1355 115-kV Line Rebuild and Asset Condition Project

Planning Advisory Committee Meeting

October 24, 2019

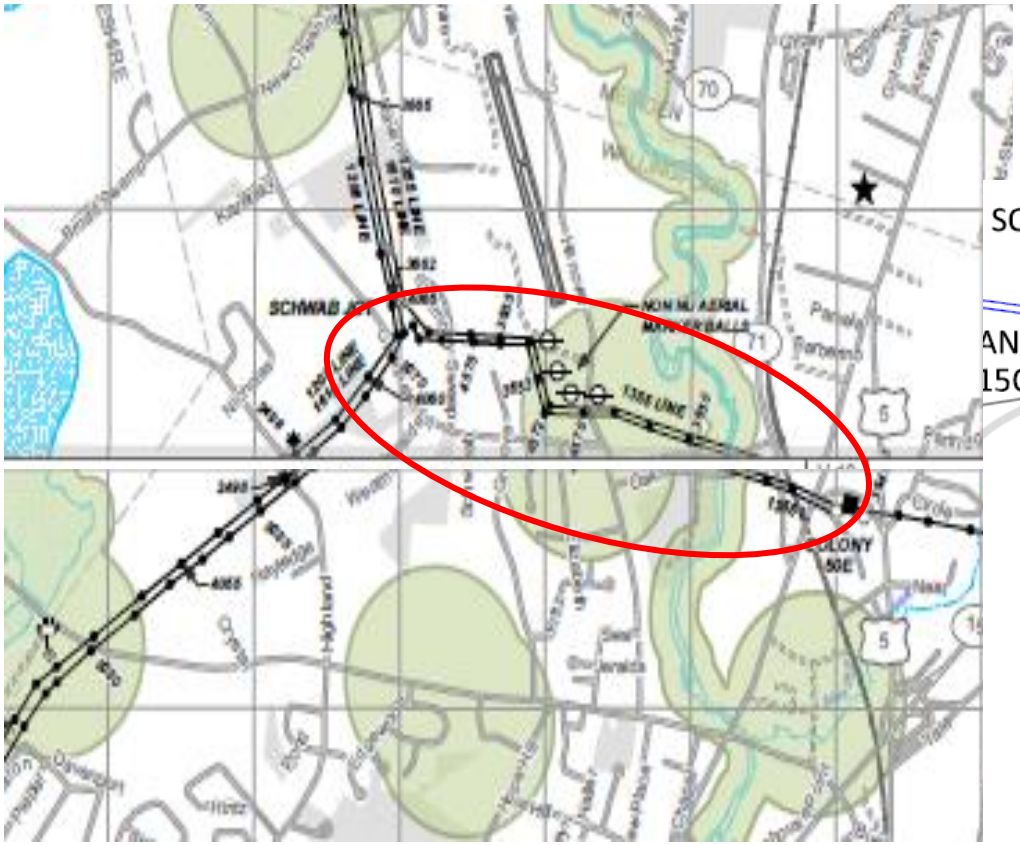
Agenda

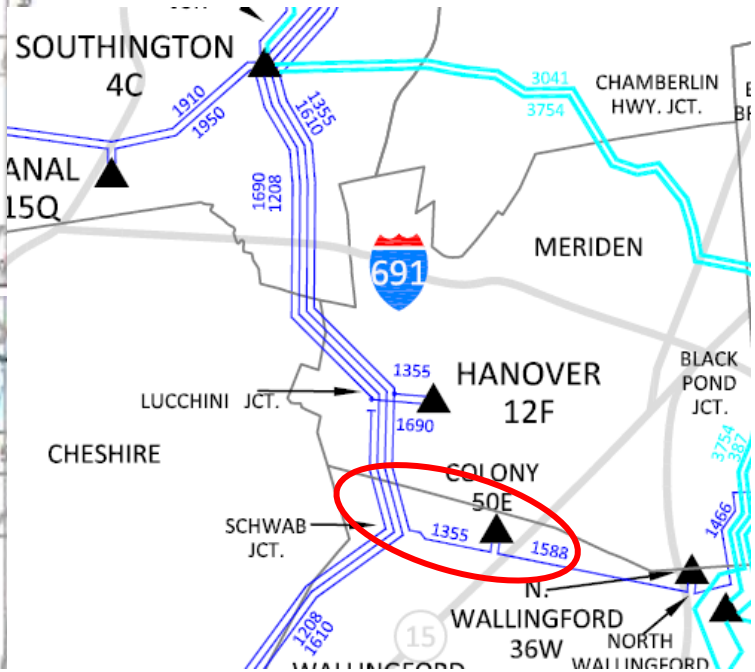
- Project Background and Drivers
- Project Area
- Project Scope
- Asset Condition
- Summary

