

# Sudbury to Hudson Transmission Reliability Project

**Town of Hudson Board of Selectmen**

**Hudson High School**

**November 14, 2016**



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# Greater Boston Solution to Address Identified System Reliability Needs

- A strong electrical transmission grid is vital to the safety, security and economic prosperity of the region. The transmission system serves a critical role to ensure that electricity flows with a high degree of reliability from wherever the power is generated to where power is needed.
- In a recent study, ISO-New England, the independent system operator for New England, concluded that there are inadequate transmission resources to serve the electricity needs in the Greater Boston/Metro West and surrounding area.
- To proactively address these deficiencies and the growing customer demands on the electric system, Eversource is implementing a series of transmission projects called the “Greater Boston and Southern New Hampshire Solution.”
- One of the selected projects to solve the identified system reliability problems is a new 115-kV power line between existing substations in Sudbury and Hudson, called the *Sudbury to Hudson Transmission Reliability Project*.

## ***Project Need***

- ISO-NE has determined that certain contingency events, e.g., loss of line, piece of equipment, would result in voltage collapse and loss of nearly 550MW of “load” in the local area, resulting in the loss of power to customers in Berlin, Grafton, Hudson, Millbury, Marlborough, Northborough, Shrewsbury, Stow, Southborough, and Westborough, MA.
- The proposed 115-kV transmission line between Sudbury and Hudson will provide a new transmission path to supplement the existing system and address identified thermal and voltage problems in the area.

## ***Other Benefits***

- In aggregate, the GB-NH Solution is expected to save Greater Boston/Metro West and surrounding area consumers hundreds of millions of dollars per year in congestion costs.
- The Project will also create economic benefit in the area during construction: direct (construction jobs) and indirect (hotels, restaurants, etc.), and produce significant new property tax revenue for the municipalities in which the new facilities are located.

- Since the start of community outreach in November 2015, Eversource has briefed the local municipal officials, residents/businesses, and other stakeholders on the Project, and sought input and feedback on the preferred and noticed alternative routes/designs through meetings with municipal officials, public Board of Selectmen meetings, and public open houses (two regional open houses held in March 2016).
- We received helpful feedback from the communities, listened to their comments and concerns, and took that feedback into account as we further refined and re-evaluated our route and design options.
- During that evaluation, Project representatives met with the Department of Public Works and engineering departments of each of the municipalities to obtain environmental, constructability, community and other impact information for various potential routes.

