West Roxbury to Needham Reliability Project

Needham Board of Selectmen
Public Meeting

October 4, 2016

Agenda

- Introductions
- Overview
- Review of Project Need
- Review of Project Alternatives
- Review of Route Selection Process
- Review of EMF Analysis
- Review of Construction Management Plans
- Framework for Host Community Agreement

Overview

- The Project proposes, in part, to take an ~2.6 mile segment of existing overhead transmission line that runs through the center of Needham on existing ROW and bury it in a concrete duct bank predominantly beneath public roads.

- The overhead line that was relocated to an underground line will be completely removed (along with its support arms) from the existing transmission line structures from the Valley Road area to the Needham Substation leaving one overhead circuit in place instead of two along this stretch.

Overview

- Eversource has been working diligently and in close partnership with the Town for many months now to avoid impacts to the maximum extent practicable to the densely developed residential neighborhoods bordering the transmission line ROW west of the Valley Road area and the overall Town in general.

- From the inception of the Project, the Town of Needham has been clear in its direction to Eversource that it would not support a new overhead transmission line installed on the existing transmission line ROW west of the Valley Road area.

- To address the Town's specific concerns, and in direct consultation with the Town, Eversource proposes to exit the existing transmission ROW with the proposed transmission line prior to reaching the residential neighborhoods beginning at Valley Road; and then transitioning to underground transmission line construction across the municipal gravel pit parcel and then primarily on municipal streets for the balance of the route to the Needham Substation.

- There are numerous examples of underground transmission lines throughout the Project area.

West Roxbury to Needham Reliability Project
Locations of Other UG Transmission Lines in Vicinity of Project

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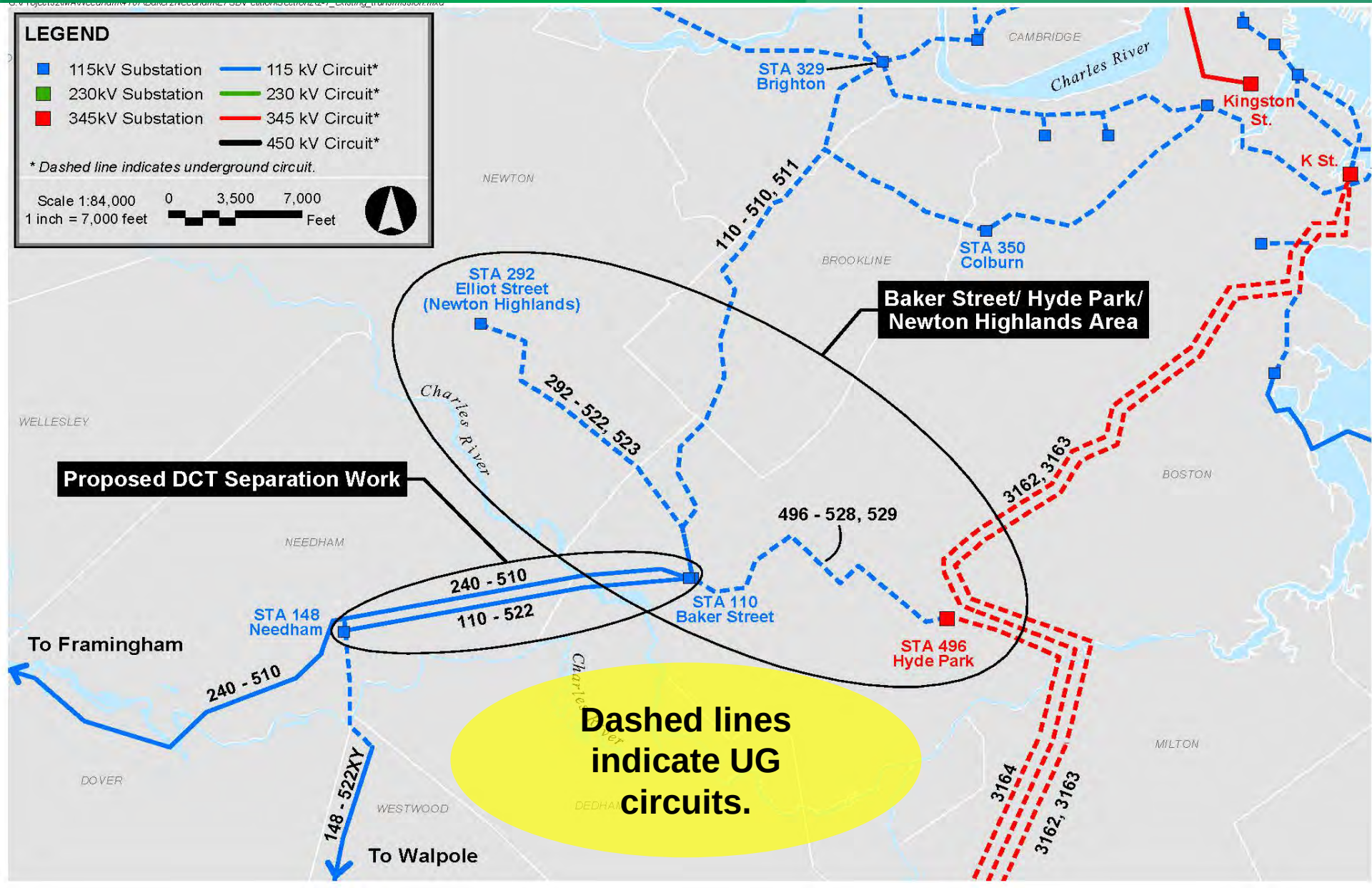

