



Greater Cambridge Energy Program



Figure 4-17
Candidate Route K6A (Binney Street)



Greater Cambridge Energy Program



Figure 4-18
Candidate Route K10 (Potter Street)



Greater Cambridge Energy Program



Figure 4-19
Candidate Route K11 (Fifth Street)

Candidate Route K12 (Munroe Street)

Candidate Route K12 is approximately 0.69 miles long and is located entirely within Cambridge (see Figure 4-20 on the following page). This route heads east from the New Substation Site onto Broadway Street before turning north across the Volpe Center Site (following the same alignment as Candidate Routes K10 and K11) to Potter Street. On Potter Street, the route heads east for one block before turning north onto Fifth Street. From Fifth Street, the route heads east onto Munroe Street before turning north onto Third Street for one block. The route then turns east onto Binney Street and then south onto Second Street where it enters East Cambridge Substation.

Adjacent land uses and roadway classifications are essentially the same as those described above for Candidate Routes K11 and K6A.

4.5.3.4 Somerville Study Area

Candidate Route S1A (Hampshire Street and D2 Site)

Candidate Route S1A is approximately 1.25 miles long and is located within Cambridge and Somerville (see Figure 4-21 on page 4-64). This route heads west from the New Substation Site onto Broadway for about one block before turning northwest onto Hampshire Street. The segment of Candidate Route S1A between the New Substation Site and Hampshire Street is bordered by laboratory space, research facilities, pharmaceutical and biotechnology companies. Broadway is a wide (approximately 60 to 70-feet), well-travelled roadway with several lanes of traffic, sidewalks on both sides of the road and dedicated bike lanes. Broadway is classified by MassDOT as a principal arterial roadway.

The Hampshire Street segment of this route, west of Cardinal Medeiros Avenue up to Columbia Street, is predominantly bordered by residential housing and mixed commercial uses. Hampshire Street is approximately 45-feet wide, accommodates two-way vehicular traffic with on-street parking, has sidewalks on both sides and has dedicated bike lanes. Hampshire Street is classified by MassDOT as a principal arterial roadway.

From Hampshire Street, the route turns north on Columbia Street. The route follows Columbia Street into Somerville to its intersection with Windsor Place. The Columbia Street segment is predominantly bordered by residential uses up to its intersection with Cambridge Street. North of Cambridge Street, the route segment is bordered by mixed commercial/industrial uses. Columbia Street varies in width between 27 feet at its narrowest point to 38 feet at its widest point. Columbia Street accommodates two-way vehicular traffic along its entire length, with sidewalks on both sides and on-street parking in select locations. Columbia Street is classified by MassDOT as a minor arterial roadway.



Greater Cambridge Energy Program



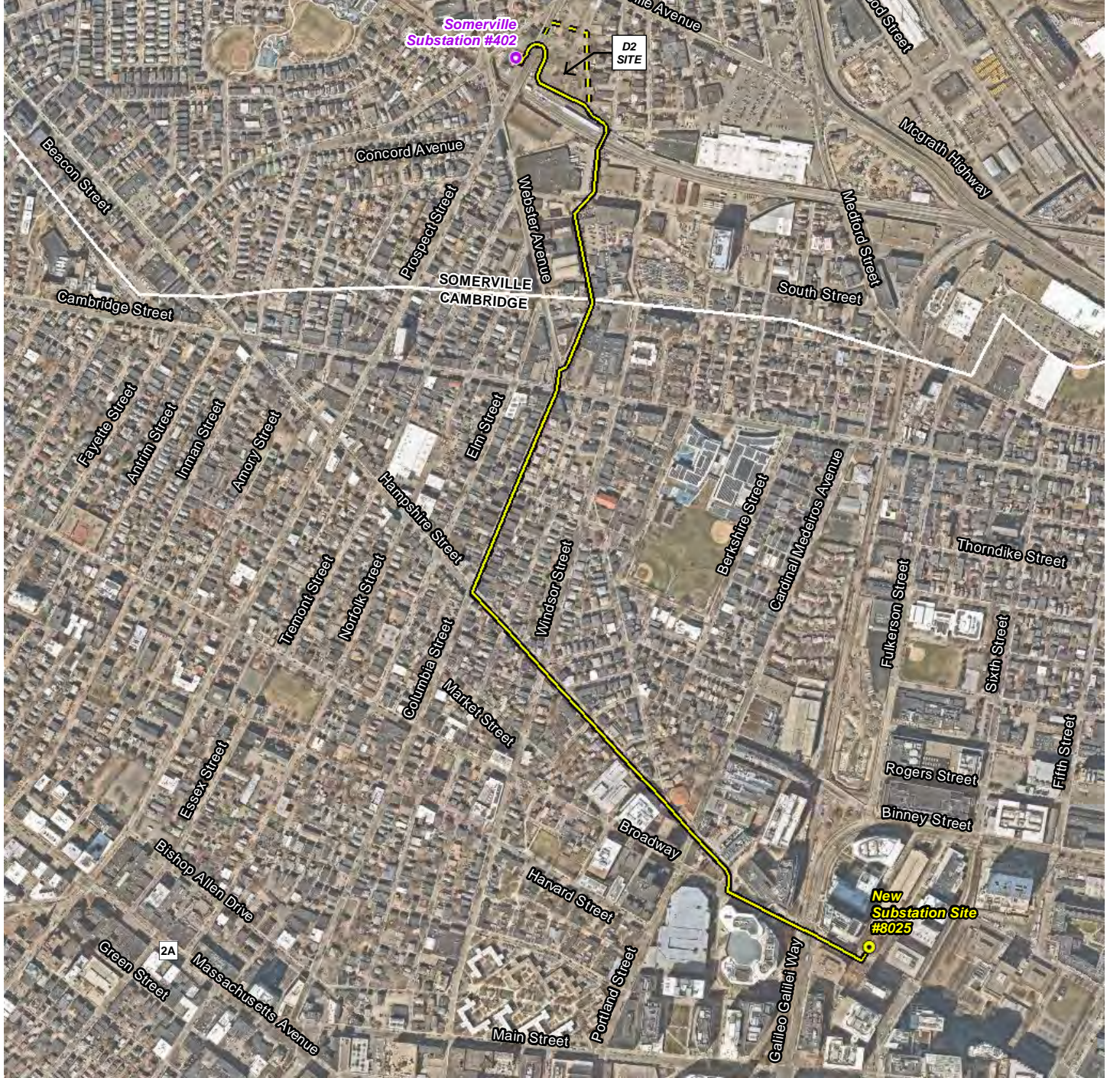
Figure 4-20
Candidate Route K12 (Munroe Street)

LEGEND

- New Substation Site #8025
- Existing Substation
- Candidate Route S1A (1.25-mi)
- Candidate Route Variation S1 (1.28-mi)
- Town/City Boundary

Scale 1:9,600 0 400 800
1 inch = 800 feet Feet

Basemap: 2021 Aerial, Nearmap



Greater Cambridge Energy Program



Figure 4-21

Candidate Route S1A and Route Variation S1 (Hampshire Street and D2 Site)

After crossing Windsor Place, the route heads north across two private commercial parking lots towards the MBTA commuter rail tracks (Fitchburg Route Main Line). The railroad tracks would likely be crossed using a trenchless construction technique. After crossing the tracks, the route travels in a westerly direction parallel to the MBTA railroad tracks and the MBTA new Green Line train station platform, before turning north parallel to Prospect Street (and around the approximate limits of the planned development's future building footprint), and then west across Prospect Street where it enters Somerville Substation. This alignment would avoid some of the known utility constraints associated with Route Variation S1, described below, associated within Milk Alley and Bennett Court, and would potentially result in fewer construction sequencing and coordination challenges anticipated with the D-2 Block-Union Square Project Development Site ("D2" or "D2 Site"). Prospect Street is approximately 35-foot wide in this location and is classified by MassDOT as a principal arterial roadway.

The Company also identified a minor route variation, identified as S1, to Candidate Route S1A (see Figure 4-21). This route variation follows the same alignment described above for Candidate Route S1A except that after crossing the railroad tracks, the route turns in a northwesterly direction around the eastern edge of the site of the MBTA's new Green Line Union Square train station platform, across the D2 Site, generally following the approximate alignment of two proposed roadways associated with the development, identified as Milk Alley and Bennett Court. The route then crosses over Prospect Street and onto the Somerville Substation property.

Candidate Route S11C (Grand Junction RR Multi-Use Pathway)

Candidate Route S11C is approximately 1.56 miles and is located within Cambridge and Somerville (see Figure 4-22). This route heads west from the New Substation Site onto Broadway for about one block before turning north across the Galileo Galilei Way intersection onto a City-owned parcel of land (Assessors' Map 40, Parcel 43) abutting the east side of the MBTA Grand Junction Railroad corridor. The Grand Junction Railroad is a lightly used commercial freight rail facility with two to four trains running per day through Cambridge. This corridor is the only north-south rail connection east of Framingham and Worcester. The route continues north on the City-owned property parallel to the east side of the MBTA Grand Junction Railroad corridor past the Cornelius Way / Michael Way / Wellington Harrington Memorial Way residential neighborhoods. The route collocates with the potential future alignment of the City of Cambridge's Grand Junction Multi-Use Path up to Medford Street/Gore Street in Somerville,⁸¹ including switching from City-owned land on the east side of the existing railroad corridor to City-owned land on the west side of the

⁸¹ The Grand Junction Multi-Use Path is a proposed off-street multi-use path running alongside the existing railroad tracks in the Grand Junction corridor from Boston University Bridge to Somerville. The City of Cambridge's objective is to design, in as much of the corridor as possible, a 14-foot-wide path with 2-foot-wide buffers on both sides. See <https://www.cambridgema.gov/CDD/Projects/Transportation/GrandJunctionPathway> for additional detail.

LEGEND

- New Substation Site #8025
- Existing Substation
- Candidate Route S11C (1.56-mi)
- Town/City Boundary

Scale 1:9,600
1 inch = 800 feet

0 400 800 Feet

Basemap: 2021 Aerial, Nearmap



Greater Cambridge Energy Program



Figure 4-22
Candidate Route S11C (Grand Junction RR Multi-Use Pathway)

railroad corridor. These crossovers would occur at the following at-grade street crossings: Binney Street, Cambridge Street and Medford Street. A place of worship (Saint Anthony of Padua Catholic Church) is located on the west side along with small parcel of greenspace (Alfred Vellucci Park) near the Cambridge Street crossing. North of Cambridge Street, this route segment is bordered predominantly by pockets of small businesses and more residential housing. The east side of this route segment is characterized by vacant railroad property, commercial/industrial properties, single family and multi-family residential homes, and an apartment complex (Cambridge Housing Authority - Millers River).

The Cambridge/Somerville municipal boundary is located just south of Medford Street. After crossing Medford Street (urban minor arterial roadway) via the Grand Junction Railroad corridor, the Candidate Route S11C continues north along the western edge of the MBTA ROW, past a private condominium complex (Metro 9) and the Twin City Shopping Plaza up to the intersection of the Grand Junction railroad tracks and the MBTA commuter rail tracks (Fitchburg Route Main Line). Candidate Route S11C would cross beneath the MBTA commuter rail tracks and McGrath Highway (Route 28) using a trenchless construction technique, before entering an Eversource-owned parcel of land on Linwood Street. Candidate Route S11C would then transition back to open-trench construction as it turns northwest onto Linwood Street. The route follows Linwood Street in a northwesterly direction across McGrath Highway and beneath the Route 28 overpass, where the route turns southwest onto Washington Street. Linwood Street is roughly 40-foot wide, accommodates two-way vehicular traffic, has sidewalks on both sides and on-street parking throughout much of its length. It is predominantly bordered by commercial and industrial uses including several Eversource facilities, a U-Haul facility, auto parts store and a Mercedes-Benz auto dealership. Linwood Street is classified by MassDOT as a local roadway.

