

# STATE OF NEW HAMPSHIRE

## Inter-Department Communication

**DATE:** August 21, 2020  
**AT (OFFICE):** NHPUC

**FROM:** Randy Knepper  
Director – Safety Division

**SUBJECT:** Docket No. DE 19-157 115kV A152 Reliability Project  
Public Service Company of New Hampshire d/b/a Eversource Energy  
Petition for Licenses to Cross Public Lands at Locations in the Towns  
of Winchester and Swanzey, NH  
**Staff Recommendation for Three Licenses**

**TO:** Debra Howland, Executive Director  
Thomas Frantz, Director, Electric Division  
Richard Chagnon, Assistant Director, Electric Division  
Brian Buckley, Staff Attorney

**cc:** Paul Kasper, Assistant Director, Safety Division

The Safety Division’s Staff review of the above petition consisted of the following elements:

- A. Petition contents and history;
- B. Applicable State Statute;
- C. Existing crossing(s) already licensed by the PUC;
- D. Land ownership at existing facility locations;
- E. NESC code requirements as described in Puc 300;
- F. Public need and public impact, including applicability of other State regulations;
- G. Areas not reviewed by the Safety Division; and
- H. Conclusions and Recommendations

### **A. Petition contents and history**

#### **The A152 Reliability Project**

The existing A152 transmission line connects the Emerald Switching and Substation in Keene to Chestnut Hill Substation in Hinsdale and travels through Hinsdale, Winchester, Swanzey and Keene along existing utility corridors.

On September 20, 2019, Public Service Company of New Hampshire d/b/a Eversource Energy (“EVERSOURCE” or “the Company”), filed a petition pursuant to RSA 371:17 for licenses to construct and maintain electric lines, and a static line across public lands

and former railways at three locations owned by the State of New Hampshire (“State of NH”) in the Towns of Winchester and Swanzey.

On April 29, 2020, EVERSOURCE filed revisions to its petition. Minor changes to the engineering crossing design drawings and petition exhibits were included. The Company made further refinements to the design in order to align with Eversource standard structure configurations. The Company asserts that the revisions and changes to the engineering crossing designs continue to meet or exceed all NESC requirements.

In its petition, EVERSOURCE asserts that it has previously constructed a high transmission electric line and the designated existing 115 kV A152 transmission line is necessary to meet the current customer demands for power in the region. It is designed to accommodate future demand requirements of service to the public. Certain structures along the utility corridor needed upgraded but the existing conductors, static lines and all-dielectric self-supporting (ADSS) cable would be transferred from the existing support structures to new ones.

Staff notes the A152 reliability project is approximately 17 miles in length. Staff also notes that although EVERSOURCE’s petition does not explicitly request a telecommunication license, that the license considered is for electric lines and telecommunication cables owned and operated by EVERSOURCE.

The Project’s three public lands crossings in which EVERSOURCE seeks licenses, as addressed in this docket, are small segments of the Company’s overall replacement of structures of the existing 115 kV electric transmission line. EVERSOURCE has requested 4 licenses but the Safety Division believes only three are required as the first two locations which were continuous can be combined.

In its Original Petition, as well as in its Petition Revisions, EVERSOURCE asserts that the design specifies that each of the three public lands crossings in Swanzey and Winchester will use overhead circuit horizontal design configurations. The existing overhead crossings of the 115 kV A 152 transmission circuit will use three 795 kcmil ACSR 36/1 phase conductors with an all dielectric self supporting (ADSS) communication wire installed below the phase conductor cables and near the bottom of each of the structures. The optic portion of the ADSS cable is necessary in order to improve and enhance the reliability and capacity locations used in its electric system operations, and thereby meet the reasonable requirements of service to the public. In addition, static lines will be used to provide lightning protection above the A152 conductors in the designed overhead configurations. This configuration is typical as the static line is often found above the conductors.<sup>1</sup>

The Company has provided location maps, design and construction plans, profile drawings, and other engineering calculations for each crossing. In addition, the Company acknowledges that technical information provided is based on the 2017 National Electric

---

<sup>1</sup> Not all structures are of the same configuration. License 3 has the ADSS branching off in one of the spans when it crosses nearby an existing 345 kV line.

