



# HEALTH & ENVIRONMENT COMMITTEE

## COMMITTEE MEETING

~ MINUTES ~

Tuesday, November 21, 2023

3:00 PM

Sullivan Chamber  
795 Massachusetts Avenue  
Cambridge, MA 02139

The Health and Environment Committee will hold a public hearing on Tuesday, November 21, 2023 from 3:00-5:00p.m. to get an update on plans and timeline for the distribution of electric power by Eversource in the city including the substation in East Cambridge to all accounts and discuss ways the city can accelerate expansion of the grid capacity and ensure that electrification efforts which are critical to meet the city's climate commitments, will be feasible and not delayed.

Attendee Name	Present	Absent	Late	Arrived
Patricia Nolan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Burhan Azeem	<input type="checkbox"/> Remote	<input type="checkbox"/>	<input type="checkbox"/>	
Dennis J. Carlone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Marc C. McGovern	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3:02 PM
Quinton Zondervan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

A public meeting of the Cambridge City Council’s Health and Environment Committee was held on Tuesday, November 21, 2023. The meeting was Called to Order at 3:00 p.m. by the Chair, Councillor Nolan. Pursuant to Chapter 2 of the Acts of 2023 adopted by Massachusetts General Court and approved by the Governor, the City is authorized to use remote participation. This public meeting was hybrid, allowing participation in person, in the Sullivan Chamber, 2<sup>nd</sup> Floor, City Hall, 795 Massachusetts Avenue, Cambridge, MA and by remote participation via Zoom.

**At the request of the Chair, Deputy City Clerk Crane called the roll.**

- Councillor Azeem – Present/Remote
- Councillor Carlone – Present/In Sullivan Chamber
- Councillor McGovern – Absent\*
- Councillor Nolan – Present/In Sullivan Chamber
- Councillor Zondervan – Present/In Sullivan Chamber

**Present – 4, Absent – 1. Quorum established.**

**\*Councillor McGovern was marked present at 3:02 p.m.**

Also present was Mayor Siddiqui, Yi-An Huang, City Manager, Owen O’Riordan, Assistant City Manager, Kathy Watkins, Commissioner, Department of Public Works (DPW), Maija Benjamins, Director of Strategic Project Development, Charles Eck, Project Manager, Allison Klein, Underground T Line Lead Engineer, Lavell Freeman, Director, Distribution Planning, Jason Wright, Community Relations, Todd Lanham, Project Services, Eileen Snedeker, Project Services, Gerhard Walker, Manager, Jacob Lucas, Director Transmission & System Planning Eversource, Joe Higgins, MIT Vice President, Campus Services and Stewardship, Sarah Gallup, Director of Government and Community Relations, MIT, and Tom Evans, Executive Director, Cambridge Redevelopment Authority.

Minutes Acceptance: Minutes of Nov 21, 2023 3:00 PM (Committee Reports)

The Chair, Councillor Nolan noted that the Call of the meeting was to get an update on plans and timeline for the distribution of electric power by Eversource in the city including the substation in East Cambridge to all accounts and discuss ways the city can accelerate expansion of the grid capacity and ensure that electrification efforts which are critical to meet the city's climate commitments, will be feasible and not delayed. Present at the meeting was Yi-An Huang, City Manager, Owen O'Riordan, Assistant City Manager, Mayor Siddiqui, Kathy Watkins, Commissioner of Public Works.

Councillor Nolan gave an overview of the agenda for the meeting and invited City Manager Huang to offer opening remarks.

City Manager Huang stated that this is a very important project. He noted that the City is disappointed that it is here and that the many years of collaboration and trust associated with construction and major projects between the City and MIT is strained. He said that the City has had a long relationship of working well with MIT over many decades. He noted that he recognizes that MIT has a number of concerns, and the City has spent over three years working through major decisions and believes that the university's assets can be protected and future plans can be accommodated. He said that the City believes the narrow vision of one section is ignoring the larger decisions about the overall route, which the City and Eversource are responsible for and in alignment on. He said that MIT is within its legal rights to participate in the legal EFSB process, but there are concerns that this could create 1-2 years of delay on this critical infrastructure which is necessary to meet the City's immediate energy demands and climate goals. He stated his hope that the City and MIT can continue to be strong and collaborative going forward.

Councillor Nolan offered opening remarks stating the importance of bringing parties together to discuss transmission line planning and concerns with City staff as well as representatives from MIT and Eversource. She noted that Eversource is running into potential delays due to recent concerns raised by MIT due to the planned transmission line routes. She pointed out that much of MIT President Kornbluth's Inaugural Address centered around MIT's commitment to the climate crisis.

The Chair, Councillor Nolan recognized Maija Benjamins, Director of Strategic Project Development, Eversource, who is responsible for the Greater Cambridge Energy Program to successfully lead it through the development phase and into construction. Ms. Benjamins, along with Jacob Lucas, Director, Transmission System Planning and Lavelle Freeman, Director, Distribution Planning, Eversource, gave an overview of a PowerPoint presentation titled "Greater Cambridge Energy Program" (**ATTACHMENT A**) which summarized the transmission and distribution needs of clean energy, the project history of the Greater Cambridge Green Energy Program, a long-term demand assessment, and critical path considerations.

The Chair, Councillor Nolan recognized Joe Higgins, Vice President, Campus Services and Stewardship, MIT. Mr. Higgins stated that MIT applauds the City's leadership on sustainability and moving the dial on new energy sources, resiliency, and net zero planning. He noted that Eversource also deserves much credit for their planning efforts toward meeting the magnitude

and challenges of modernizing Cambridge's power grid. He noted that collaboration on these critical issues provide momentum towards achieving greater alignment. Mr. Higgins gave an overview of a PowerPoint presentation titled "Greater Cambridge Energy Program." (ATTACHMENT B). He noted that this is about finding the best pathway through MIT's Campus that matters to the MIT's community. He noted that Vassar Street presents heightened risks to maintaining the continuity of MIT's critical operations, growing future research and preserving MIT's "flexibility backbone" to decarbonize its' campus in the coming years. He stated that MIT has put forward the GJN alternative path in good faith with ample time for appropriate consideration. He noted that MIT will adhere to whatever the siting process decides and will work and collaborate with Eversource and the City to expedite implementation.

The Chair, Councillor Nolan recognized Kathy Watkins, Commissioner, Department of Public Works (DPW). Ms. Watson stated that City staff has worked closely with Eversource on projects, construction, energy efficiency programs and decarbonization efforts. She said that the discussion around the new substation at Fulkerson raised significant issues and the City Council and staff were caught off guard by the seemingly sudden criticality of the need. She stated that through the process of working with Eversource, the City, developers, and the community to relocate the proposed substation from Fulkerson Street to the BP development site, a number of other issues and improvements were identified. She explained that the City committed to meeting annually with the Planning Board to review Eversource (gas and electric) programs. In addition, twice annual meetings were set up with City staff focusing on overall programmatic issues including load projections and upcoming projects. She explained that Eversource has also been modifying how they do projections. She stated that traditionally, they considered typical growth and specific projects. She said that as we shift towards decarbonization efforts and cleaner electricity, that is not sufficient. Eversource is incorporating more forward projections to account for increased electrical demand.

Ms. Watkins noted that she made it clear in her testimony to the EFSB that she does not view the MIT proposed routes as viable. She noted that all of the transmission routes are complicated construction in a dense urban area. She stated that the corridors that MIT is proposing are even worse with significant conflicts. In summary, the City does not see the MIT proposed corridors as constructable and they are far inferior to the routes that Eversource has developed through years of collaboration, coordination and engineering.

The Chair, Councillor Nolan, opened the meeting to Public Comment.

Laurie Hemphill, Mothers Out Front, stated that Massachusetts is committed by law to achieving net zero by 2050 and a 50% reduction in greenhouse gasses by 2030. We will not come close to meeting those goals without a robust and modernized electrical supply. She stated her hope that all parties can come to an agreement as soon as possible.

James Williamson, Churchill Avenue, stated that there is an underlying question of how much growth expansion and use of energy that requires additional load should we be having in our city and our country.

Heather Hoffman, 213 Hurley Street, stated that what struck her the most is that her neighborhood was absent from any discussion. She stated that Alexandria is the only reason that the substation was moved because the City listens to big developers. She asked the City Council to think about how much is driven by the interest of big developers. The residents bear the brunt of all the things that make the big developers richer.

Councillor Nolan noted that the City Council got a letter from Marjorie Davies and Diane Martin on this subject. She summarized a communication from Steve Miller. He asked for support for City staff who are pushing MIT to drop its objections to Eversource's plans.

Councillor Nolan made a motion to close Public Comment. Deputy City Clerk Crane called the roll.

Councillor Azeem – Yes

Councillor Carlone – Yes

Councillor McGovern – Yes

Councillor Nolan – Yes

Councillor Zondervan – No

**Yeas – 4, No – 1. Motion passed.**

Councillor Zondervan thanked Eversource and MIT for their attendance. He asked Commissioner Watson what is wrong with MIT's alternate proposal. Ms. Watkins explained what the City considers flaws to MIT's proposal which are noted on Slide 19 of Eversource's presentation. Councillor Zondervan stated that it seems that a lot of time is being wasted and ultimately the City will go with Eversource's route. Ms. Watkins stated that if the EFSB makes a decision, MIT can appeal that decision, which could have significant implications on the timeline.

Councillor McGovern stated his agreement with Councillor Zondervan. He stated that he is concerned about the timeline and cost. He said his hope is that we can figure out how to minimize any of the potential disruptions to MIT facilities moving forward.

Councillor Azeem asked if MIT is willing to respond to arguments that have been made at the meeting. Ms. Gallop stated that there have been conversations with Eversource and City staff that have been helpful. There has been good dialogue. Mr. Higgins added that there are complexities with all of the proposed routes. He talked about the methodology and the scoring of routes. He said that the EFSB is the determinant. He said that nothing is being held up as the process is continuing.