The route then follows Washington Street to Prospect Street, where it then turns south towards Union Square and into the Somerville Substation. The Washington Street segment of this route passes beneath Route 28. Washington Street is a busy travel corridor, particularly at the intersection with Prospect Street and Somerville Avenue located beneath the Route 28 overpass. It is approximately 50-foot wide and bordered predominantly by mixed commercial uses, restaurants, residential housing and the Somerville Police and Fire Department facilities. Washington Street accommodates two-way vehicular traffic, has sidewalks on both sides of the road, dedicated bike lanes, and on-street parking in select locations. Washington Street is classified by MassDOT as an urban principal arterial roadway.

The length of the Prospect Street segment is approximately 600 feet before turning into Somerville Substation. This segment of Prospect Street is predominantly bordered by commercial development, including a Dunkin Donuts, restaurant uses and gym facility. The east side of Prospect Street is bordered by the same property undergoing development as that mentioned for Candidate Route S1A (D2 Site). Prospect Street is approximately 34-foot wide in this location, accommodates two-way vehicular traffic, has sidewalks on both sides of the road and dedicated bike lanes. There is no on-street parking along this segment of road. Prospect Street is classified by MassDOT as an urban principal arterial roadway.

Candidate Route S12 (Cardinal Medeiros Avenue)

Candidate Route S12 is approximately 1.48 miles long and is located in Cambridge and Somerville (see Figure 4-23). This route heads west from the New Substation Site onto Broadway Street for about one block before turning north onto Cardinal Medeiros Avenue to the intersection with Cambridge Street. The route turns east onto Cambridge Street and then north onto Warren Street up to Medford Street. At Medford Street, the route heads northwest and then west onto South Street. The route follows South Street to Columbia Street where it turns north for about 100 feet before crossing a private commercial parking lot associated with J&A Used Auto Parts, Windsor Place, and a second commercial parking lot north of Windsor Place associated with Royal Hospitality Services. From this commercial parking lot, the route crosses beneath the MBTA commuter tracks, likely using a trenchless crossing technique. After crossing under the tracks, the route then heads in a northwesterly direction around the eastern edge of the site of the MBTA's new Union Square Green Line train station platform, across the D2 Site, generally following the approximate alignment of two proposed roadways identified as Milk Alley and Bennett Court. The route then turns south onto Prospect Street and enters Somerville Substation from the east.

The segment of this route near the Broadway Street/Hampshire Street intersection is bordered by the same land uses described above for the other Somerville Study Area candidate routes. The segment of this route that follows Cardinal Medeiros Avenue and Warren Street is predominantly bordered by residential neighborhoods with pockets of commercial developments. Warren Street varies in width but is generally between 23 feet to 27 feet. It is a one-way travel street with on-street parking and sidewalks on both sides. It does not have any dedicated bike lanes. Warren Street is classified by MassDOT as a minor arterial roadway.

The segment of Candidate Route S12 that follows South Street is predominantly bordered by pockets of residential housing and commercial/industrial properties. An auto parts and auto salvage facility border the western end of South Street, adjacent to the South Street Farm located near the South Street/Windsor Street intersection. South Street varies in width from approximately 20 feet at its narrowest point to 26 feet at its widest point. It is a one-way travel street with on-street parking and sidewalks on both sides. It does not have any dedicated bike lanes. South Street is classified by MassDOT as a local roadway.

The Prospect Street segment is the same as that described above for Candidate Routes S1A, S13A, and S14 below.

Candidate Route S13 (Broadway)

Candidate Route S13 is approximately 1.57 miles long and is located in Cambridge and Somerville (see Figure 4-24). From the New Substation Site this route heads west onto Broadway Street before turning north onto Inman Street. Inman Street is predominantly bordered by residential land uses up to Inman Square. Inman Street is approximately 26-feet wide along this route

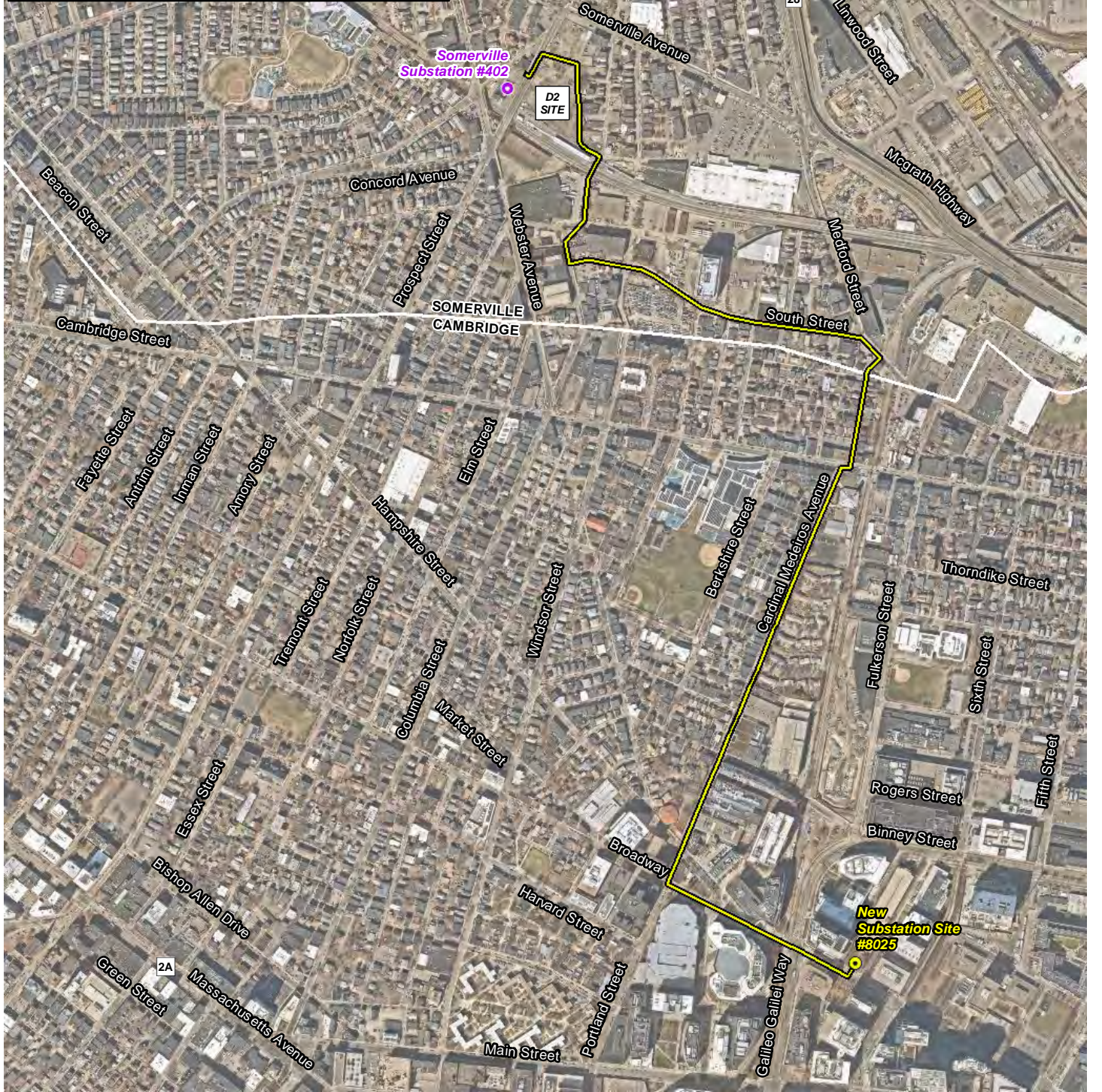
LEGEND

- New Substation Site #8025
- Existing Substation
- Candidate Route S12 (1.48-mi)
- Town/City Boundary

Scale 1:9,600
1 inch = 800 feet

0 400 800 Feet

Basemap: 2021 Aerial, Nearmap



Greater Cambridge Energy Program



Figure 4-23
Candidate Route S12 (Cardinal Medeiros Avenue)

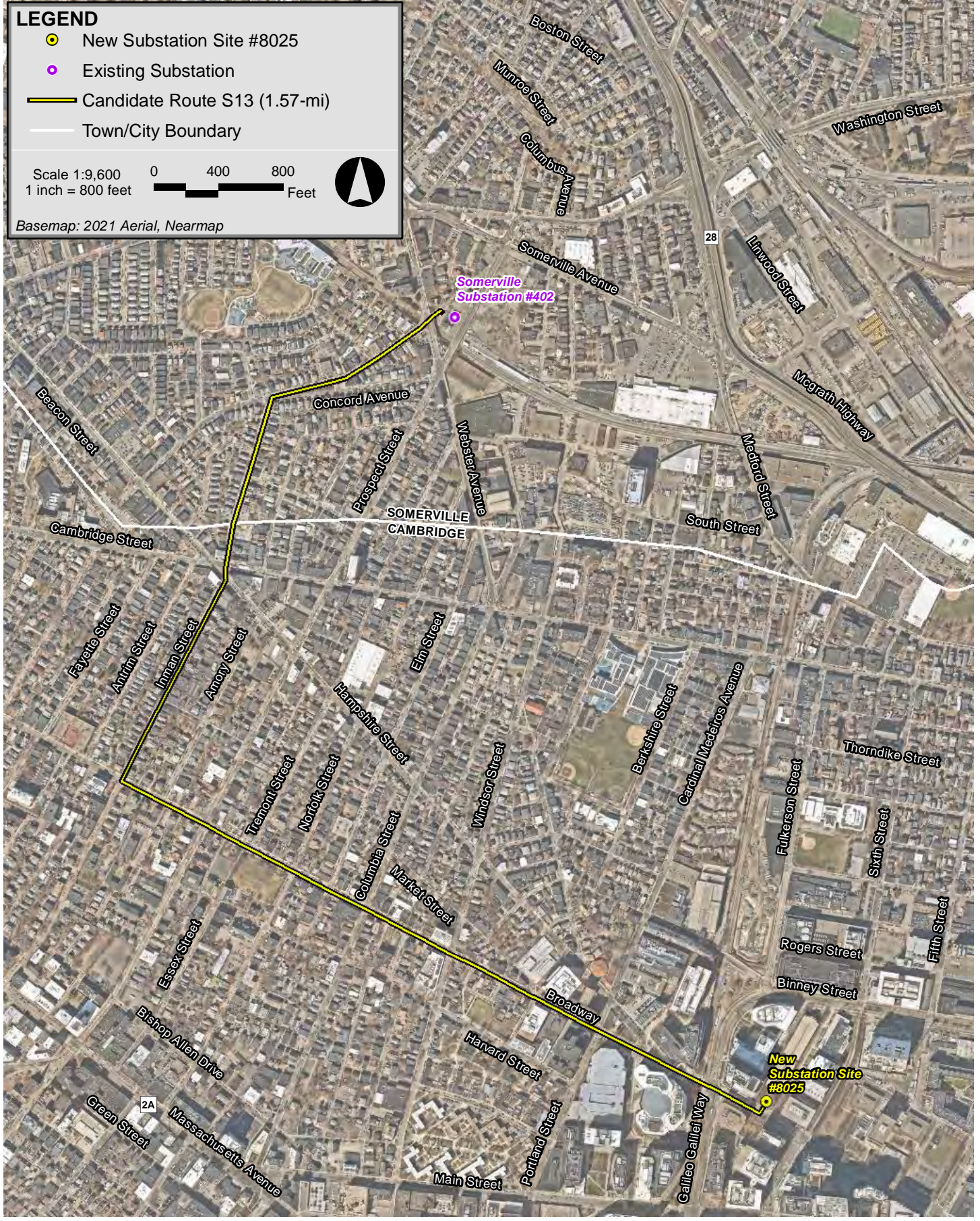
LEGEND

- New Substation Site #8025
- Existing Substation
- Candidate Route S13 (1.57-mi)
- Town/City Boundary

Scale 1:9,600
1 inch = 800 feet

0 400 800 Feet

Basemap: 2021 Aerial, Nearmap



Greater Cambridge Energy Program



Figure 4-24
Candidate Route S13 (Broadway)

segment. It is a one-way travel street with on-street parking and sidewalks on both sides and does not have any dedicated bike lanes. Inman Street is classified by MassDOT as a minor arterial roadway.

