

Sudbury to Hudson Transmission Reliability Project Briefing

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- Project Need and Benefits
- Summary of Community Outreach Activities to Date
- Routing and Design Re-Evaluation Process and Results
- Environmental Permitting
- Coordination with Department of Conservation and Recreation's (DCR) Mass Central Rail Trail
- Near-Term Next Steps
- Community Outreach – Project Duration
- Contact Information

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

- 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.
- 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, Marlborough, Northborough, Shrewsbury, Stow, Southborough, and Westborough, MA.

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.

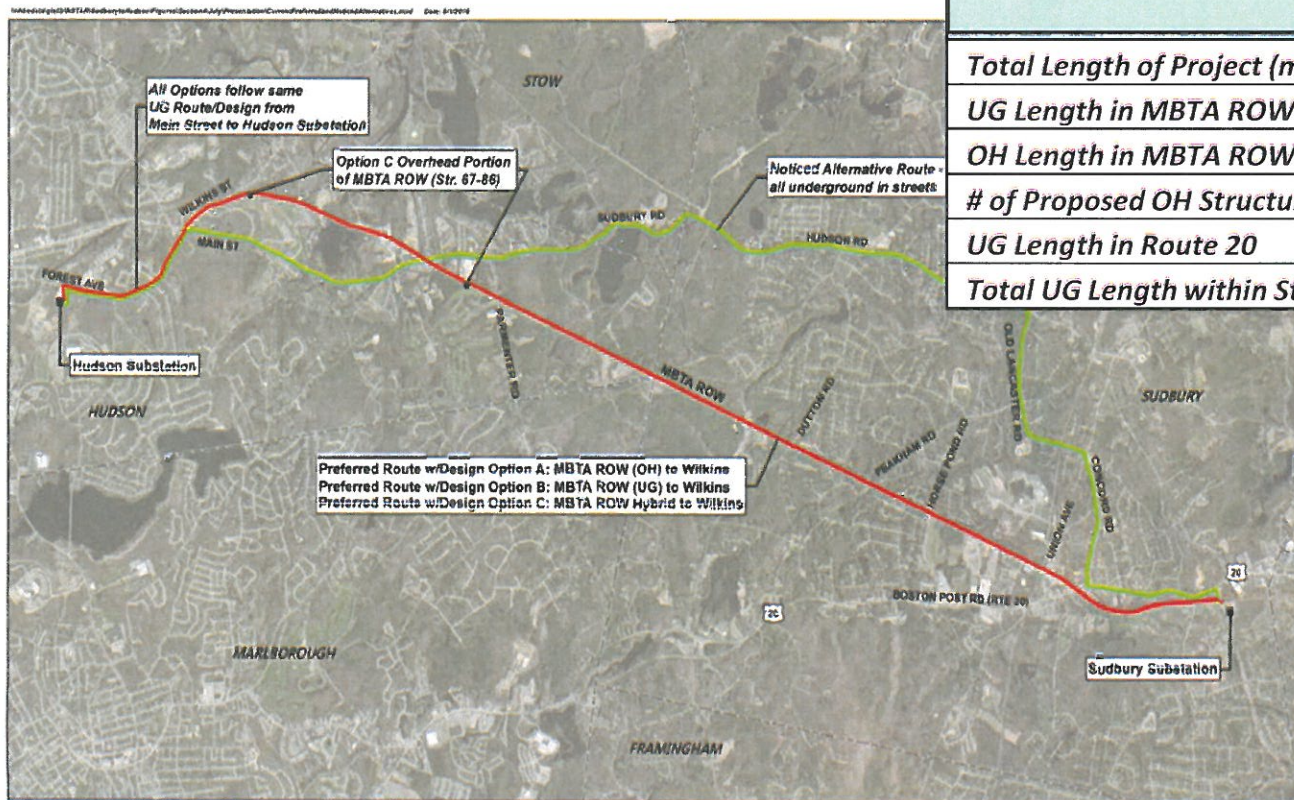
Summary of Community Outreach Activities to Date

- 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 BOS 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 DPW 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.
- Routes with obvious flaws were eliminated.
- The 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 three potential designs, and a geographically distinct alternative in-street route as requested by some communities and municipal officials.

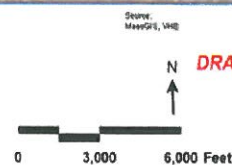
Routing and Design Re-Evaluation Results



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
- Preferred Route w/Design Option C: MBTA ROW Hybrid 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.

