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New Hampshire Asset Condition Structure Replacements – Line S153

Planning Advisory Committee Meeting

July 23, 2025

Outline

- Project Summary
- Background Information
- Project Needs and Drivers
- Solution Alternatives
- Selection of Preferred Solution
- Schedule and Contact Information

Project Summary

Project Drivers
• Inspections have identified multiple structure concerns including woodpecker damage, pole top checking, checking through insulator/equipment connections, and other forms of decay

Alternatives Considered

Alternative	Description	Cost Estimate
Alternative 1	Base Alternative, replace all structures requiring immediate replacement	$2.711M (-50%, +200%)
Alternative 2	Same as Alternative 1, plus proximity structures	$5.988 M (-25%, +50%)

Preferred Alternative

Alternative	Reason for Recommendation	Cost Estimate
Alternative 2	• Replace 15 total wood structures: 6 Category C wood structures and 9 Category B proximity structures • Alternative 2 minimizes future disturbances to the ROWs and avoids near-future project cost to replace original wood structures in close proximity to planned work sites	$5.988 M (-25%, +50%)

Background Information

Line S153

Key Details	
Location	**From:** Great Bay Substation *Stratham, NH* **To:** Ocean Road Substation *Greenland, NH*
Line Length	4.6 miles
Operating Voltage	115 kV
Age and Upgrade History	• Originally constructed in 1952 • ACL 392 replaced a majority of the original wood structures on the line
Prior PAC Presentations	• ACL 392: 2023 Presentation

Existing Structures

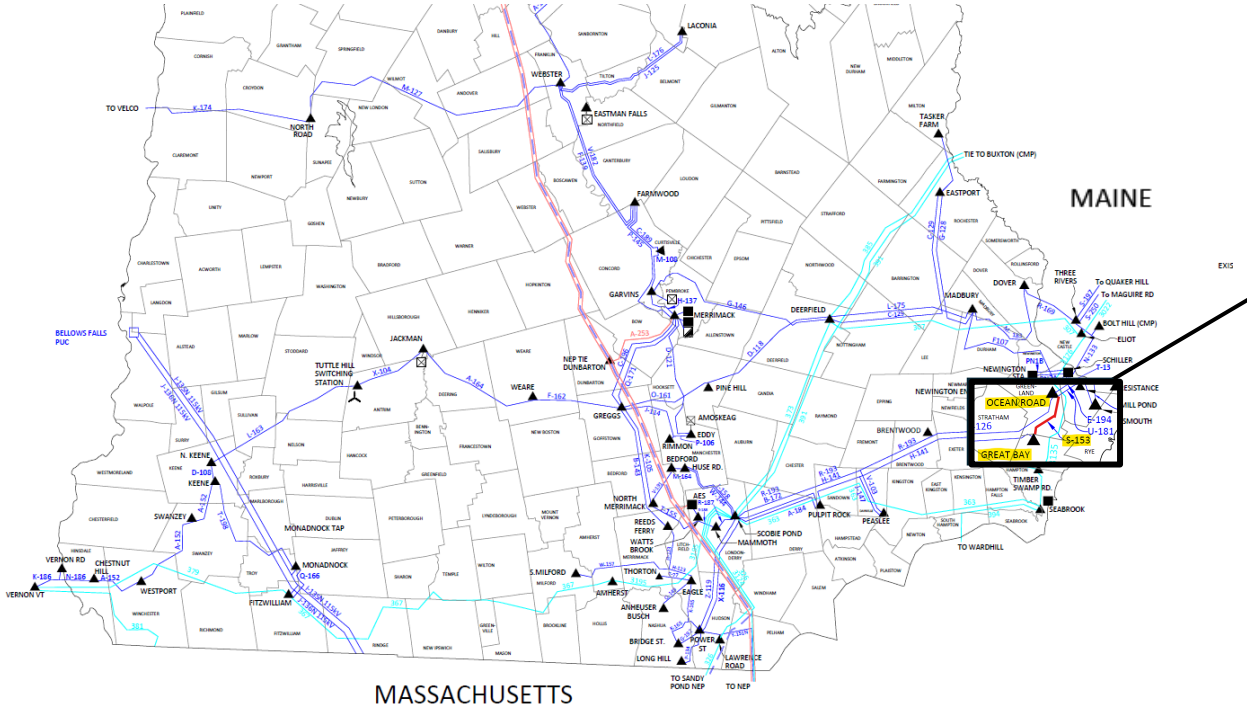
Material	Configuration	Number	Avg. age
Wood	Single circuit H-frame	15	62 years
Steel	Single circuit H-frame	34	6 years