The route follows Inman Street through the intersection with Hampshire Street and Cambridge Street onto Springfield Street. North of the Inman Square area on Springfield Street, the route is predominantly bordered by residential land uses. Springfield Street is about 26-feet wide, accommodates two-way vehicular traffic, has sidewalks on either side and on-street parking. Springfield Street is classified by MassDOT as a major collector roadway.

From Springfield Street, the route heads northeast onto Concord Avenue turning onto Newton Street and over the MBTA commuter rail tracks and into Somerville Substation from the west. The Concord Avenue/Newton Street segment of this route is also predominantly bordered by residential land uses up to Eversource's Somerville Substation #402 on Prospect Street. Concord Avenue is approximately 34-feet wide, accommodates two-way vehicular traffic and has a sidewalk on the west side. The east side is occupied by a small patch of green space where the roadway splits onto Newton Street. Concord Avenue does not have a dedicated bike lane in this stretch. Newton Street is like Concord Avenue although it is slightly wider, ranging between 28 feet and 37 feet at its widest points. Newton Street has sidewalks on both sides. MassDOT classifies Newton Street as a major collector roadway and Concord Street as a minor arterial roadway.

Candidate Route S13A (D2 Site and Somerville Avenue)

Candidate Route S13A is approximately 1.82 miles long and is located in Cambridge and Somerville (see Figure 4-25). This route follows the same alignment and is bordered by the same land uses as those described above for Candidate Route S13; however, instead of entering the substation from the west on Newton Street, this route continues along Newton Street to Prospect Street. The route continues north onto Prospect Street for about 100-feet before turning east through Union Square onto Somerville Avenue and then south onto Milk Alley through the previously described D2 Site. The route then follows the alignment through the private development site as described above for Candidate Route S12 to enter Somerville Substation #402 from the east.

Candidate Route S14 (Columbia Street)

Candidate Route S14 is approximately 1.38 miles long and is located in Cambridge and Somerville (see Figure 4-26). From the New Substation Site this route heads west onto Broadway Street before heading north on Columbia Street. The route follows Columbia Street into Somerville to Beach Avenue where the route then heads northeast across a private commercial parking lot associated with J&A Used Auto Parts, Windsor Place, and a second commercial parking lot north of Windsor Place associated with Royal Hospitality Services. From this commercial parking lot, the route crosses beneath the MBTA commuter rail tracks, likely using a trenchless crossing technique. After crossing under the tracks, the route heads in a northwesterly direction around

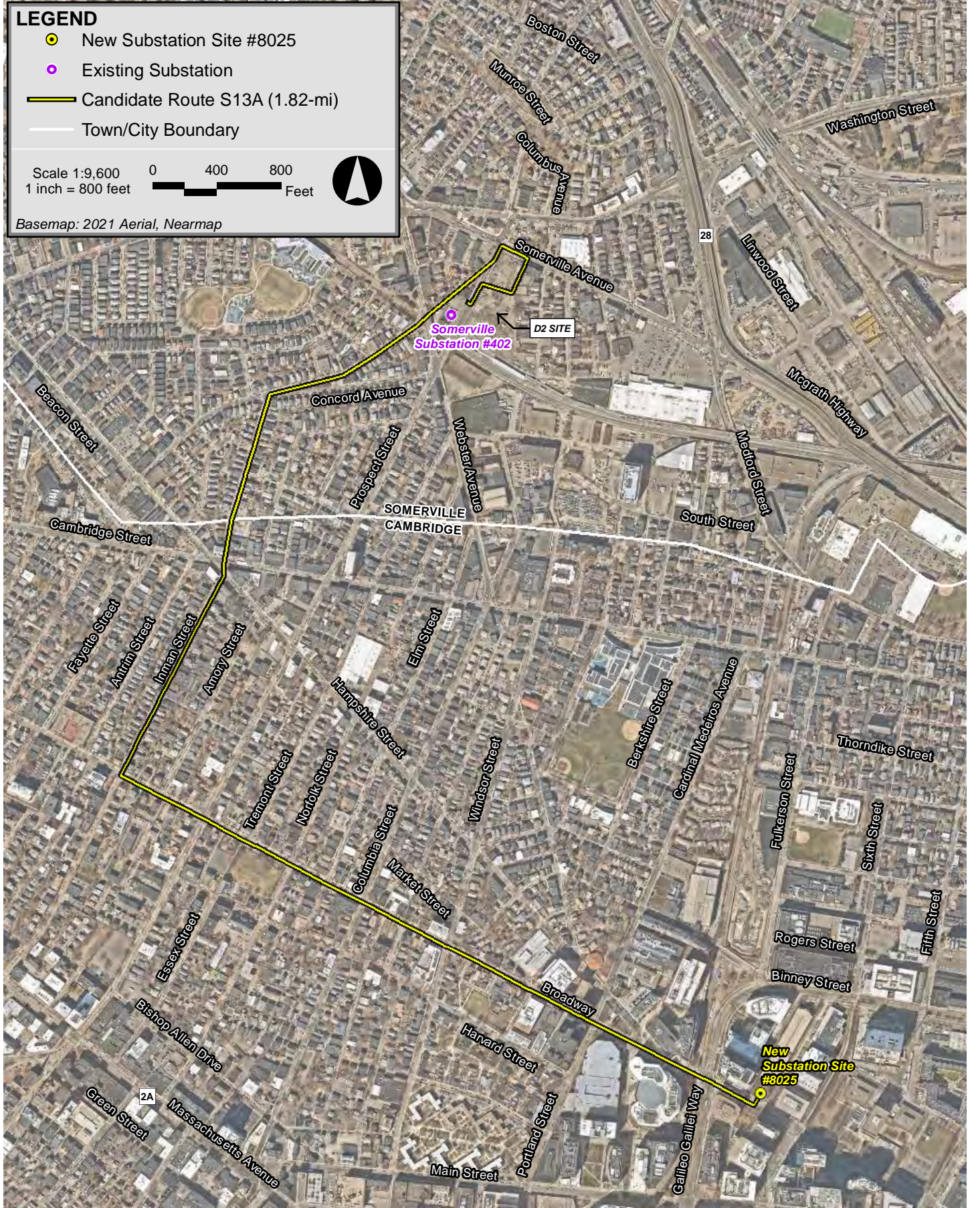
LEGEND

- New Substation Site #8025
- Existing Substation
- Candidate Route S13A (1.82-mi)
- Town/City Boundary

Scale 1:9,600
1 inch = 800 feet

0 400 800 Feet

Basemap: 2021 Aerial, Nearmap



Greater Cambridge Energy Program




Figure 4-25
Candidate Route S13A (D2 Site and Somerville Avenue)

LEGEND

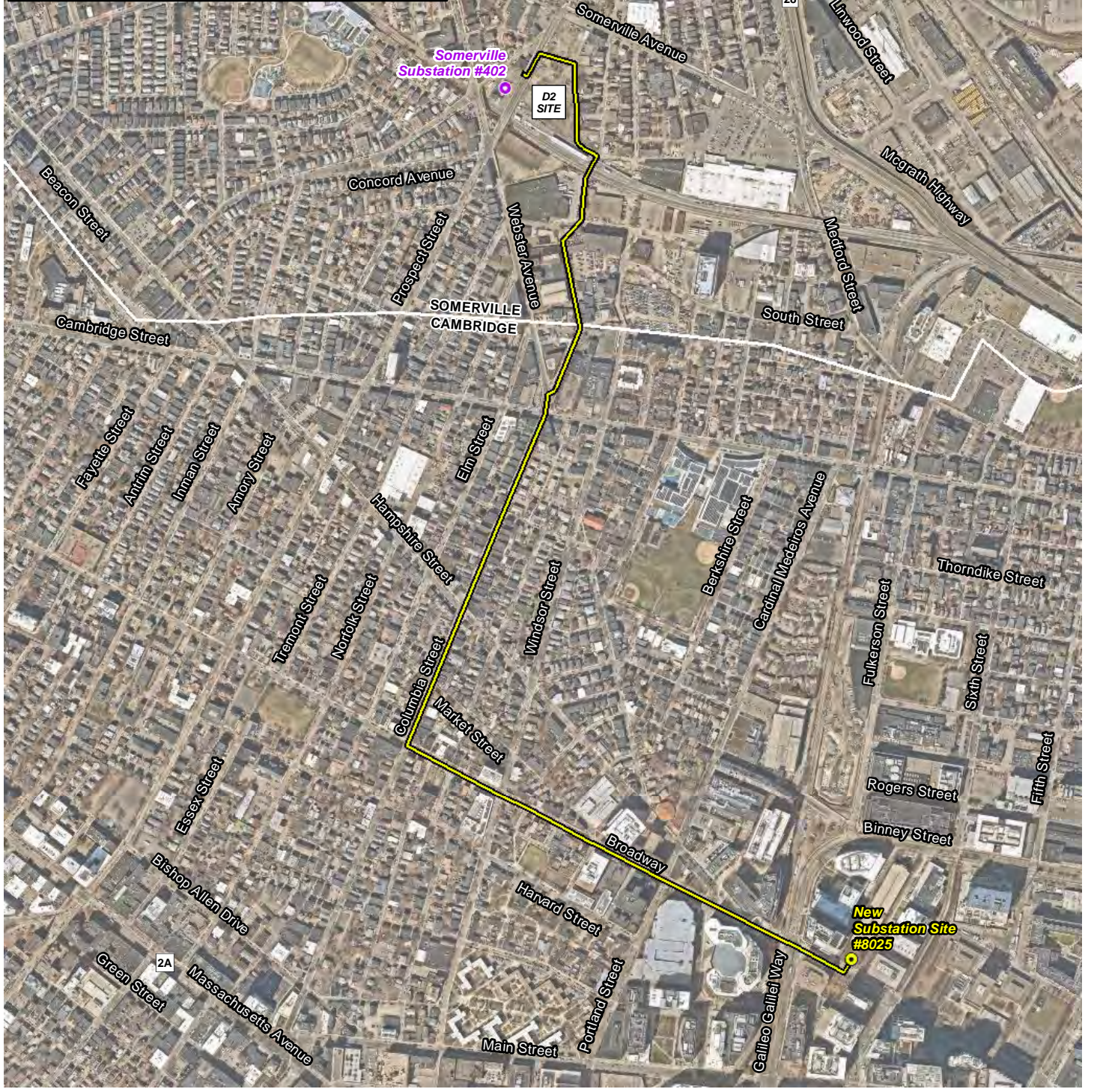
- New Substation Site #8025
- Existing Substation
- Candidate Route S14 (1.38-mi)
- Town/City Boundary

Scale 1:9,600
1 inch = 800 feet

0 400 800 Feet



Basemap: 2021 Aerial, Nearmap



Greater Cambridge Energy Program



Figure 4-26
Candidate Route S14 (Columbia Street)

the eastern edge of the future site of the MBTA's new Union Square Station train platform, across the D2 Site, generally following the approximate alignment of two proposed roadways identified as Milk Alley and Bennett Court (following the same alignment as Candidate Route S12). The route then turns south onto Prospect Street and enters Somerville Substation from the east.