Councillor Nolan asked if MIT is the only opposition to the City's proposed route. Maija Benjamins responded that MIT is the only intervener that is opposing the project at this time.

Councillor Azeem asked MIT representatives when they are hoping to receive a decision from the EFSB Board. Mr. Higgins responded that he expects that there will be something from the EFSB earlier than June.

Councillor Carlone said that he would like to find a solution that is reasonable. He said that MIT's concerns seem reasonable to him.

Councillor Zondervan made the following motion:

ORDERED: That the Council go on record requesting that MIT withdraw its objection to Eversource, and the City of Cambridge proposed route so that the project can move forward expediently.

Deputy City Clerk Crane called the roll.

Councillor Azeem – Yes

Councillor Carlone – Yes

Councillor McGovern – Yes

Councillor Nolan – Yes

Councillor Zondervan – Yes

**Yeas – 5, No – 0. Motion passed.**

The Chair, Councillor Nolan adjourned the meeting at 4:47 p.m.

ATTACHMENTS:

Attachment A – Eversource Energy PowerPoint Presentation

Attachment B – MIT PowerPoint Presentation

**Clerk's Note: The City of Cambridge/22 City View records every City Council meeting and every City Council Committee meeting. This is a permanent record. The video for this meeting can be viewed at:**

[https://cambridgema.granicus.com/player/clip/620?view\\_id=1&redirect=true&h=31e4267695f9a997a9d3858f900ef2c4](https://cambridgema.granicus.com/player/clip/620?view_id=1&redirect=true&h=31e4267695f9a997a9d3858f900ef2c4)

**A communication was received from Councillor Nolan, transmitting a presentation from MIT regarding Greater Cambridge Energy Program.**

**A communication was received from Commissioner of Public Works Kathy Watkins, transmitting a presentation from Eversource.**

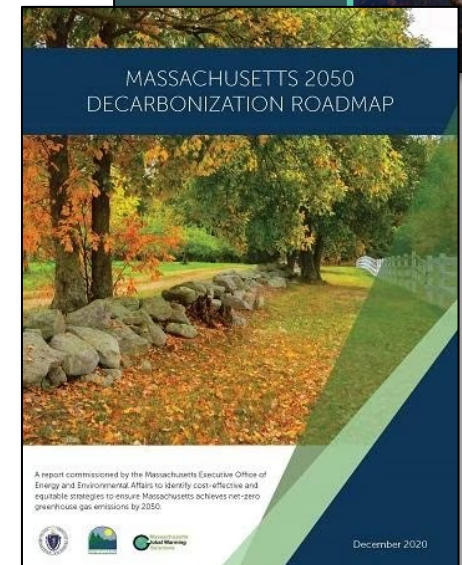
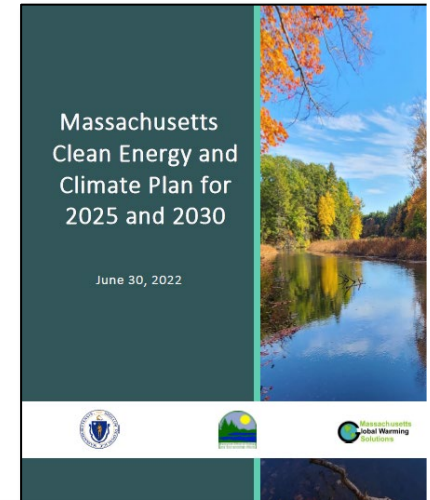
# Greater Cambridge Energy Program

City of Cambridge  
Health and Environment Committee

November 21, 2023



- **As a key enabler of a clean energy future**, transmission is needed to:
  - Connect a growing number of clean energy resources to the grid
  - Supply enough power to meet the demands of electrification
  - Meet our customers' expectations for reliable and affordable clean power
  - Meet policymakers' expectations to achieve state and regional decarbonization goals
- **Eversource is actively building infrastructure** to support clean energy and reliability
- Transmission is an **essential part of the solution to New England's winter reliability challenges**. Upgrading and expanding the transmission system can increase the amount of available clean energy to help bridge the winter energy supply gap.
- **Eversource incorporates equity principles in all areas of our work and is committed to working transparently and collaboratively with all stakeholders in the communities we serve.** We prioritize meaningful, proactive engagement from the early planning stages of a transmission project through its completion and beyond.

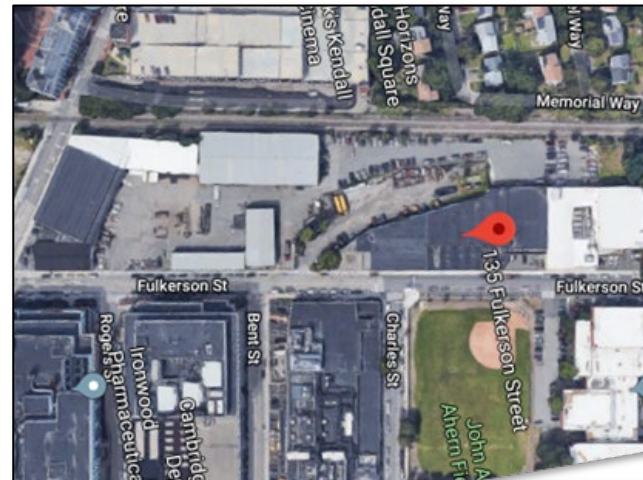


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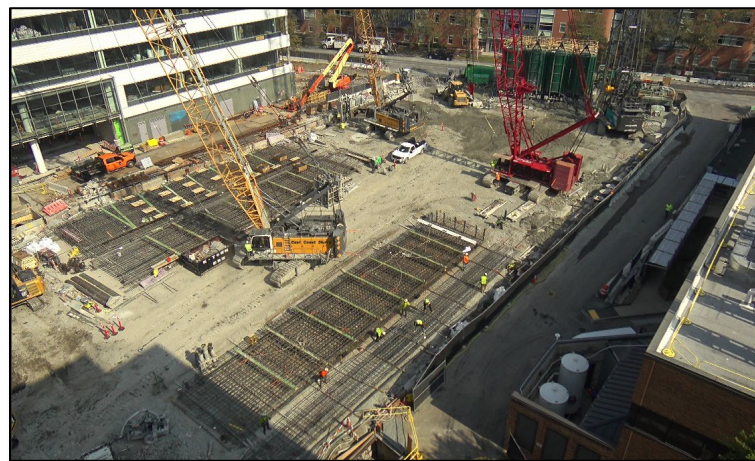
# Refresher:

## GCEP Project History

- **2013** - load growth driving need for additional infrastructure
- **2017** – Fulkerson parcel purchased by Eversource
- **2019** – Community Engagement begins. Transportation and Public Committee Hearings held on load growth (May), electric system planning (June), modern electric grid and non-wires alternatives (August), topics wrap up (October). Landowner and developer discussions facilitated by City.
- **2020** – Transmission routing begins (February). Alexandria zoning approved, alternate substation location to be incorporated into BXP Blue Garage redevelopment plans (March).
- **2021** – BXP rezoning petition approved by City Council (February). Eversource Open House events held (October). Transmission routes selected (November). MEPA filed (December)
- **2022** – EFSB petition filed (March). BXP Special Permit approved (April). EFSB public comment hearings held (June, November). S-15 route (Grand Junction Corridor) in review to address community concerns.
- **2023** – Eversource completed engineering and adopted S-15 as primary route. Solidified Fulkerson transfer. MIT files alternative routes (September). EFSB evidentiary hearings complete (November).