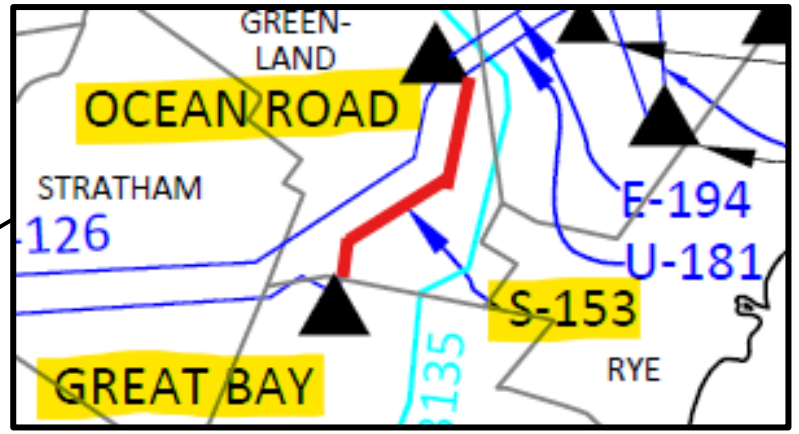
Existing Conductor

Type	Length	Avg. age
336.4 kcmil 26/7 "Linnet" ACSR	4.4 miles	73 years
1272 ACSR	0.1 miles	73 years
795 ACSR	0.1 miles	73 years