Project Background and Drivers

- Asset Condition
  - The 1355 Line is a 115-kV PTF line that connects Southington – Hanover and Colony Substations
  - Due to asset condition issues Eversource proposes to rebuild a section of the line from Schwab Jct to Colony (Wallingford Utility) Substations in Wallingford, CT.
  - The line section to be rebuilt stretches 1.4 miles and was originally constructed in 1927.
  - This section is currently a bundled 4/0 Copper circuit line consisting of single circuit H-frame wood poles, double circuit H-frame wood poles, double circuit steel lattice towers, one single circuit wood structure, and one single circuit steel structure.

Project Area





Project Area
Schwab Jct - Colony

Project Background and Drivers

- Eversource has performed foot patrol inspections as well as aerial inspections and has identified structures in need of replacement on the Colony Substation to Schwab Jct. section in Wallingford, CT.
- Wood structures in this section were installed in 1966 and exhibited one or more of the following deficiencies:
  - woodpecker damage, rot, cracks and deteriorated steel mechanical connections.
- The original (1927) steel lattice towers on the line exhibited the following deficiencies:
  - bent members, corrosion, rust, and tower legs located in standing water.
- The conductor and shield wire in this section are original to the line from 1927 (92 years old). Aged copper and copperweld wires have exhibited deterioration (annealing and other mechanical damage) in other areas of the system and are no longer standard Eversource transmission conductors. The need to replace structures and wire will facilitate an opportunity to reconfigure and streamline this corridor.

Asset Condition

St. # 4575 Splitting and rotten pole tops

St. # 4571a Rotten pole tops

Asset Condition

St. # 3657.5. Splitting and rotten pole tops

St. # 4567 Woodpecker damage and rotten pole tops

Asset Condition

Structure 3657 – Pole top split, woodpecker damage

Asset Condition

Project Scope - Details

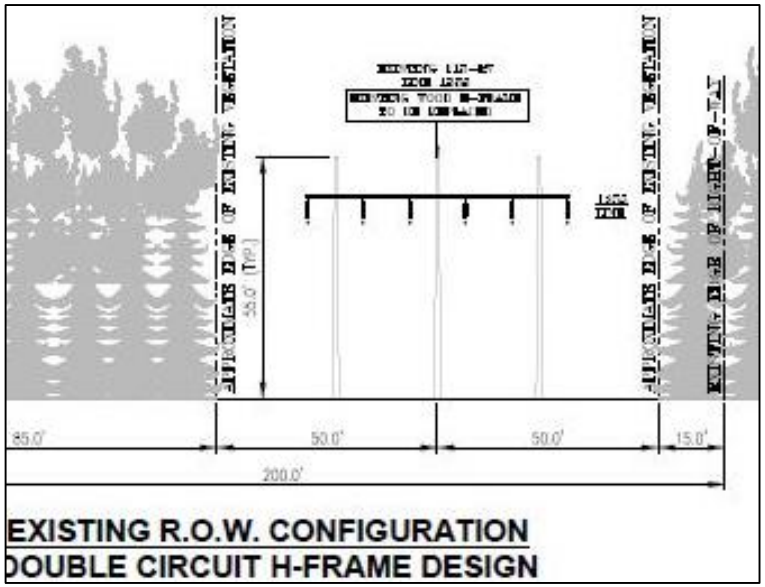
- Rebuild 1.4 miles of the 1355, 115-kV PTF line, from Colony Substation to Schwab Junction in Wallingford, CT
- Replace 11 wood pole structures with Light Duty (LD) single circuit, steel H-Frame structures, along the northern portion of the existing 1355 alignment
- Replace three (3) double circuit lattice towers on this section of line with three (3) double circuit, direct buried, LD, pre-engineered monopoles.
- Remove seven (7) structures that are no longer necessary with the new configuration proposed.
- Replace the 4/0 copper conductor from Schwab Jct to N. Colony Substation with 556 ACSS (note – there is no impact to the line ratings due to other sections of 1355 line limiting)
- Replace the existing 11/32 Copperweld shield wire with OPGW from Schwab Jct. to Colony Substation.