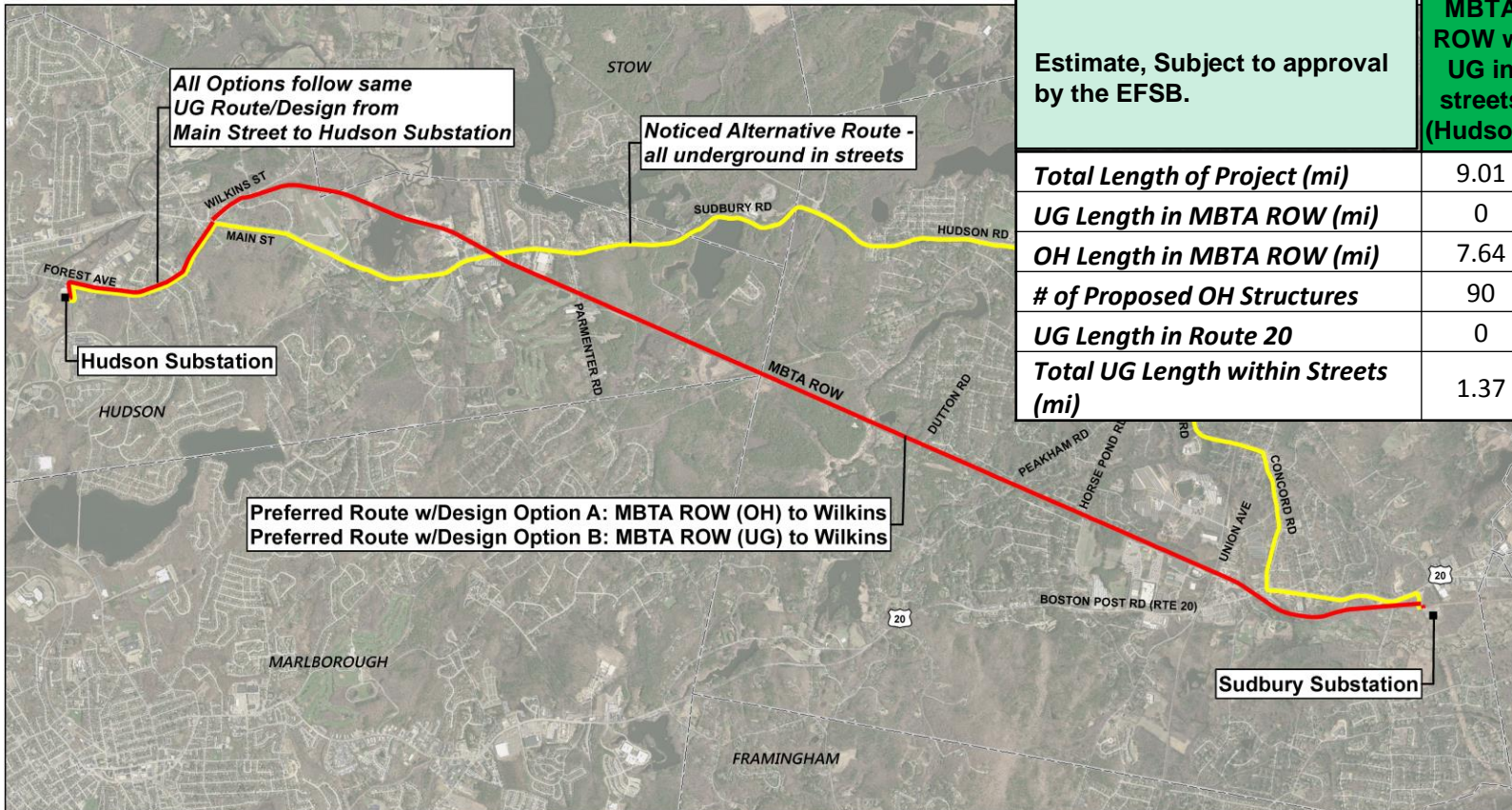


- The routing and design re-evaluations were performed using established guidelines to identify a comprehensive set of feasible routes between the Sudbury and Hudson substations. Public input has been considered and incorporated, where feasible, into the analysis.
- To date, the Company has considered a total of 30 project options (including design options) along 22 different routes. These include routing options which have been suggested by the public.
- All potential routes were screened and obviously flawed routes were eliminated from further consideration.
- The remaining candidate routes were re-evaluated by applying detailed reliability benefits, environmental, constructability, operational flexibility, social (community) impact, and cost estimate criteria.
- Eversource used this re-evaluation to select a Preferred Route with two potential designs, and a geographically distinct alternative in-street route as requested by some communities and municipal officials.



# Routing and Design Re-Evaluation Results

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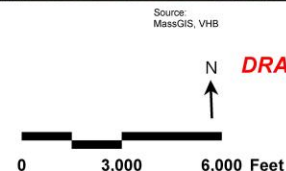


	Preferred Route		Alt Route
All Municipalities	OH in MBTA ROW w/ UG in streets (Hudson)	UG in MBTA ROW w/ UG in streets (Hudson)	All UG in streets
Estimate, Subject to approval by the EFSB.			
<b>Total Length of Project (mi)</b>	9.01	9.01	10.46
<b>UG Length in MBTA ROW (mi)</b>	0	7.64	0
<b>OH Length in MBTA ROW (mi)</b>	7.64	0	0
<b># of Proposed OH Structures</b>	90	0	0
<b>UG Length in Route 20</b>	0	0	0.89
<b>Total UG Length within Streets (mi)</b>	1.37	1.37	10.46