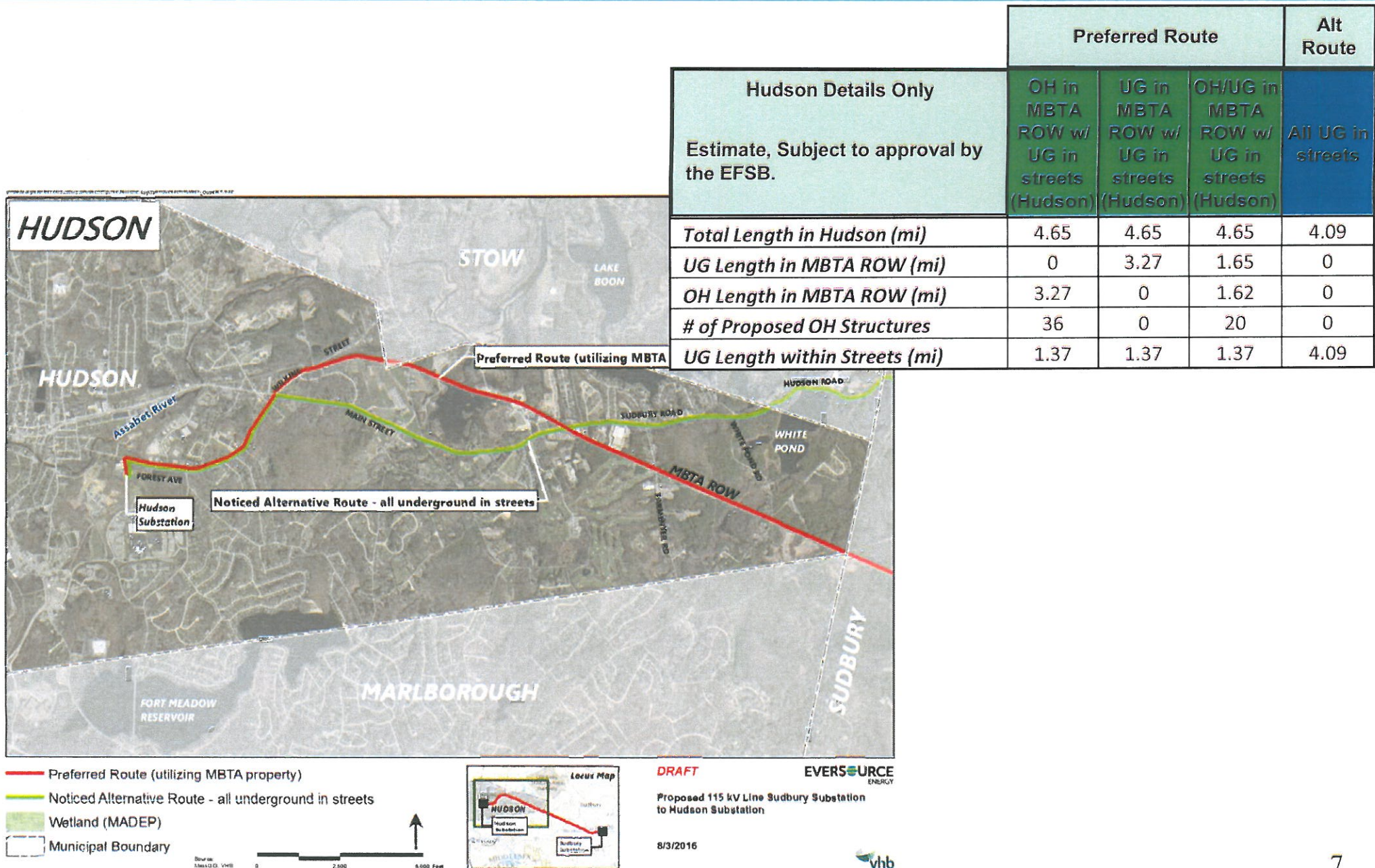


EVERSOURCE
ENERGY
Proposed 115 KV Line Sudbury Substation to Hudson Substation
Current Preferred and Noticed Alternatives as of 7/28/2016



All Municipalities 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)	OH/UG in MBTA ROW w/ UG in streets (Hudson)	All UG in streets
Total Length of Project (mi)	9.01	9.01	9.01	10.46
UG Length in MBTA ROW (mi)	0	7.64	6.01	0
OH Length in MBTA ROW (mi)	7.64	0	1.62	0
# of Proposed OH Structures	89	0	20	0
UG Length in Route 20	0	0	0	0.89
Total UG Length within Streets (mi)	1.37	1.37	1.37	10.46

Routing and Design within Hudson



Routing and Design Re-Evaluation Results, cont.

