MassDOT roadway classifications and roadway descriptions are the same as those described above for Candidate Route S1A. Land uses bordering the Broadway and Columbia Street segments are also similar, although the Broadway Street segment between the Hampshire Street intersection and Columbia Street passes through additional residential neighborhoods, commercial land uses and past an elementary school (Fletcher Maynard Academy).

4.6 Analysis of Transmission Line Candidate Routes within Each Study Area

The Candidate Routes described above were evaluated and ranked within each Study Area, applying a scoring methodology based on several criteria. Cost estimates were also developed for each route, and the reliability of each Candidate Route was assessed. The goal of the routing analysis was to identify the routes that best balance reliability, cost, and minimization of environmental effects.

4.6.1 Criteria and Weight Assessment

The Company assessed the Candidate Routes using a set of 11 evaluating criteria. The criteria were developed to reflect the defined routing objectives and take into consideration environmental and constructability factors. The scoring criteria include the following subcategories:

- ◆ **Developed Environment Criteria** compare existing conditions of, and potential impacts to, the developed environment and surrounding population.
- ◆ **Natural Environment Criteria** compare existing conditions of, and potential impacts to, the natural environment.
- ◆ **Technical/Constructability Criteria** compare route location and technical design factors that may add complexity to construction and ultimately result in higher costs to customers.

The Company also applied weights to the evaluation criteria that were deemed to be of higher significance than other criteria. Use of a 1-to-5 scale for weighting was considered appropriate to reflect the degree of importance of each criterion specific to this project, with 1 being the lowest weight and lesser importance and 5 being the highest weight and greater importance. Lower total weighted ratio scores are better in this analysis. The Company chose to use a scale of 1-to-5, instead of the more commonly utilized 1-to-3 scale range, to implement a scoring system that would provide greater granularity in comparing the benefits or impacts of each Candidate Route. Given the extensive amount of Candidate Routes and nuances in the route locations relative to

overlapping study areas, the Company believed that the 1-to-5 scale was a better evaluation method that would provide results with a clearer numerical separation of those routes with higher degrees of impacts to the environmental criterion analyzed.

The scoring criteria identified by the Company to evaluate and compare each Candidate Route are described in further detail below.

4.6.1.1 Developed Environment Criteria

Developed Environment Criteria compare existing conditions of, and potential impacts to, the developed environment and surrounding community. The Company applied the following Developed Environment Criteria in the scoring analysis of each Candidate Route:

- ◆ Residential Land Use,
- ◆ Sensitive Receptors,
- ◆ Commercial/Industrial Land Use,
- ◆ Transportation Impacts,
- ◆ Historic & Archaeological Resources, and
- ◆ Potential to Encounter Subsurface Contamination.

Residential Land Use

Residents along a specific Candidate Route could be subject to temporary impacts from construction, such as noise, dust, traffic disruption, restricted property access and other short-term construction-related impacts. The number of residential units directly abutting the Candidate Routes were counted using a combination of MassGIS data (Master Address Database)⁸² and field reconnaissance to determine the number of units along each route, including, whenever possible, unit counts for large multi-unit apartment or condominium complexes, where each individual residence that abuts the route was counted. In the case of college and university student residence halls, each building was counted as one residential unit given the seasonal fluctuations in student populations.

The ratio score for this criterion was calculated by dividing the total number of residential units for each Candidate Route within each individual Study Area by the highest number of residential units found among all the Candidate Routes within each individual Study Area.

⁸² <https://www.mass.gov/info-details/massgis-data-property-tax-parcels>; <https://www.mass.gov/info-details/massgis-data-master-address-data>; <https://docs.digital.mass.gov/dataset/massgis-data-master-address-data-basic-address-points>.

Sensitive Receptors

Sensitive receptors could also be affected by temporary construction impacts such as access and traffic disruption, restricted access, noise, and dust. The number of sensitive receptors directly abutting the route were counted using MassGIS databases, aerial photography, internet searches, Google Street View, and field verification. Daycare facilities were further identified using the Massachusetts Early Education Search tool available through the Executive Office of Education's website. The following sensitive receptors were identified, if present, for each Candidate Route: police and fire stations, hospitals, schools (including colleges and universities), nursing homes/elder care facilities (including long term care facilities), funeral homes, places of worship, daycare facilities, district court buildings and parks and recreational facilities (other than Article 97 lands which are a separate criterion). Note that daycare facilities, chapels and libraries located on the campus of colleges and universities were not counted separately, rather they were counted under the overall school sensitive receptor. The sensitive receptors included in the scoring analysis are depicted on Figures 4-27A through D.

The ratio score for this criterion was calculated by dividing the total number of sensitive receptor units for each Candidate Route within each respective Study Area by the highest number of sensitive receptors units found among all the Candidate Routes within each individual Study Area.

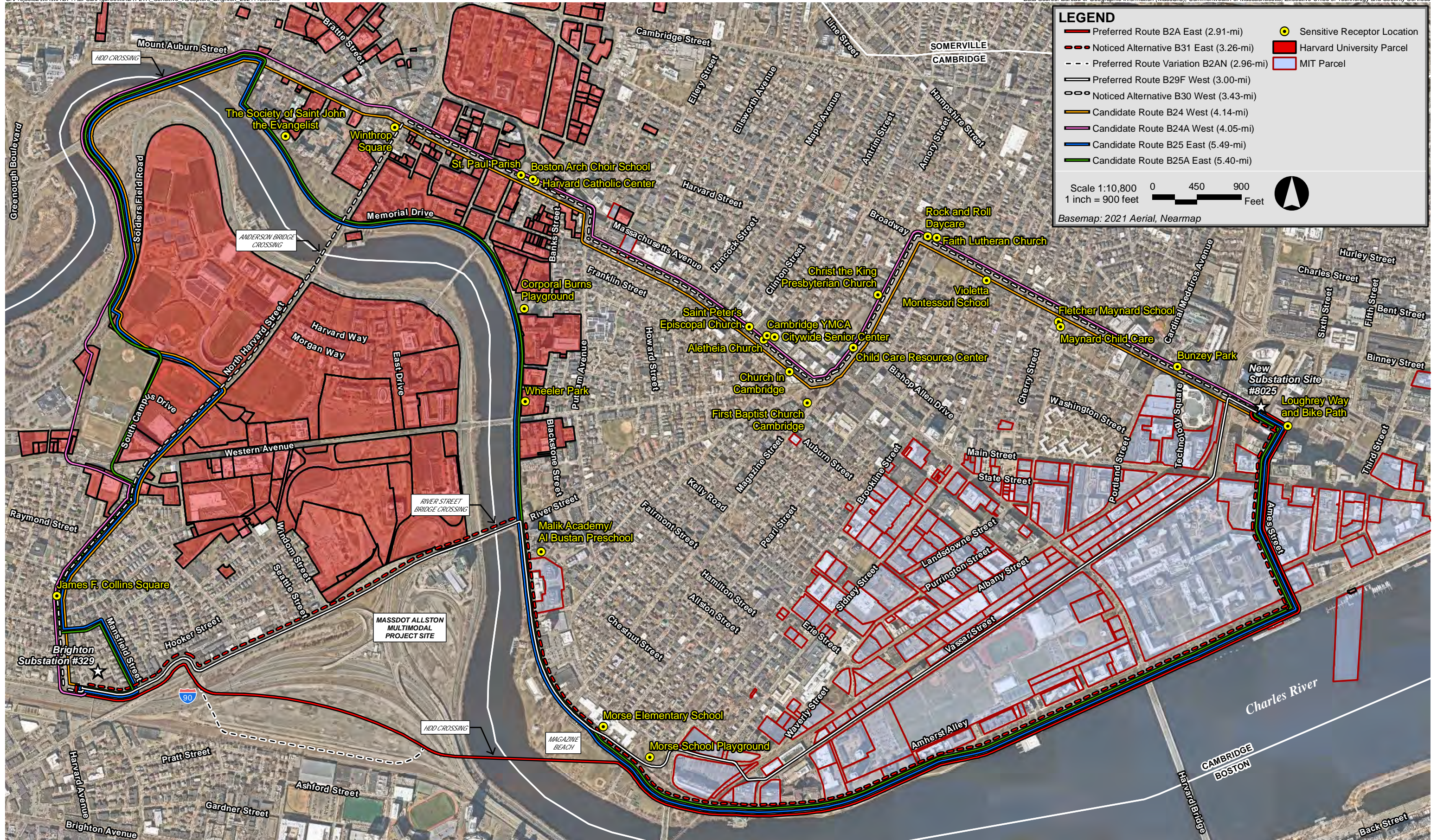
Commercial/Industrial Land Use

Commercial/industrial land uses along each Candidate Route could be subject to the same types of temporary impacts as the criterion above due to Project construction. Commercial/industrial land uses were derived from the number of commercial/industrial units (i.e., businesses) on parcels of land directly abutting each Candidate Route.

The ratio score was calculated by dividing the total number of commercial/industrial units determined for each Candidate Route by the highest number of commercial/industrial units within each respective Study Area among all the Candidate Routes within each individual Study Area.








Transportation Impacts

The potential to cause transportation impacts during construction to pedestrians, bicyclists, motorists, and public transportation, was evaluated for each Candidate Route. The evaluation is based on information obtained from MassGIS, available aerial photography, field reconnaissance, the Project's traffic data collection program and the Company's familiarity and experience with the traffic flow and operations in the general area.