Special Town Meeting Warrant Article

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- Crossing the municipal gravel pit parcel requires an easement from the Town.

- The Warrant Article as drafted does not grant Eversource an easement. The Warrant Article merely authorizes the Parks and Recreation Commission to enter into an agreement with Eversource contingent upon a negotiated easement acquisition cost and acceptable Host Community Agreement developed for the overall Project in consultation with the Board of Selectmen and other Town Officials.

- A successful Warrant Article vote would enable Town Officials and Eversource to continue working in close partnership to advance a transmission line route that minimizes impacts to the residents of Needham to the maximum extent practicable while meeting Siting Board criteria and town standards.

- If the opportunity to secure an easement across the gravel pit parcel is not secured at the October 5 Special Town Meeting, Eversource must re-analyze the feasibility of locating the transmission line on all or a portion of the existing ROW from the Valley Road area to Needham Substation in a manner that is not dependent on Town Meeting approval.

Greater Boston Regional Need

Why is the project needed and how is need determined?

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- Federal and regional electric system planning criteria require that electric transmission systems are able to reliably deliver power to the region under a number of different emergency operating conditions including but not limited to outages of one (N-1) or two (N-1-1) key transmission system elements in the system.

- The electric transmission system serving the Greater Boston area does not currently meet both thermal and voltage planning criteria, putting the reliability of the system at risk even at today's electrical demand levels.

- In February 2015, ISO-New England, the independent system operator for New England determined, through its stakeholder process, that the preferred solution for the Greater Boston area was to put forward a suite of projects (referred to as "the Greater Boston Projects") and which included the West Roxbury to Needham Reliability Project.

Greater Boston Regional Need
Why is the project needed and how is need determined?

- An “N-1-1 contingency” resulting in the loss of two or more elements including the loss of the double circuit tower (DCT) 115-kV lines between W. Roxbury and Needham results in an overload situation of underground lines located elsewhere in the system.

- If such an overload scenario were to occur, the Company’s load at risk would be potentially as many as 24,000 customers in the immediate Project area and potentially up to 65,000 in the western Boston suburbs.

Project Alternatives Considered

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- **No Build Alternative:** This alternative was rejected as it would not satisfy the identified need and is therefore not an option.

- **Non-Transmission Alternatives** (including, but not limited to, solar, wind, fuel cells energy efficiency and demand response programs). These alternatives were rejected as none of these alternatives, either singularly or collectively could fully address the needs at a competitive cost.