## Current Preferred and Noticed Alternative Routes/Designs

- Preferred Route w/Design Option A: MBTA ROW (OH) to Wilkins
- Preferred Route w/Design Option B: MBTA ROW (UG) to Wilkins
- Noticed Alternative Route - all underground in streets

NOTE: Not to scale. Alignments shown are for graphical purposes only. Lines that appear immediately adjacent to each other should be assumed to follow the same alignment.



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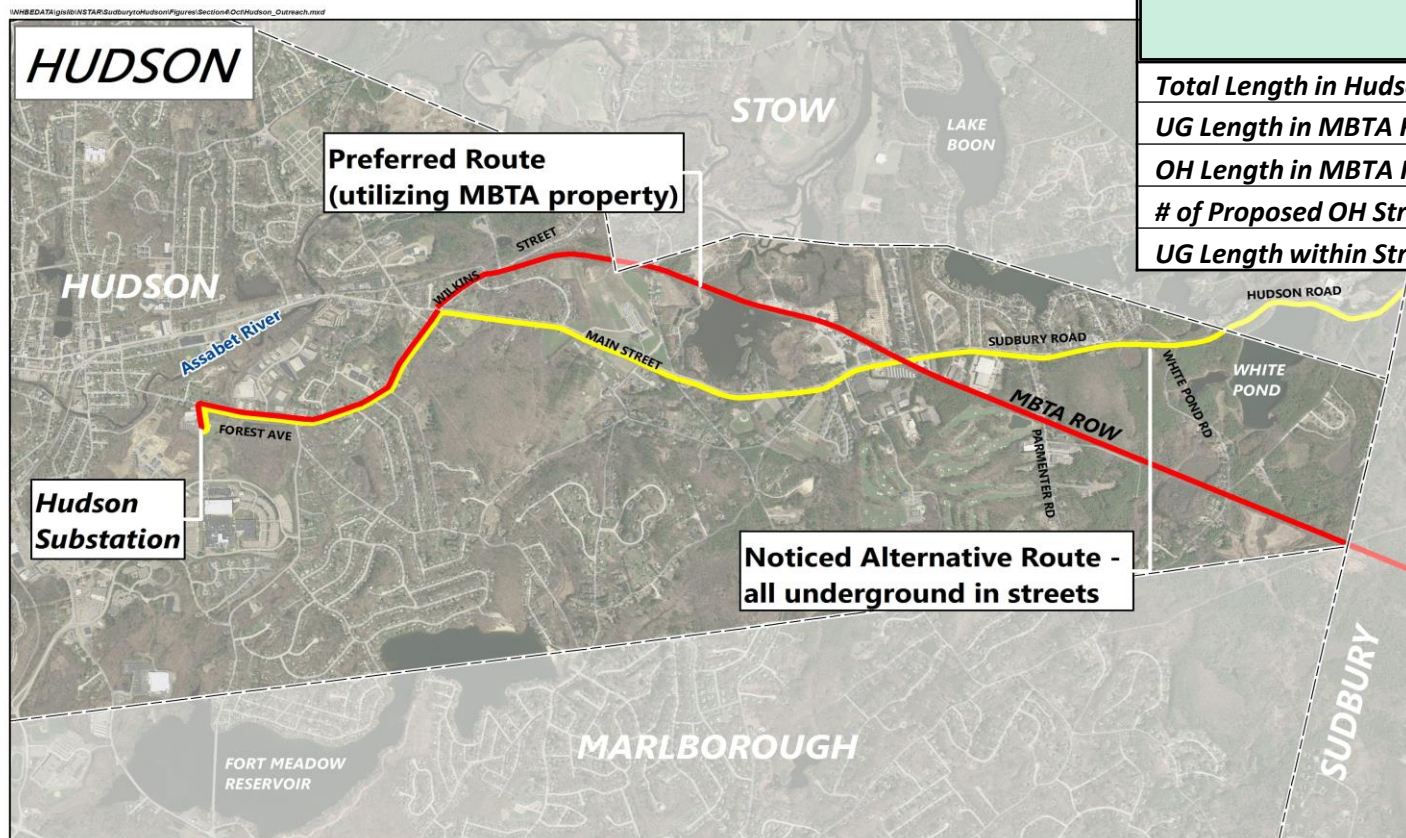
Proposed 115 kV Line Sudbury Substation to Hudson Substation