Project Scope

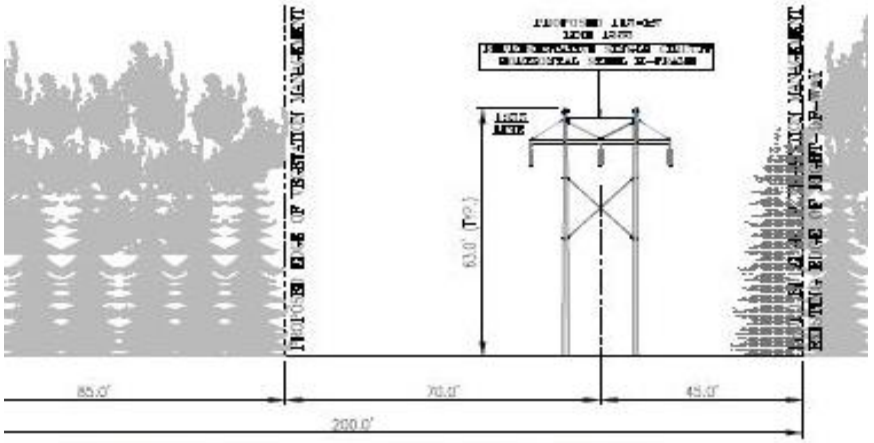
- Project costs impacted by the following complication factors:
  - Large number of removals (work is involved on over 2.0 structure miles)
  - Relatively Large # of heavy angles (7) in short ROW section
  - Amtrak Railroad crossing / coordination
  - Proximity to Airport / FAA coordination and lighting requirements
  - Minimization of potential reliability impacts – Coordination with Wallingford Electric; Temporary 3-Terminal Line modifications