  Transmission Alternatives: The transmission alternative to the proposed project involved 11 miles of re-conductoring existing 115-kV lines, replacement of station equipment, transfer of load which involved the construction of new distribution circuits at nearly twice the cost (~$70 million versus ~$37.6 million for the proposed Project). This alternative was rejected because of the significantly higher project cost.

Route Selection Process

- Having determined the terminal points for the new transmission facility, Eversource sought to identify the route that would connect these locations, minimize environmental effects and Provide the necessary facilities at the lowest cost to consumers.

- Applying the route evaluation criteria, Eversource identified and investigated potential overhead and underground routes for the transmission facility.

- These routing options were then screened for feasibility based on environmental, engineering, property impact and economic factors.

- Feasible routes were then more closely evaluated through a scoring process.

- This scoring determined the top two options which became the Preferred and Noticed Alternative solutions.

What We Consider When Selecting a Transmission Line Route

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- **Reliability Benefits/System Operability**
- **Environmental Impacts, including:**
  - Wetlands
  - Endangered species
  - Cultural and/or historical resources
- **Community Impacts, including:**
  - Existing vs. acquisition of easement rights
  - Impacts to residential and business community
  - Existing land uses
  - Municipal feedback
- **Cost, including:**
  - Underground vs. Overhead
  - Length of line
  - Regionalized or localized cost recovery
- **Constructability, including:**
  - Existing right-of-way; other options
  - Water crossings
- **Schedule to meet identified reliability need**

West Roxbury to Needham Reliability Project
Universe of Routes (28 potential combinations)

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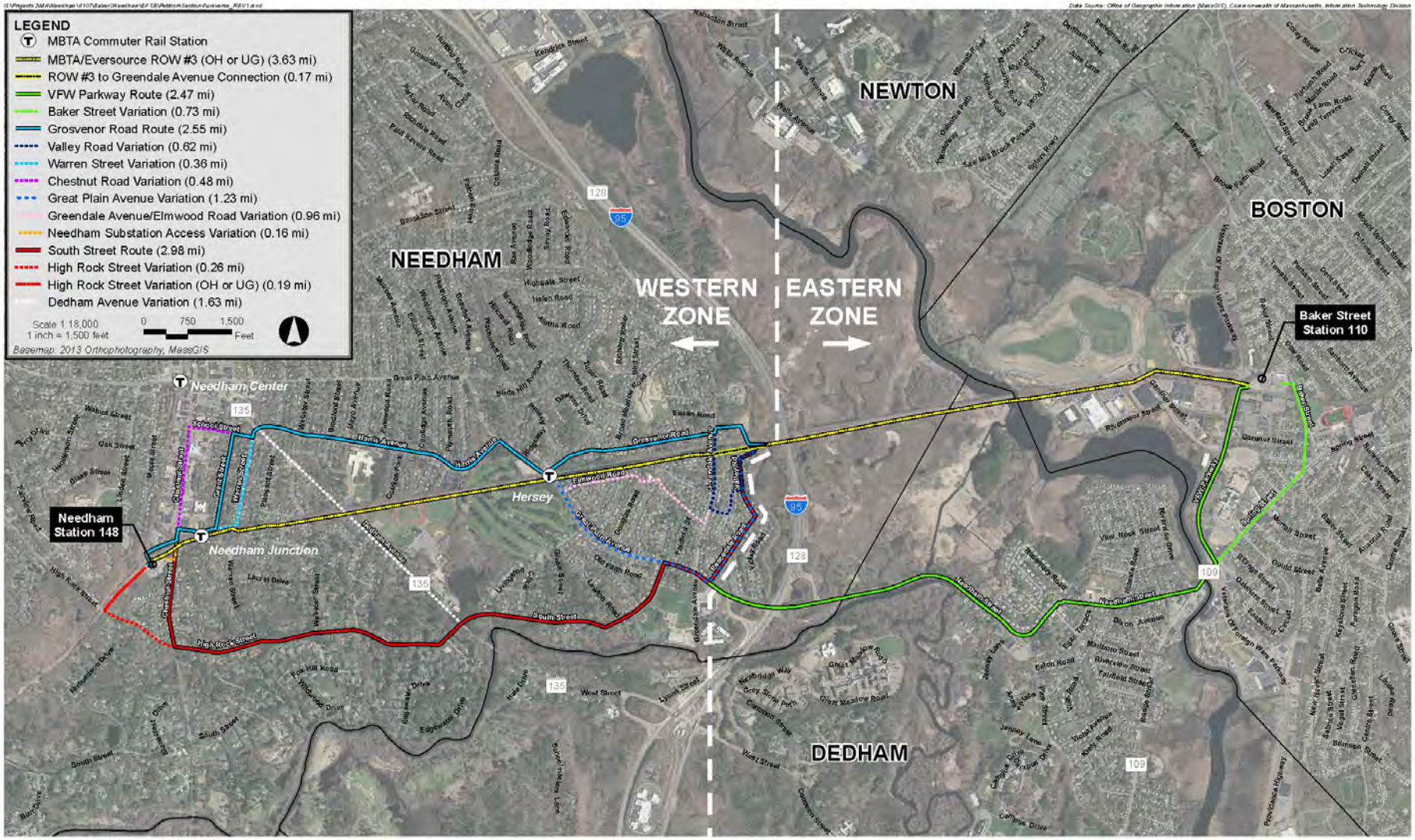

