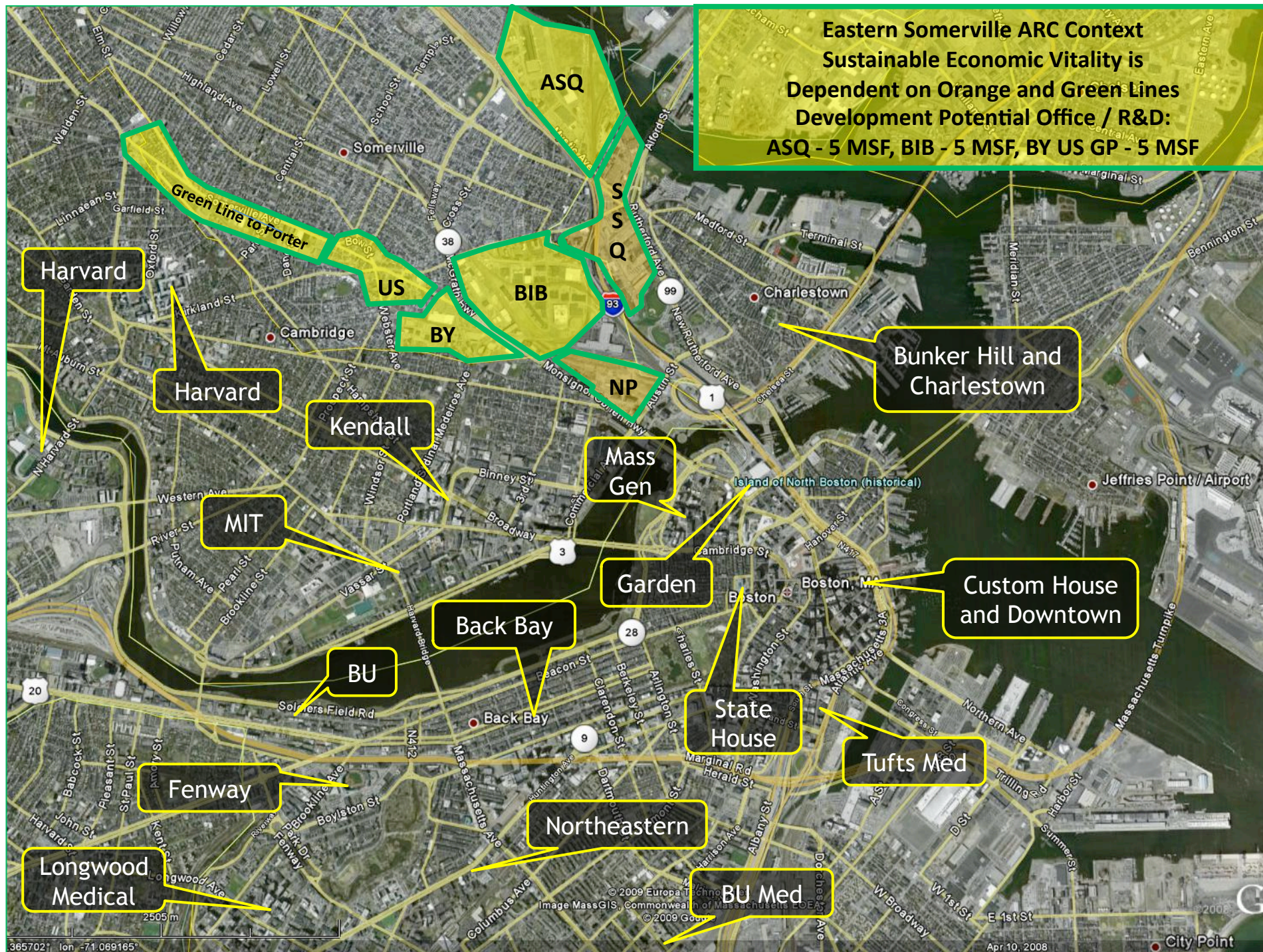
# Assembly Square Long Term Vision - First Time Seen in Public - 10 Million SF

## Orange Line T-stop, Traffic Reduction of 50,000 Vehicles per Day, Walk Bike



Proposed Development	
	Proposed (gsf)
Retail	500,000
Ikea	340,000
Marketplace	330,000
Office/R&D	1,775,000
Civic/Flex	105,000
Residential	2,450,000
<b>Total</b>	<b>5,500,000</b>
Long Range Plan	
	Additional (gsf)
Retail	230,000
Office/R&D	3,225,000
Civic/Flex	895,000
Residential	550,000
<b>Total</b>	<b>4,900,000</b>
Total District Plan	
	(gsf)
Retail	1,400,000
Office/R&D	5,000,000
Civic/Flex	1,000,000
Residential	3,000,000
<b>Total</b>	<b>10,400,000</b>





**Eastern Somerville ARC Context**  
**Sustainable Economic Vitality is**  
**Dependent on Orange and Green Lines**  
**Development Potential Office / R&D:**  
**ASQ - 5 MSF, BIB - 5 MSF, BY US GP - 5 MSF**