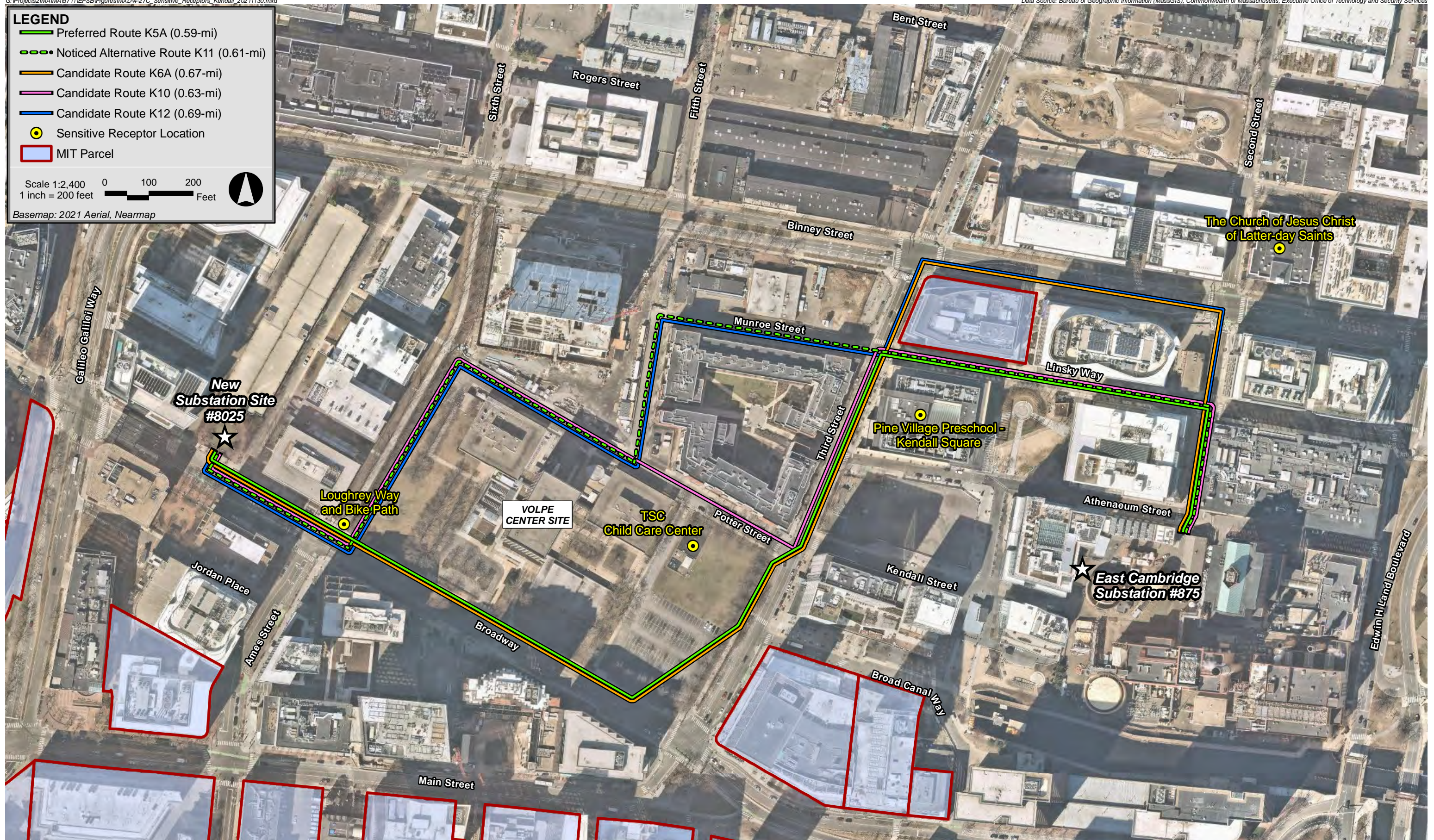


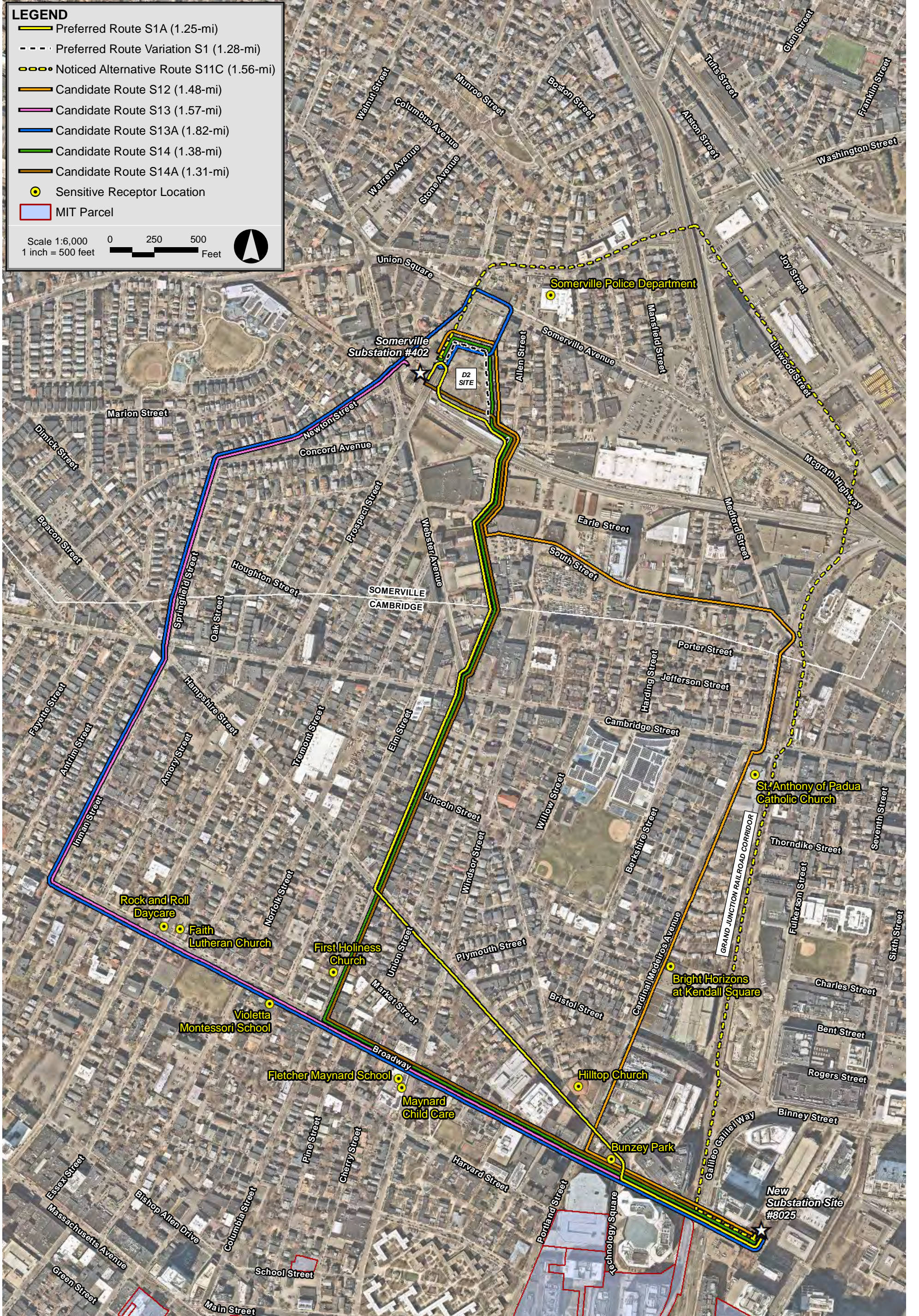
LEGEND

-  Preferred Route K5A (0.59-mi)
-  Noticed Alternative Route K11 (0.61-mi)
-  Candidate Route K6A (0.67-mi)
-  Candidate Route K10 (0.63-mi)
-  Candidate Route K12 (0.69-mi)
-  Sensitive Receptor Location
-  MIT Parcel

Scale 1:2,400
1 inch = 200 feet

Basemap: 2021 Aerial, Nearmap





Transportation impacts can be caused by several factors, some of which can be anticipated and quantified (such as the effect of temporarily reducing travel lanes, eliminating a bus stop or closure of a sidewalk or bicycle lane, and intersection crossings) and some factors that are temporary/unanticipated, such as weather conditions, vehicle crashes, other construction activity/detours in the area, and congestion on adjacent roads that may reroute regional traffic onto other roadways. The analysis conducted by the Company provides a relative comparison of the different routes using factors that are directly attributable to the congestion and impacts that could be caused by transmission line construction. Presenting the review in the form of a relative comparison between routes using only pertinent factors removes the effect of temporary/unanticipated factors from the route selection process.

More specifically, the Company's transportation analysis considered several factors to generate a score for each Candidate Route. Roadway cross-sectional data was gathered through research of available electronic records (MassGIS, public transit maps and aerial imagery) along each route. Elemental data such as roadway classification and jurisdictional responsibilities, number and widths of vehicular and bicycle lanes, pedestrian facilities (sidewalks or pedestrian crossings), on-street parking and public transit routes were gathered. This information was later confirmed or updated through field reconnaissance efforts of the existing conditions along each route. Field reconnaissance efforts included 15-minute "spot" traffic counts (e.g., vehicles, bicycles, and pedestrians) conducted along public roadways for future comparison to actual traffic data collected along each Candidate Route.

The approximate length and available width of each roadway segment of each Candidate Route was then tabulated. A work zone impact score (from 0.5 being the lowest to 3 being the highest) was then calculated based on two factors. The first factor was the available width of the roadway in the segment compared against potential temporary traffic control approaches that could be utilized given roadway width and an assumed work zone width requirement of 16 feet to construct the new transmission line. Then the work zone impact score was adjusted by the second factor, which is according to the traffic volume that would potentially be affected. The higher the volume, the larger the number of roadway users affected, which translates to a higher work zone score. The calculated work zone impact score was then multiplied by the length of the route segment to determine the segment's affected length. Additional affected length or "sub-impacts" for each segment were then added to this figure to account for more complex and time-consuming construction work across intersections, bicycle lanes and pedestrian facilities. The total impact length for each segment is the combination of these two values. The route's total impact length is the sum of the total impact lengths for each route segment. The route's total impact length is then divided by the proposed total length of the Candidate Route to produce a total transportation score for each route. The total transportation score represents an impact factor for construction along a Candidate Route. The impact factor for each Candidate Route can then be compared to assess relative severity of the Candidate Routes to one another. A high total transportation score means a greater potential for impacts to all modes of transportation during construction when compared to a lower score.

Lastly, a ratio score was calculated by dividing the total transportation score determined for each Candidate Route within each respective Study Area by the highest transportation score found among all the Candidate Routes within each individual Study Area.

Please refer to Appendix 4-3 for additional detail.

Historical and Archaeological Resources

Historic and archeological resources could also be affected by temporary construction impacts such as access and traffic disruption, earth movement, restricted access noise and dust. Identification of historic resources involved a search of MHC records to locate resources including local and state listed historic structures, local historic districts and individual National Register-listed structures and districts. Historic resources were evaluated using GIS data from MHC's Massachusetts Cultural Resource Information System ("MACRIS"), which catalogs federal, state, and local historic resources.

The ratio score was calculated by dividing the total number of historic and archaeological resources determined for each Candidate Route within each respective Study Area by the highest number of historic and archaeological resources found among all the Candidate Routes within each individual Study Area.

The historic resources included in the scoring analysis are depicted on Figure 4-28A through D.⁸³

Potential to Encounter Subsurface Contamination

Trench excavation in urban areas poses a potential to encounter polluted or contaminated soil and groundwater that could affect worker safety and may require special soil and groundwater management and disposal procedures under federal and state regulations. Releases of oil and/or hazardous material to the environment are required to be reported to the Massachusetts Department of Environmental Protection's ("MassDEP") Bureau of Waste Site Cleanup in accordance with M.G.L. Chapter 21E and procedures established in the Massachusetts Contingency Plan ("MCP") (310 CMR 40.0000). MassDEP categorizes Oil or Hazardous Material ("OHM") sites based on the level of contamination present and the level of remediation completed. Eversource's route evaluation considered several groups of OHM sites that may have the potential to affect the Project based on their status.

An online search of the MassDEP Waste Site List in combination with a review of MassGIS databases was performed to determine the potential for each Candidate Route to encounter subsurface contamination from historical releases, historic fill placement or former land use. The

⁸³ Note that archaeological resources are considered confidential information by MHC and are not specifically identified on this graphic.