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Figure 4-2
Universe of Routes

West Roxbury to Needham Reliability Project
Candidate Routes (20 routes were scored)

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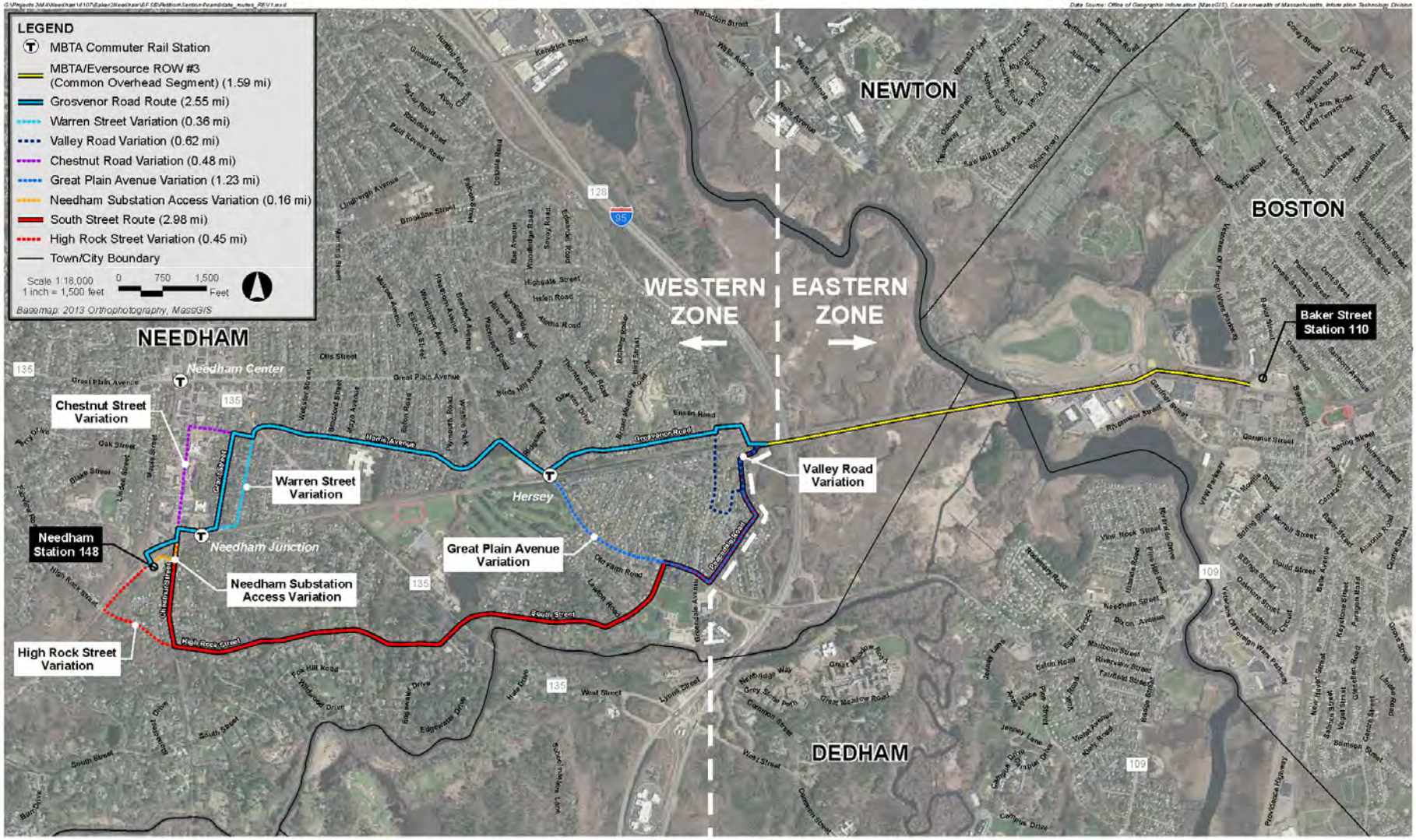