135 Fulkerson St. Parcel (~2019)



290 Binney St. (2023, Courtesy BXP)



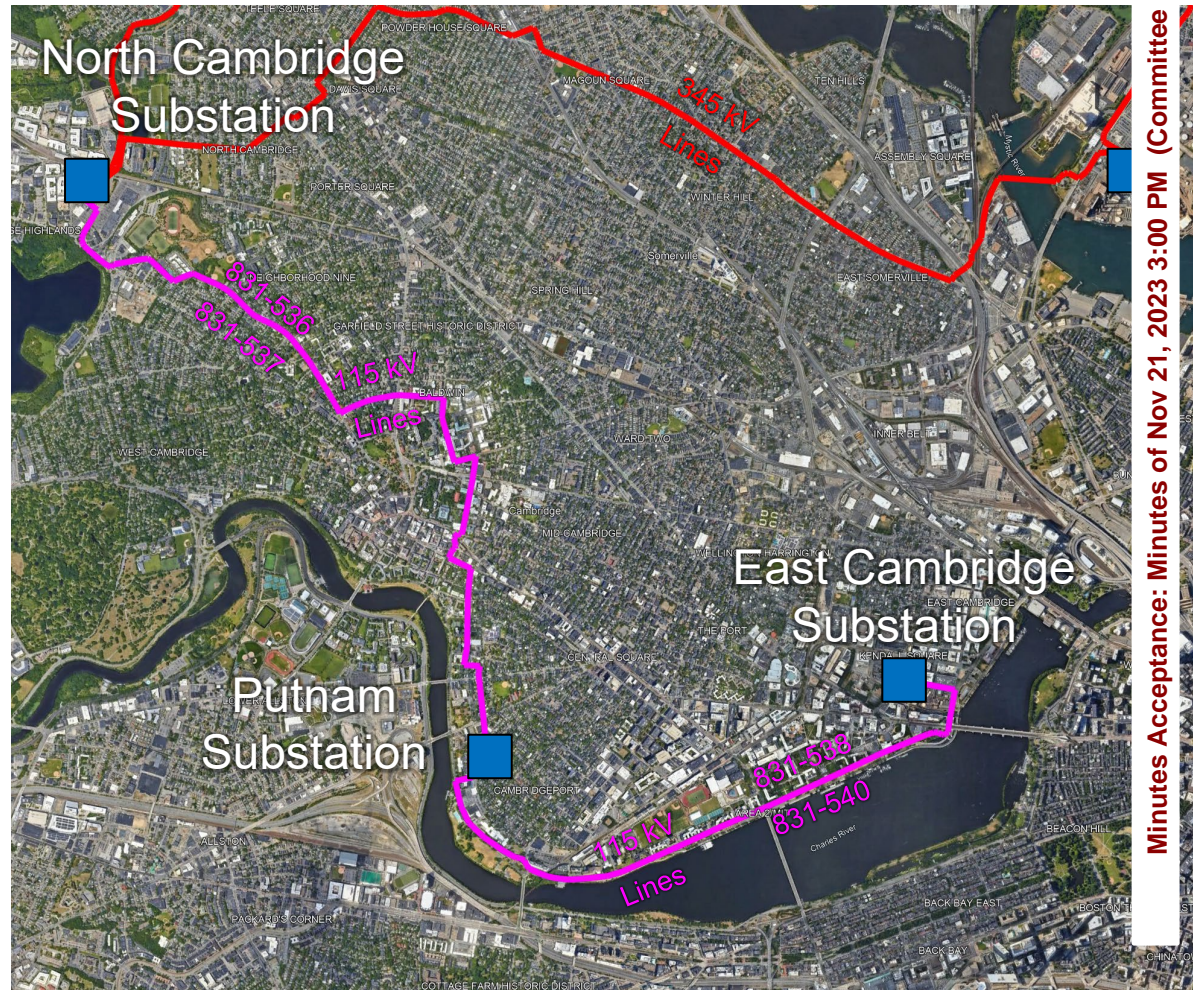
# System Planning

## Transmission Needs

The N-1-1 loss of load criteria violation exists today, with the entire load pocket at **risk** of lengthy outages

For the East Cambridge Load Pocket, this risk applies to the full-length cable route from North Cambridge Substation

Underground transmission line repairs take **weeks** to complete



- Additionally, N-1 thermal overloads are expected to result from 2024 loads, worsening each year thereafter
  - By 2030, over 200 MVA of load shed would be necessary to resolve due to the severity of the overloads
- Per updated load forecasts, these N-1 thermal overloads also now occur on all four transmission lines within the project area
- The transmission lines supplying the Cambridge area are exposed to high risk of N-1 and N-1-1 transmission line overloads **over Drastic Action Limit (DAL) ratings**, which require full mitigation within 5 minutes

# System Planning

## Distribution Needs Based on Ten-Year Forecast

- The City of Cambridge load is experiencing rapid economic development and sustained load growth beyond the capacity of existing substations
- N-1 loss of one East Cambridge transformer will result in equipment overload and the need to drop load.
- Nearby substation capacity has been exhausted.
- Existing/projected capacity deficiency impacts ability to reliably meet demand and sustain future economic growth

2023 East Cambridge load forecast without mitigation measures

**Station Firm Capacity: 150 MVA**

Current 875								
Row Labels	EE	EV	Generation	PV	Step Load	Trend	Grand Total	
2023	-0.4	0.0	5.0	-0.1	29.8	128.1	162.4	
2024	-1.1	0.0	5.0	-0.2	57.3	128.8	189.9	
2025	-1.7	0.1	5.0	-0.3	83.6	129.6	216.3	
2026	-2.3	0.1	5.0	-0.4	106.6	130.4	239.4	
2027	-2.9	0.2	5.0	-0.4	120.6	131.0	253.4	
2028	-3.5	0.2	5.0	-0.5	122.6	131.6	255.4	
2029	-4.1	0.4	5.0	-0.6	122.6	132.3	255.6	
2030	-4.7	0.5	5.0	-0.6	122.6	133.0	255.8	
2031	-5.3	0.7	5.0	-0.7	122.6	133.7	256.0	
2032	-5.9	1.0	5.0	-0.7	122.6	134.5	256.0	
						10 Yr Increase	94.0	

- The new station is designed with 3 transformers expandable to 4 banks
- The Company expects that station expansion (4<sup>th</sup> bank) will be triggered when the demand in the wider load pocket reaches ~595 MW
- Demand in load pocket is projected to reach 512 MW in 2030, leaving about 83 MW of headroom for the region
- Utilization of the 83 MW headroom will depend on continued business growth past the known step loads and the actual impact of BEUDO

2023 East Cambridge load pocket forecast without mitigation measures

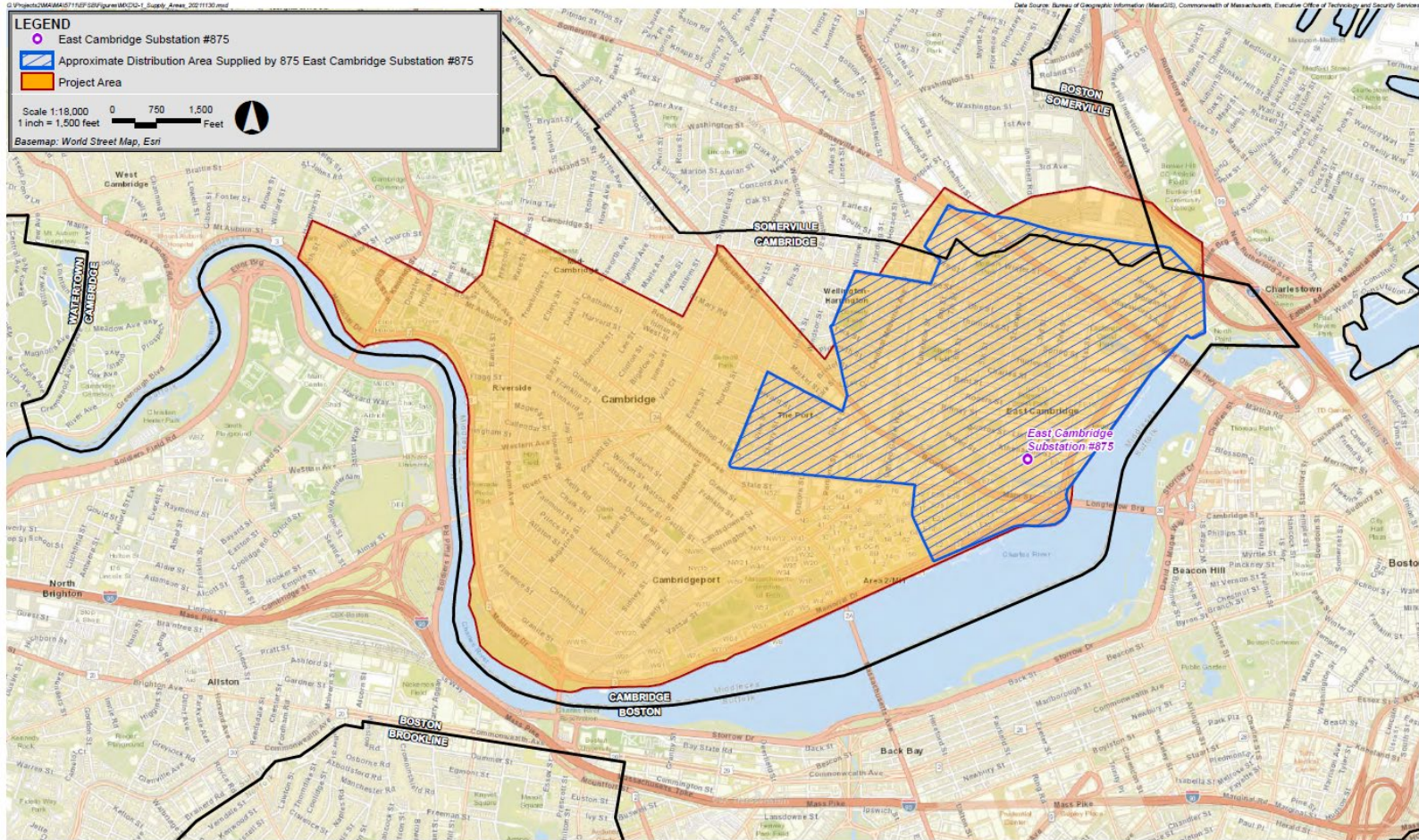
Load Pocket							
Row Labels	EE	EV	Generation	PV	Step Load	Trend	Grand Total
2023	-1.0	0.1	5.0	-0.3	47.0	334.3	385.2
2024	-2.6	0.1	5.0	-0.5	86.5	335.9	424.4
2025	-4.2	0.2	5.0	-0.8	124.8	337.9	462.9
2026	-5.7	0.3	5.0	-1.0	152.8	339.8	491.2
2027	-7.2	0.5	5.0	-1.3	169.8	341.4	508.3
2028	-8.7	0.8	5.0	-1.6	171.8	343.1	510.4
2029	-10.1	1.2	5.0	-1.8	171.8	344.9	510.9
2030	-11.6	1.7	5.0	-2.0	171.8	346.7	511.5
2031	-13.1	2.4	5.0	-2.2	171.8	348.4	512.3
2032	-14.6	3.3	5.0	-2.5	171.8	350.4	513.5

Based on forecasts and projections, the Company expects the fourth transformer will be needed before 2040