**Bunker Hill and Charlestown**

**Custom House and Downtown**

**Tufts Med**

**State House**

**Northeastern**

**BU Med**

**Back Bay**

**Garden**

**Mass Gen**

**Kendall**

**MIT**

**Fenway**

**Longwood Medical**

**Harvard**

**Harvard**

**ASQ**

**US**

**BIB**

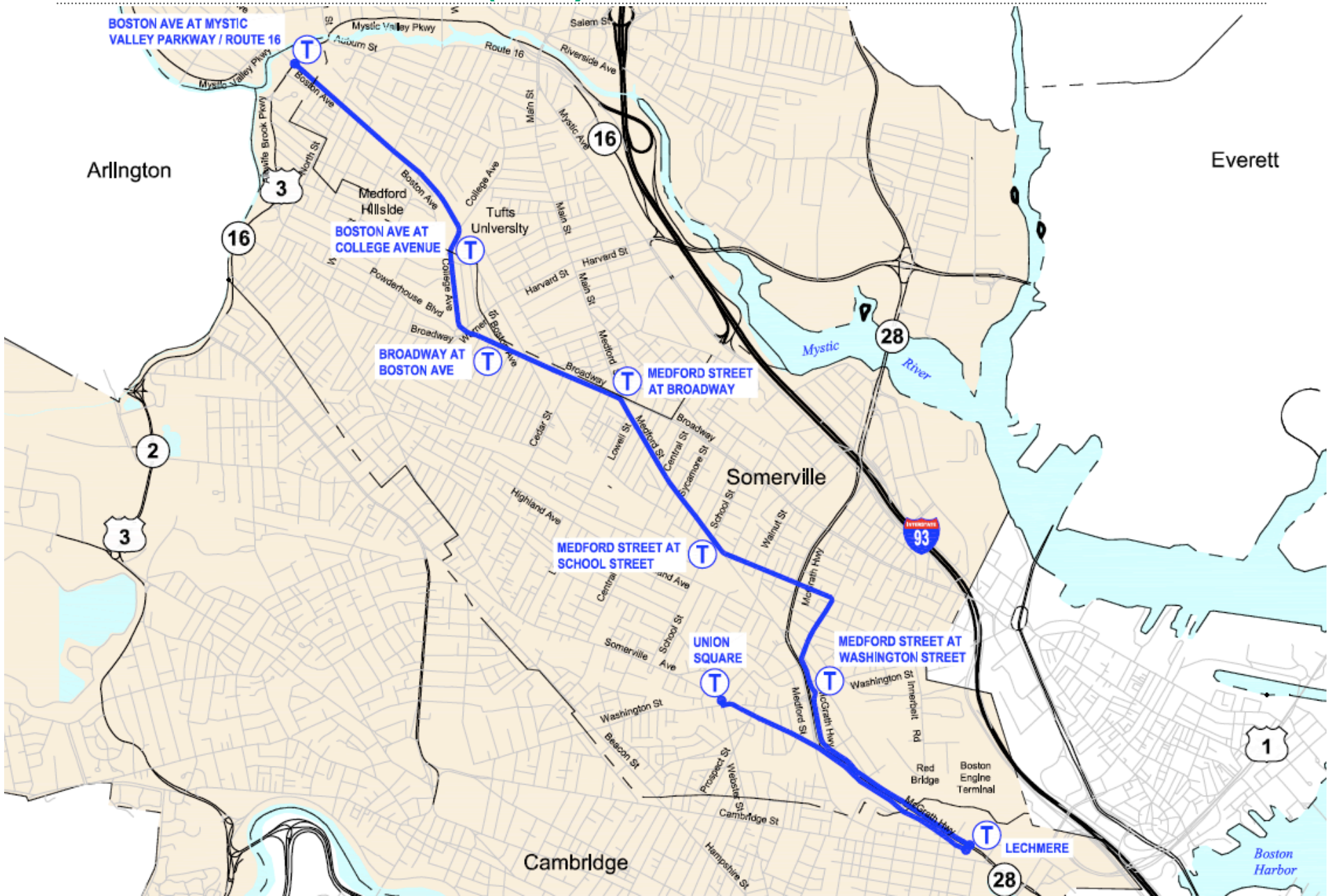
**BY**

**NP**

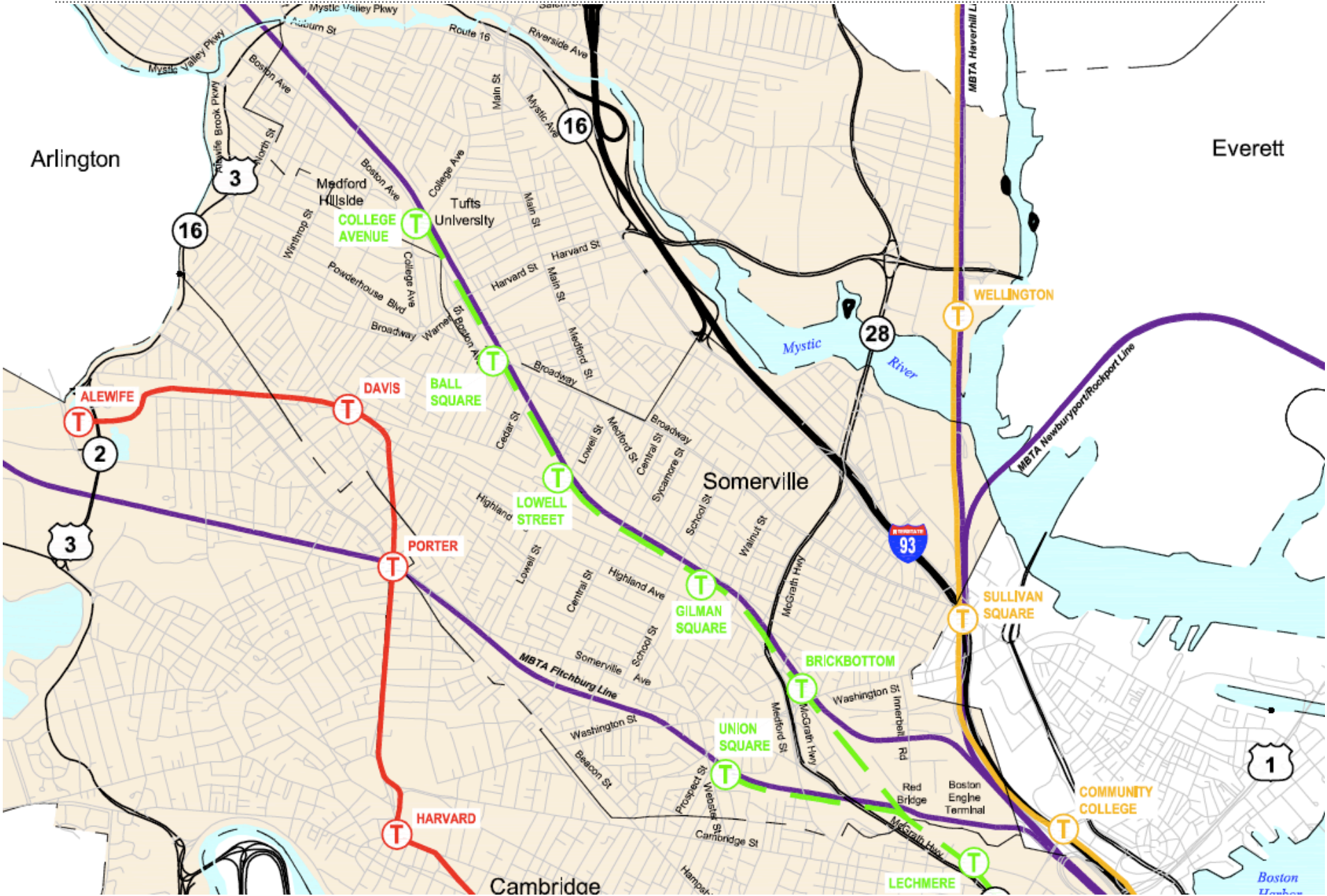


**Alternatives**

# Baseline alternative (bus)

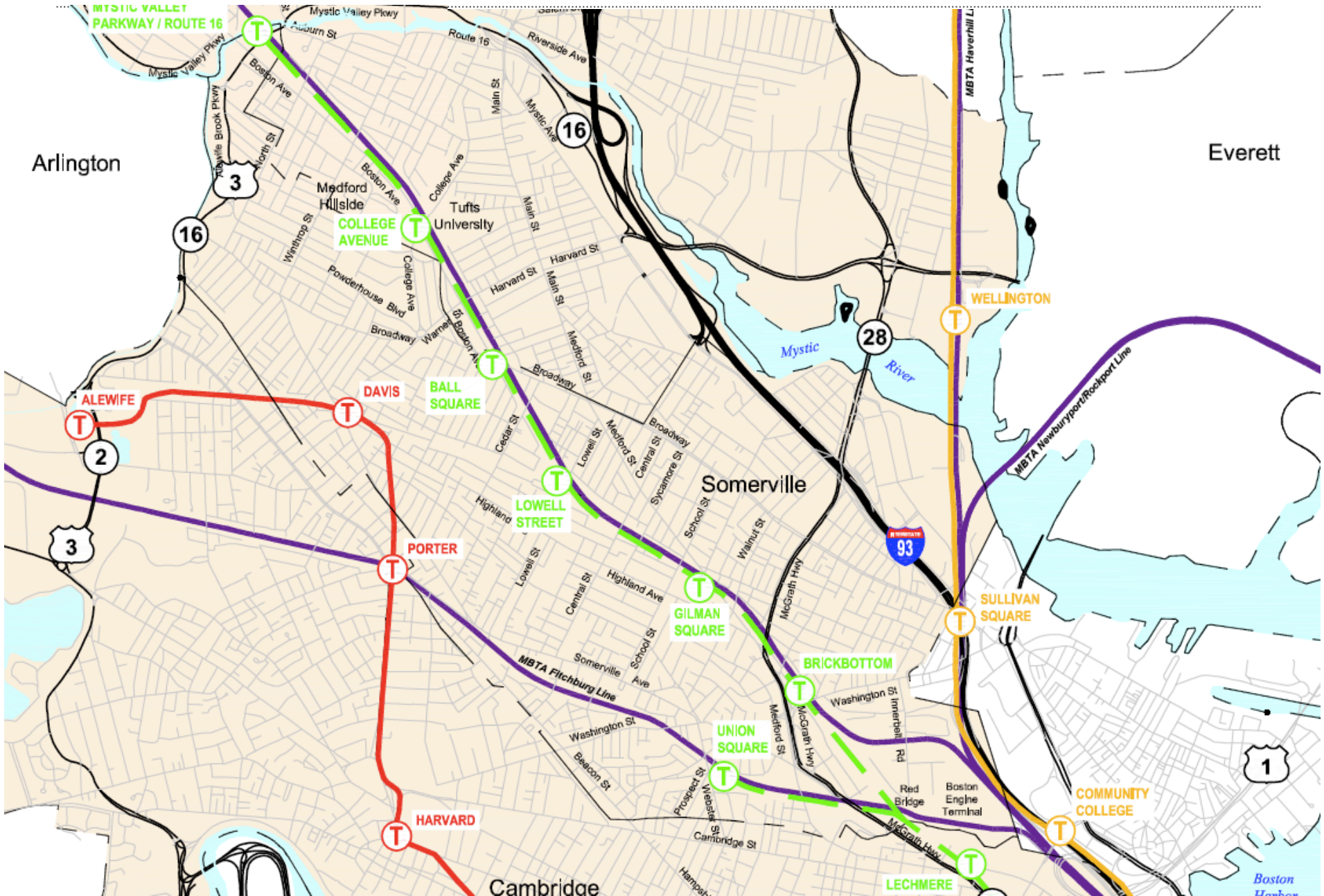


Alternative 1

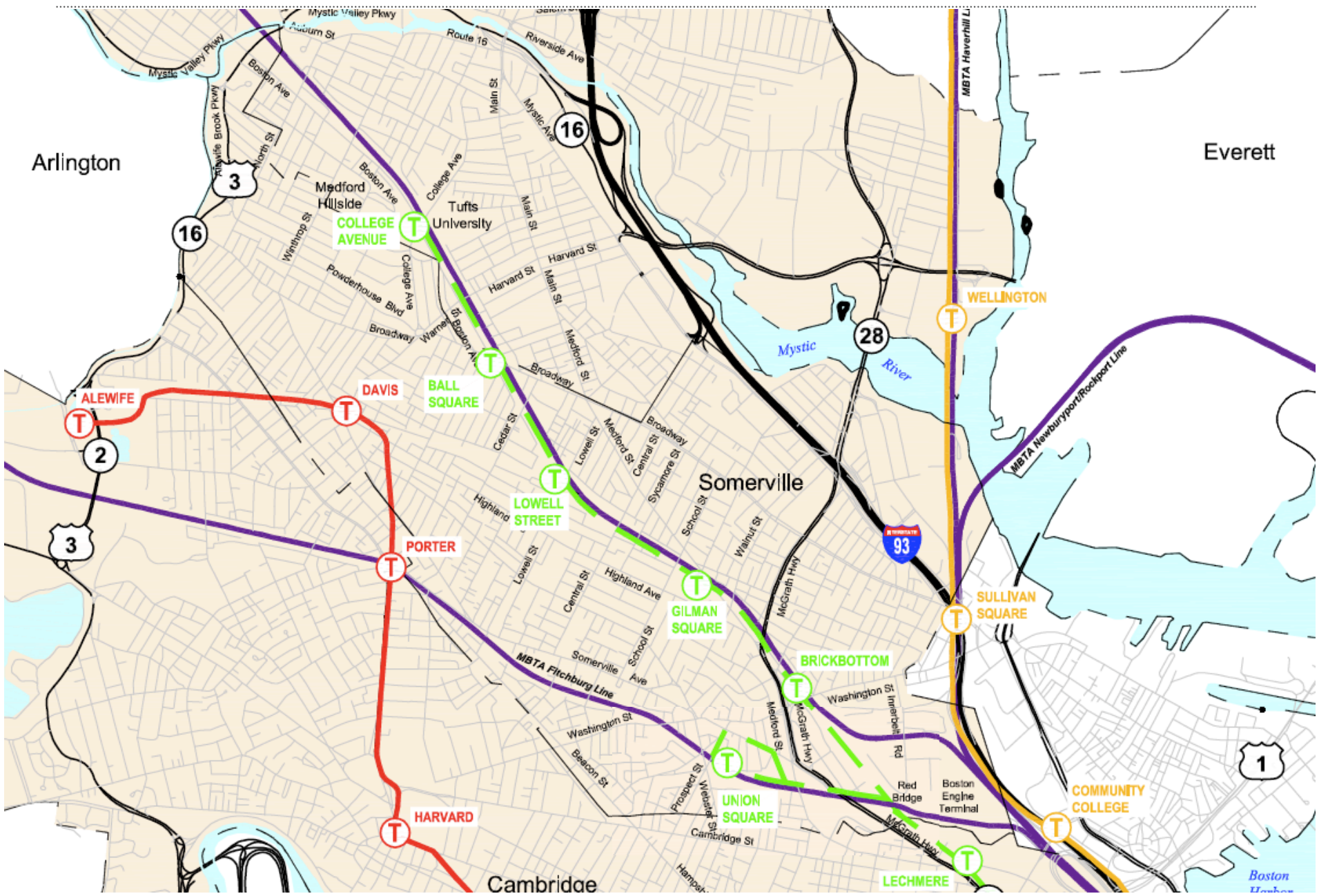




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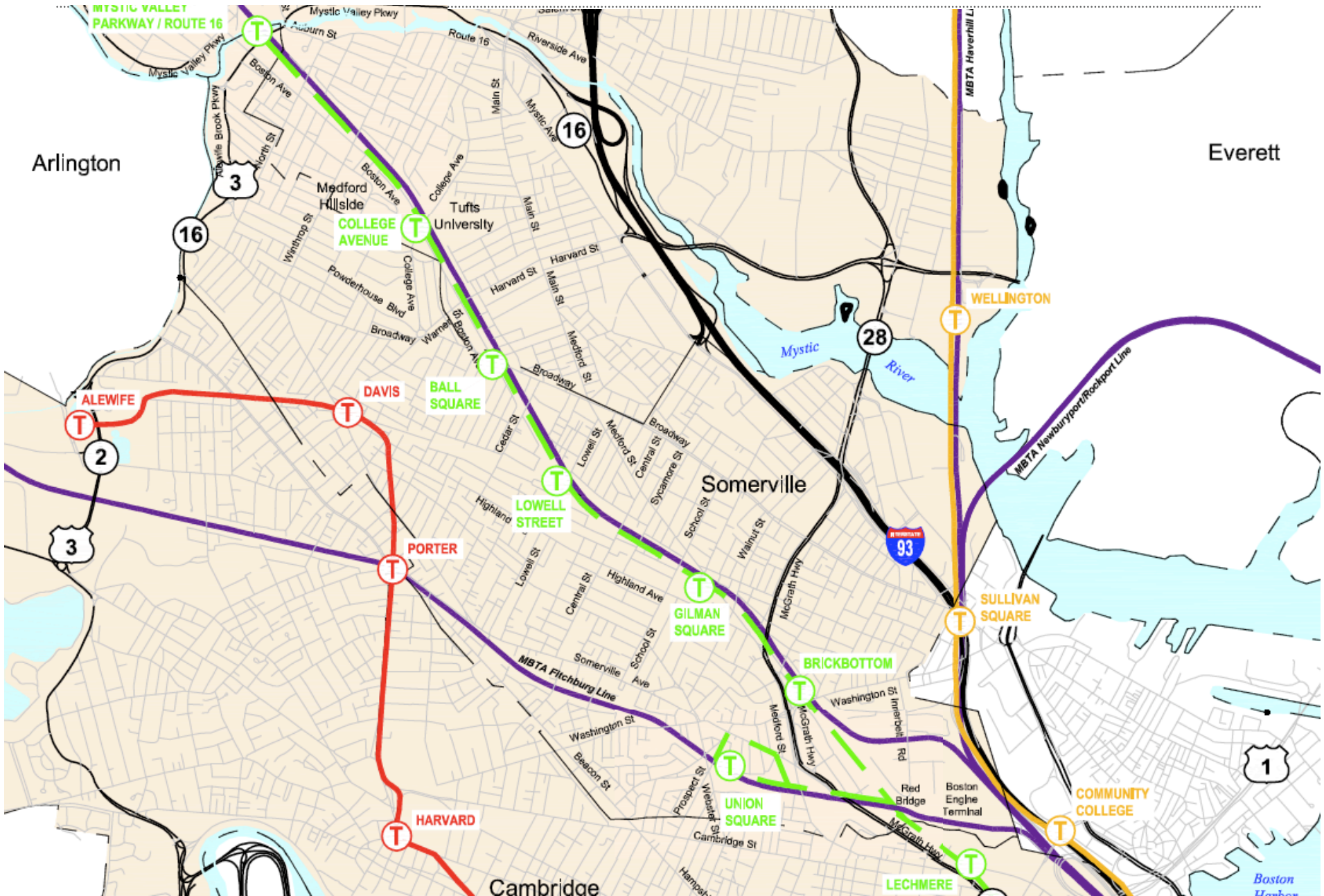