Current Preferred and Noticed Alternative as of 10/19/2016



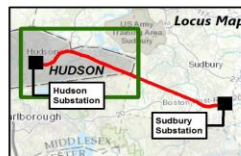
# Routing and Design within Hudson

Hudson Details Only  Estimate, Subject to approval by the EFSB.	Preferred Route		Alt Route
	OH in MBTA ROW w/ UG in streets (Hudson)	UG in MBTA ROW w/ UG in streets (Hudson)	All UG in streets
Total Length in Hudson (mi)	4.65	4.65	4.09
UG Length in MBTA ROW (mi)	0	3.27	0
OH Length in MBTA ROW (mi)	3.27	0	0
# of Proposed OH Structures	36	0	0
UG Length within Streets (mi)	1.37	1.37	4.09



- Preferred Route (utilizing MBTA property)
- Noticed Alternative Route - all underground in streets
- - - Municipal Boundary

Source: MassGIS, VHB



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Proposed 115 kV Line Sudbury Substation to Hudson Substation

10/24/2016





# Routing and Design Re-Evaluation Results, cont.

*Alternatives Comparison*

	OH in MBTA Property	UG in MBTA Property	All UG in Streets
<b>Cost</b>	●	◐	○
<b>Reliability Benefits</b>	●	●	●
<b>Operational Flexibility</b>	●	●	●
<b>Environmental Impact</b>	◐	◑	●
<b>Social Impacts</b>	◐	◑	◐
<b>Constructability</b>	●	◑	◐

*Legend*

Lowest Cost	→	Highest Cost
Most Reliable	→	Least Reliable
Most Flexible	→	Least Flexible
Least Impacts	→	Most Impacts
Least Impacts	→	Most Impacts
Less Complex	→	More Complex

MBTA property is our preferred route - with two design options

Noticed Alternative Route

# Proposed Department of Conservation and Recreation (DCR) Mass Central Rail Trail - Wayside Branch (MCRT-WB)

Eversource intends to coordinate with MCRT-WB on the proposed “rail trail” project along the MBTA corridor.

Our intent is to provide a safe, reliable transmission system which preserves the natural environment to the greatest extent practicable, while simultaneously promoting the recreational and educational benefits of the property via the rail trail.