LEGEND

- Preferred Route P13 (0.49-mi)
- Noticed Alternative Route P11 (0.87-mi)
- Candidate Route P12 (1.44-mi)

MACRIS Data, MHC

- National Register Property
- Inventory Property
- National Register District
- Local Historic District






Scale 1:6,000
1 inch = 500 feet

0 250 500 Feet





Basemap: 2021 Aerial, Nearmap



LEGEND

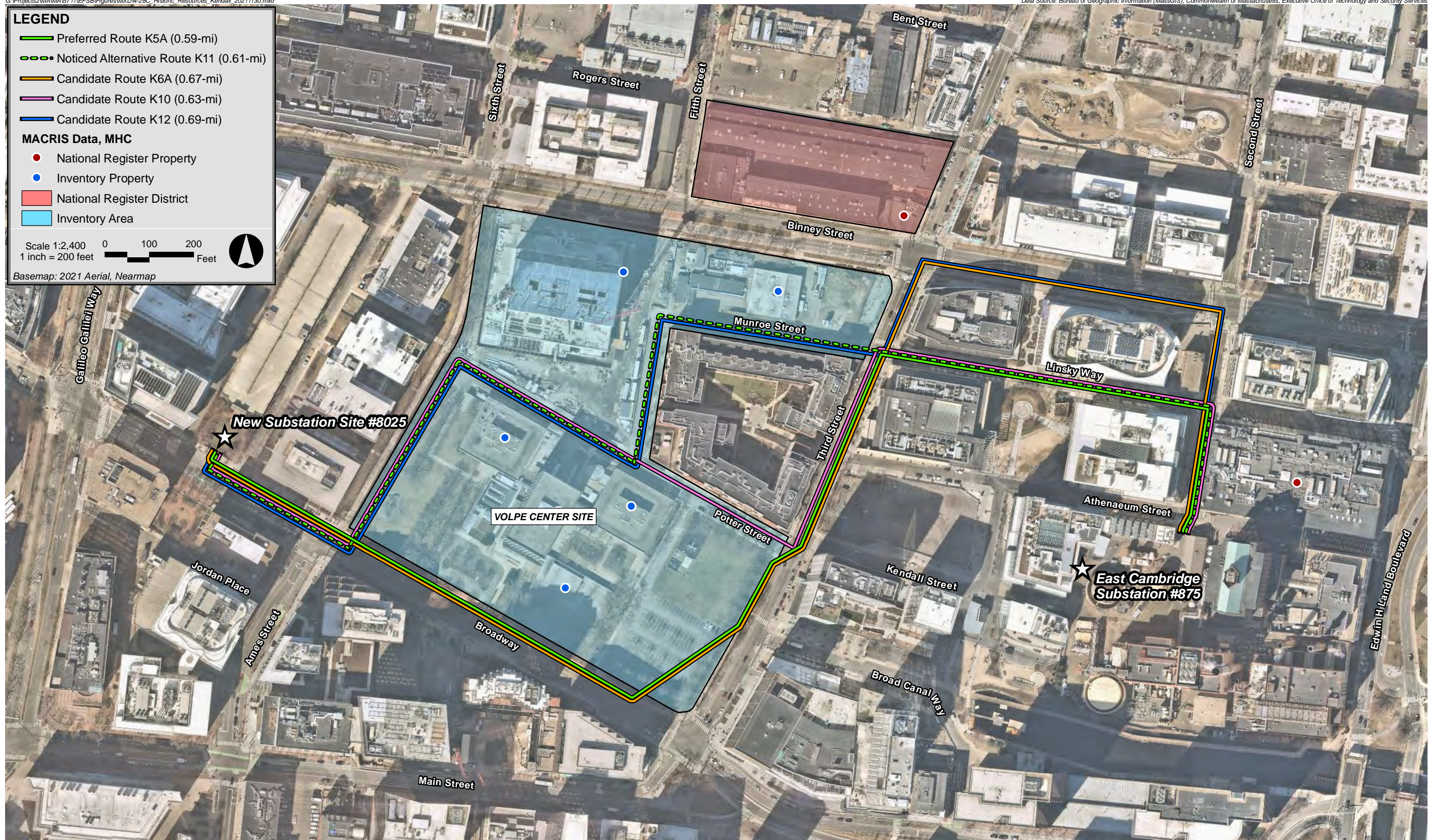
-  Preferred Route K5A (0.59-mi)
-  Noticed Alternative Route K11 (0.61-mi)
-  Candidate Route K6A (0.67-mi)
-  Candidate Route K10 (0.63-mi)
-  Candidate Route K12 (0.69-mi)

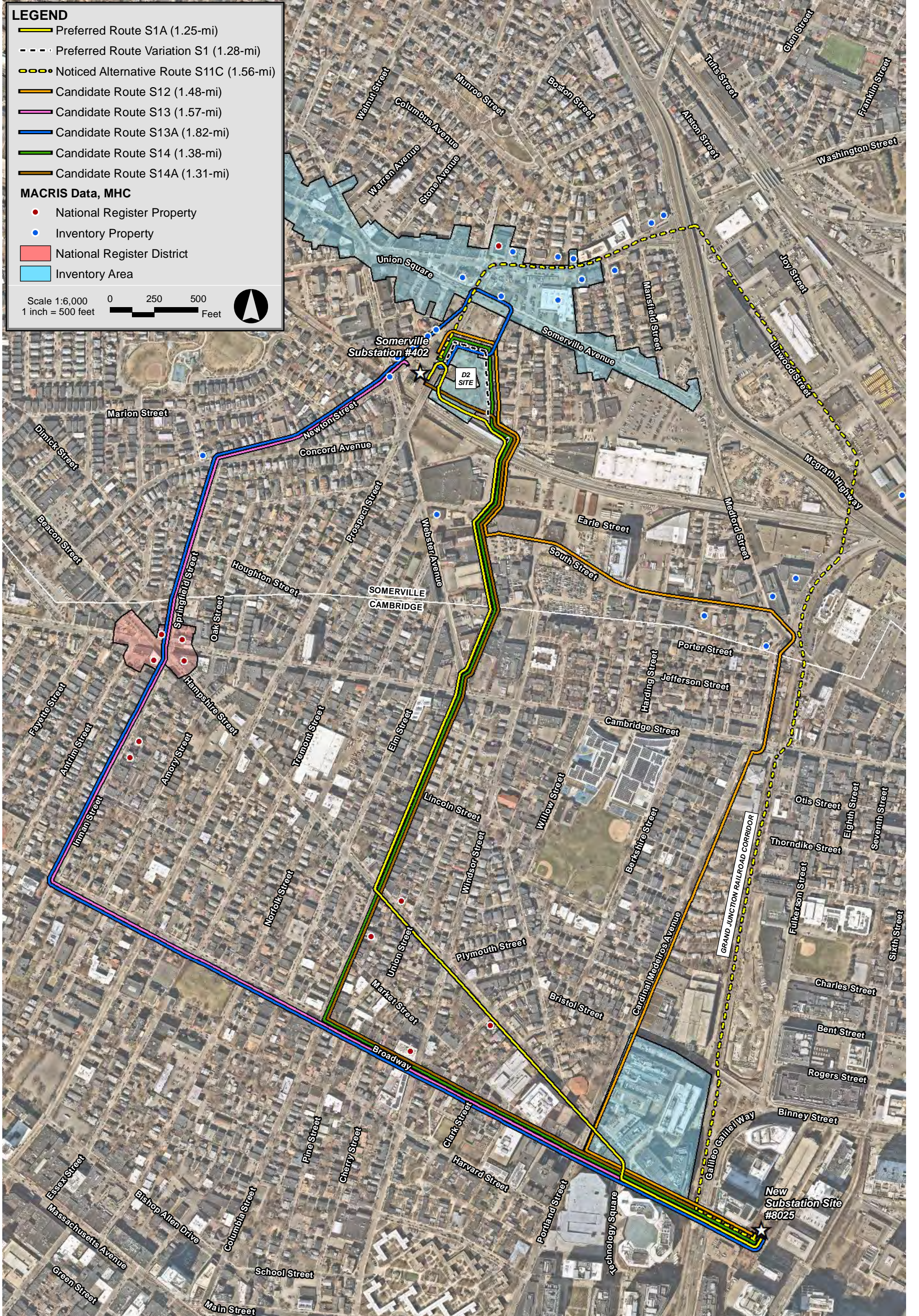
MACRIS Data, MHC

-  National Register Property
-  Inventory Property
-  National Register District
-  Inventory Area

Scale 1:2,400
1 inch = 200 feet

Basemap: 2021 Aerial, Nearmap



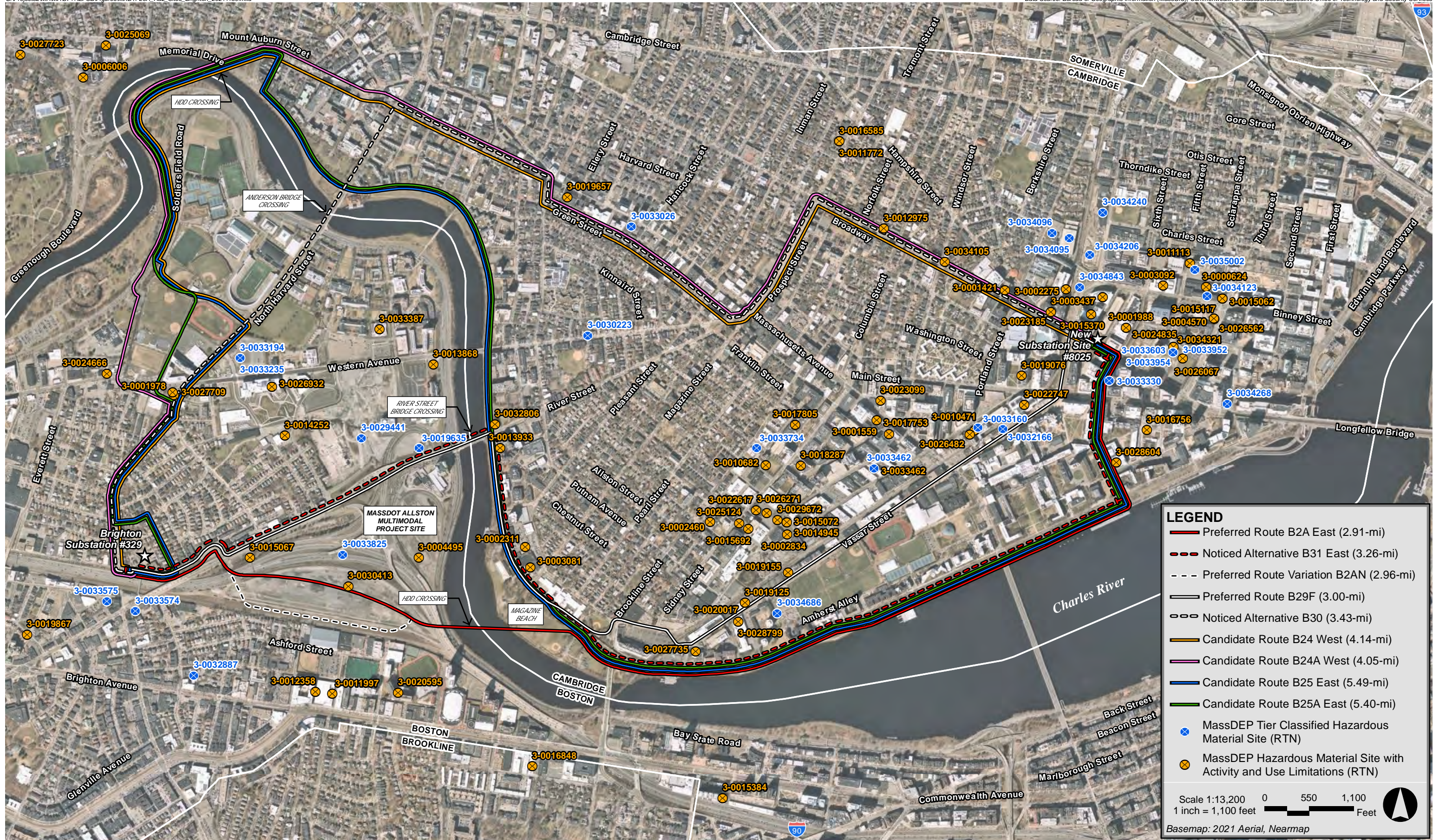


MassDEP online database was used to collect information on listed MassDEP sites within 500-feet of the Candidate Routes with a release tracking number (“RTN”). Sites evaluated in the search include active Tier Classified “Tier I” and “Tier II” sites, including Activity and Use Limitation (“AUL”) sites, which are contaminated sites that have been remediated to some extent and are considered “closed” with ongoing maintenance conditions, Utility-related Abatement Measure (“URAM”) sites and Class C temporary solution sites. These types of listed sites are further defined as follows:

- ◆ *Tier I:* Any disposal site which meets the criteria under 310 CMR 40.0520(2) at the time of Tier Classification.
- ◆ *Tier II:* Any disposal site which meets the criteria under 310 CMR 40.0520(4) at the time of Tier Classification.
- ◆ *AUL:* The MassDEP OHM sites with AUL data layer is a statewide point dataset containing the approximate location of OHM sites where an AUL has been filed. An AUL provides notice of the presence of oil and/or hazardous material contamination remaining at the location after a cleanup has been conducted pursuant to Chapter 21E and the MCP. The AUL identifies activities and uses of the property that may and may not occur, as well as the property owner’s obligation and maintenance conditions that must be followed to ensure the safe use of the property. Location types featured in this data layer include the approximate center of an AUL site, the center of a building on the property where the release occurred, the approximate center of the lot and original source of contamination.
- ◆ *Temporary Solution Sites:* These are sites where there has been a temporary cleanup. Although the site does not present a “substantial hazard,” as defined in the regulation, it has not reached a level of no significant risk. The site must be evaluated every five years to determine whether a permanent solution is possible.
- ◆ *URAM:* Sites subject to utility related abatement measures.