Alternative 3



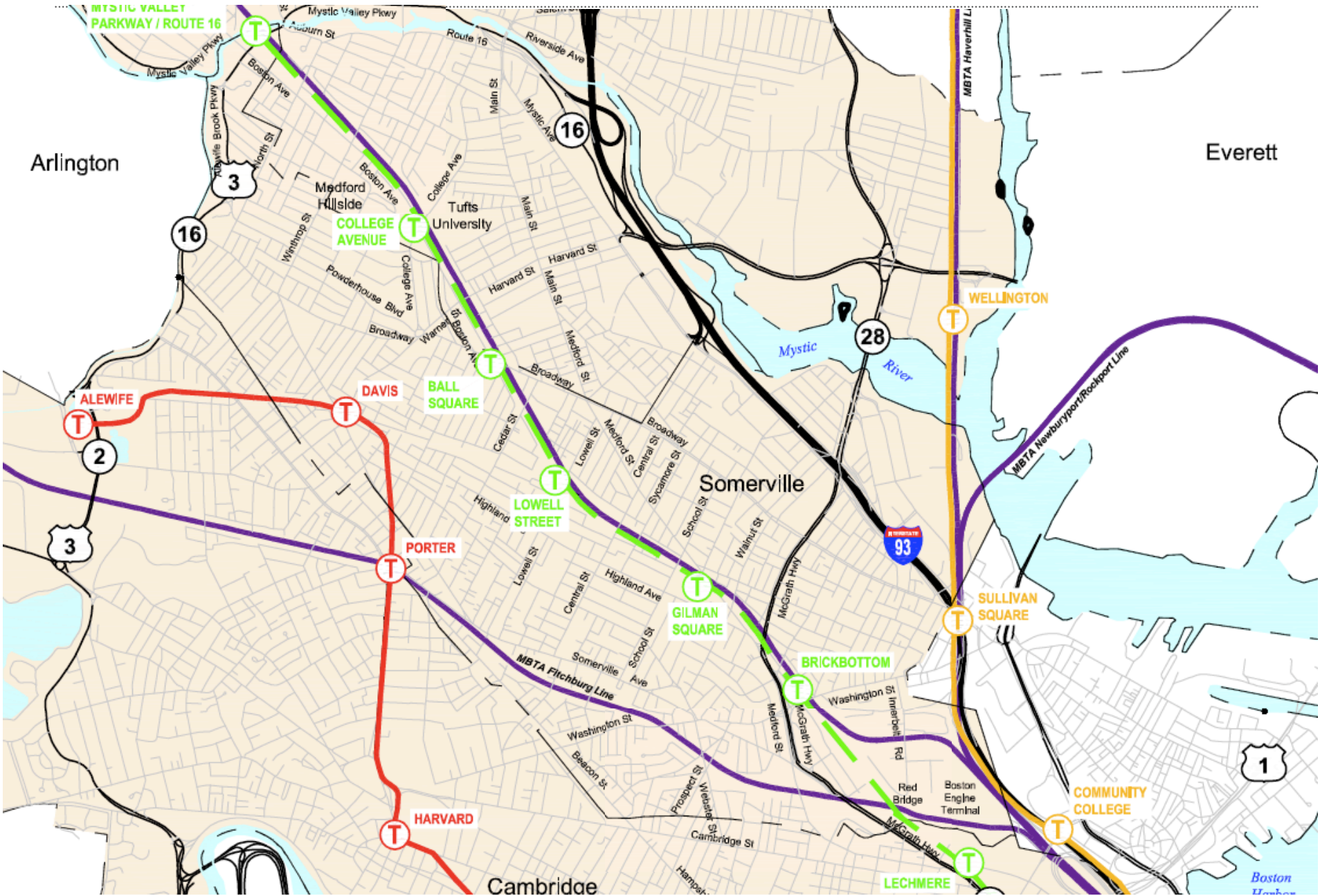


Alternative 4

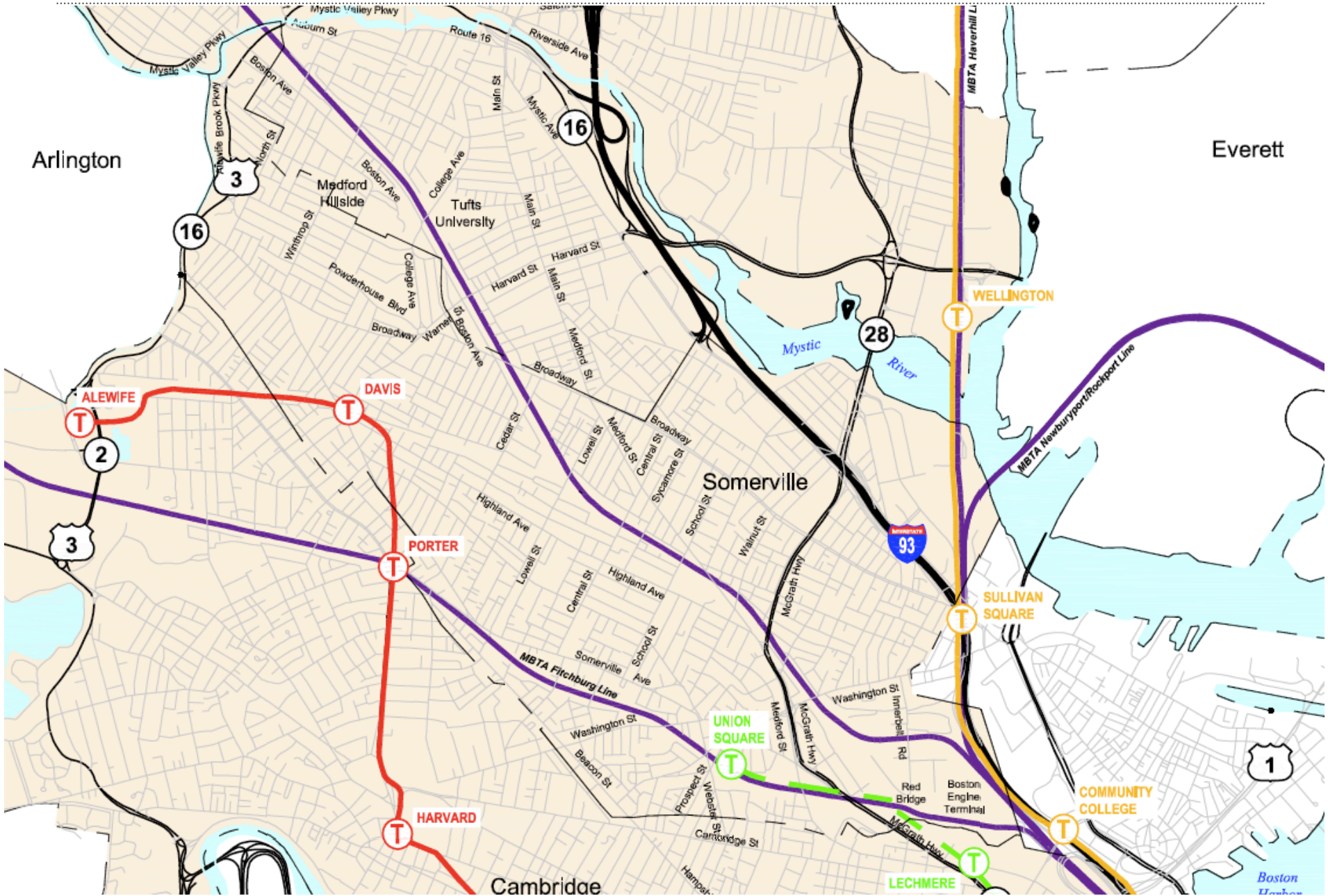




Alternative 5



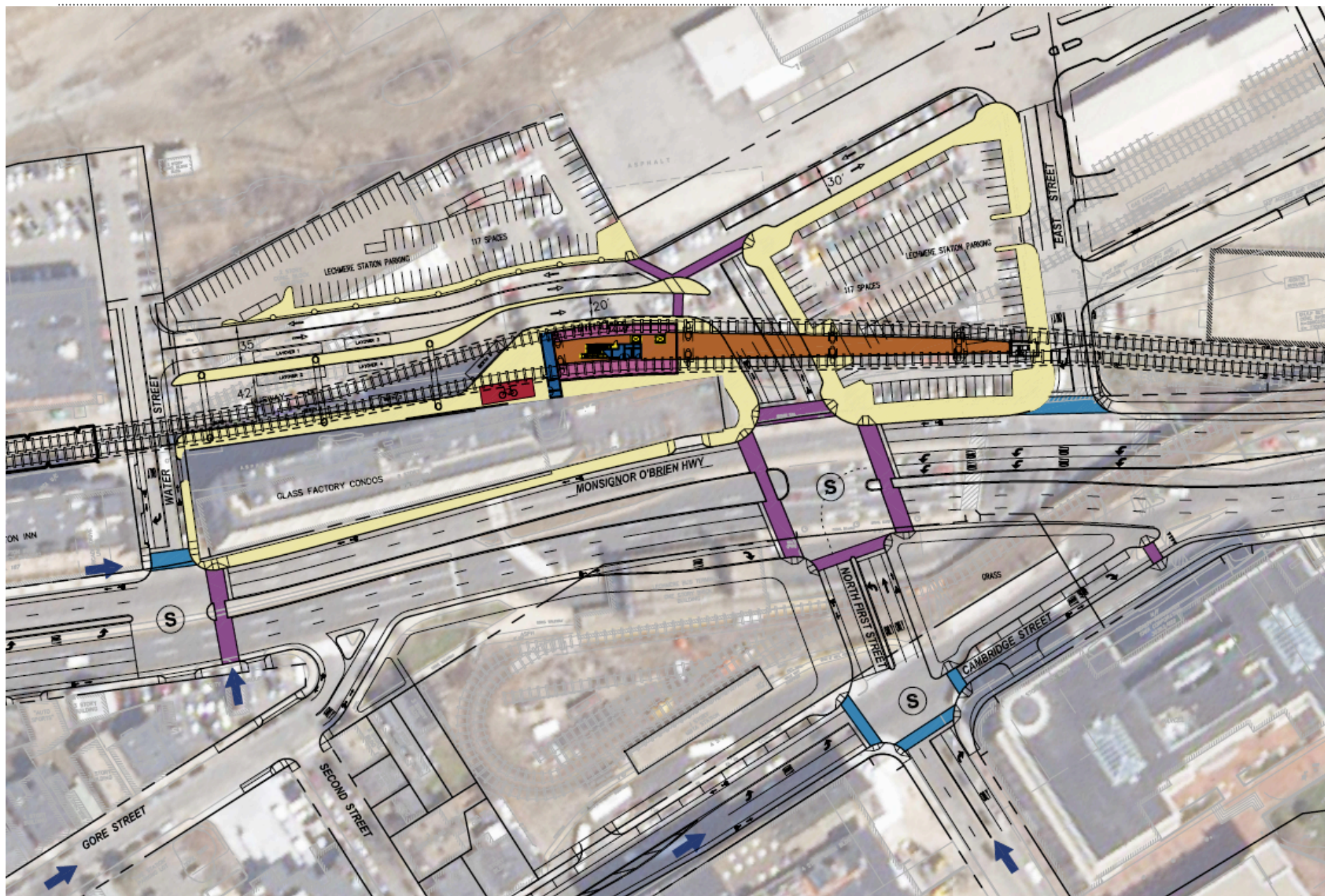
Alternative 6



**Stations**

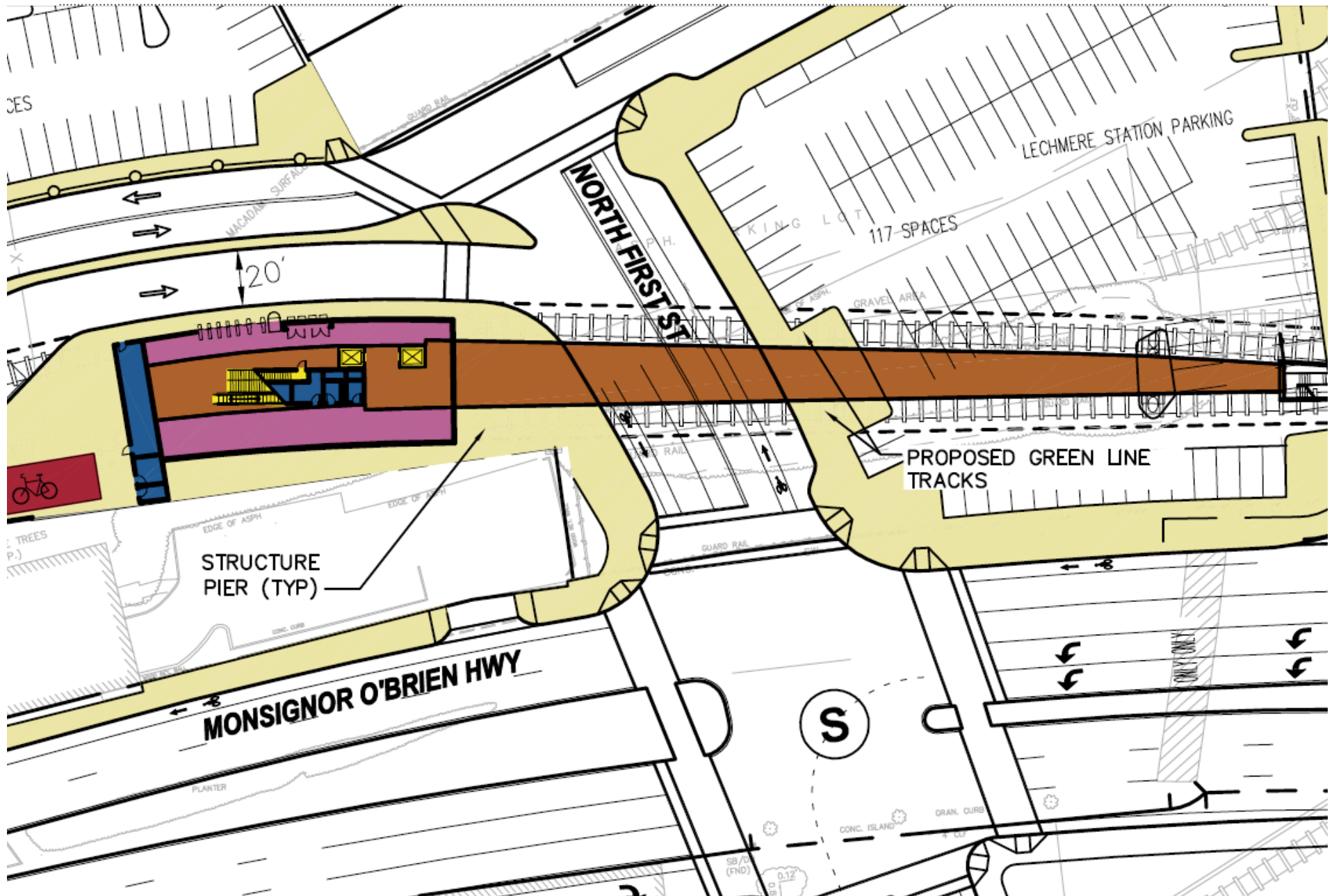


# Lechmere





# Lechmere

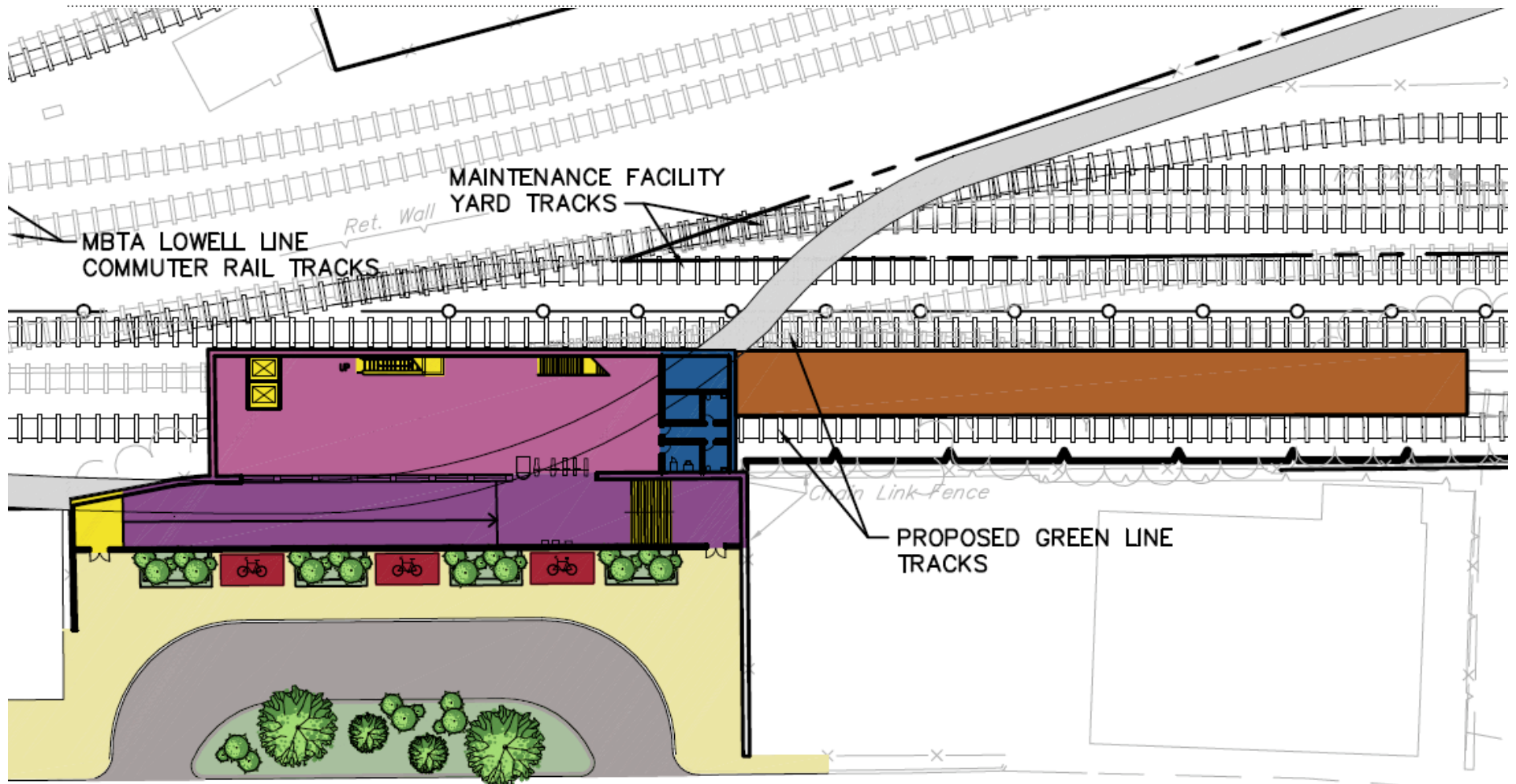






# Brickbottom / Cobble Hill

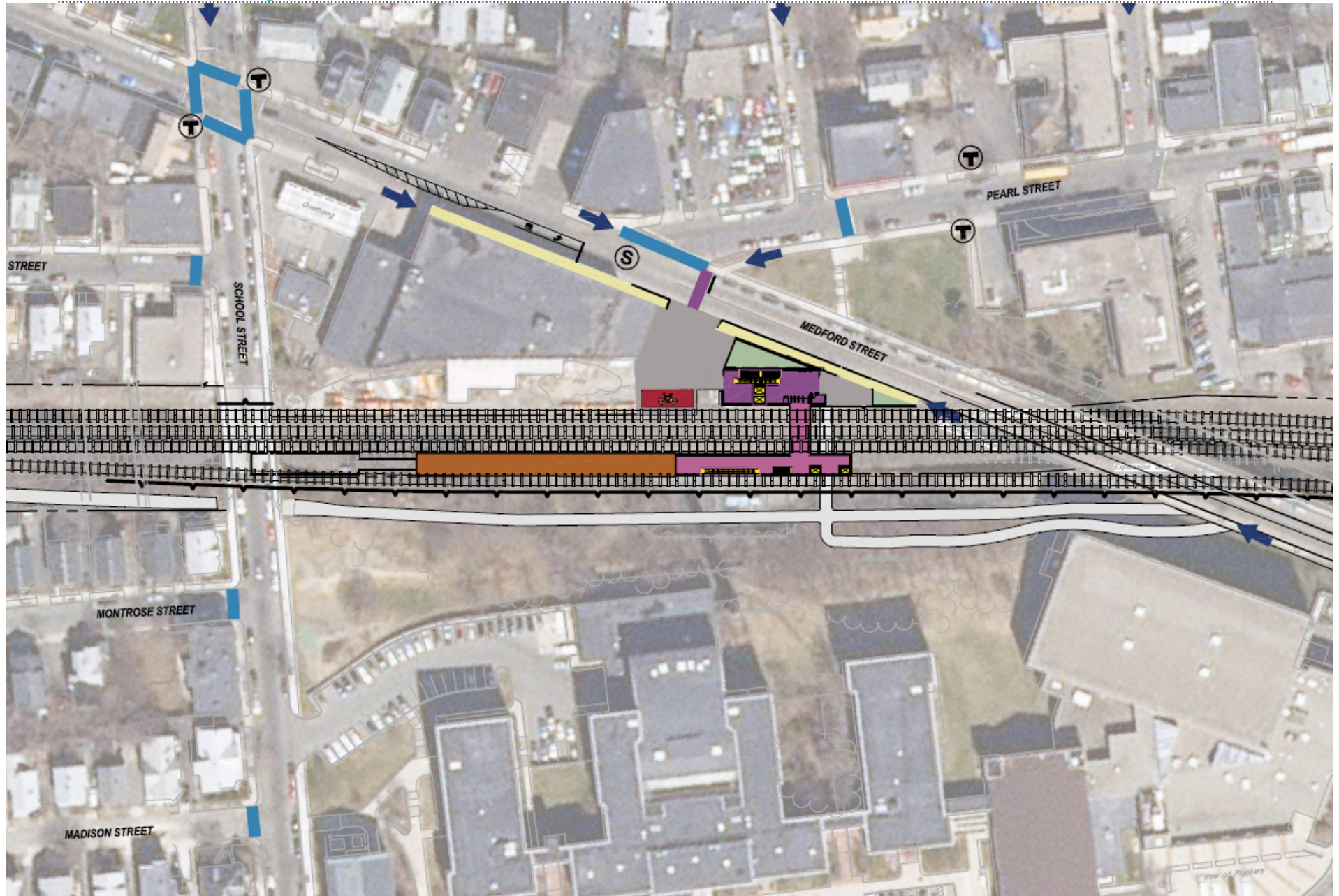
SOMERVILLE  
TRANSPORTATION EQUITY  
PARTNERSHIP