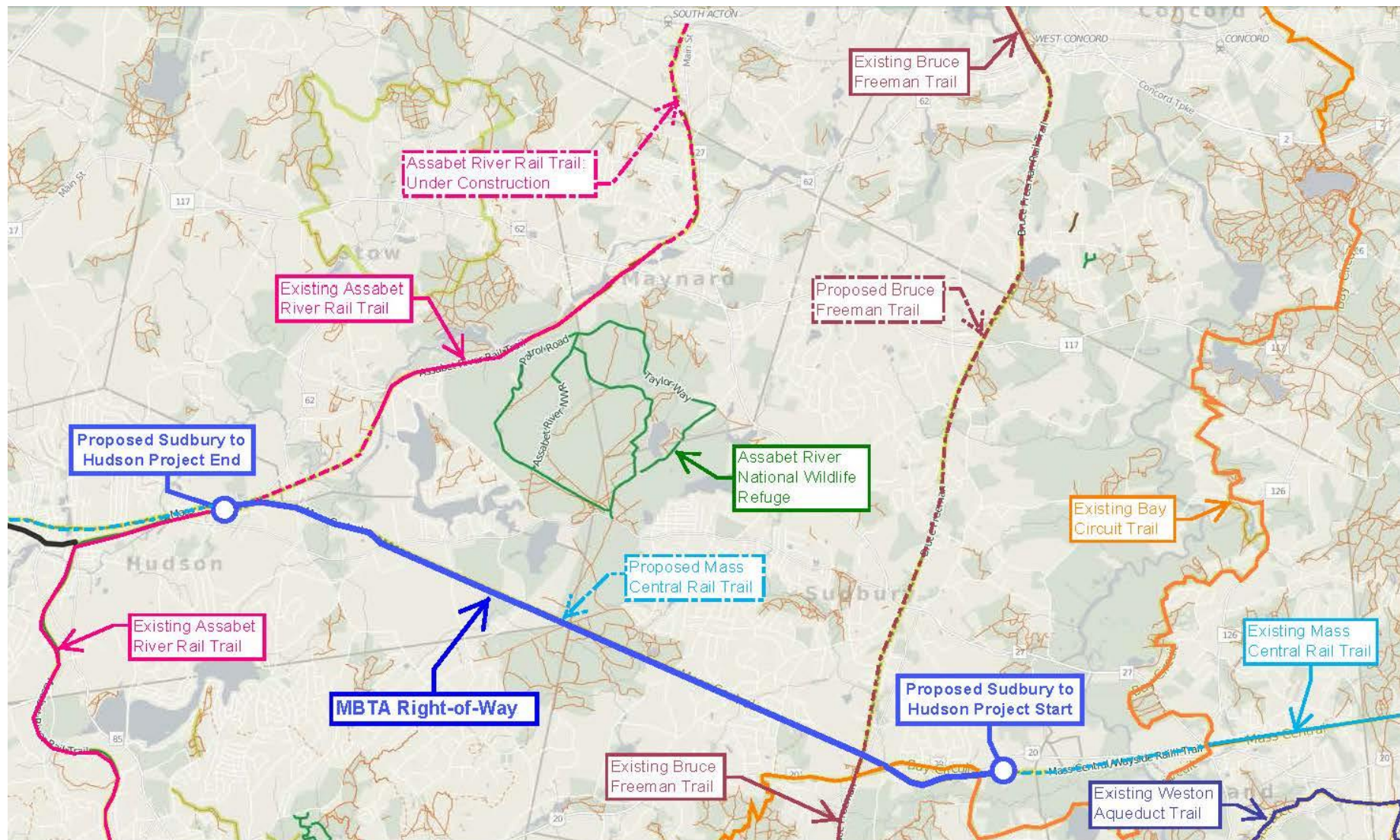


All cleared areas will be re-seeded with natural grasses/meadow seed mixes appropriate to the particular growing conditions, with the expectation of natural succession to reestablish shrubs and compatible trees. Mechanical equipment will be used in the construction of the Project. No herbicides will be used during Project construction.

In some locations along the MBTA property, there may be specific areas of concern by abutting property owners for safety, security, privacy, or visual impacts. In such locations, Eversource will work with the abutting property owners, MBTA and DCR to implement screening options. Such options may be in “soft” form (i.e., vegetation) or “hard” form (i.e., fencing), or a combination of the two.

Utilizing the MBTA property for the Project facilitates the development of the missing link in the regional Mass Central Rail Trail system, from downtown Historic Sudbury to Assabet River Rail Trail in Hudson and the Bruce Freeman Rail Trail (Lowell to Sudbury). Eversource’s gravel access road, necessary for construction of the new transmission line, would serve as the foundation for the DCR-managed rail trail.