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Figure 4-3
Candidate Routes

West Roxbury to Needham Reliability Project
Preferred and Noticed Alternative Route

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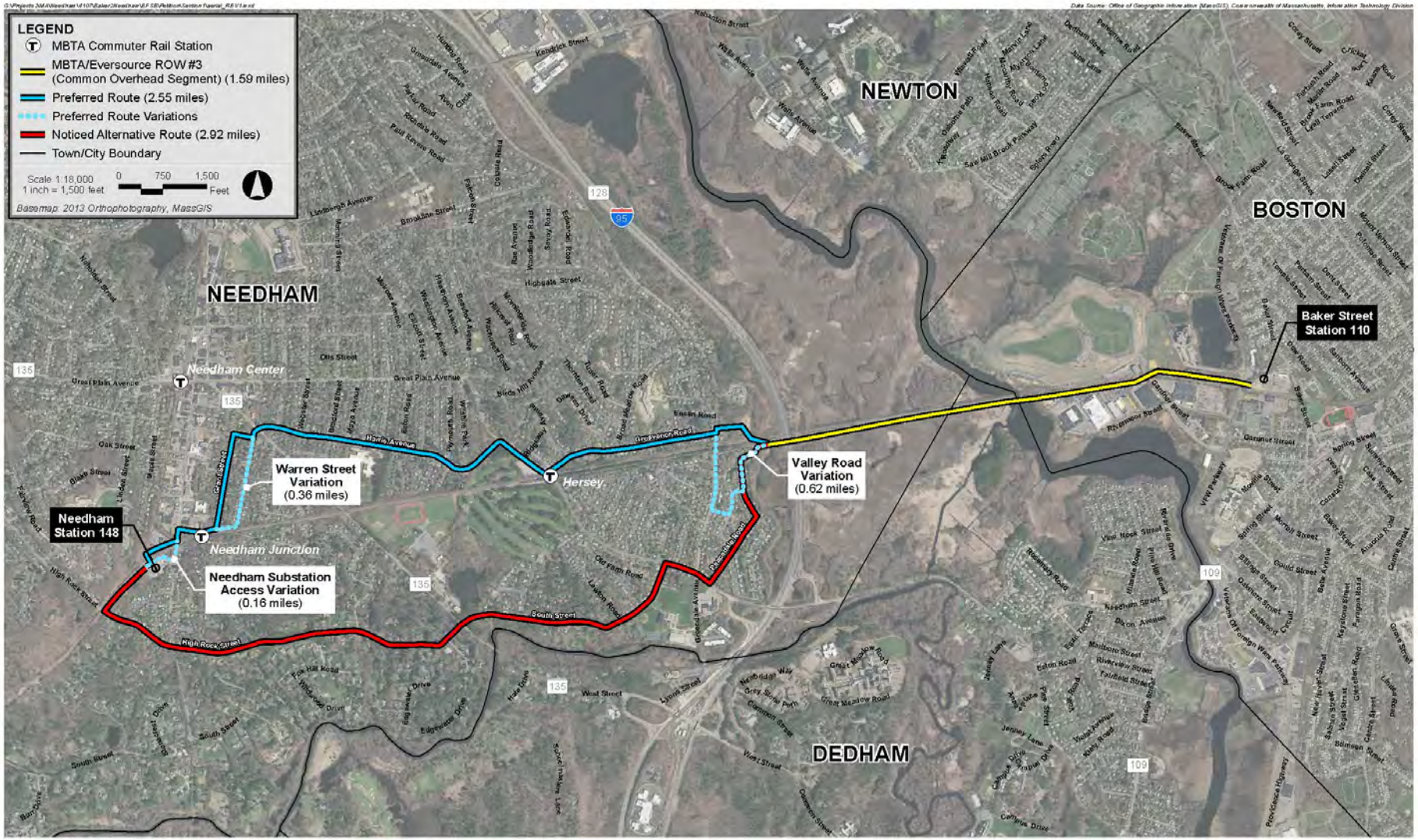