**JOY STREET**



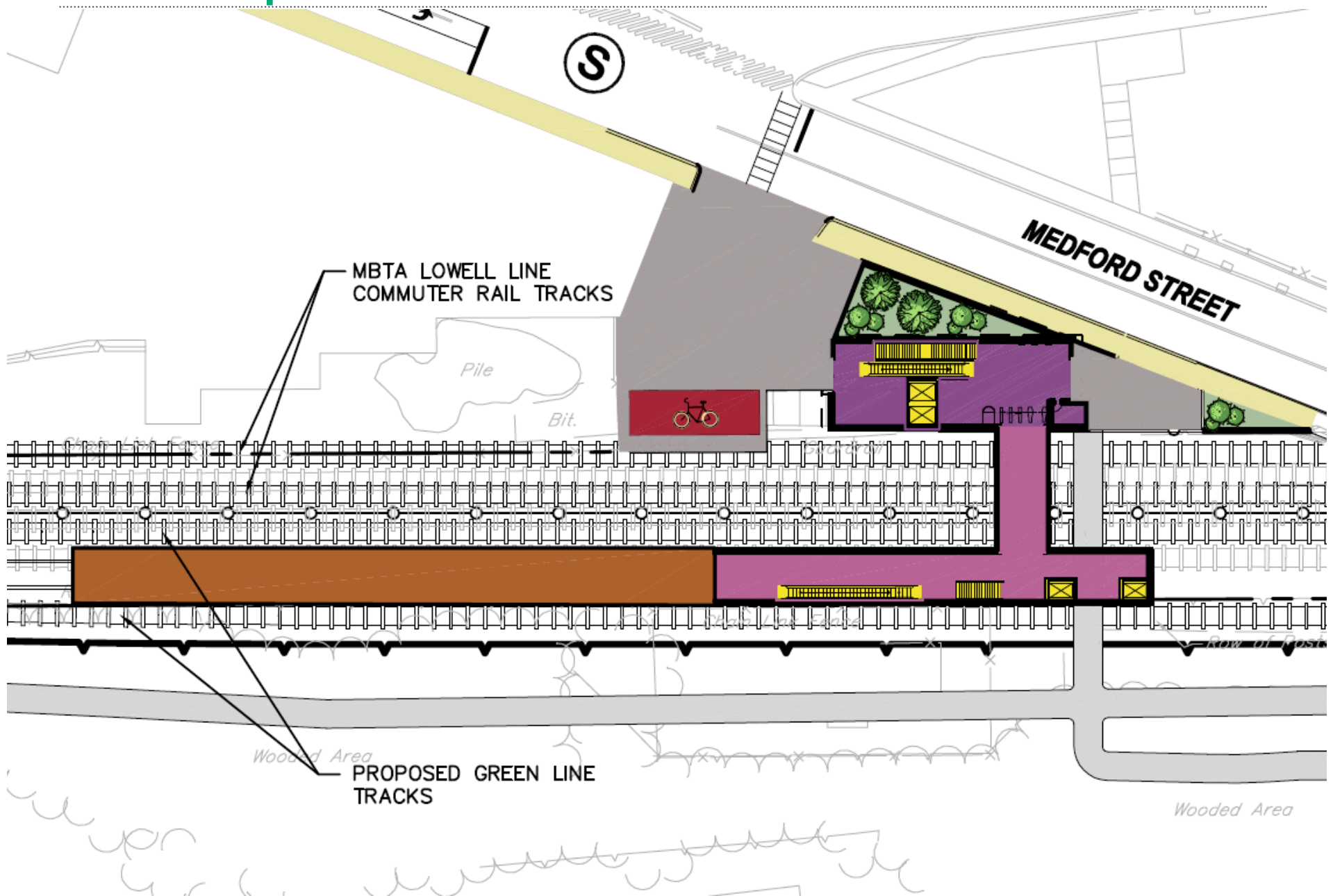
# Gilman Square



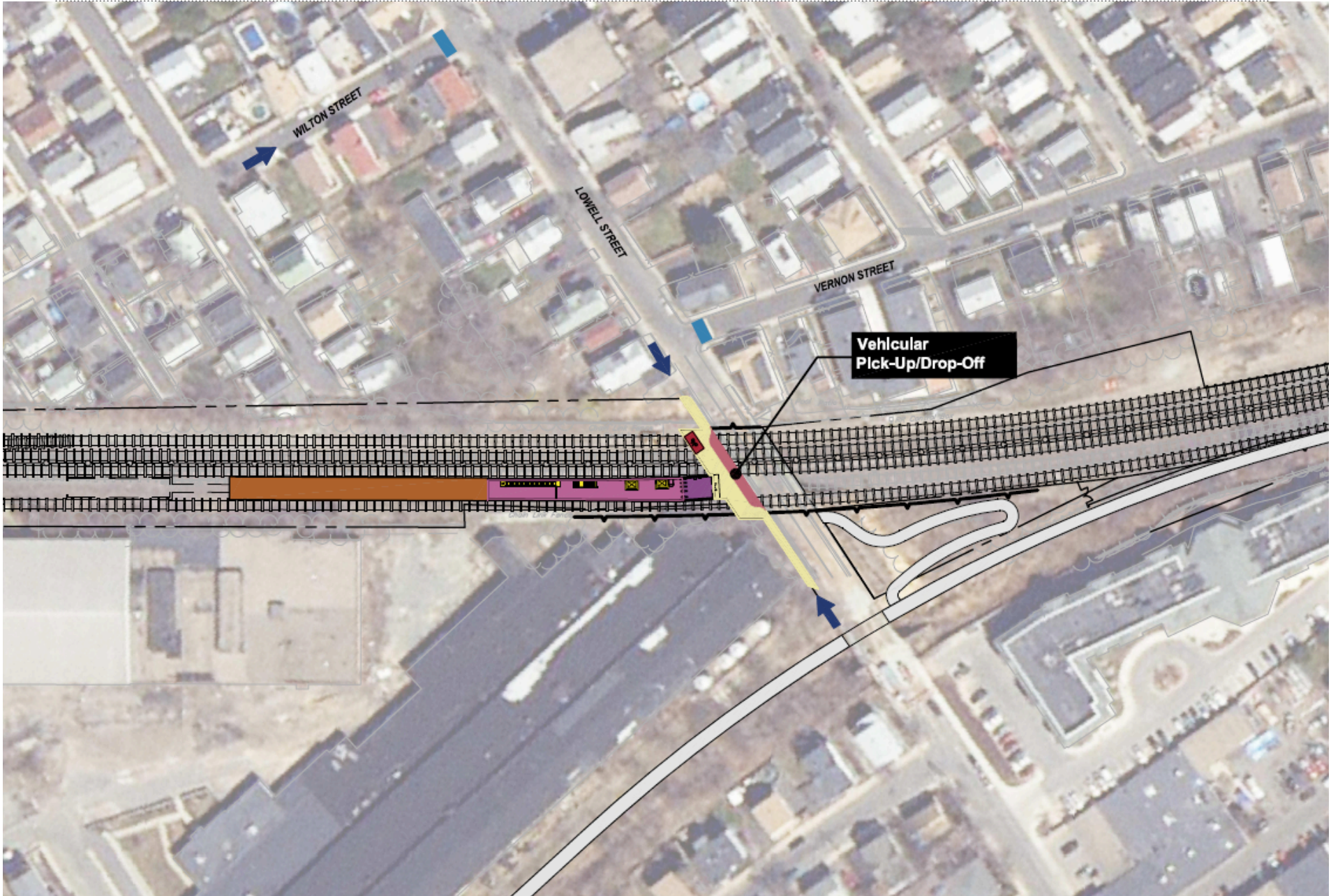


# Gilman Square

SOMERVILLE  
TRANSPORTATION EQUITY  
PARTNERSHIP

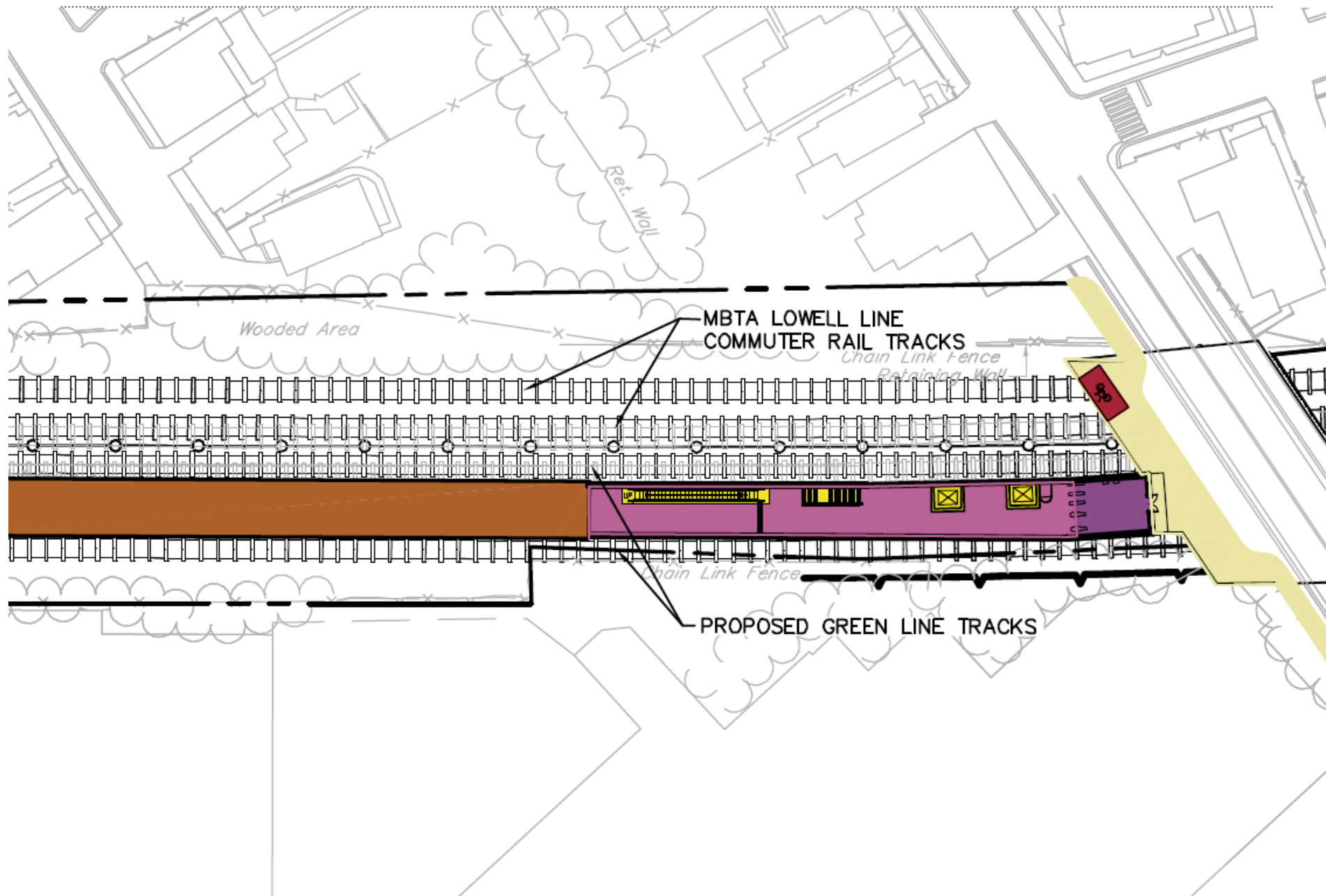


Lowell Street





# Lowell Street



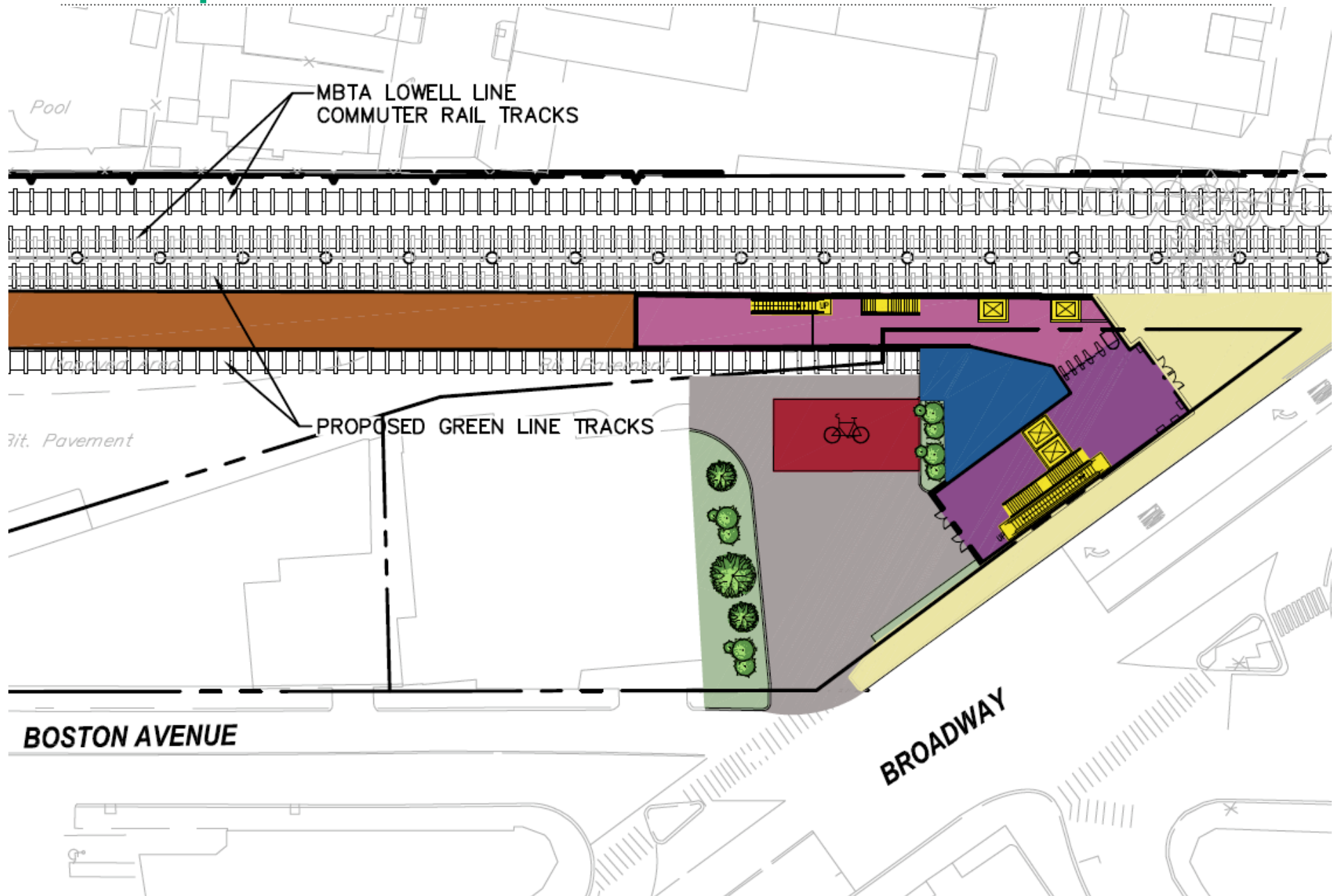
Ball Square



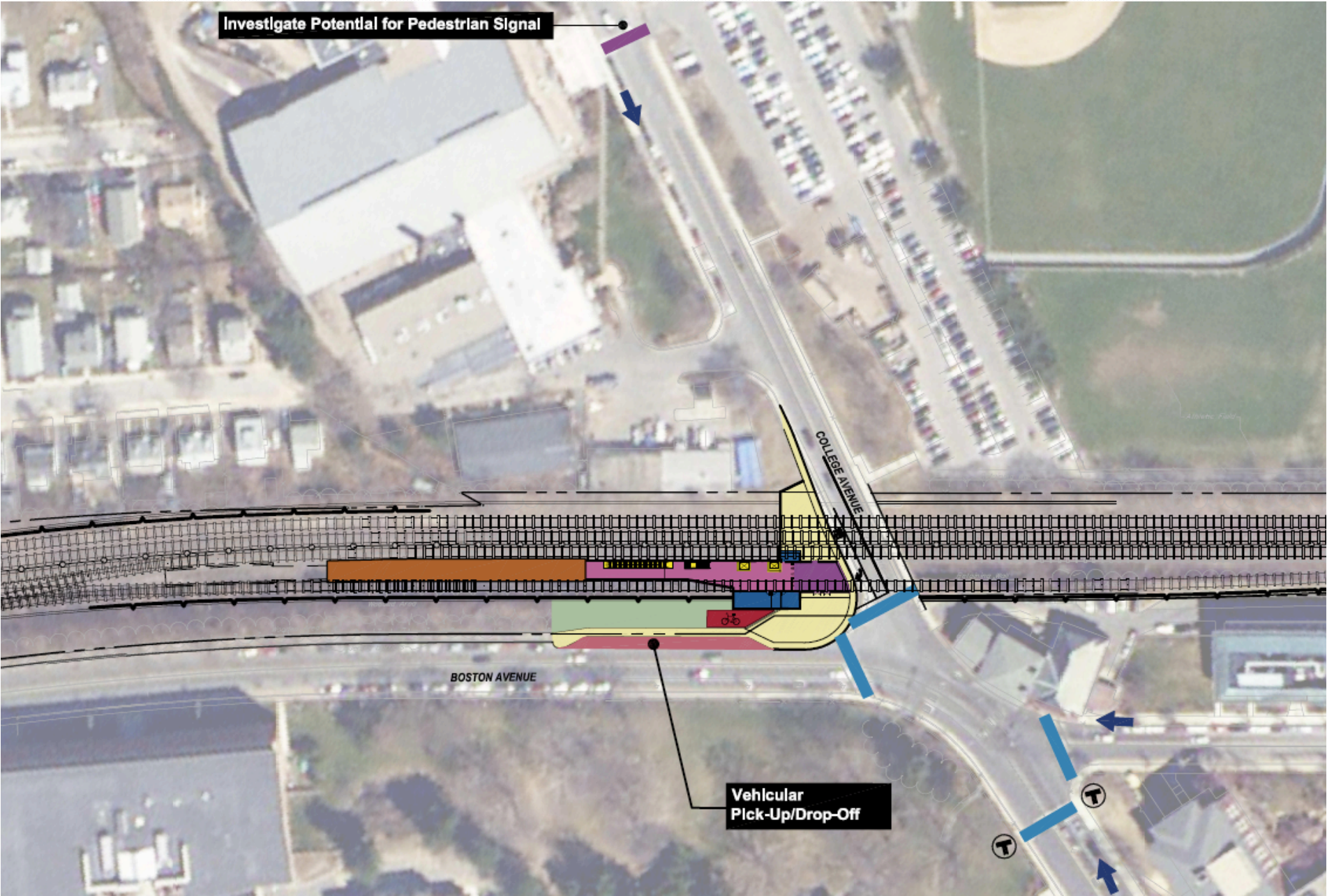


# Ball Square

SOMERVILLE  
TRANSPORTATION EQUITY  
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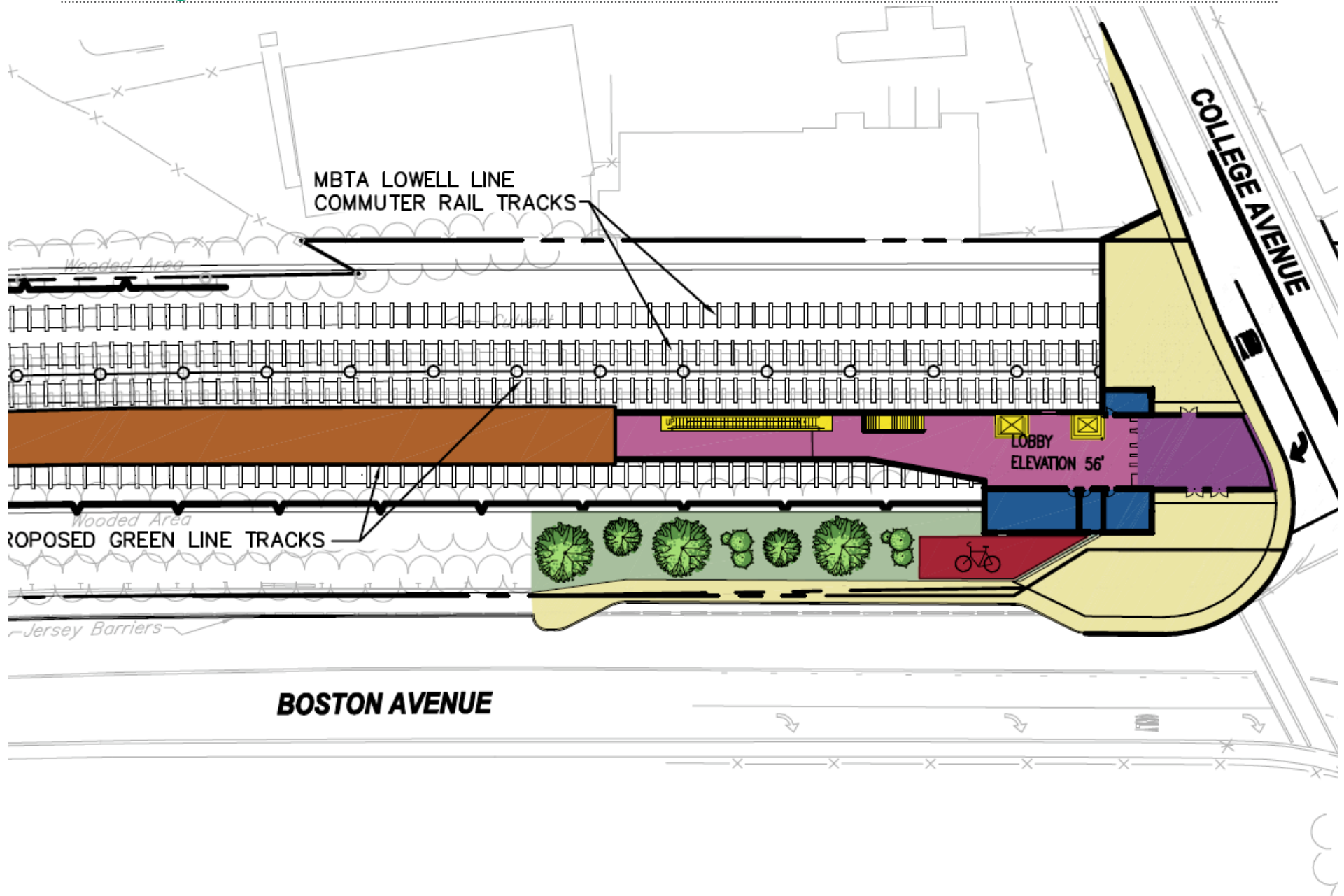
# College Avenue





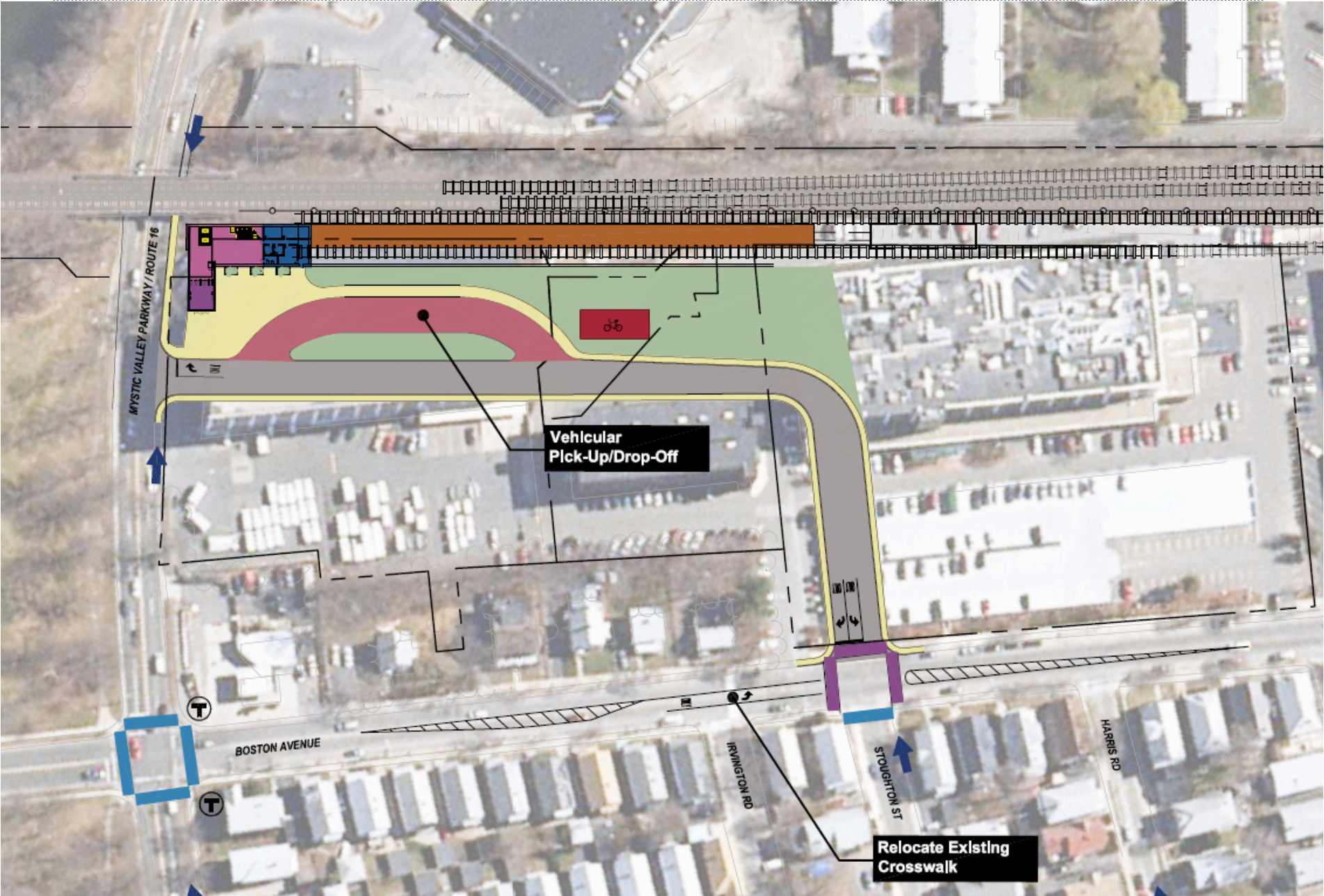
# College Avenue

SOMERVILLE  
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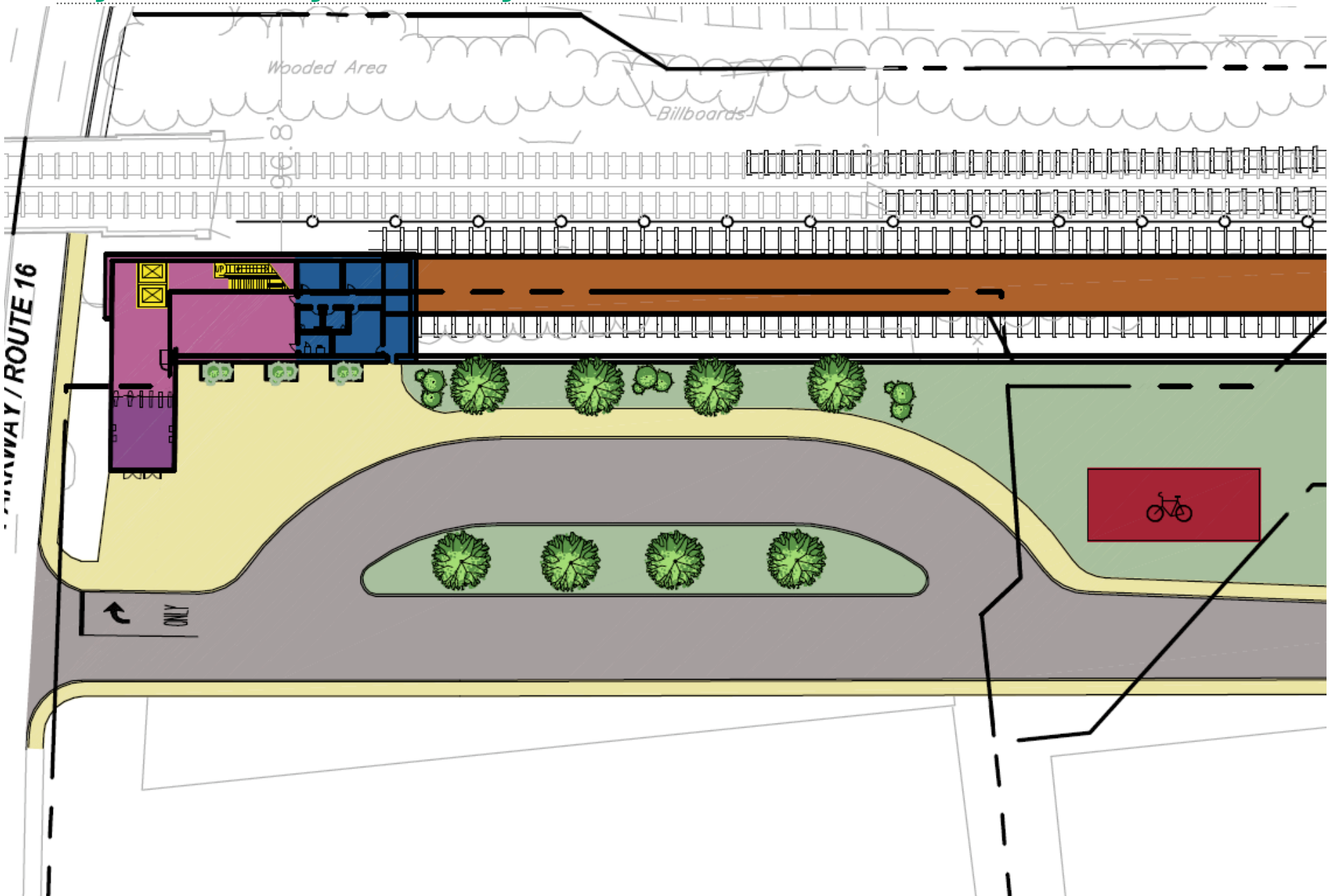




# Mystic Valley Parkway / Route 16



# Mystic Valley Parkway / Route 16





# Union Square



# Union Square

SOMERVILLE  
TRANSPORTATION EQUITY  
PARTNERSHIP





# Level platform boarding, Hudson-Bergen Light Rail, NJ

SOMERVILLE  
TRANSPORTATION EQUITY  
PARTNERSHIP



(c) 2002 Herman R. Silbiger



# Level platform boarding, Sound Transit LINK Light Rail, Seattle

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## Elevator and stairs access, Denver RTD





## Swooping station canopies, Charlotte, NC



© 2008 Peter Ehrlich