As noted above, each Candidate Route was assessed regarding the number of the listed sites located on property parcels within 500-feet of the Candidate Routes. A ratio score was calculated for each Candidate Route based on the total number of listed sites determined for each Candidate Route within each respective Study Area divided by the highest number of listed sites found along all the Candidate Routes within each individual Study Area.

The referenced sites included in the scoring analysis are depicted on Figure 4-29A through D.



Greater Cambridge Energy Program



Figure 4-29A

MassDEP Tier Classified Oil and/or Hazardous Material Sites, and Sites with Activity and Use Limitations: Brighton Candidate Routes

LEGEND

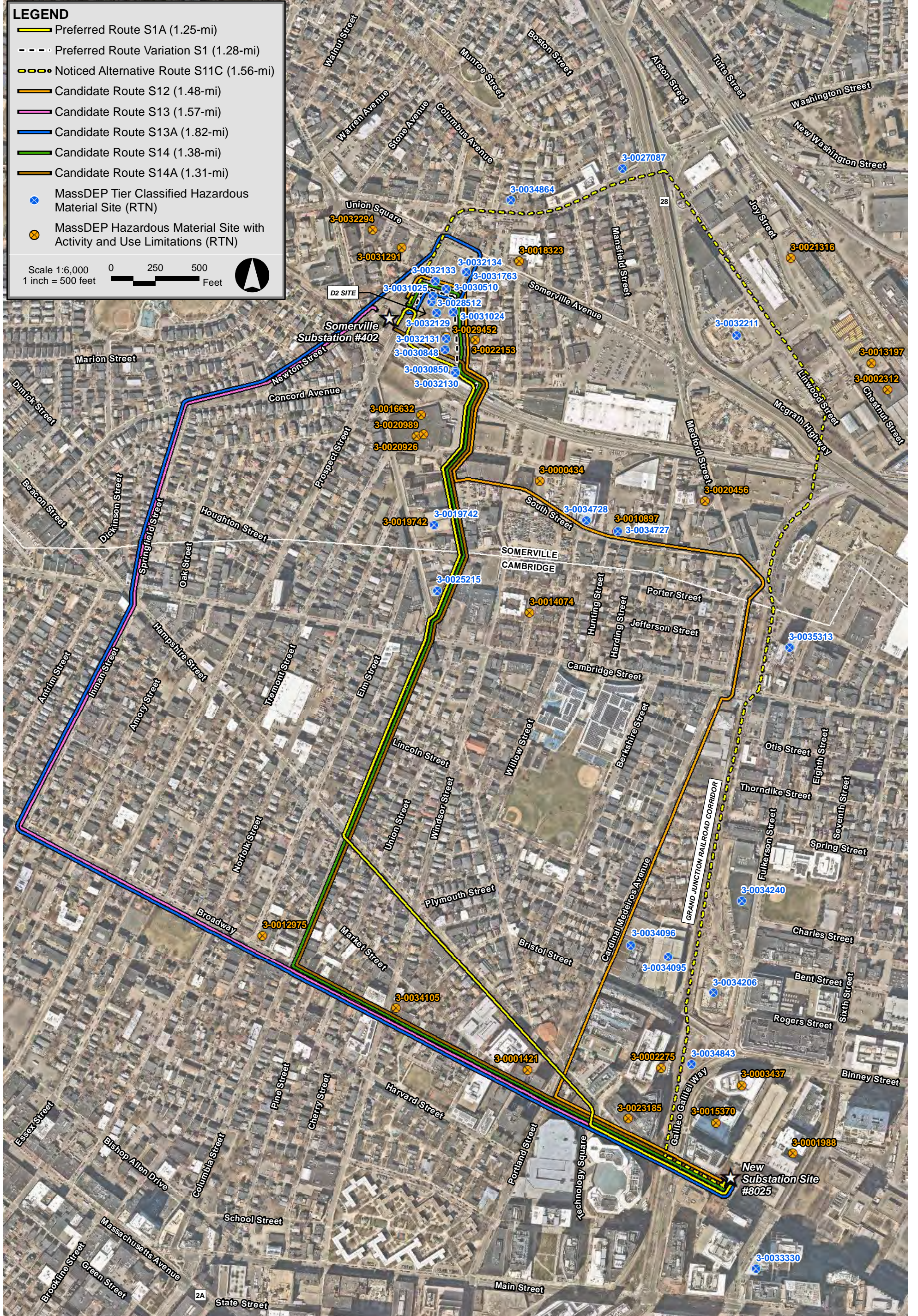
- Preferred Route P13 (0.49-mi)
- Noticed Alternative Route P11 (0.87-mi)
- Candidate Route P12 (1.44-mi)
- MassDEP Tier Classified Hazardous Material Site (RTN)
- MassDEP Hazardous Material Site with Activity and Use Limitations (RTN)

Scale 1:9,600
1 inch = 800 feet

Basemap: 2021 Aerial, Nearmap







4.6.1.2 Natural Environment Criteria

Natural environment criteria compare existing conditions of, and potential impacts to, the natural environment. The natural environment criteria included in the scoring analysis are:

- ◆ Wetland Resource Areas, Buffer Zones and Tidelands,
- ◆ Article 97 Authorization, and
- ◆ Public Shade Trees.

Rare species habitat was not included as a natural environment routing criterion because no portion of the Project Area is in mapped Estimated Habitat or Priority Habitat for state-listed species.⁸⁴

Wetland Resource Areas, Buffer Zones and Tidelands

The evaluation of wetland resources identified in the Study Area includes those primarily associated with the Charles River including Riverfront Area, Inland Bank, Bordering Vegetated Wetlands, Bordering Land Subject to Flooding (100-year floodplain), 100-foot Buffer Zone and jurisdictional tidelands regulated under Chapter 91.

The jurisdictional resource areas were identified using a combination of field delineation, MassGIS data layers and ArcGIS. The ratio score was calculated by dividing the total combined length of jurisdictional areas crossed by each Candidate Route within each respective Study Area by the longest total combined length among all the Candidate Routes within each individual Study Area.

Wetland resource areas, buffer zones and tideland areas included in the scoring analysis are depicted on Figure 4-30A through D.

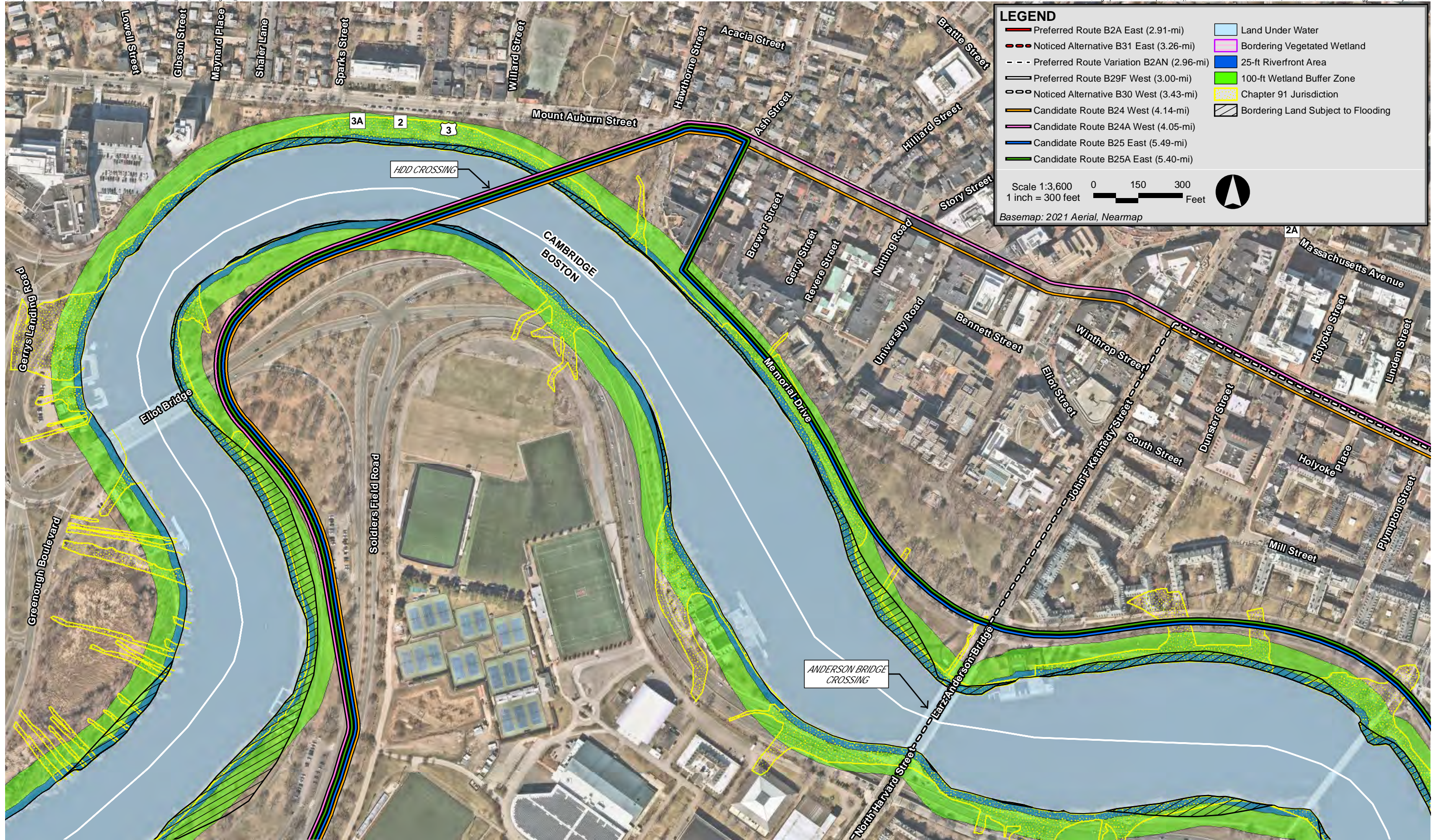
Article 97 Authorization

Article 97 requires, in part, that certain land or easements taken or acquired for natural resource purposes shall not be used for other purposes unless the Massachusetts Legislature approves the change by a two-thirds vote.

The ratio score for this criterion was calculated by dividing the total length of route segments requiring Article 97 approval to construct and operate the transmission line along each Candidate Route within each individual Study Area by the greatest total length among all the Candidate Routes within each individual Study Area.

Article 97 parcels included in the scoring analysis are identified on Figure 4-31A through D.

⁸⁴ See <https://www.mass.gov/service-details/regulatory-maps-priority-estimated-habitats>.