# System Planning

## Affected Area

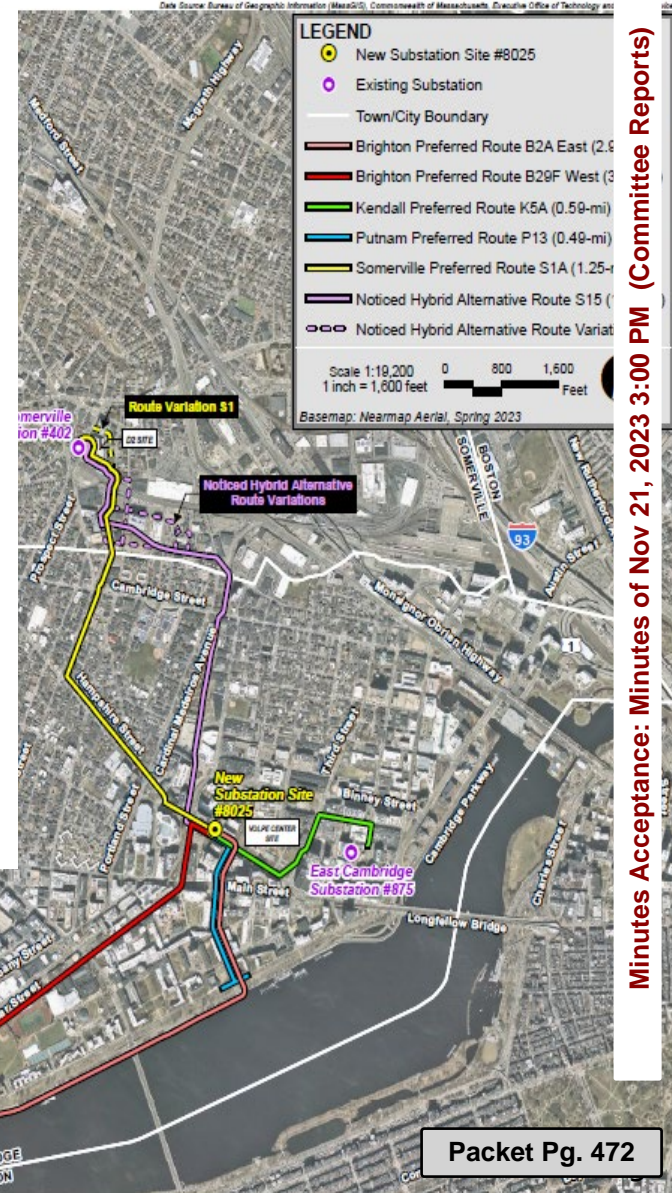


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# Transmission Routes Update

- Transmission routing analysis began once the substation site was selected (February 2020) and concluded prior to filing with MEPA (November 2021)
- Eversource held over 150 meetings with stakeholders to identify, analyze, and select the routes
- Transmission routes balance reliability, environmental and community concerns and cost
- MIT's routing proposals increased cost and would delay installation of three of the five transmission duct banks

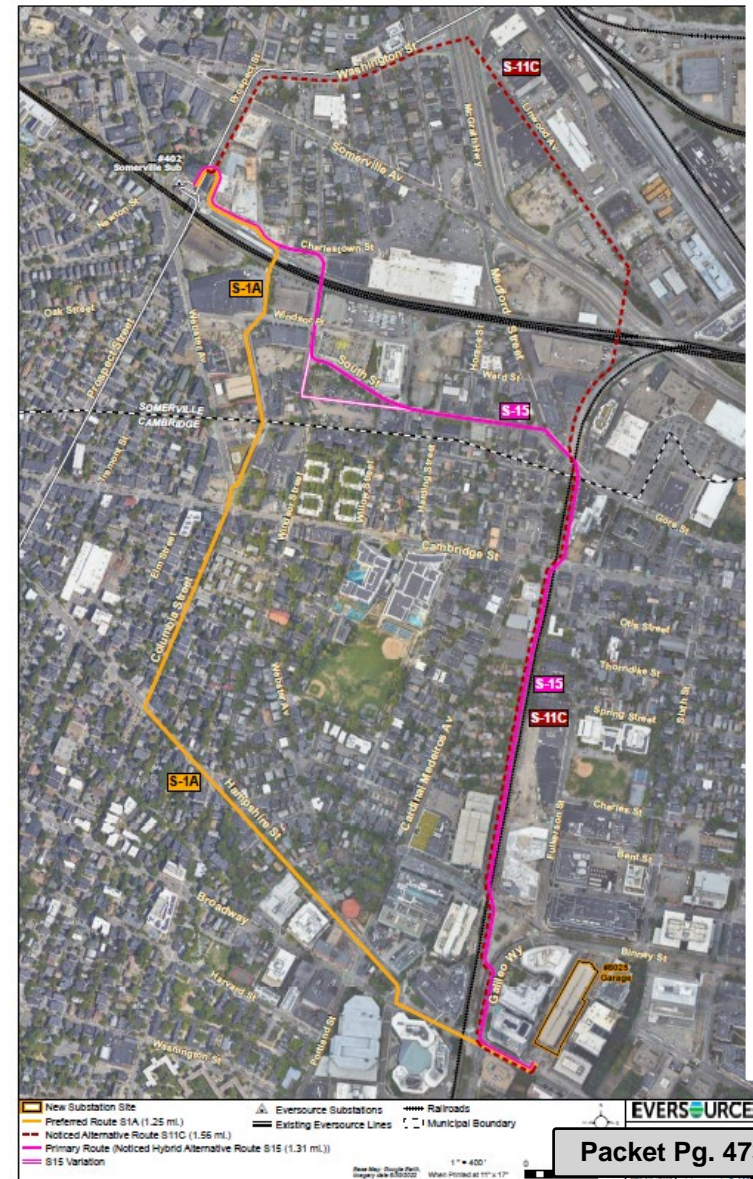




# Transmission Routes

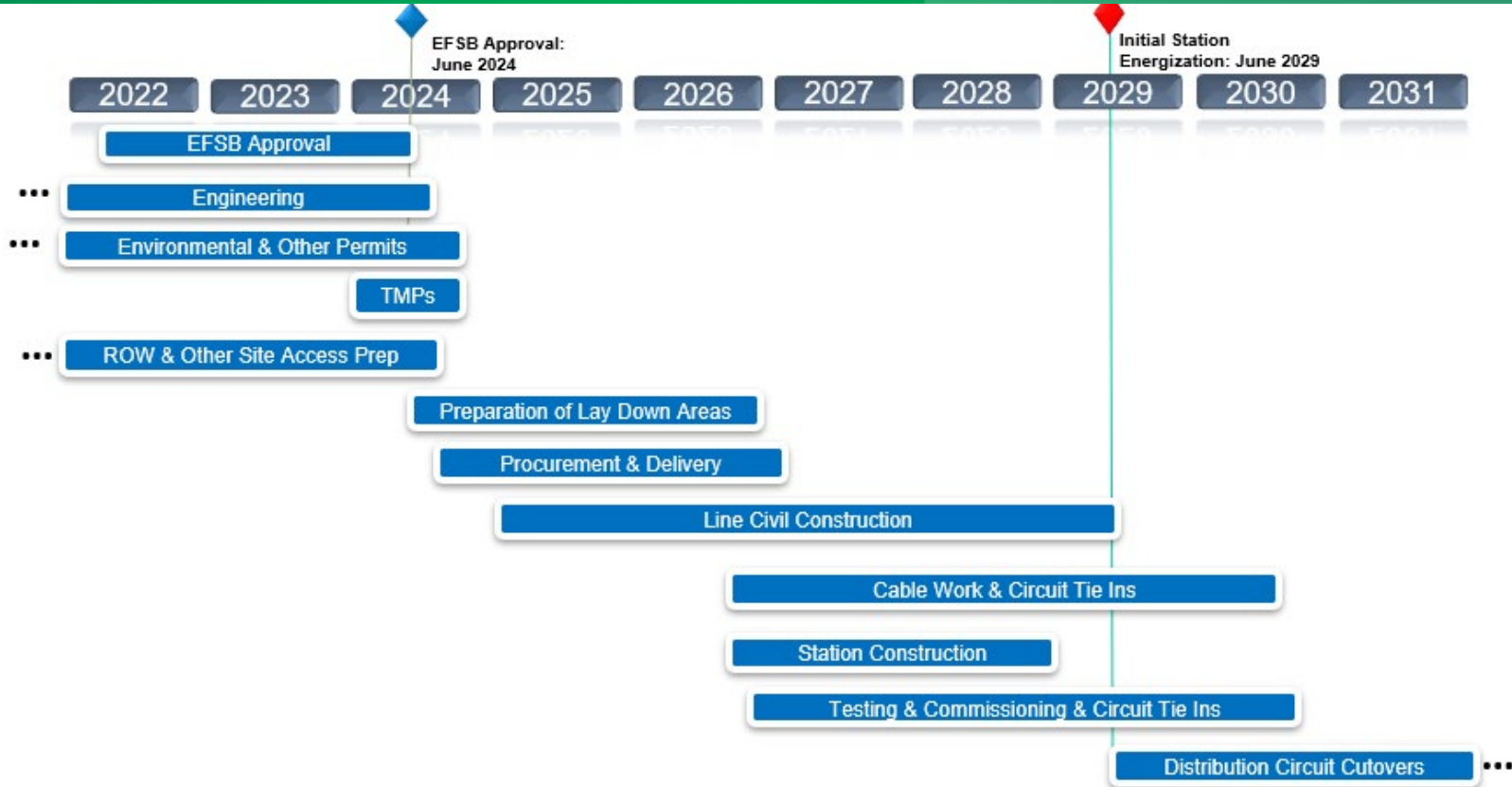
## Somerville Modifications

- Eversource adopted a hybrid route in October 2023 to address concerns of residents along Hampshire and Columbia Streets raised July 2022
- Primarily follows routes engineered during EFSB filing development
- Required extensive coordination with Cambridge, Somerville and MBTA to make successful
  - Modification to Somerville's development plans in Boyton Yards
  - Revision to MBTA Green Line Extension Crossing
  - Co-design with Grand Junction Rail Trail
  - Concurrence from MBTA on Grand Junction Rail crossings
- Addressed concerns of the each of the stakeholders involved



# Project Schedule

## Critical Path Considerations



- EFSB approval June 2024 required
  - BXP schedule commitments
  - MIT Volpe construction
  - Grand Junction Corridor construction
  - Allston Multi Model coordination
  - Procurements timelines for large equipment
- Substation construction is critical path to energize first transmission line in June 2029
- MIT's route opposition (briefing and approval delays)
- Outage window constraints for line energization



# 135 Fulkerson History

*Commitments Made, Commitments Kept*

~ **2024\*** – City anticipates purchasing 135 Fulkerson Street from Eversource with the \$12,929,000 Alexandria placed in escrow. No appropriation of city funds will be required.