# Sudbury to Hudson Area Bike Trail System



MAPC Greater Boston Trail Map

- Local Review and Permitting:
  - Conservation Commissions
  - Historic Commissions
- State Review and Permitting:
  - Massachusetts Environmental Policy Act (MEPA)
  - Energy Facilities Siting Board (EFSB)
  - Mass Historic Commission
  - Natural Heritage Endangered Species Program
  - Mass DEP Individual Water Quality Certificate
  - Mass DEP Chapter 91 License
- Federal Review and Permitting:
  - US Army Corps of Engineers
  - US Fish and Wildlife Service
  - US Environmental Protection Agency



# Typical Underground Construction Process



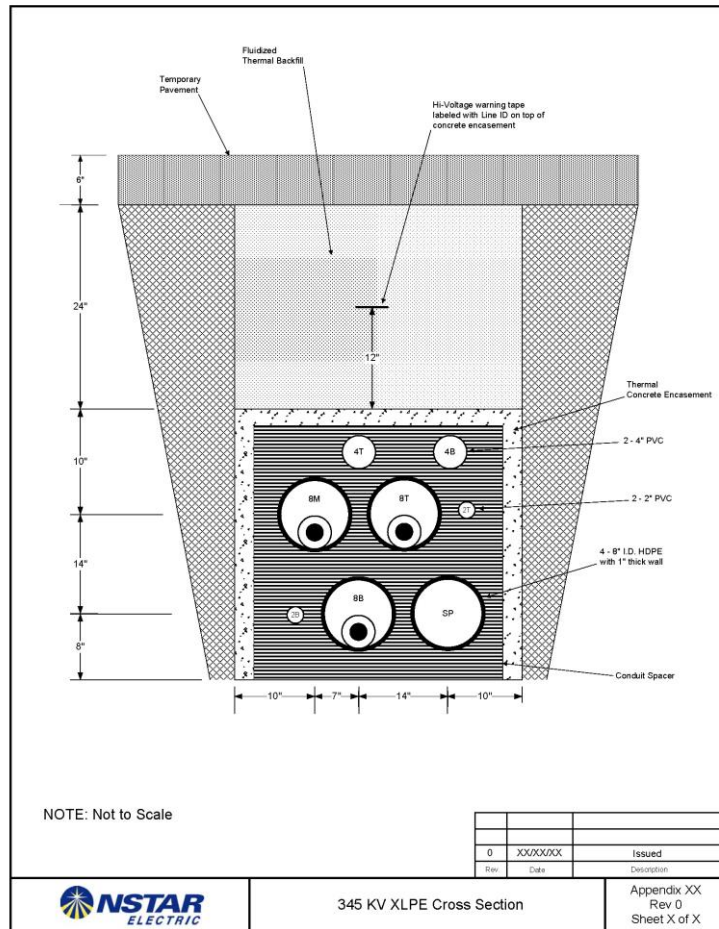
- Splice Vault/Manhole installation
- Trench excavation, conduit installation, backfill and temporary paving.
- Install cables between each manhole.
- Cable splicing and testing in manholes.
- Final pavement and other Project restorations completed per municipal town agreements.
- Construction at substations concurrent with cable construction.