## Roomy island platform, LA Gold Line





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## Green Line brainstorming

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Station locations

Community Path

Questions?

Concerns?

Station designs

Vibration

Bicycles

Bus routes and stops

Community participation

Property takings

Noise

Ideas?

Construction

Funding

Priorities?

Socioeconomic impacts

Maintenance facility

Pedestrian access

Alternatives

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**Maintenance facility**



## City criteria

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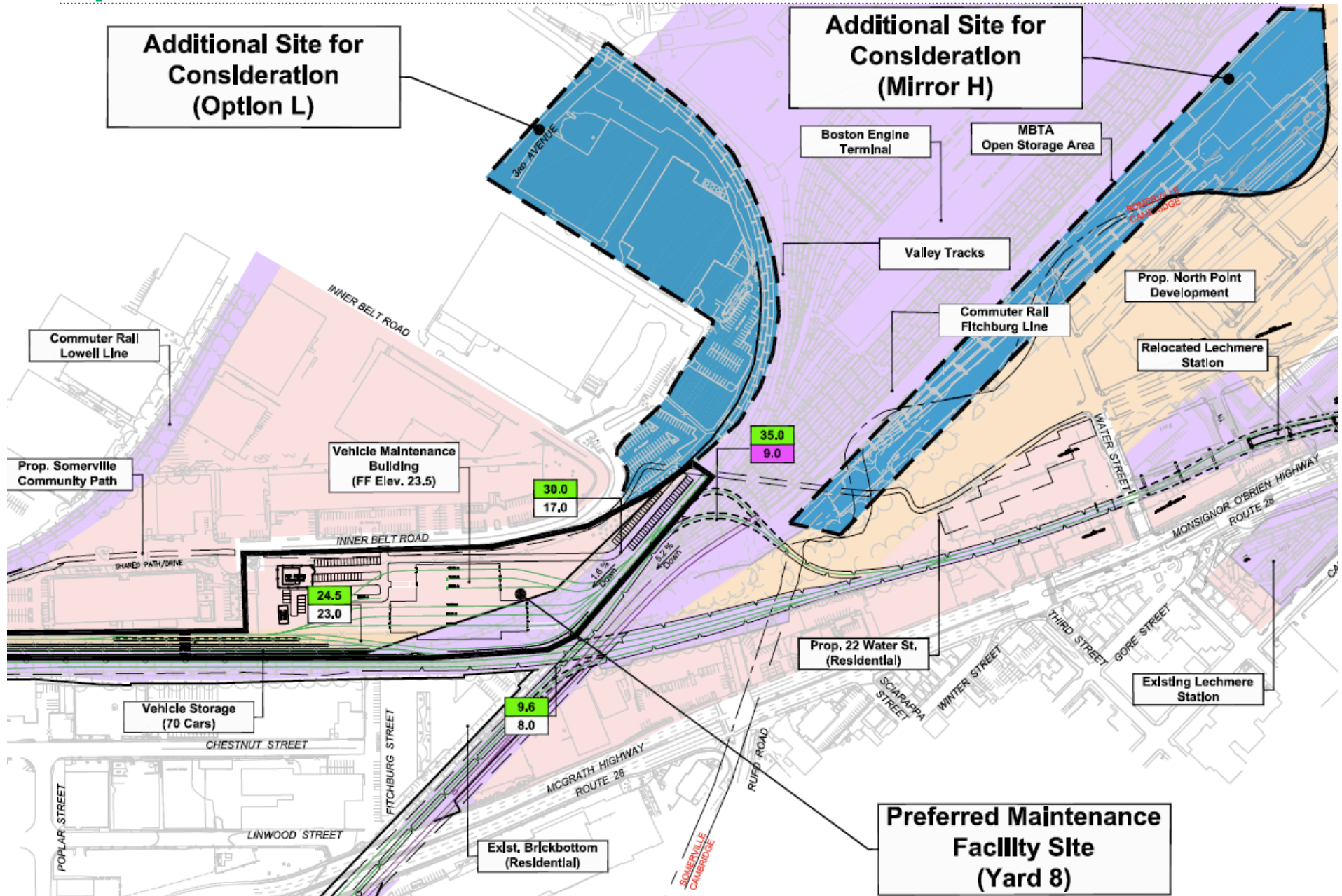
- Somerville would be willing to consider locating such a facility within its borders, provided that it would be designed and operated so that:
  - It would not impede or deter future economic development in the Inner Belt and Brickbottom districts;
  - It would not augment the existing access barriers between Inner Belt and Brickbottom (and instead, it would help reduce barriers); and,
  - It would allow for air rights development so that the facility would not be visible to abutters and the acreage could be used for economic development for the City.