~ **2024-2030\*** - Eversource anticipates using the 135 Fulkerson St parcel to support construction of the substation and the transmission lines.

~ **2029\*** - City staff will begin a community process to determine the specific public use of the parcel.

~ **2030\*** – Upon completion of GCEP, the parcel will be available to the City for public use.



*Aerial View of 135 Fulkerson Street Parcel (2023)*

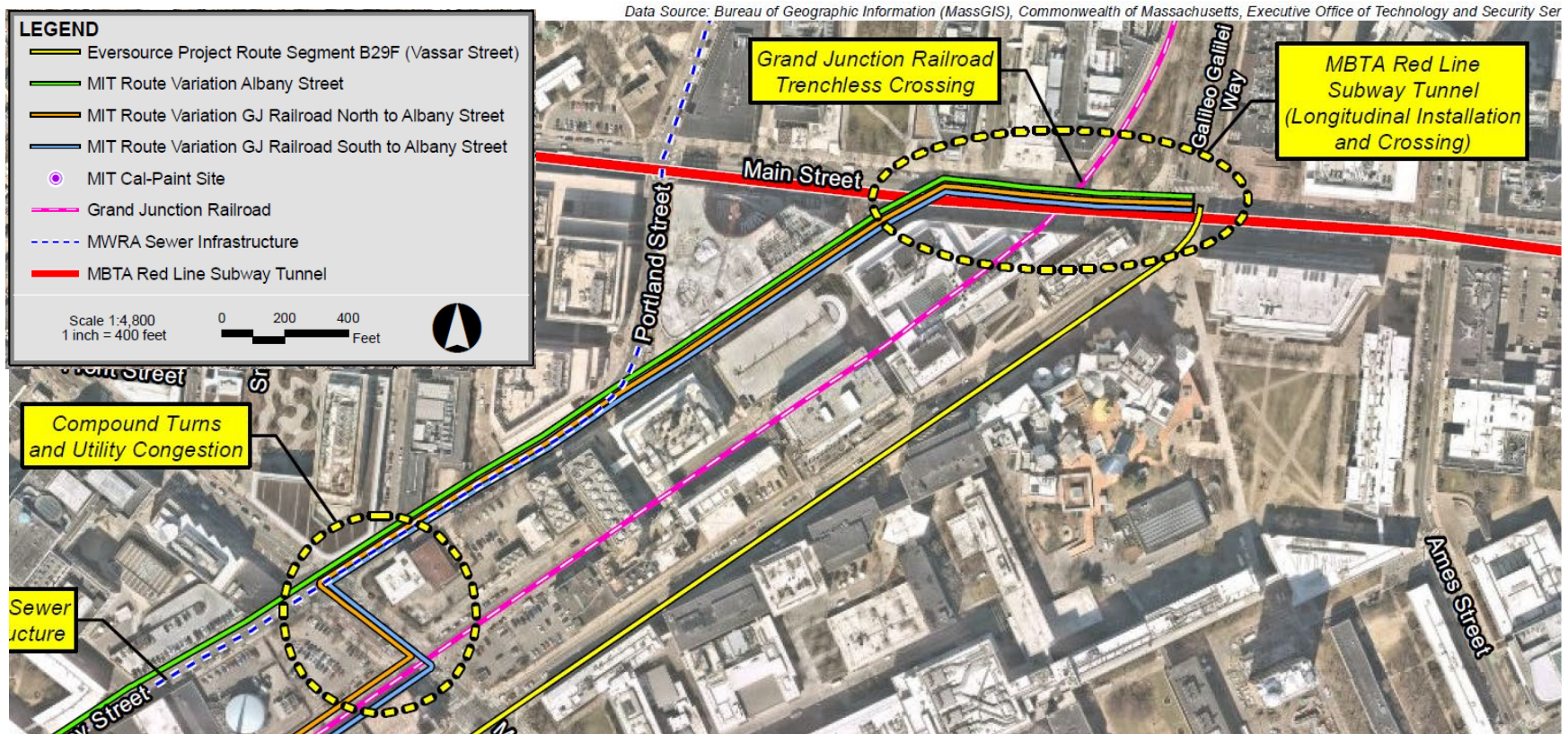
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# Appendix



# Routing Concerns with Proposed MIT Routes

## Proposed Vassar St Realignment (Main St to Mass Ave Segment)



### Considerations:

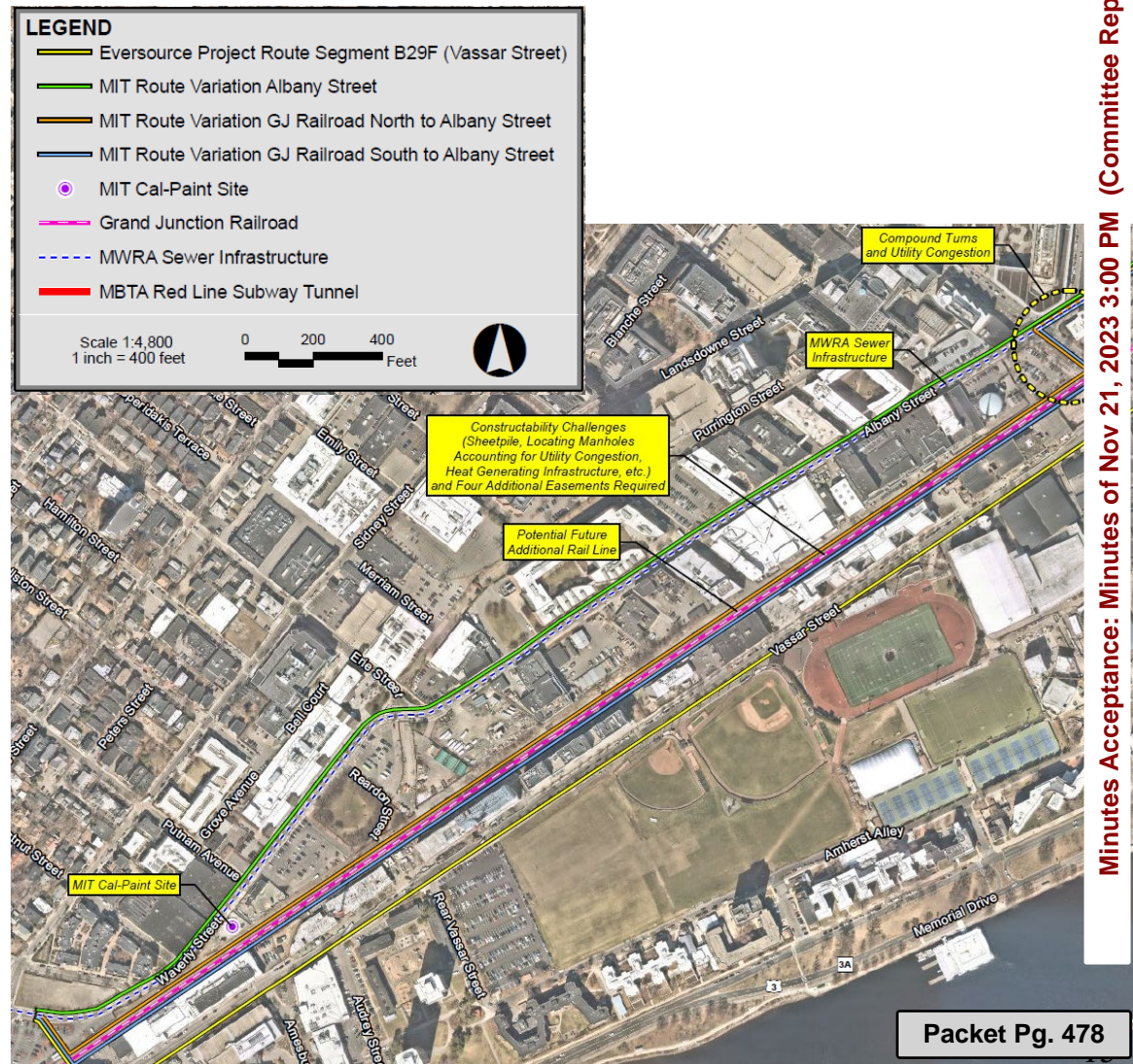
- Challenges for crossing both the Red Line tunnel and the Grand Junction Railroad tracks due to Main St utility congestion on both sides of tunnel which will require a trenchless crossing of both the tunnel and the tracks, significant impact of adjacent area to excavate pits would be required (including Grand Junction Park)
- Additional manholes required due to sharp turn from Albany onto Mass Ave, congestion on Mass Ave and GJ North corridor limits ability to locate the required vaults