Project Location

New Hampshire Map





● **Line S153**

Project Needs and Drivers

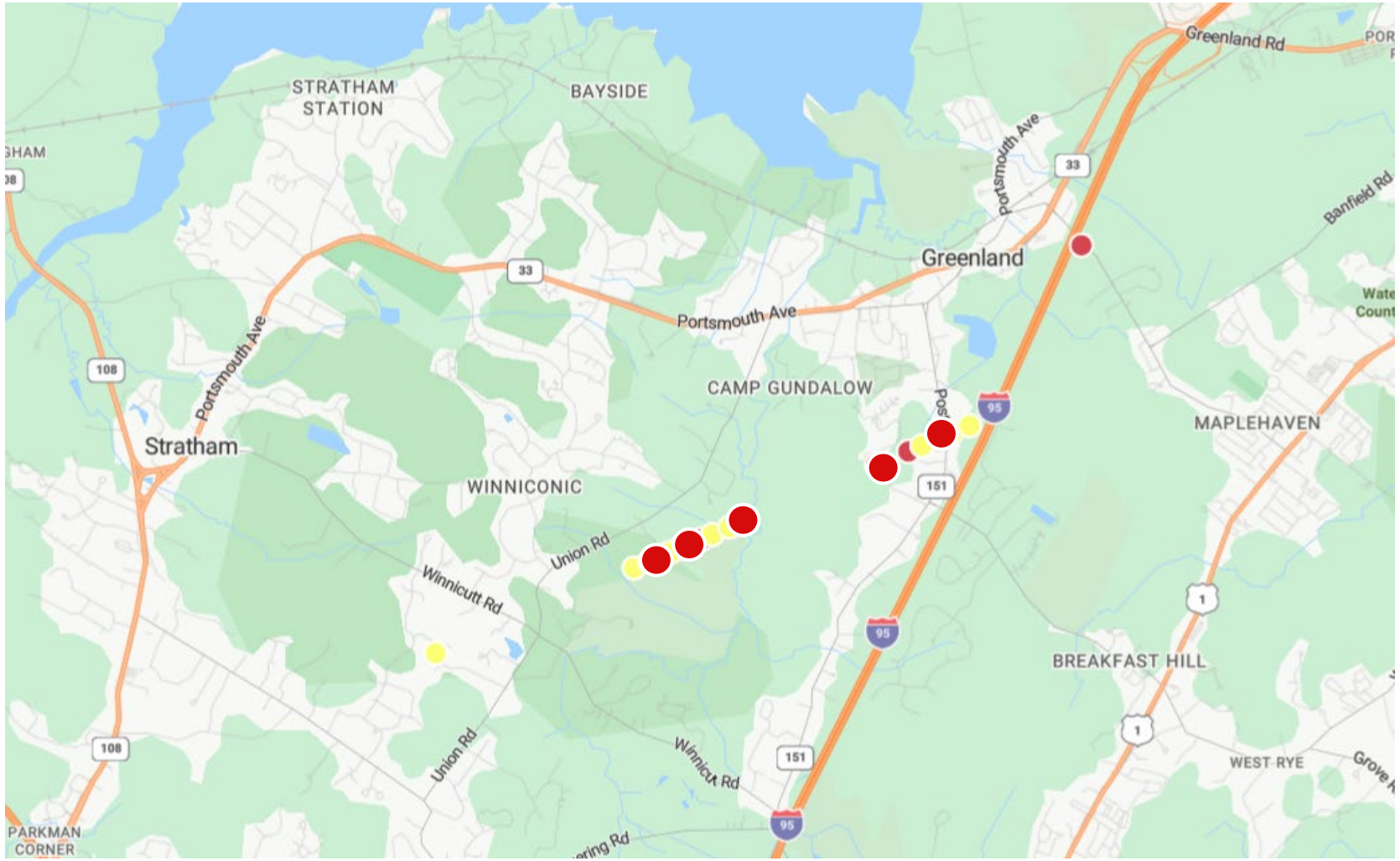
Structure Concerns

Structure Concerns	
Primary Concerns	
Wood structure deterioration	• Recent inspections performed in 2024 have identified 6 wood structures with woodpecker damage, pole top checking, checking through insulator/equipment connections, and other forms of decay • These structures must be replaced to maintain reliability and ensure ongoing integrity of the line • Affected structures are on average 62 years old and are reaching the end of the typical useful life for 115 kV natural wood structures (40 – 60 years)
Secondary Concerns	
Category B structures	• Category B structures are in close proximity to the work sites that will be required to replace the Category C structures

Summary of Current Structure Grades		Structure Count by Transmission Line
Category	**Recommended Action**	**S153**
A	No replacement required due to deterioration	34
B	Consider replacement in conjunction with other structure replacements	9
C	Initiate planned structure replacement project **or** Replace as part of upcoming structure replacement project	6
D	Replace immediately (emergency replacement)	0
Total		**49**

Project Needs and Drivers

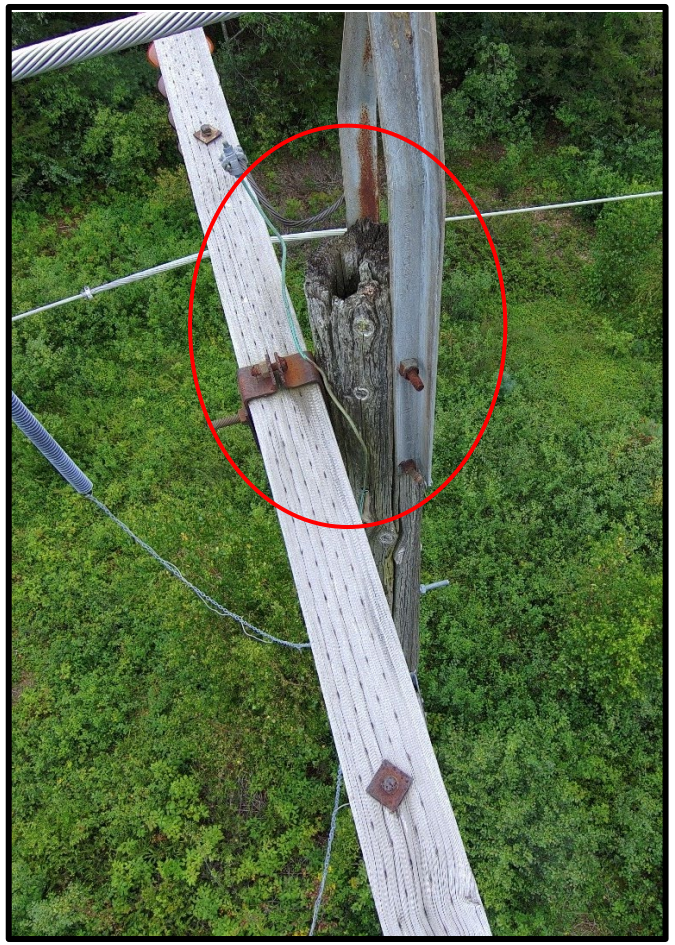
Structure Concerns – Map (Line S153)