Options





# Options



## Yard 8

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- Yard 8 Pros:
  - No pro's related to City criteria; all pro's are for MBTA:
    - Has been fully vetted by DOT regarding operations and environmental impacts
    - Would not require taking any operational businesses or buildings.
    - Takes advantage of existing rail lines for storage.
- Yard 8 Cons:
  - Quality of life – Yard 8 would directly abut Brickbottom Artist Collaborative - the only residents in the area - and have negative sound and vibration impacts. Moreover, several stories of the artists housing would be blocked from light by the facility.



## Yard 8

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- Yard 8 Cons (continued):
  - Economic development – would eliminate permitted project at 150 Inner Belt Road (190,000 s.f. commercial building); noise and vibration could disrupt sensitive commercial operations at 200 Inner Belt; would occupy premier development parcels on the key border between Inner Belt, Brickbottom, and Rte. 28 corridor; City study suggests that air rights development would be extremely difficult and cost prohibitive.
  - Access – Would permanently sever Brickbottom from Inner Belt and prevent new street grid from being established; facility would be built up 3-6 feet higher than street level, on retained fill and would require 300+ ft of tunnels to penetrate.
  - Cost – More expensive than Scheme H and would require extensive mitigation. Moreover, community opposition could jeopardize New Starts funding.

## Mirror H

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- Mirror H Pros:
  - Quality of life – located in hub of existing rail-lines, away from existing and proposed residences; could be designed to allow development to surround it and provide a buffer between Northpoint residents and existing commuter rail facility.
  - Economic development – would require redesign of parking structures planned for site, but structures are still feasible; has less acreage of takings than Yard 8 (5.3 vs. 6.2); Somerville is in the process of zoning these parcels for a rail facility, trash transfer station, or municipal facility.
  - Access – Air rights would be easier to develop and facility could provide connection between Northpoint and Inner Belt over existing heavy rail barriers; location would not impact Urban Ring bridge providing a new connection between Inner Belt/Brickbottom and Northpoint.



## Mirror H

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- Mirror H Pros (continued):
  - Cost – According to DOT's own analysis, is \$3-15 million cheaper than Yard 8. Also would require less mitigation.
  - Operations – Scheme H received highest rating among the locations studied by DOT (20 points vs. 18.5 for Yard 8). Reasonable to assume Mirror H, with some modifications, would receive the same rating.
- Mirror H Cons:
  - No con's related to City criteria; all cons's are for MBTA:
    - Would require renegotiation of MBTA-Northpoint agreement that calls for developer to cover costs of new station.

## Option L

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- Do not have sufficient detail to identify pros and cons, however, preliminary analysis indicates that is:
  - Further away from residentially occupied properties
  - Would not impede connectivity between Inner Belt and Brickbottom
  - Would not affect development at 150 Inner Belt Road and more centrally located parcels



## Option L

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- Since alternative is not detailed, City has a series of questions:
    - Is the area shaded the actual proposed size, or simply an outline of the parcels needed.
    - Is storage of train cars included in the area?
    - Could 100 planned parking spaces be eliminated due to abutting commuter rail lot that is never at capacity?
    - Would crossover/flyovers be needed for movement of trains and where would these be located?
    - Would MBTA be willing to consolidate operations and give up land elsewhere in Inner Belt to make up for lost economic development parcels?
    - Could any of the abutting rail lines be consolidated or moved?
    - What would impact be on Urban Ring Bridge?
-

## Brickbottom perspective: Problems with Yard 8

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- Builds a permanent, nearly impermeable barrier between Inner Belt and Brickbottom
- Takes developable land
  - Currently permitted for a commercial building
  - Significant loss of future tax revenue
  - Creates a second distinct rail maintenance facility in Somerville
- Adjacent to the only existing residential building in the immediate area (Brickbottom Artists Building)



## Brickbottom perspective: Maintenance facility and storage yard design principals

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- Sited to minimally interfere with existing neighbors and future development
  - Adjacent to BET facility
  - Don't hinder neighborhood access
- Thoroughly mitigated
  - Sound insulation and barriers
  - Storage yard enclosed
  - All other noise, light, vibration, and environmental impacts minimized
- Designed to fit in with future development

**Mitigation**



## Mitigation

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- DEIR was explicitly required to analyze potential permanent environmental impacts of project and how they would be mitigated
- Areas of analysis included noise/vibration, water quality/stormwater, visual environment, wildlife, historic and cultural resources, traffic, land takings, bridge design and construction.
- Noise and vibration impacts significant, but mitigation will reduce levels to below current conditions
- Noise mitigation indicated for 161 residential properties and 3 commercial buildings in form of noise barriers, sound insulation treatments, rail lubrication.

## Mitigation

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- Noise barriers 6 to 12 feet tall, 250 to 1,450 feet long; choice of styles; some include vegetation
- Should be installed as close to start of project as possible for maximum benefit during construction
- Vibration mitigation indicated in vicinity of 90 residential and 3 commercial buildings in form of ballast mats under commuter rail tracks, special trackwork, locating crossovers and turn-outs away from sensitive properties



## Construction impacts

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- Reconstruction of 7 roadway bridges and 3 rail bridges required in Phase I; 2 additional roadway bridges reconstructed in Phase II
  - Need to maintain RR operations, access by abutters, traffic and bicycle/pedestrian pathways
  - Important to coordinate staging and sequencing with communities to minimize negative impacts.
  - Techniques: Use specially quieted equipment, avoid nighttime construction, keep truck idling at minimum, route vehicles and site stationary equipment away from nearby receptors, construct temporary noise barriers.
  - Other potential mitigation: Cash compensation to abutters; retrofitting commuter rail diesel locomotives with pollution control devices
-

## Diligent advocacy needed

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- DEIR recommends mitigation but often couched with caveats “to the extent practicable” and “where feasible”; need written commitments so mitigation is fulfilled
- MBTA policy is to commit at least 2% of project cost to noise mitigation (\$20 million for a \$1 billion project; DEIR estimates only \$15.8 million



## Examples of noise barrier materials



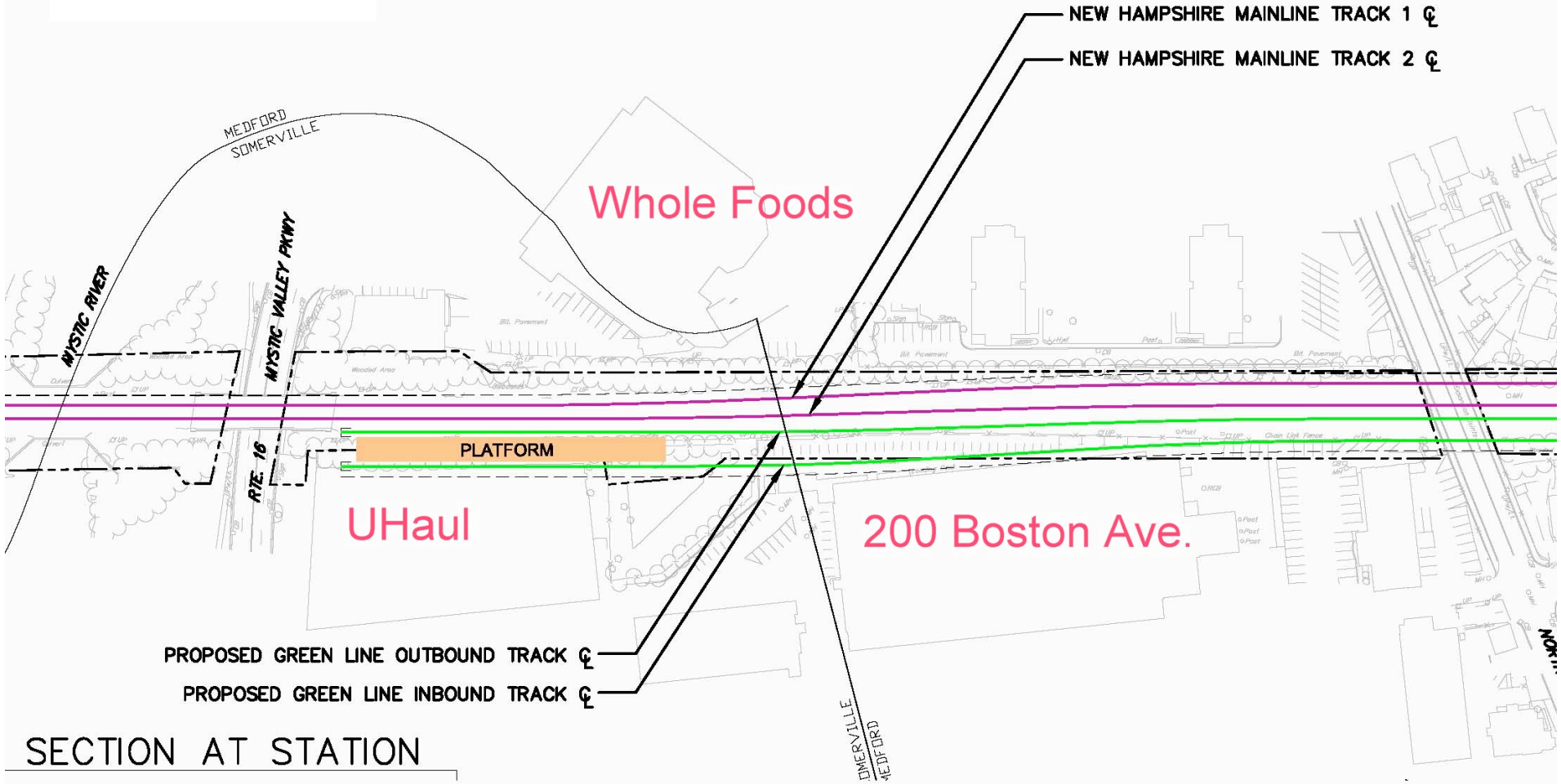
## **Route 16 alternative design**



## Route 16 station area

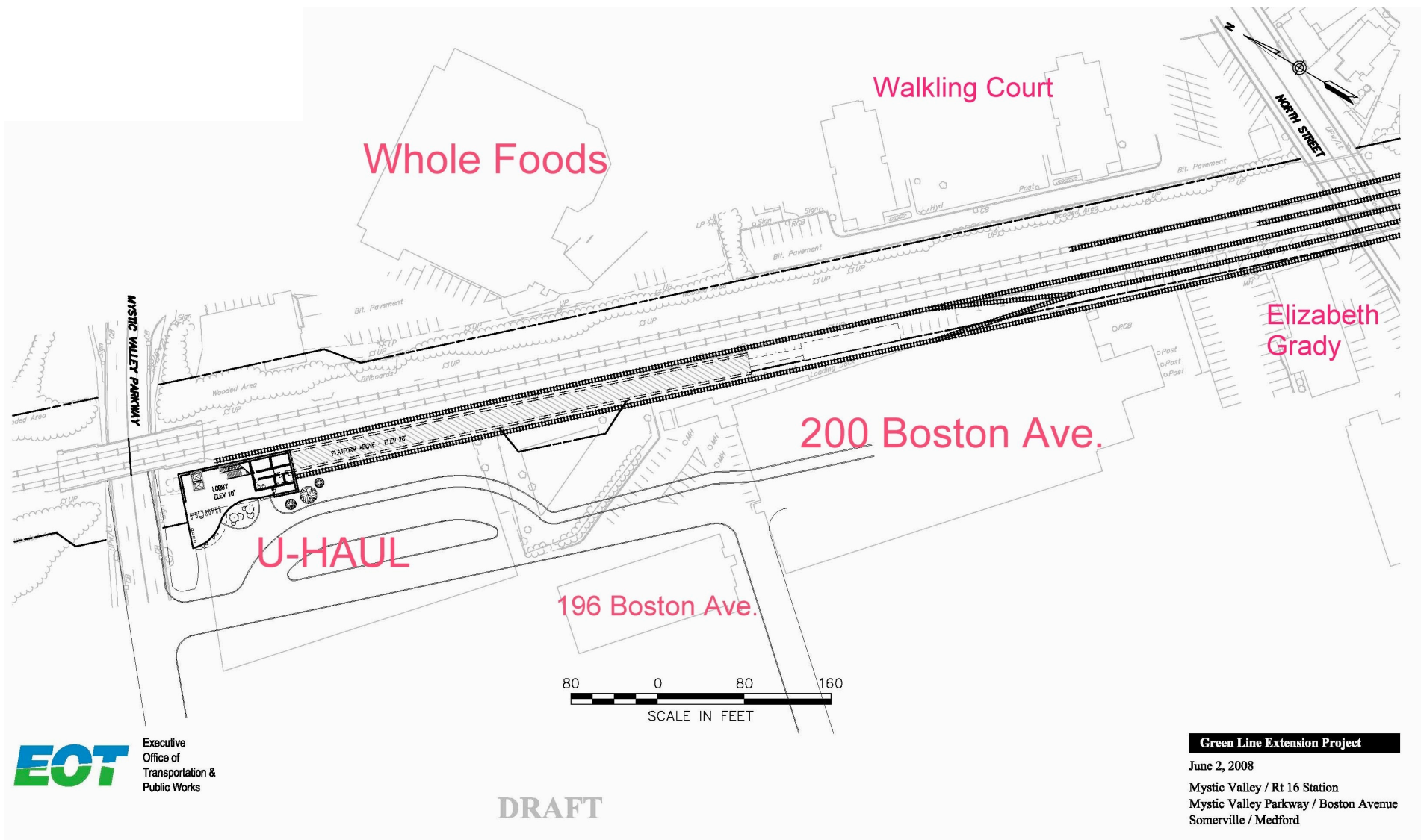


# EOT design 1 (Feb 6, 2008)

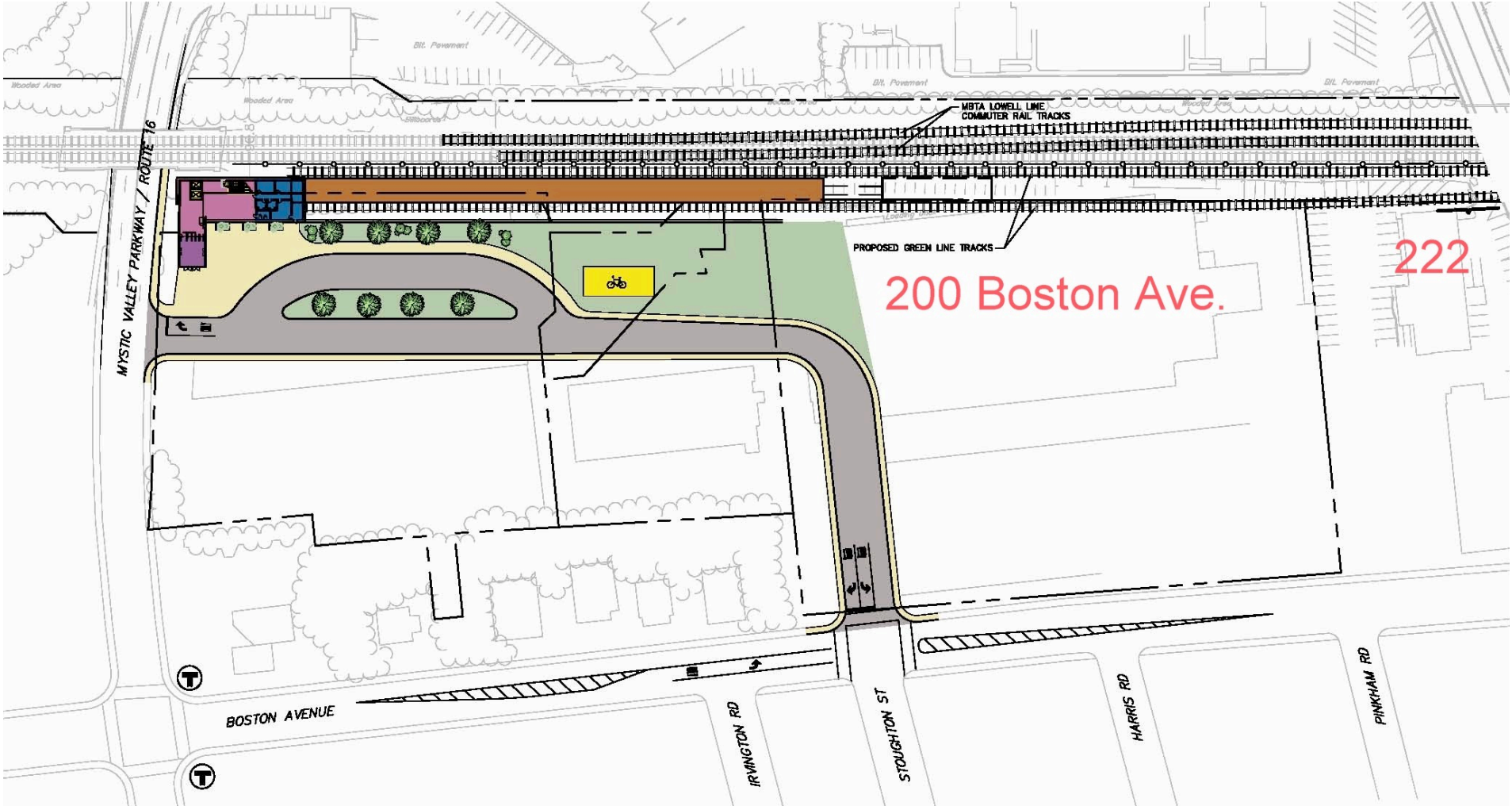




# EOT design 2 (June 2, 2008)



# EOT design 3 (March 16, 2009)





# MGNA alternative design



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## Area planning

It is possible to have multi-modal on arterials if there is little traffic





Or on small arterials.