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Figure 1-2
Aerial Locus Map

Easement Over Gravel Pit Parcel

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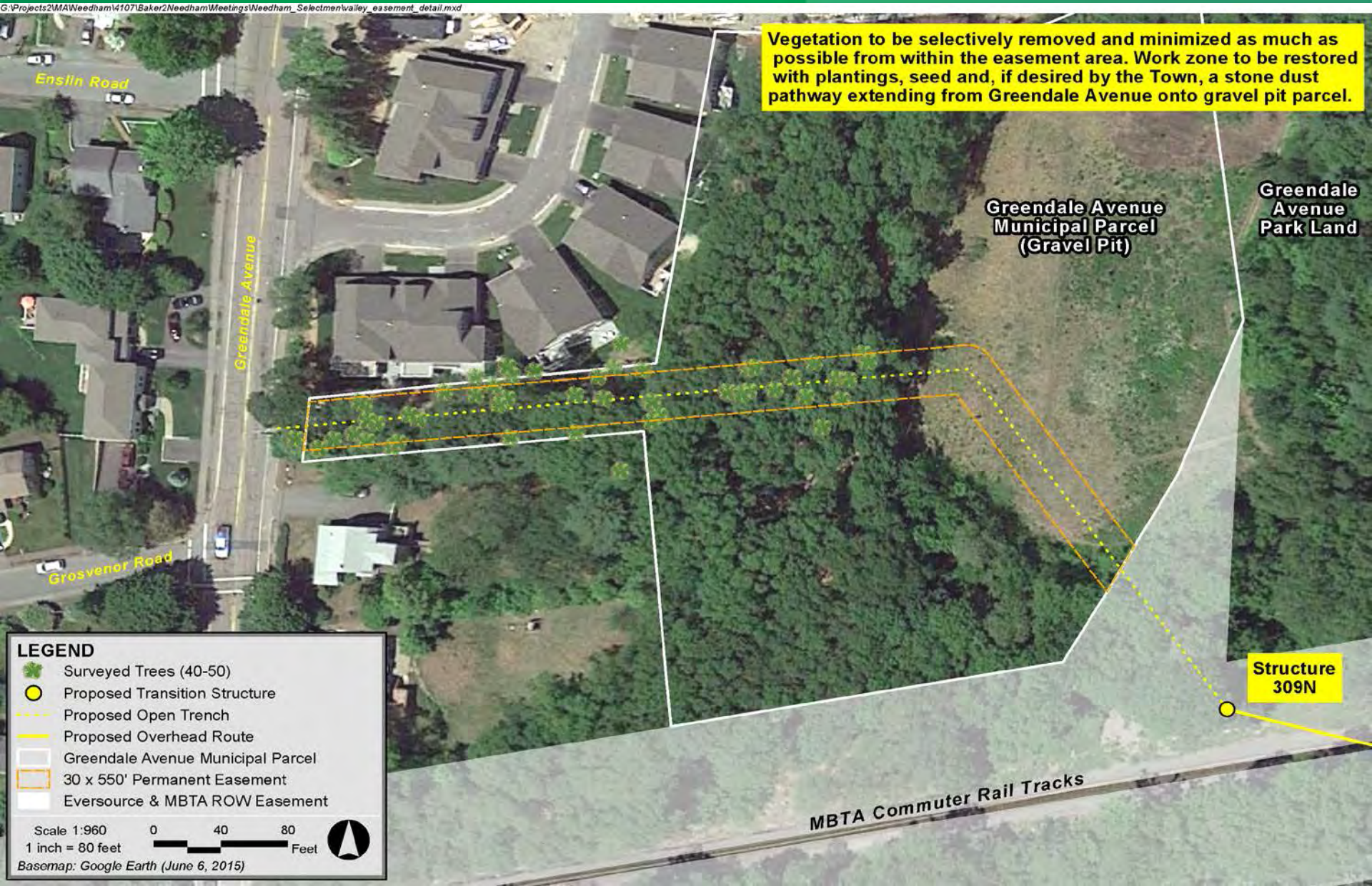