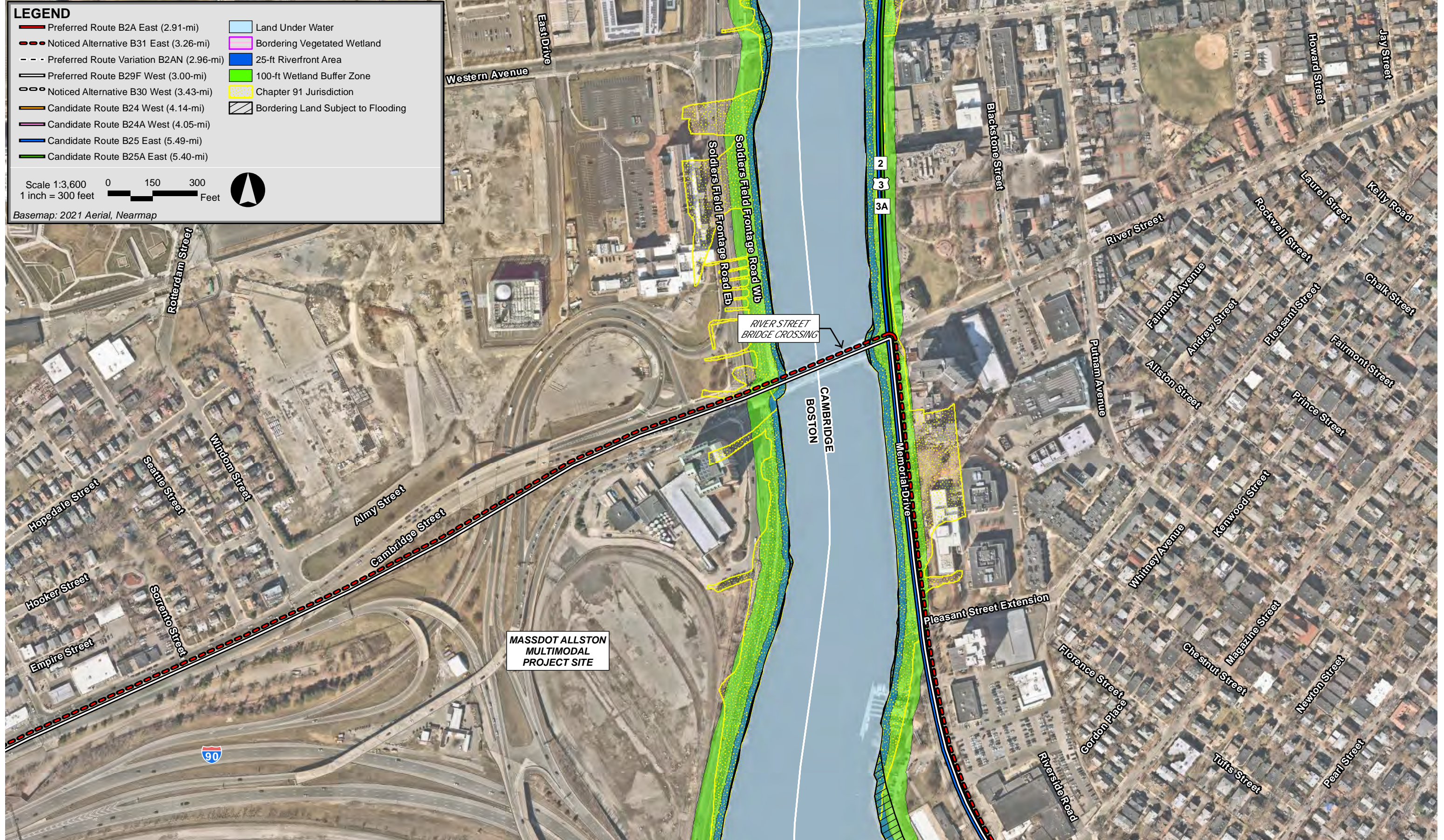


Greater Cambridge Energy Program



Figure 4-30A.2

Wetland Resource Areas, Buffer Zones, and Chapter 91 Tidelands: Brighton Candidate Routes







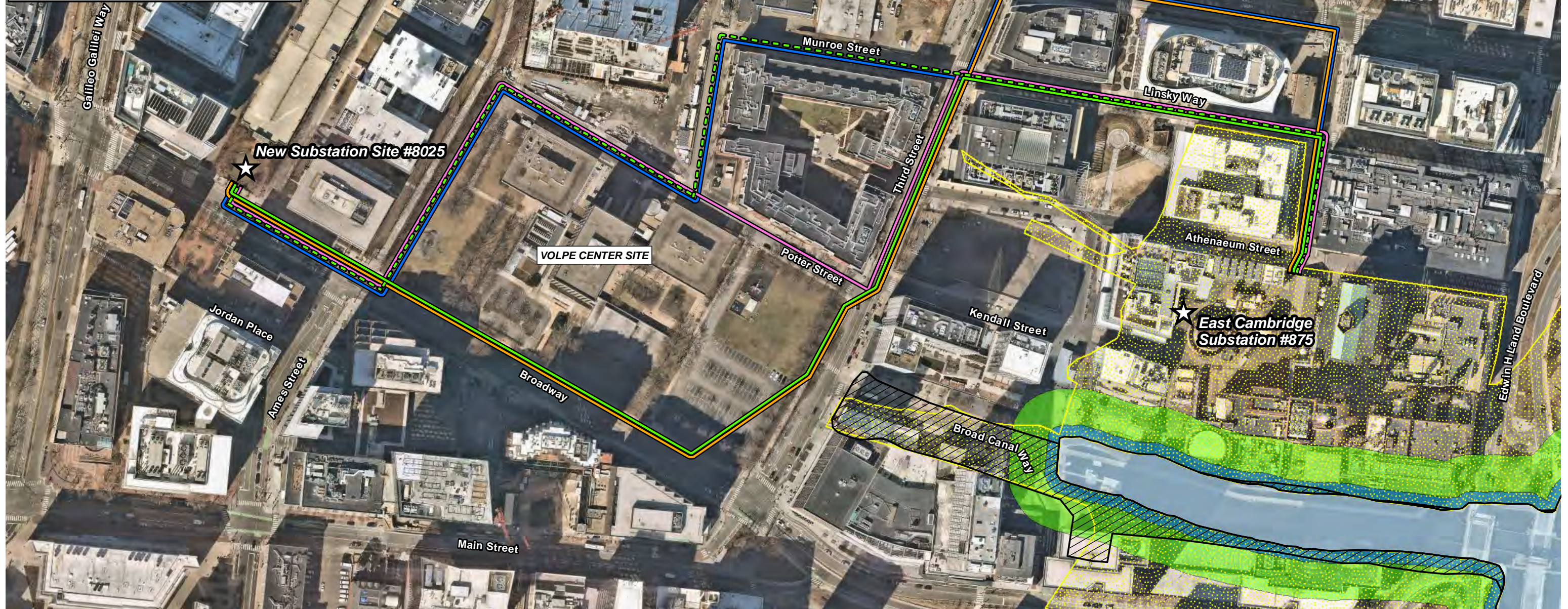


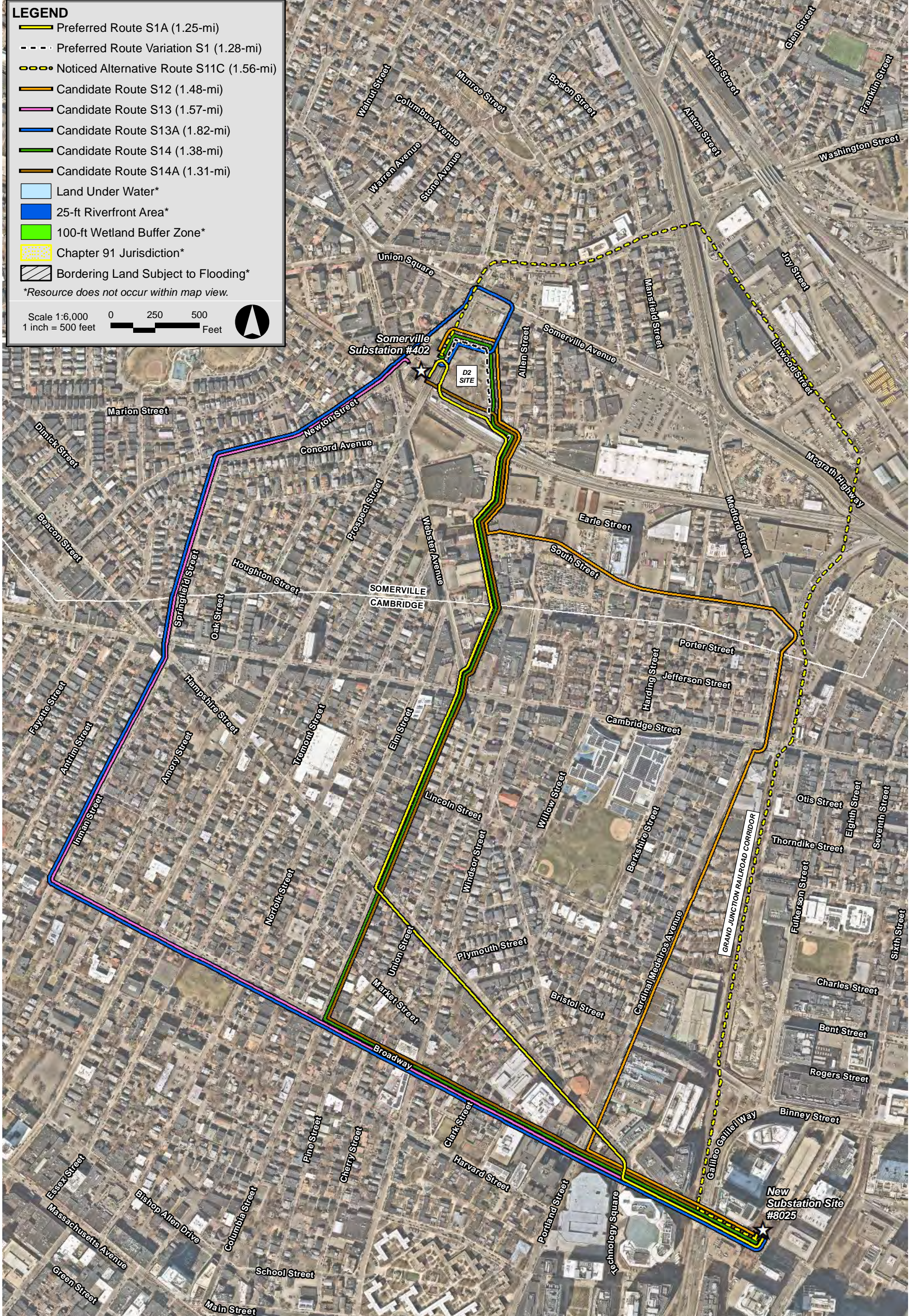
LEGEND

- Preferred Route K5A (0.59-mi)
- - - Noticed Alternative Route K11 (0.61-mi)
- Candidate Route K6A (0.67-mi)
- Candidate Route K10 (0.63-mi)
- Candidate Route K12 (0.69-mi)
- Land Under Water
- 25-ft Riverfront Area
- 100-ft Wetland Buffer Zone
- Chapter 91 Jurisdiction
- Bordering Land Subject to Flooding

Scale 1:2,400 0 100 200
1 inch = 200 feet

Basemap: 2021 Aerial, Nearmap







LEGEND

- Preferred Route B2A East (2.91-mi)
- - - Noticed Alternative B31 East (3.26-mi)
- - - Preferred Route Variation B2AN (2.96-mi)
- Preferred Route B29F West (3.00-mi)
- - - Noticed Alternative B30 West (3.43-mi)
- Candidate Route B24 West (4.14-mi)
- Candidate Route B24A West (4.05-mi)
- Candidate Route B25 East (5.49-mi)
- Candidate Route B25A East (5.40-mi)
- Article 97 Lands

Scale 1:10,800
1 inch = 900 feet

0 450 900 Feet

Basemap: 2021 Aerial, Nearmap

LEGEND

- Preferred Route P13 (0.49-mi)
- - - Noticed Alternative Route P11 (0.87-mi)
- Candidate Route P12 (1.44-mi)
- Article 97 Lands

Scale 1:6,000
1 inch = 500 feet



Basemap: 2021 Aerial, Nearmap