# Routing Concerns with Proposed MIT Routes

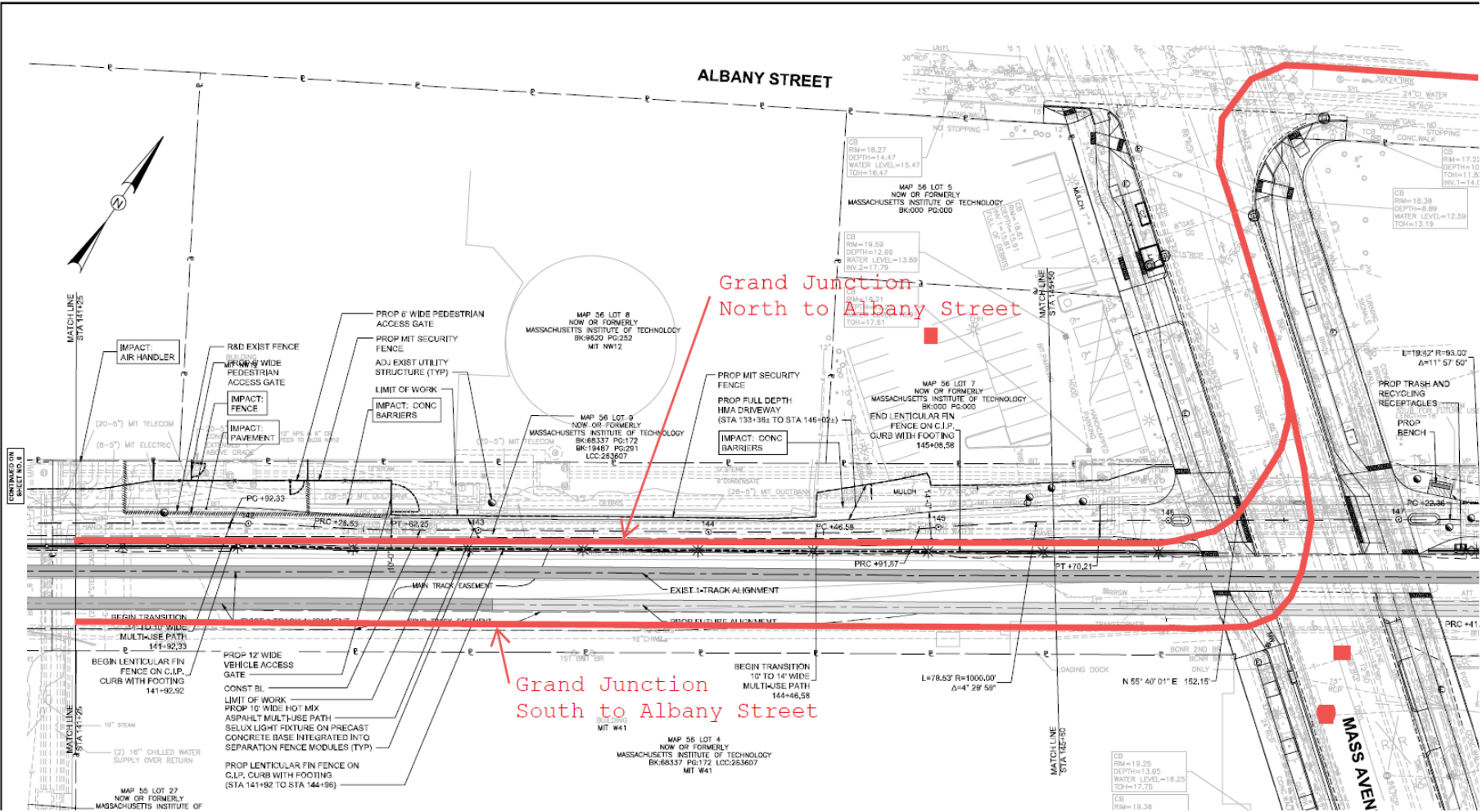
## Proposed Vassar St Realignment (Mass Ave to Waverley St Segment)

- Considerations:
  - Utility density along GJ North corridor limits ability for installation to meet the needs of MBTA Directorate to obtain required footage from tracks for approximately 2000' west of Mass Ave
  - Installation of required sheeting by MBTA for soil stabilization will likely impact existing infrastructure
  - Existing heat generating infrastructure
  - S bend curve from Albany St to Mass Ave to GJ North not adequately accounted for and additional splice points required



# Routing Concerns with Proposed MIT Routes

## Proposed Vassar St Realignment (Grand Junction North Segment 1)



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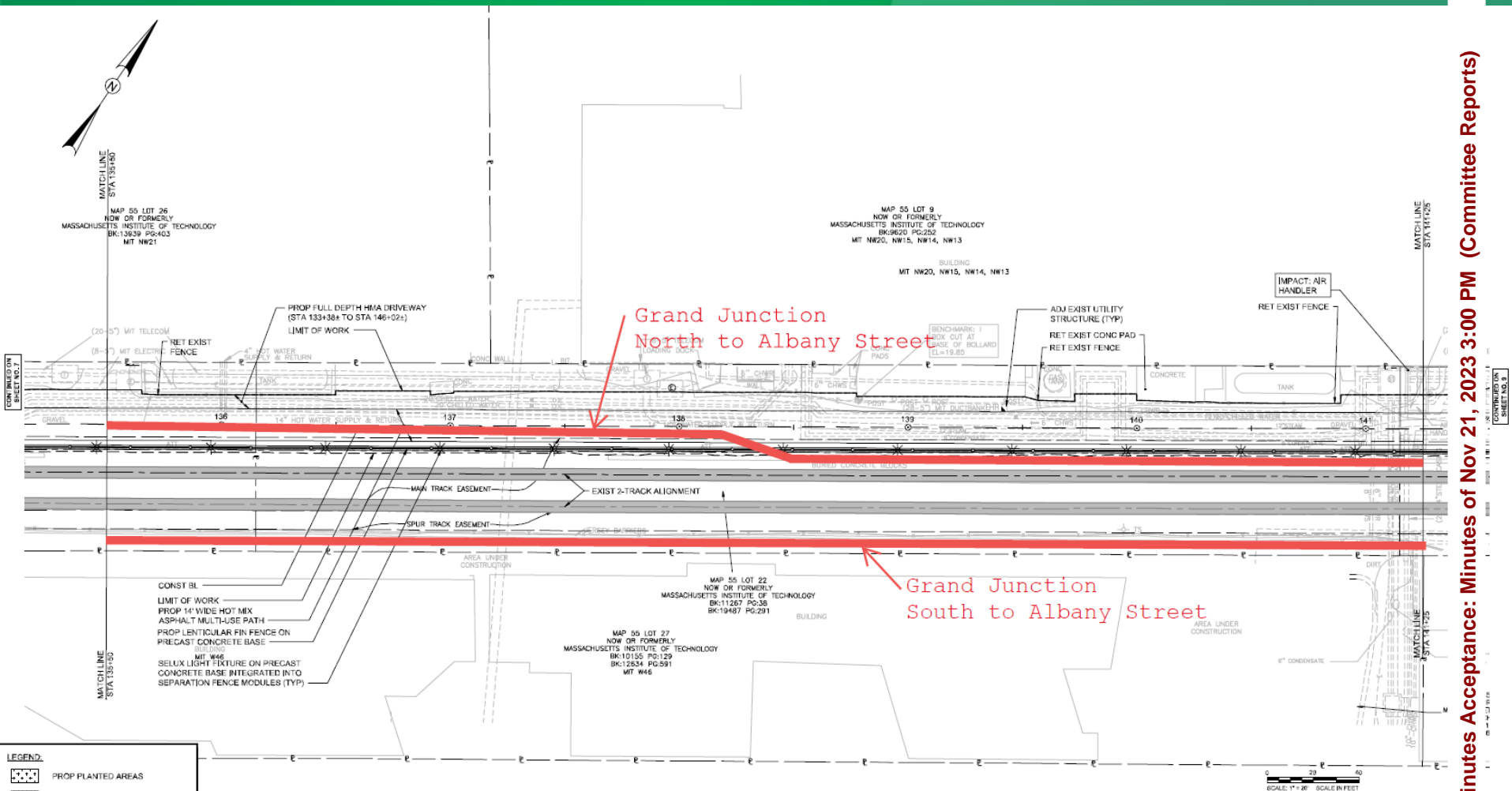
**Considerations:**

- Congestion of existing infrastructure from Mass Ave to west of Pacific St along GJ North corridor
- MIT proposed route obtains only 10' offset from tracks (MBTA Directorate requires 15') and to obtain the required offset existing infrastructure will be impacted (require relocations, both for duct bank and sheet installation)