Overhead to Underground Transition Point at Valley Road (Review of Potential Tree Clearing & Restoration Work)

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- Tree removal will be minimized as much as possible within the proposed easement area to minimize alterations to the parcel of land. The work zone will be restored with plantings (shrubs, shallow rooted species), seed and, if desired by the Town, a stone dust pathway extending from Greendale Avenue onto the gravel pit parcel.

- In consultation with Town Officials, Eversource will also consider installing replacement tree species elsewhere on the gravel pit parcel near the limit of work to mitigate direct impacts from tree removal.

Properties of EMF

- EMF (electric and magnetic fields) are present wherever electricity is used.
- All of us come into daily, if not constant, contact with power frequency EMF from sources in our homes, place of work, etc. Common sources are household appliances, building wiring, machinery, and distribution lines.
- EMF from some of these sources can be much stronger than what might be associated with a transmission line. This is, in part, due to the distance between an individual and the source of the field (the conductor) which is high above the ground (for overhead) or some distance below the ground (with an underground design).
- EMF drops off rapidly with distance from any source.
- National and international independent health and scientific organizations and governmental bodies that have reviewed the 30+ years of scientific research regarding EMF and health have reached similar consensus opinions that there remains only weak and inconsistent evidence linking power frequency EMF with any health risk**.**

EMF Findings

- Gradient conducted a comprehensive EMF assessment for the Project.

- Both current and projected Project (both overhead and underground) EMF values were found to be well below the ICNIRP health-based guidelines for the continuous public exposure to EMF (4.2kV/m and 2,000mG).

- Moreover, the project will result in a reduction in the EMF values in the ROW between Valley Road and Needham Substation due to the elimination of one of the current overhead circuits from the ROW.

EMF Findings (continued)

- For the underground lines, magnetic fields were demonstrated to drop off very rapidly with distance as you move away from the conductors.

- For someone driving, walking, or biking over the proposed underground lines, any transient magnetic field exposures will be less than transient exposures that occur from using common household appliances like can openers, vacuum cleaners, microwaves, blenders, hair dryers, and portable heaters.

- The proposed Project will not result in EMF levels that are atypical or inconsistent with any similar technology in use or approved to be constructed elsewhere, including in other states.

Construction Management Plans

- Eversource will develop a Construction Management Plan, in consultation with the Town, that includes:
  - Hours of operation and sequencing of work in commercial / residential areas / near schools, etc.
  - Detailed traffic management plans;
  - Re-paving requirements. Roadway surfaces will be restored to a condition as good as or better than the pre-construction condition, to meet the standards of the state agencies including the DPU's Repaving Standards and municipal standards;
  - Communication protocols with public officials, businesses, public safety personnel and residents.

Host Community Agreement

- Eversource will continue to work closely and cooperatively with Town Officials as the design of the project is advanced with the specific goal of minimizing impacts to the residents of Needham during construction and will develop an acceptable Host Community Agreement (HCA).

- At a minimum, the HCA would discuss the following topics:
  - Construction staging and equipment/material storage;
  - Grants of Location(s);
  - Construction Permitting;
  - Restoration Measures;
  - Work Hours;
  - Traffic Control;
  - Noise; and
  - Community Outreach.

Contact Information

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