	<i>OH in MBTA ROW w/ UG in streets (Hudson)</i>	<i>UG in MBTA ROW w/ UG in streets (Hudson)</i>	<i>OH/UG in MBTA ROW w/ UG in streets (Hudson)</i>	<i>All UG in streets</i>
Cost (est.)	\$37M	\$85M	\$75M	\$113M
Reliability Benefits	<ul style="list-style-type: none"> Sudbury-Hudson line adds a third, geographically separate line to serve HL&P, eliminating the possibility of a loss of load under some contingency conditions on lines serving HL&P from NGRID's Northborough Rd substation. New "ring bus" design provides additional reliability benefits for HL&P eliminating any loss of load risks following breaker failure 			
Operational Flexibility:	<ul style="list-style-type: none"> New Sudbury-Hudson line will facilitate planned maintenance for the regional area: <ul style="list-style-type: none"> Adds a third 115-kV supply source for the ~550 MW Marlboro-Westboro-Hudson area in addition to the two 69-KV sources Adds a fourth 115-kV supply source for the ~300 MW Sudbury-Concord-Maynard area 			
Environmental Impacts	<ul style="list-style-type: none"> ROW does not include any Area of Critical Environmental Concern (ACEC). 80-ft ROW clearing results in conversion of 68 acres from forested to early successional habitat in MBTA property. 88 out of 89 structures planned to avoid permanent wetlands impact. 	<ul style="list-style-type: none"> 30-ft ROW clearing results in 26 acres of habitat conversion. No permanent wetlands impact. 	<ul style="list-style-type: none"> 30-ft ROW clearing of UG portion and under 2-miles of 80-ft ROW clearing in OH portion results in 34 acres of habitat conversion. No permanent wetlands impact as all 20 new structures avoid wetlands 	Minimal temporary impacts due to limited number of trenchless crossings.
Social Impacts, Including visual impacts	68 acres of tree clearing and installation of OH line will result in visual change for residential abutters and users of land preserves. Visual screening may help mitigate impacts. Adjacent neighbors: <ul style="list-style-type: none"> 261 housing units 99 business units 	Limited project impacts as 26 acres of tree clearing requirements are similar to the planned bike trail. Adjacent neighbors: <ul style="list-style-type: none"> 261 housing units 99 business units 	Minimal impact as 34 acres of tree clearing and installation of line on limited OH portion may be mitigated with visual screening. Adjacent neighbors: <ul style="list-style-type: none"> 261 housing units 99 business units 	No visual impact. Construction activities will necessitate temporary traffic controls. Adjacent neighbor counts: <ul style="list-style-type: none"> 504 housing units 138 business units
Constructability	<ul style="list-style-type: none"> 1 trenchless crossing Low existing utility density 3 Hard Angles > 30 degrees 	<ul style="list-style-type: none"> 8 trenchless crossings Low existing utility density 3 Hard Angles > 30 degrees 	<ul style="list-style-type: none"> 6 trenchless crossings Low existing utility density 3 Hard Angles > 30 degrees 	<ul style="list-style-type: none"> 14 trenchless crossings High existing utility density 6 Hard Angles > 30 degrees

MBTA property is our preferred route - with three design options


Noticed Alternative In-Street Route

Routing and Design Re-Evaluation Results, cont.

Alternatives Comparison

	OH in MBTA Property	UG in MBTA Property	OH/UG in MBTA Property	All UG in Streets
Cost				
Reliability Benefits				
Operational Flexibility				
Environmental Impact				
Social Impacts				
Constructability				

Legend

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

MBTA property is our preferred route - with three potential design options

Noticed Alternative Route

- Local Review and Permitting:
 - Conservation Commissions
 - Historic Commissions
- State Review and Permitting:
 - MEPA
 - 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

Proposed 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.

Eversource's next steps are to seek 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 this fall.

- Begin discussions with DCR on alignment of our respective efforts
- Work with MBTA, DCR, municipal officials and abutting property owners on the development of a landscaping plan proposal for the MBTA property
- Conduct community outreach:
 - Provide briefings at local Boards of Selectman meetings
 - Reach out to abutting property owners along the new, noticed alternative in-street option
 - Conduct second round of public open houses

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
- Project webpage: Eversource.com



Contact Information

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