Some are happy in their cars sometimes, but this Medford resident now commutes by bicycle! Here he is in the exhilarating eureka moment after making that long overdue personal decision!





Can you base more development on this?







Is this a  
good place  
to bicycle?

Or to walk?













Somerville Bicycling Environment



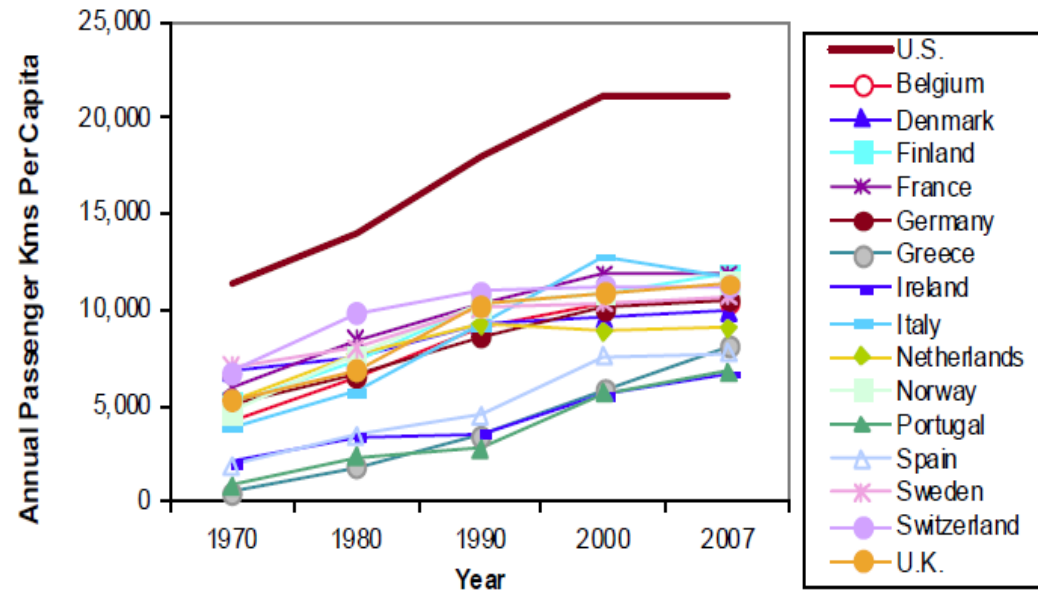






In 2007 Ireland had the lowest VMT per capita of the countries shown here. What might the US energy savings be if we had European travel mode splits? Could bicycle advocates use a cost benefit analysis to sway opinion leaders? Who would do that analysis?

**Figure 7** International Vehicle Travel Trends (EC 2007; FHWA, Various Years)<sup>6</sup>



*Per capita vehicle travel grew rapidly between 1970 and 1990, but has since leveled off and is much lower in European countries than in the U.S.*

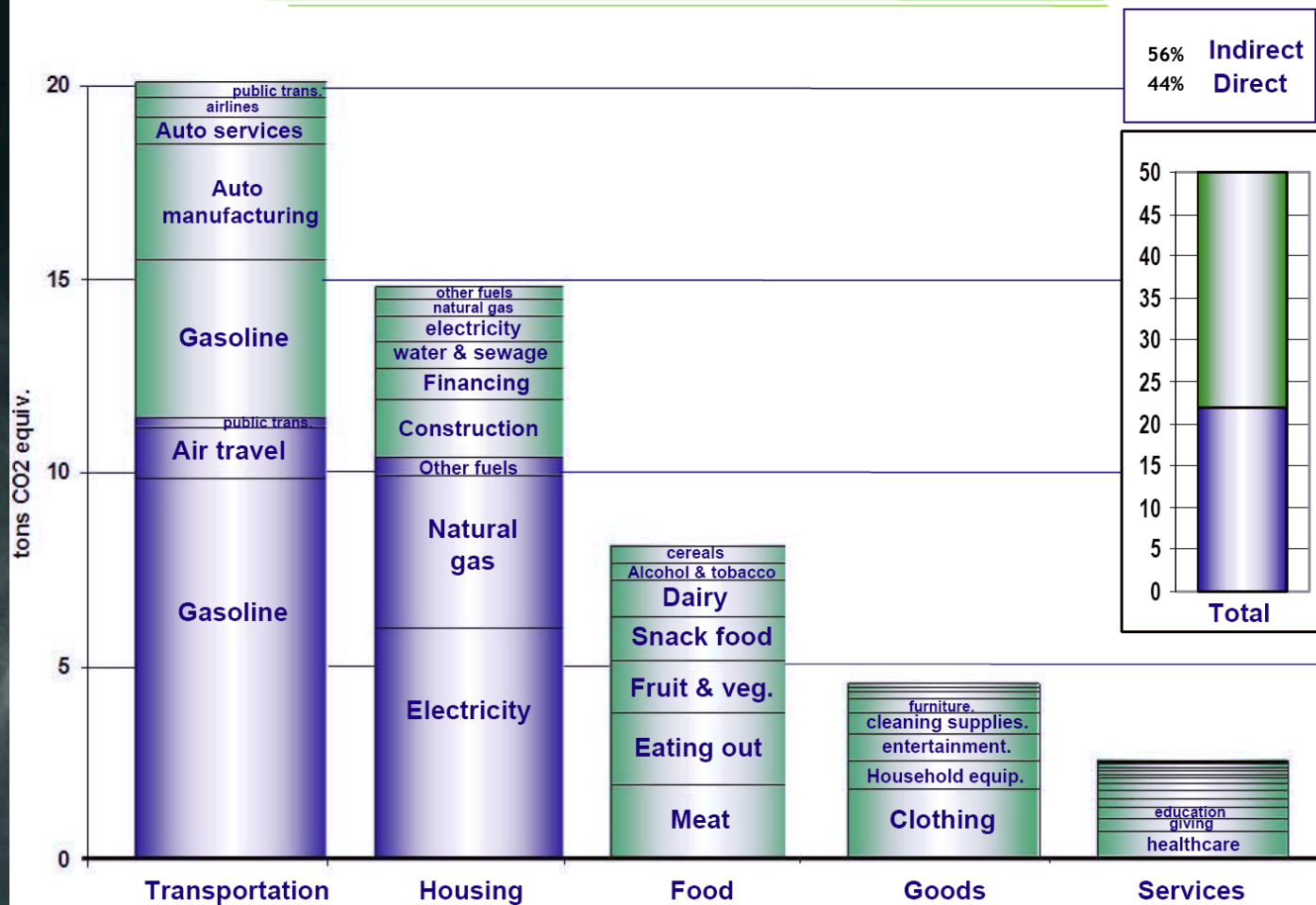
<sup>6</sup> U.S. passenger-kms based on FHWA vehicle-miles x 1.67 (miles to kilometers) x 1.58 (vehicle-km to passenger-kms) x 0.8 (total vehicles to passenger vehicles).

Todd Litman (2006), "Changing Travel Demand: Implications for Transport Planning,"  
*ITE Journal*, Vol. 76, No. 9, ([www.ite.org](http://www.ite.org)), September, pp. 27-33.

Todd Litman © 2005-2009

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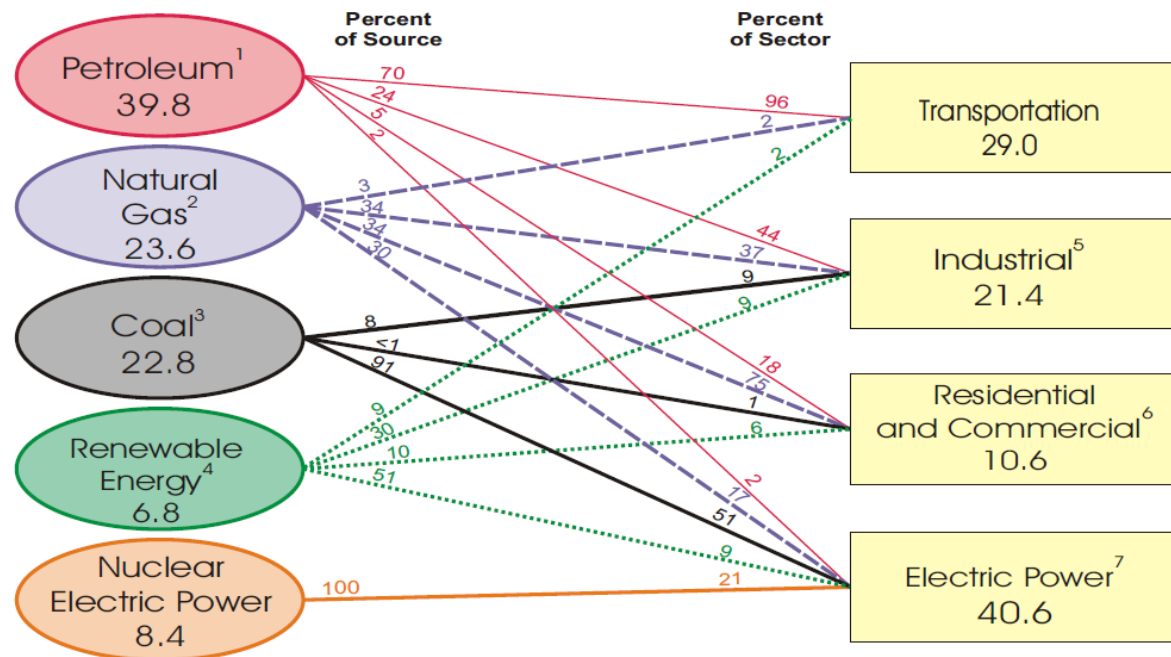
## Summary of GHG Emissions for Typical U.S. Household (LEAPS Results) 50 Metric tons of CO<sub>2</sub> equivalent gases





In 2007 Ireland had the lowest VMT per capita of the countries shown here. What might the US energy savings be if we had European travel mode splits? Could bicycle advocates use a cost benefit analysis to sway opinion leaders? Who would do that analysis?

**U.S. Primary Energy Consumption by Source and Sector, 2007**  
(Quadrillion Btu)



<sup>1</sup>Does not include 0.6 quadrillion Btu of fuel ethanol, which is included in "Renewable Energy."

<sup>2</sup>Excludes supplemental gaseous fuels.

<sup>3</sup>Includes less than 0.1 quadrillion Btu of coal coke net imports.

<sup>4</sup>Conventional hydroelectric power, geothermal, solar/PV, wind, and biomass.

<sup>5</sup>Includes industrial combined-heat-and-power (CHP) and industrial electricity-only plants.

<sup>6</sup>Includes commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

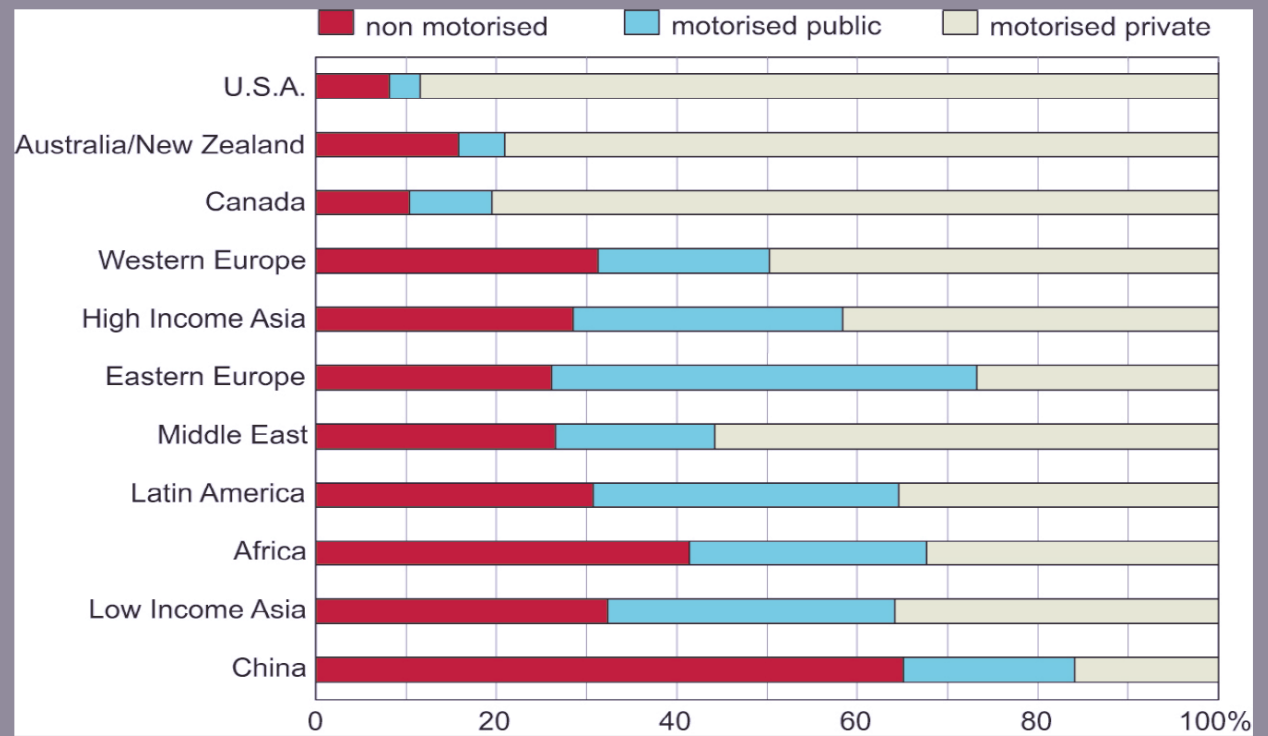
<sup>7</sup>Electricity-only and combined-heat-and-power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public.

Note: Sum of components may not equal 100 percent due to independent rounding.

Sources: Energy Information Administration, *Annual Energy Review 2007*, Tables 1.3, 2.1b-2.1f and 10.3.

In 2007 Ireland had the lowest VMT per capita of the countries shown here. What might the US energy savings be if we had European travel mode splits? Could bicycle advocates use a cost benefit analysis to sway opinion leaders? Who would do that analysis?