Existing Structure / ROW

Project Scope - Details

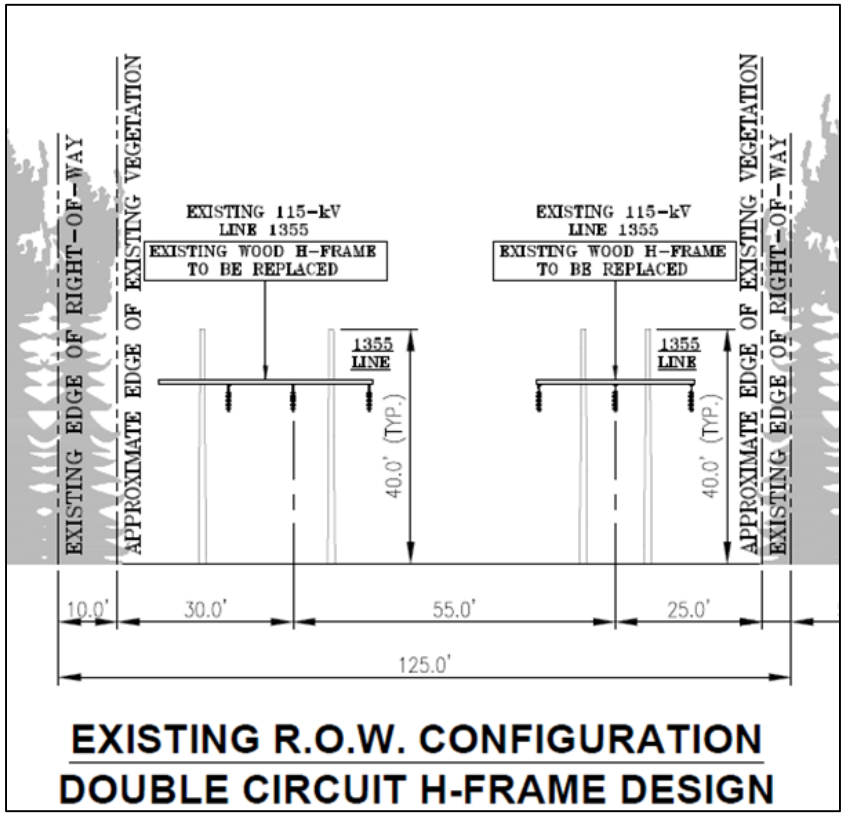


EXISTING R.O.W. CONFIGURATION
DOUBLE CIRCUIT H-FRAME DESIGN

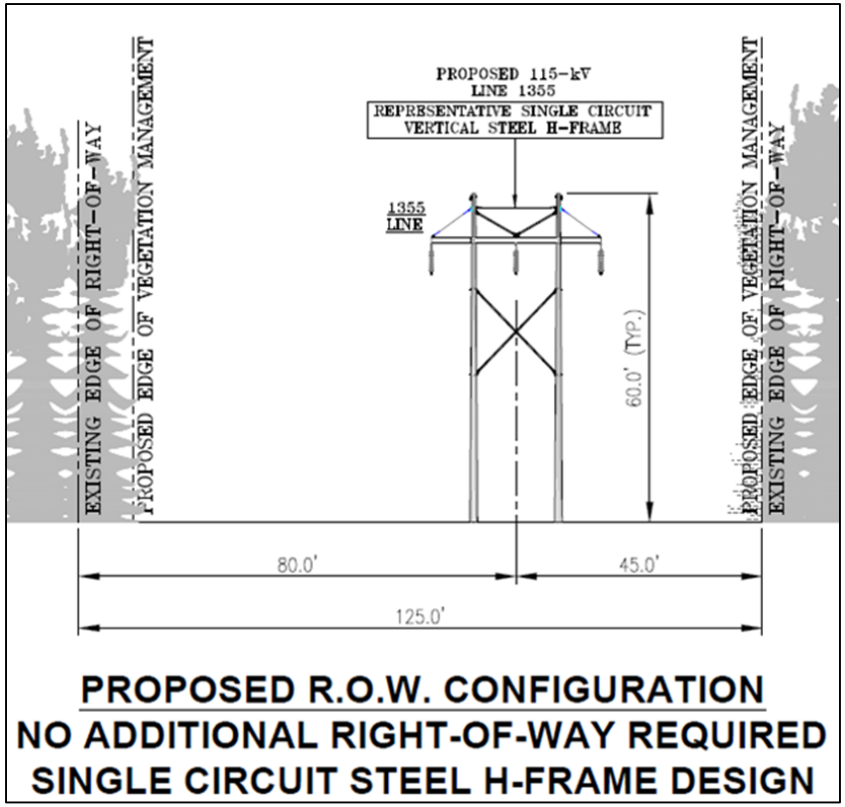


PROPOSED R.O.W. CONFIGURATION
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
SINGLE CIRCUIT STEEL H-FRAME DESIGN

Project Scope - Details

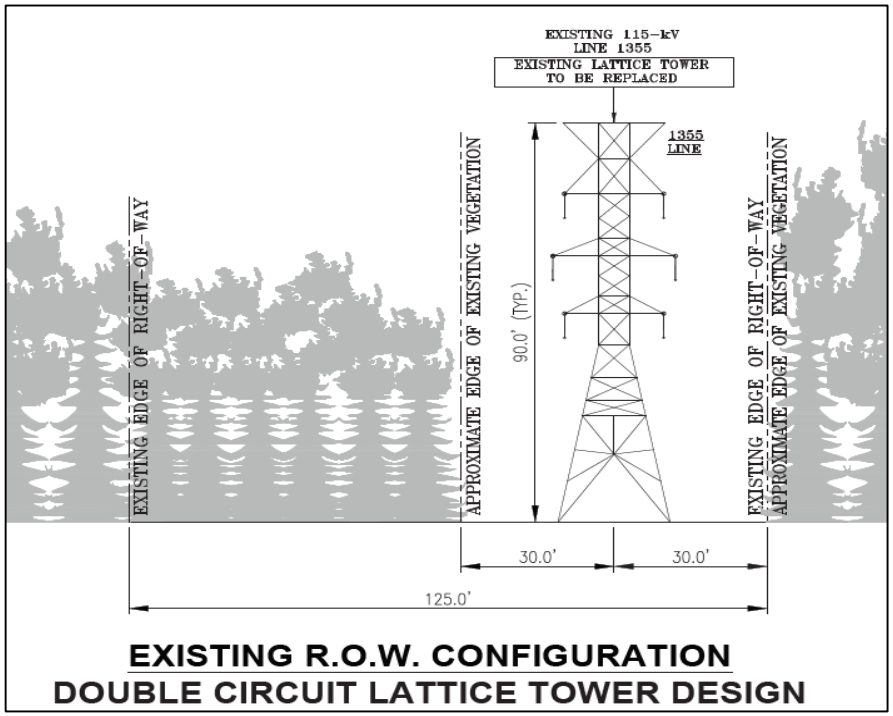


EXISTING R.O.W. CONFIGURATION
DOUBLE CIRCUIT H-FRAME DESIGN

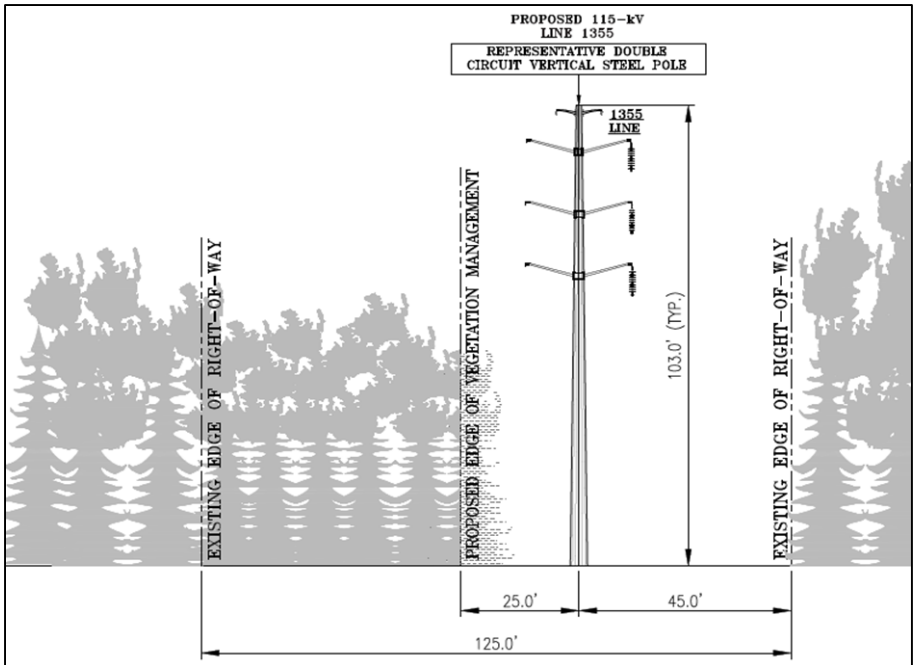


PROPOSED R.O.W. CONFIGURATION
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
SINGLE CIRCUIT STEEL H-FRAME DESIGN

Project Scope - Details



EXISTING R.O.W. CONFIGURATION
DOUBLE CIRCUIT LATTICE TOWER DESIGN



PROPOSED R.O.W. CONFIGURATION
NO ADDITIONAL RIGHT-OF-WAY REQUIRED
DOUBLE CIRCUIT STEEL POLE VERTICAL DESIGN

Summary

- Eversource Proposes to rebuild the 115-kV 1355 line transmission line from Colony Substation to Schwab Junction in Wallingford, CT.
  - Replace 14 aged and degraded structures with new steel structures
  - Reconfigure circuit arrangement and ROW to reduce structures and conductors required (eliminate 7 structures and ~3/4 circuit mile conductor)
  - Replace aged and degraded copper/copperweld conductor and shield wires with new standard conductors and optical ground wire
- **Estimated Cost = $7.45 Million (+50% to -25% Estimate)**
- **ISD: May 2020**

Questions