- Category C structures
- Proximity structures

Project Needs and Drivers

Structure Concerns



Line S153
Structure 88
Pole top rot, checking, woodpecker damage

Line S153
Structure 89
Pole top checking

Project Needs and Drivers

Other Concerns

Other Concerns	
Conductors	• No needs identified at this time
Insulators	• No needs identified at this time
Shield Wire	• No needs identified at this time
Planning	• No needs identified at this time
Operational	• No needs identified at this time
Telecommunication	• No needs identified at this time

Review of Relevant Transmission Studies

Transmission Study Status
Was this line overloaded in recent Attachment K studies (Reliability Needs Assessments, Longer-Term Transmission Studies, etc.) or other recent studies?
• The most severe overloads documented outside of Winter Peaking 57 GW scenario were in the 51 GW Winter Peaking scenario   • Line S153, 134.8% at 216 MVA Loading over current LTE Rating of 160 MVA
Have modifications or upgrades to this line been identified as potential solutions in any of those studies?
No

Evaluated Solution Alternatives

Alternative 1

Base Alternative	
Description	• Replace 6 Category C structures
Primary needs addressed	• Yes, Category C structure concerns are addressed
Secondary needs addressed	• No
Advanced transmission technologies to be considered	• None • No advanced transmission technologies are applicable to degraded structures
Cost estimate and accuracy	• **Line S153 – $2.711M (-50%, +200%)**
Longer-term transmission needs addressed	• N/A
Key standards or criteria affecting design if different than current design	• New structures will be steel H-frame and designed in accordance with the current NESC requirements

Evaluated Solution Alternatives

Alternative 2

Base Alternative, Plus Proximity Structures	

Description	• 15 total structure replacements
	  • Replace the 6 Category C structures
	  • Replace 9 Category B proximity structures

Primary needs addressed	• Yes, Category C structure concerns are addressed
Secondary needs addressed	• Yes, Category B proximity structure concerns are addressed
Advanced transmission technologies to be considered	• None • No advanced transmission technologies are applicable to degraded structures
Cost estimate and accuracy	• **Line S153 – $5.988M (-25%, +50%)**
Longer-term transmission needs addressed	• N/A
Key standards or criteria affecting design if different than current design	• New structures will be steel H-frame and in accordance with the current NESC requirements

Comparative Analysis of Alternatives

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Comparison

Key Criteria	Alternative 1	Alternative 2
Addresses primary need	Yes	Yes
Addresses secondary need	No	Yes (Proximity structures)
Cost	• **Line S153 – $2.711M (-50%, +200%)**	• **Line S153 – $5.988M (-25%, +50%)**
Constructability concerns or advantages	Good – no unusual problems anticipated	Good – no unusual problems anticipated
Siting, environmental and regulatory issues	• Resolves immediate structure issues but does not minimize repeated future disturbances within the same section of the ROW by leaving Category B structures located in close-proximity to the work sites	• Minimizes repeated near-future disturbances within the same section of the ROW by replacing the Category B structures located in close-proximity to the work sites

Conclusion

- Total access costs to support this project is estimated to be $1.8 M
  - The right of way contains challenges impacting the access cost, such as significant presence of wetlands
  - Taking advantage of a single mobilization effort creates cost efficiencies in access as well as engineering, siting, permitting, and project management efforts
- Under Alternative 1, the average cost per structure replacement is $452K
- Under Alternative 2, the incremental cost to replace proximity structures is approx. $364K per structure
- Alternative 2 is the preferred solution

Schedule

Planned Schedule	
Start of Major Construction	Line S153 - Q4 2025
Project in Service	Line S153 - Q4 2026

Comment Submission	
Comment Deadline	August 7, 2025
ISO-NE Contact Email Address	pacmatters@iso-ne.com
Transmission Owner Contact Name	Dave Burnham
Transmission Owner Contact Email Address	PAC.Responses@eversource.com

Questions