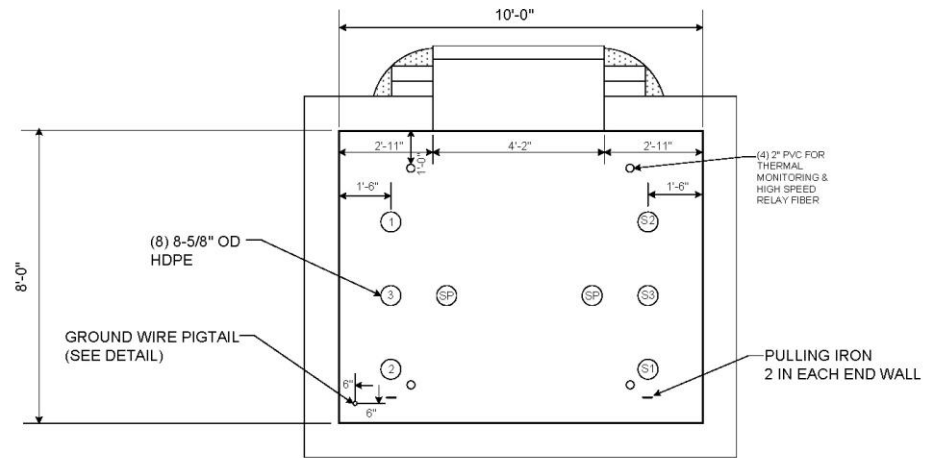
# Sudbury to Hudson

## Typical Underground Cross-Sections

### Cable Installation



### Splice Vault/Manhole



# Managing Impacts During Construction

- Traffic Management
  - ✓ Traffic Management Plan to be developed jointly with municipalities.
  - ✓ Police details paid by Project
  - ✓ Maintaining access
  - ✓ Hours of Construction
  - ✓ Maintain pedestrian safety
- Eversource will communicate and work closely with neighbors and businesses in the communities throughout the process by providing:
  - ✓ Door-to-door outreach
  - ✓ Informational mailings via town certified abutting property owner list
  - ✓ Project website with progress updates
  - ✓ Project hotline and e-mail



MUTCD TEMPORARY TRAFFIC CONTROL ROAD SIGNS

Revisions During Construction

NO.	DATE	AS BUILT REVISIONS	BY	CHK	APP	APP
1	10-29-13					
2	10-29-13					
3	10-29-13					
4	10-29-13					

**Northeast Utilities Service Co.**  
CONNECTICUT LIGHT & POWER COMPANY

LINE 1151 SOUTH END - GLENBROOK  
115-kV UNDERGROUND TRANSMISSION LINE  
TRAFFIC CONTROL GENERAL NOTES  
STAMFORD, CONNECTICUT

DATE: 06-21-2013  
SCALE: 1" = 100'  
SHEET: 2-1-2  
TOTAL SHEETS: 23370P1  
PROJECT NUMBER: 000-51-326  
REVISED: 01515-70001PG01

- Eversource is seeking feedback from stakeholders on the proposed Project's re-evaluated routing and design options, and integrate that feedback where technically feasible and practicable into our siting Petition to be filed with the EFSB in Q4, 2016.
- Continue discussions with Department of Conservation and Recreation (DCR) on alignment of our respective trail efforts.
- Begin discussions with the Massachusetts Bay Transportation Authority (MBTA), DCR and municipal officials, and then engage abutting property owners on the development of a landscaping plan proposal for the MBTA property.



# Project Schedule\*

Schedule	2014...	1st Q 2016...	4th Q 2016...	1st Q 2017	2nd Q 2017	3rd Q 2017	4th Q 2017	2018...	2019...
Discussions with Towns									
Regional Open Houses									
Municipal Board of Selectmen Meetings									
File Petition with Massachusetts Energy Facility Siting Board (EFSB)									
EFSB Public & Evidentiary Hearings* (to be determined by EFSB)									
EFSB Decision*									
Construction**									
Stakeholder Outreach									

\*Subject to Change

\*\*Pending Approval

Project In Service: 2019

# Proactive Municipal and Community Outreach Throughout Project Duration

## **Stakeholders**

- Municipal officials
- State and federal elected officials and regulators
- Property owners & tenants
- Businesses
- Community Groups
- Rail to Trail organizations

## **Project Communication for Municipalities**

- Briefings & Presentations
- E-mail updates

## **Project Communication for the Public**

- Releases/Media Advisories
- Door to door outreach, including door hangers
- Project Hotline: 1-800-793-2202
- E-Mail: [TransmissionInfo@Eversource.com](mailto:TransmissionInfo@Eversource.com)
- Project webpage: [www.Eversource.com](http://www.Eversource.com)



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