# Routing Concerns with Proposed MIT Routes

## Proposed Vassar St Realignment (Grand Junction North Segment 2)

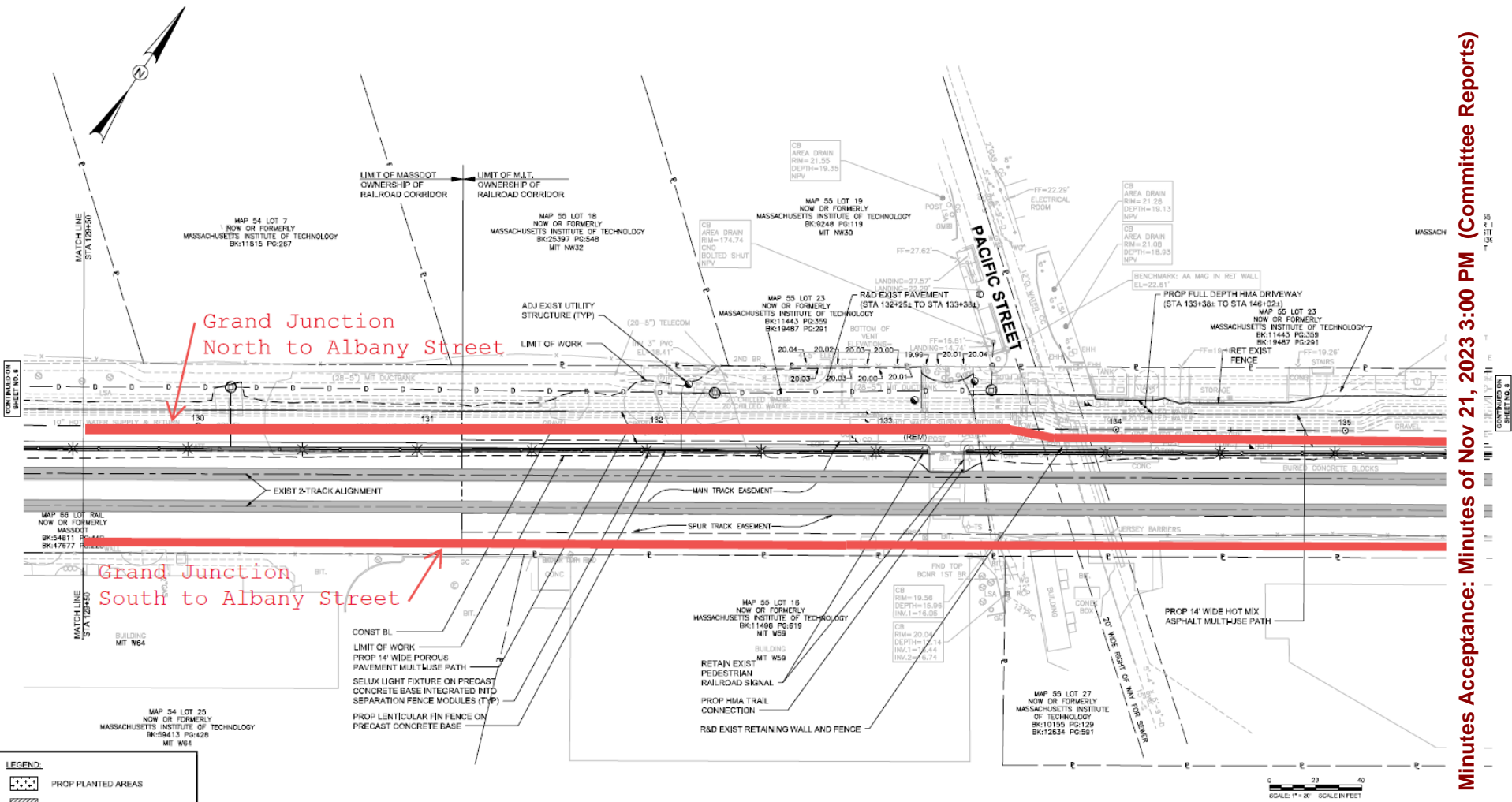


### Considerations:

- Along this segment MIT proposed route obtains only 2.5' offset from tracks (MBTA Directorate requires 15') and to obtain the required offset, existing infrastructure will be impacted (require relocations, both for duct bank and sheet installation)
- Perpendicular crossings of adjacent infrastructure along rail corridor will require trenchless crossings to stabilization requirements

# Routing Concerns with Proposed MIT Routes

## Proposed Vassar St Realignment (Grand Junction North Segment 3)



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### Considerations:

- Required 15' offset from tracks (per MBTA Directorate) is not proposed by MIT route until west of Pacific St
- MIT proposed route impacts existing infrastructure (survey data provided by MIT shows hot water, cold water and electric lines overlapping with proposed MIT alignment down corridor 2000' feet from Mass Ave to west

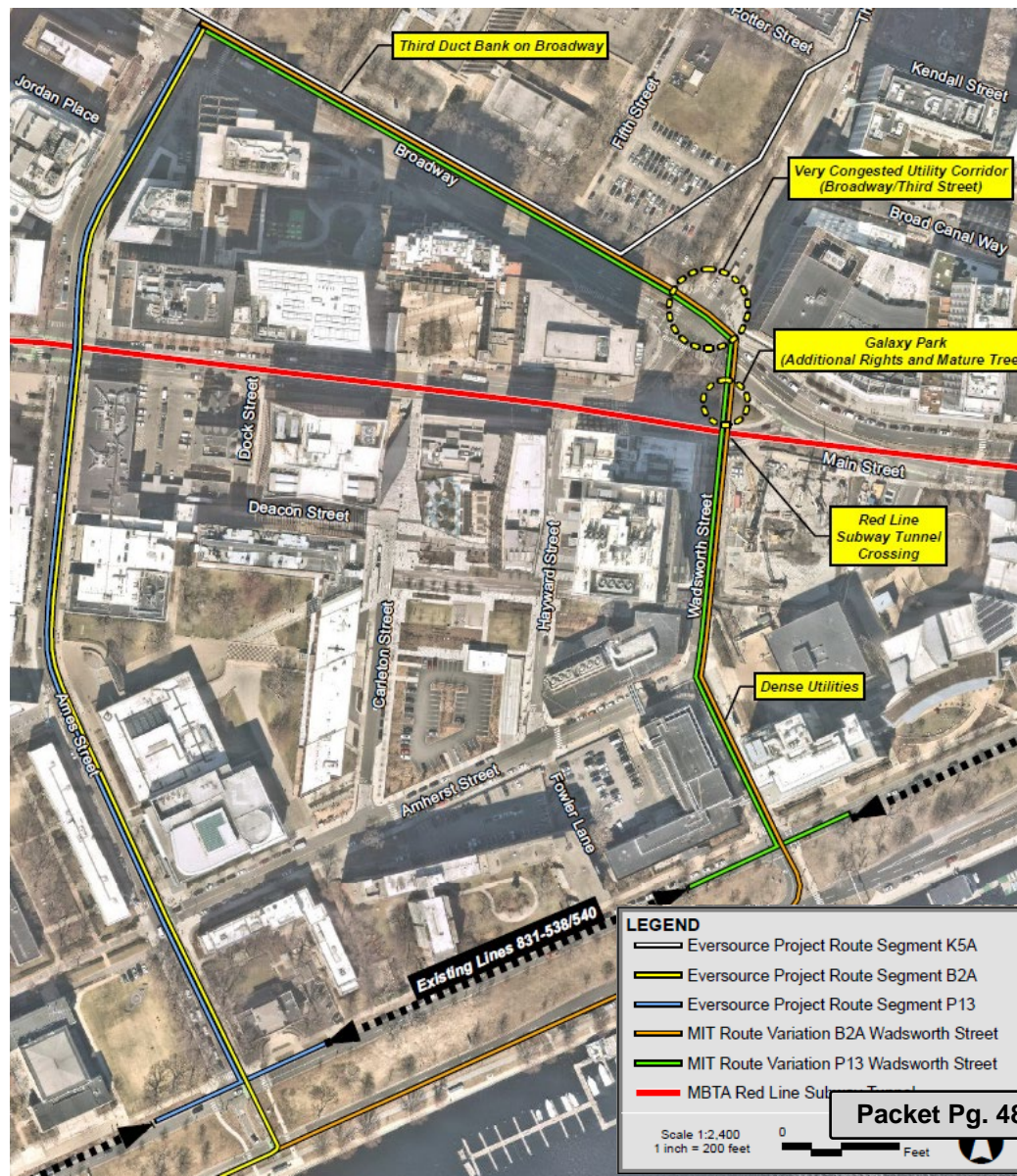


# Routing Concerns with Proposed MIT Routes

## Proposed Broadway to Wadsworth Realignment

### Considerations:

- Utility density and trees in Broadway
- Existing proposed alignment down Broadway
- Utility congestion in Broadway and Third Street intersection
- Crossing MBTA Redline - tunnel is too shallow at this point to go over, required trenchless crossing would likely impact Galaxy Park
- Utilizing green space for transmission line construction
- Cannot install P13 and B2A in same duct bank due to reliability and ampacity issues (additional circuit would be required to meet P13 loading need)
- Utility congestion on Wadsworth St, particularly from Main St to Amherst





**Eight new underground transmission lines**

- 8.3 miles, in portions of Cambridge, Somerville and the Allston/Brighton area of Boston
- These upgrades will bolster system reliability, meet growing energy needs and access to clean energy resources for customers.

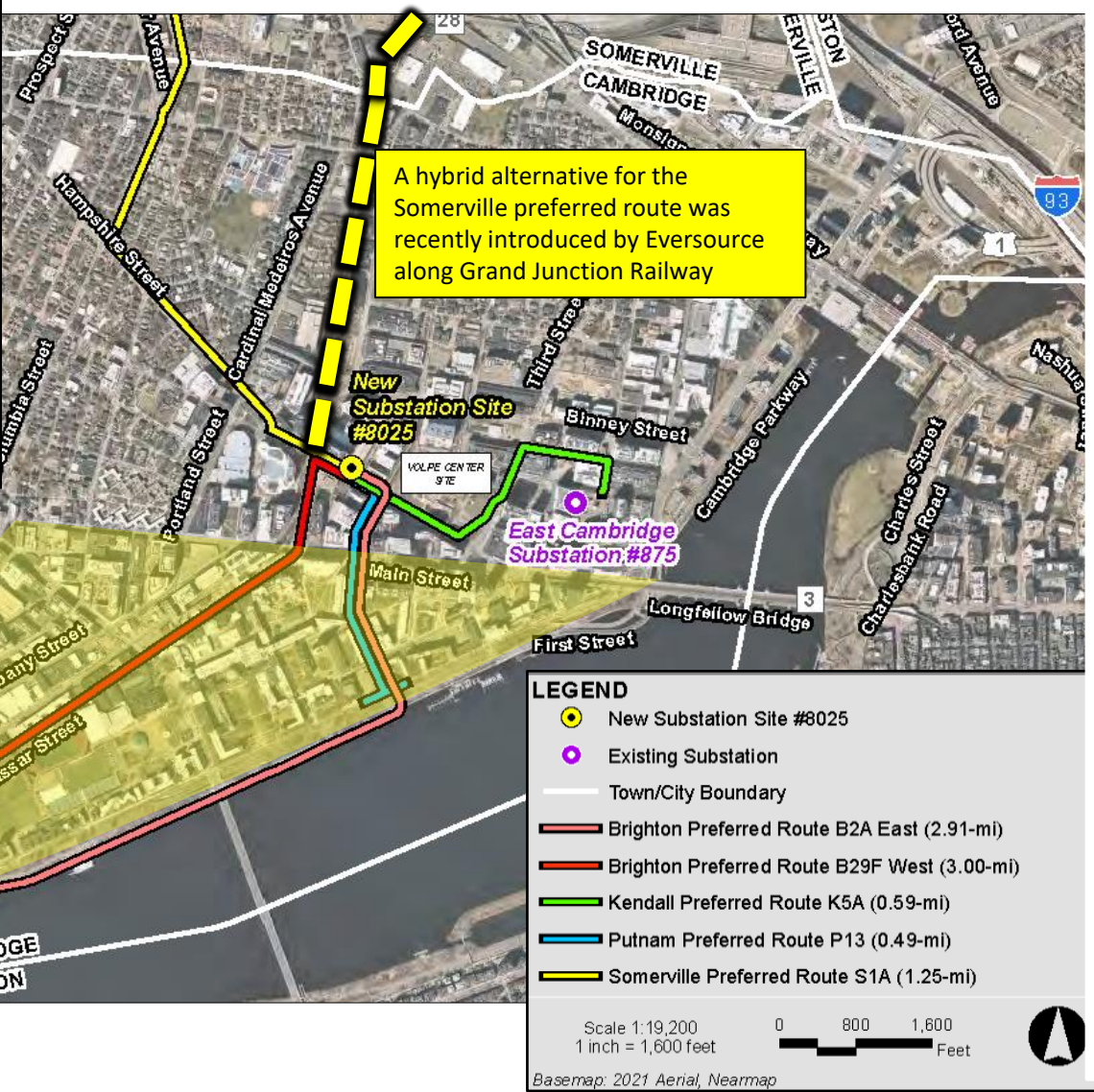
**The Energy Facilities Siting Board (EFSB)**

- Independent state board that reviews proposed large energy facilities including transmission lines.
- EFSB evaluates projects for reliability, minimum impact on the environment, lowest possible cost.