## Modes of Transportation



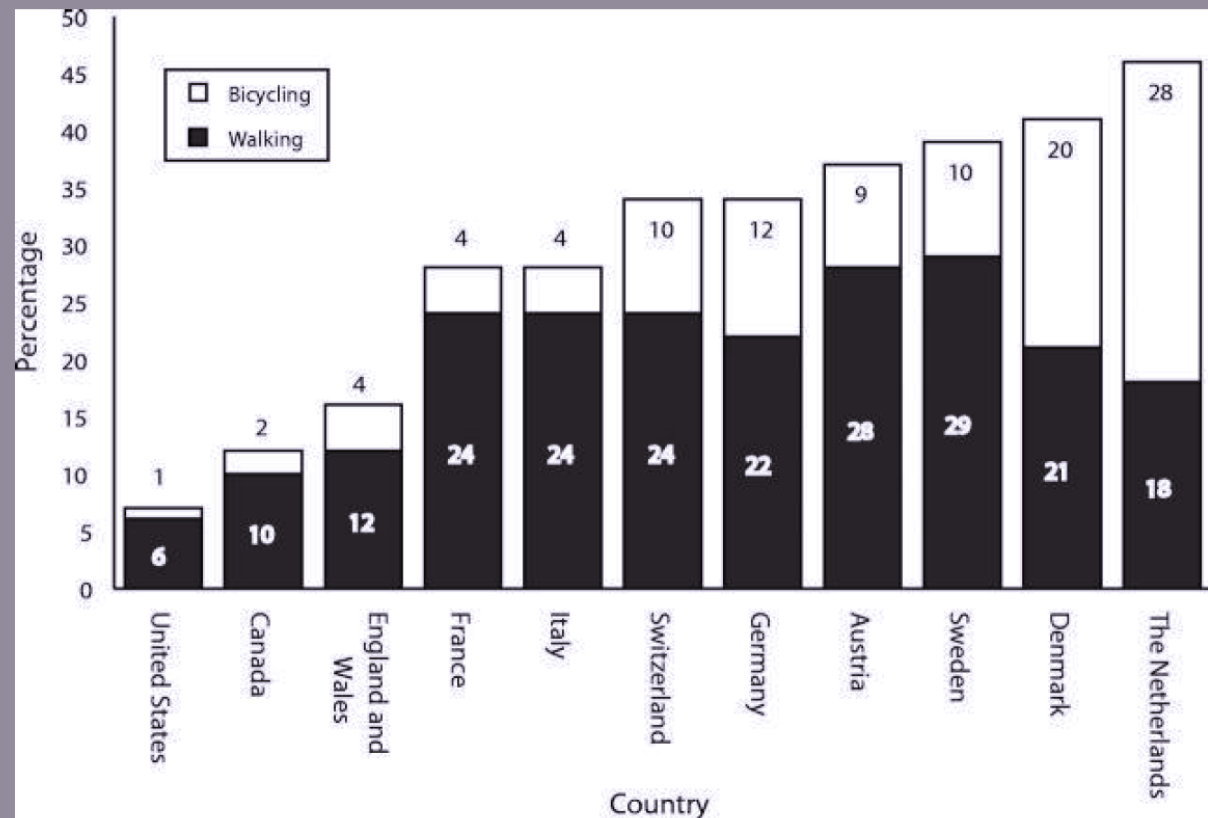
IPCC Ch5 Fig 5.17



In 2007 Ireland had the lowest VMT per capita of the countries shown here. What might the US energy savings be if we had European travel mode splits? Could bicycle advocates use a cost benefit analysis to sway opinion leaders? Who would do that analysis?

### Proportion of trips in urban areas made by walking and bicycling in North America and Europe, 1995

Source: Pucher J, Dijkstra L. *American Journal of Public Health*, 93:1509-16, 2003.





# Davis Square Red Line Experience a Valuable Somerville Precedent





## **A Transit Oriented Revitalization**

In 1970, the MBTA began planning the extension of the Red Line from Harvard Square north to Arlington, with the original plans bypassing Somerville entirely. Recognizing that a Red Line station could act as a catalyst for the revitalization of Davis Square, a group of Somerville residents, businesspersons, and city officials began a campaign to reroute the Red Line through Somerville with a stop in Davis Square. This early foresight by the community commenced a long public planning process to revitalize Davis Square using the Red Line station as the cornerstone of their effort.

The revitalized Davis Square represents a thriving urban [transit-oriented development](#) area. The success of this TOD can be traced to several factors. First and foremost, the community came together in the early planning stages of the Red Line expansion program and created a partnership between residents, businesses and public officials that remains in place today. Early in the planning process, the City established a Davis Square Task Force, which developed the Davis Square Action Plan, a document that continues to guide development in the Square. The Action Plan addressed building reuse and demolition, streetscape and facade improvements, pedestrian amenities, parking, traffic, and land use. The City designated a redevelopment area within the square that allowed for property acquisition and clearance, infrastructure improvements, and some public control over new private development within the area. A Design Review Overlay District helps ensure that redevelopment and new construction blends in with the existing built environment and encourages pedestrian activity.



## Multiple Stakeholders for an Integrated Approach

The City also worked diligently with state and federal agencies to package grants to finance civic improvements throughout the square.

These included:

Streetscape improvements such as street and sidewalk reconstruction, street lighting, fencing and plantings, funded through the Federal Highway Administration's Urban Systems Program.

The utilization of Community Development Block Grants to finance a storefront and façade improvement program, which was later continued by a local bank and is now entirely market driven with no public funding.

Designation of the Square as a Commercial Area Revitalization District (CARD), which allowed the use of industrial revenue bonds for infrastructure and building improvements.

The use of Urban Development Action Grant money for planning and site development for the 100,000 square feet Buena Vista office and retail complex.

The development of elderly housing and new parking for businesses.

Renovations to existing parks and the creation of new parks with the assistance of the MBTA and the Massachusetts Highway Department.

The reuse of old freight railroad right-of-way for bicycle and pedestrian pathways connecting to the Alewife T station, and the Minuteman bike path.

Extensive public art in the T station and on public plazas adjacent to the two station entrances, paid for through the state percent-for-art funds program. This program allows 1% of station development costs to be used for public art.

## Good Resources for US Land Use and Transportation Ideas

<http://www.lightrailnow.org/index.htm>

[http://www.newpartners.org/past\\_conferences.html](http://www.newpartners.org/past_conferences.html)

<http://www.cnu.org/congresses>

<http://www.railvolution.com/pastconferences.asp>



**Lechmere**

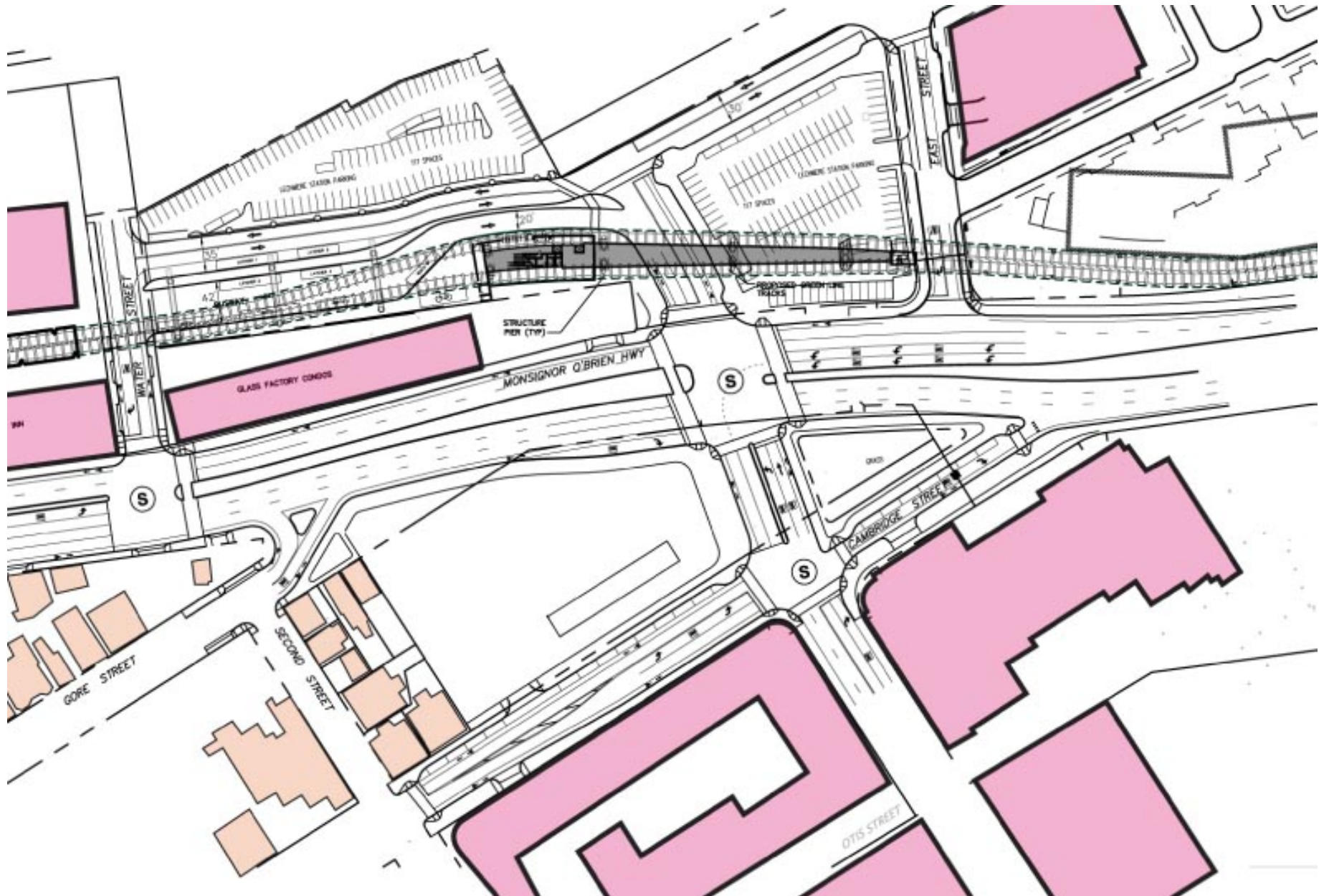
## 5 key issues at Lechmere Square

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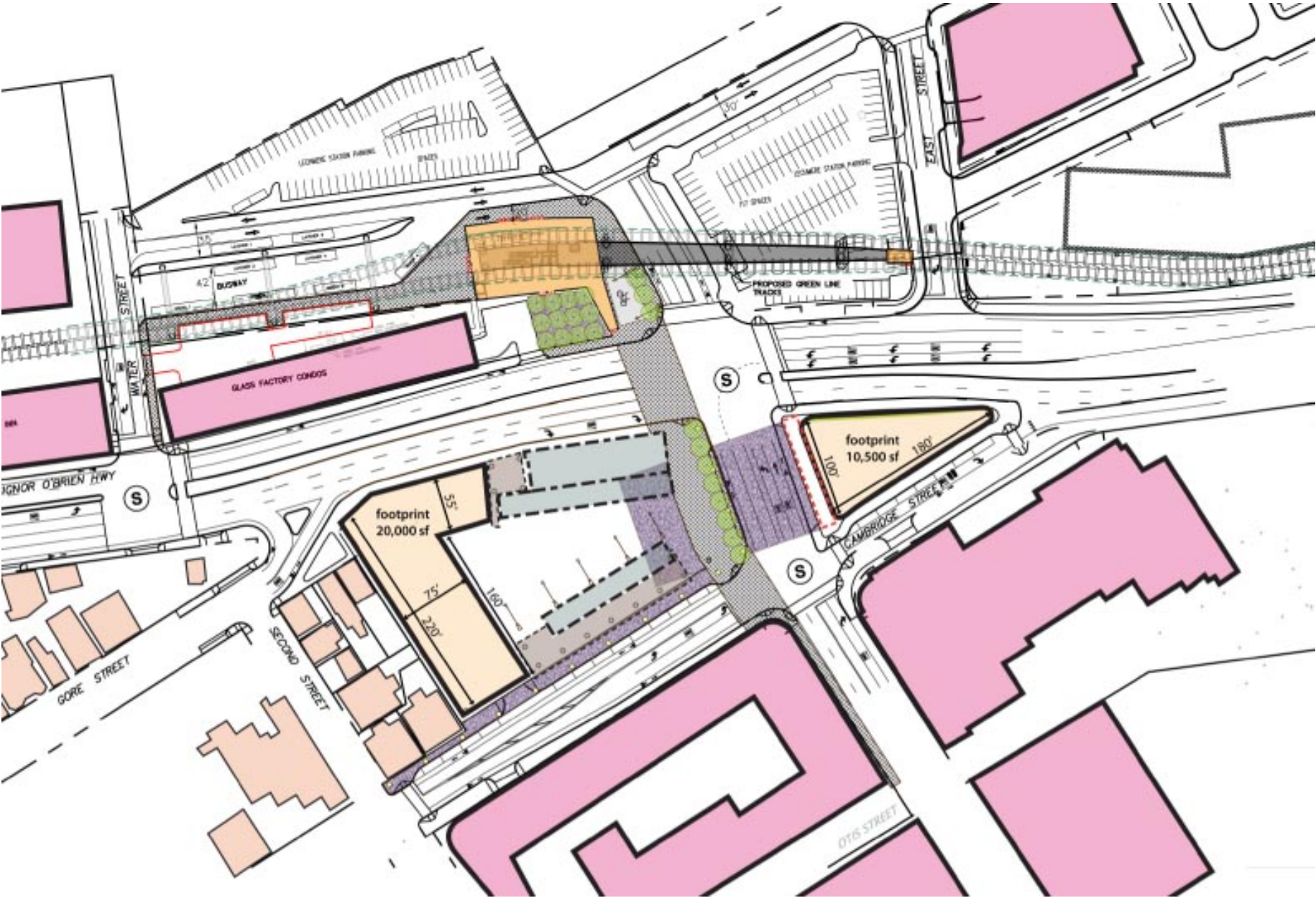
- Redevelop Lechmere Square as a major gateway to East Cambridge and an integrated hub of the neighborhood
- Improve pedestrian connections and road crossings, especially at Monsignor O'Brien Highway
- Preserve the historic station buildings and redevelop around a new public market square with new restaurants, retail and a hotel
- Improve station entrances and lobby
- Integrate the Green Line and bus station design with the future North Point street grid



## Lechmere in the DEIR



Lechmere with improvements





# Lechmere today

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## Today's agenda

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- Overview presentation (30 minutes)
  - Green Line and DEIR introduction
  - Green Line project status and stations
- Green Line brainstorming (30 minutes)
  - Questions, priorities, concerns, ideas

*BREAK (10 minutes)*

- DEIR presentation (40 minutes)
    - Project mitigation
    - Maintenance facility
    - Station area design issues and examples
  - Group breakout sessions (40 minutes)
    - Detailed discussions by topic
  - Wrap up (10 minutes)
-



## Breakout groups

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1. Mitigation and technical oversight  
Noise, vibration, takings, construction
  2. Community participation process  
During detailed design, build
  3. Maintenance facility  
Location, design, mitigation
  4. Station and area design  
Locations, station design, access, area integration
- 
- Select a presenter and note-taker
  - Discuss: 25 minutes
  - Priorities: 5 minutes
  - Report back to larger group: 10 minutes

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---

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  - Detailed discussions by topic
- **Wrap up (10 minutes)**



## Key dates and next steps for DEIR process

- **Wednesday, Nov 18 (6 pm)** – DEIR public hearing at Somerville High School Auditorium
  - Verbal comments can be made at this hearing and written comments can be submitted
- **Dec 9** – deadline for submitting written comments to MEPA
  - Written comments can be submitted by US Mail to:  
Secretary Ian Bowles  
Executive Office of Energy & Environmental Affairs  
MEPA Office, Attn: Holly Johnson, MEPA Analyst  
100 Cambridge, St., Suite 900  
Boston, MA 02114
  - Or by email to: [holly.s.johnson@state.ma.us](mailto:holly.s.johnson@state.ma.us)
  - Copies of comments can be sent to Kate Fichter at EOT  
[katherine.fichter@eot.state.ma.us](mailto:katherine.fichter@eot.state.ma.us)

## Key dates and next steps for DEIR process

- The Secretary of Environmental Affairs is required to issue a MEPA certificate by December 16, 2009, unless the DEIR is not approved as a Final EIR.
- The Conservation Law Foundation and other parties have requested an extension to the comment period for the DEIR. If this is approved the final date for submission will be in early January.
  - STEP will post the revised dates for submitting comments on its website if the comment period is extended.



Thank you for coming!

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