**Start of construction 2025** (Pending EFSB approval)

**Estimated in-service date 2030** (5yr. duration)

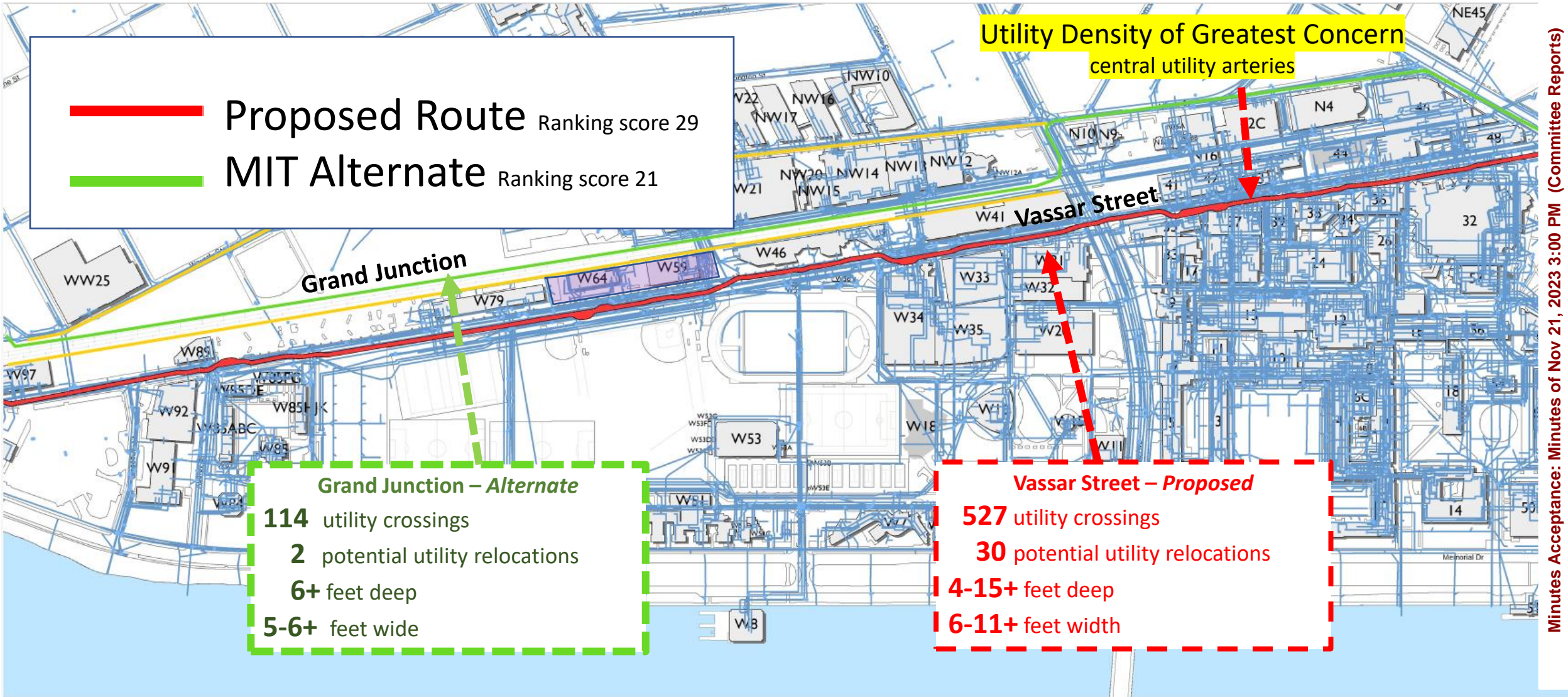
**Vassar Street construction: 12- 24 (TBD) months**



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# Utility density and complexity of the proposed route is our greatest concern



**Proposed Route** Ranking score 29  
**MIT Alternate** Ranking score 21

**Utility Density of Greatest Concern**  
 central utility arteries

**Grand Junction – Alternate**  
 114 utility crossings  
 2 potential utility relocations  
 6+ feet deep  
 5-6+ feet wide

**Vassar Street – Proposed**  
 527 utility crossings  
 30 potential utility relocations  
 4-15+ feet deep  
 6-11+ feet width

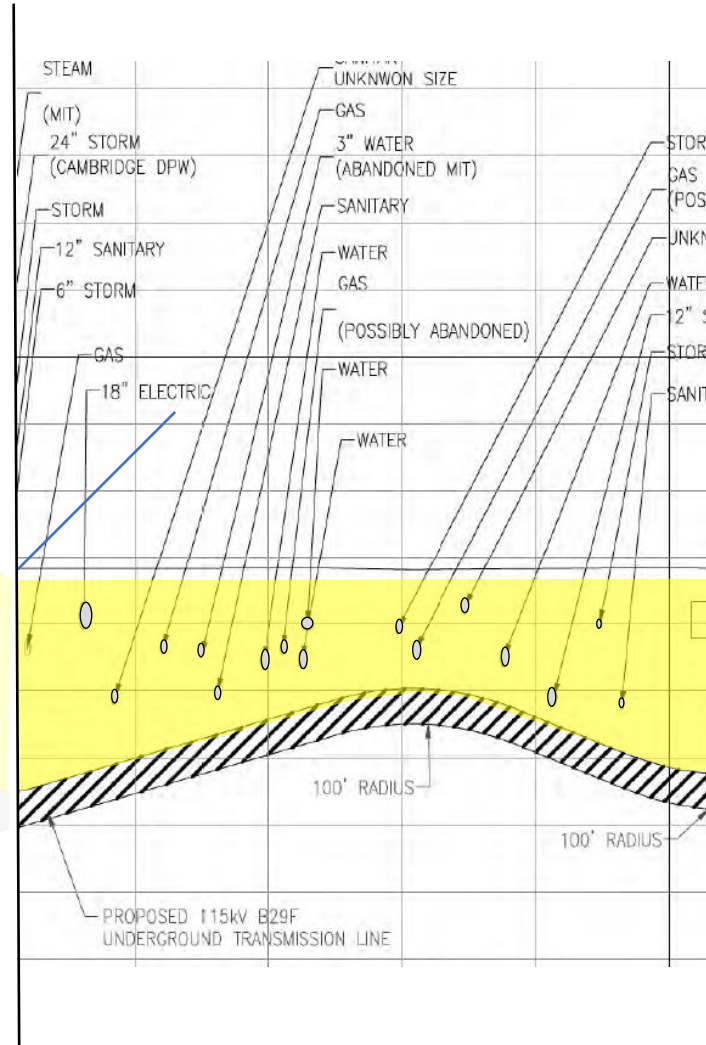
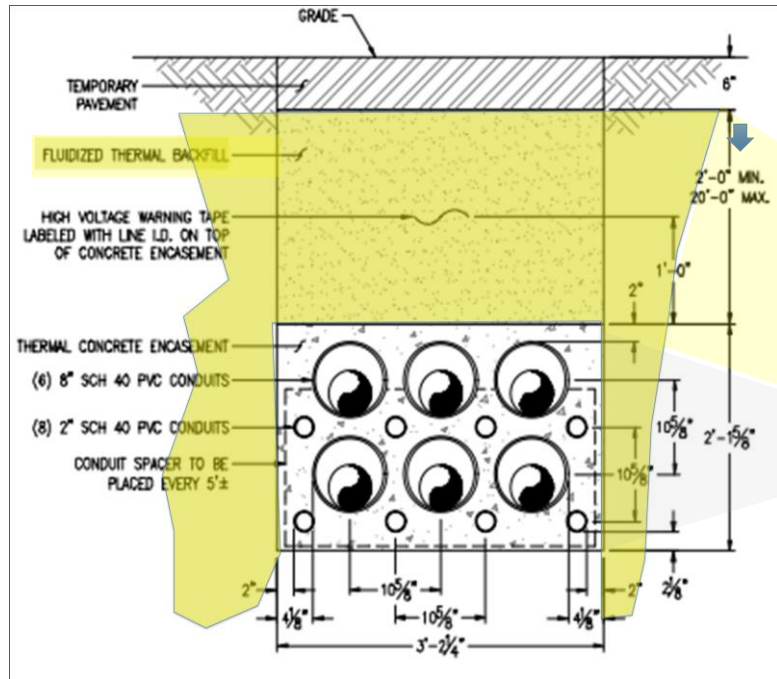
Minutes Acceptance: Minutes of Nov 21, 2023 3:00 PM (Committee Reports)





# Concrete encasement limits future flexibility

- Expansion of research activities
- Decarbonization options
- Maintenance very difficult
- Material chipped away by hand



Minutes Acceptance: Minutes of Nov 21, 2023 3:00 PM (Committee Reports)