Safety Code (NESC) C2-2017 that is nearly equivalent for the applicable sections to the NESC 2012 and the proposed crossings have been redesigned and will be constructed, maintained and operated by EVERSOURCE in accordance with the applicable requirements of NESC.

Details of the public lands overhead crossings, as provided by EVERSOURCE in its September 20, 2019 original Petition and Exhibits, and updated with its April 29, 2020 revisions, have been reviewed by Staff. The public lands sought are commonly referred to as the Ashuelot Rail Trail.

All crossing of the state rail trail are reviewed by the Safety Division as if the Rail Trail could possibly be used in the future for rail purposes. Thus clearance requirements need to be a minimum of 22 feet per RSA 373:39 when overhead of where the rail would be placed. This was the condition that the Safety Division used for attaining NESC compliance.

Staff provides its summary of the overall project by breaking it down into three sections. Within each section, Staff has organized sequentially, 1 through 3, details for all three public lands crossings that will require licenses.

**1. Public Lands Parcel (see Staff Attachment 1 and 2)**

The first public lands parcel is in Swanzey, as identified in the petition and engineering drawings, is located south of Eaton Road and north of Woodale Avenue and travels along a state rail trail and crosses the rail trail in one location.

**License 1.**

License 1 is specific to the existing 115 kV transmission A152 line, an overhead crossing of public lands known as the Ashuelot Rail Trail, a span between Structures 75 and 83.<sup>2</sup>

- a. Structure 75 replacement will be type TA, double pole- tangent, light duty steel pole direct embed structures. It will be 65 feet in height and embedded 8.5 feet and has rating of Class H3. Structure 75 will be placed just at edge of this public land parcel. Structure 76 will be type SRAX 2-pole, steel structure directly embedded. It will be 65 feet in height and embedded 8.5 feet and has rating of Class H1.
- b. Structure 77 replacement will be type SDA-2 triple pole steel. It also will be 65 foot poles embedded 8.5 feet with a rating of class H1. Structures 78 and 79 replacement will both by type SRAX double pole made of light duty steel. Both have a rating of Class H1 and the heights are 70 and 80 feet respectively and embedded depths of 9 feet and 10 feet.
- c. Structure 80 replacement will be type SRC-3 triple pole steel. It also will be 75 foot poles embedded 9.5 feet with a rating of class H1. Structures 78 and 79 replacement will both by type SRAX double pole made of light duty steel. Both have a rating of Class H1 and the heights are 70 and 80 feet respectively and embedded depths of 9 feet and 10 feet.

---

<sup>2</sup> Re. Original Petition, and Exhibits 1 through 4; Supplemental Petition and Exhibits 1 through 4.

- d. Structures 81 and 83 replacement will be type SRC-2 triple pole steel. They also will be 70 foot poles embedded 9 feet with a rating of class H1. Structures 82 replacement will be type SRAX double pole made of light duty steel. It also has a rating of Class H1 and the height of 70 feet for one leg and 75 feet for the other because of the topography and embedded depths of 9.5 feet and 14 feet.
- e. For this overhead crossing of public lands, EVERSOURCE owns a permanent easement for its lines and facilities of the existing locations.<sup>3</sup>
- f. EVERSOURCE will also maintain a fiber optic cable (ADSS cable) on its existing overhead line structures across the entire span between Structures 75 through 83, below the A152 circuit. The ADSS cable will provide operational communications capabilities. It is this cable under heavy loading conditions that became the primary factor of the review of clearances. In addition EVERSOURCE will maintain 2 static lines used for lightening protection that are above the A152 circuit. Each static line uses 7/#8 Alumoweld.

## **2. Public Lands Parcel Winchester (see Staff Attachment 3)**

The second public lands parcel travels along the same utility corridor and enters into the former railroad right of way. This public lands parcel, as identified in the petition and engineering drawings, is located near Old Wesport Rd in a rail trail that is used as a bike and pedestrian path in the Town of Winchester, NH. This unused rail trail is known as the Ashuelot Rail Trail owned by the New Hampshire Department of Transportation but managed by the New Hampshire State Parks-Trails Bureau. The A152 reliability project will require the Commission to grant a single license related to this parcel. Descriptions of each of the crossing are as follows:

### **License 2.**

License 2 is specific to the existing 115 kV transmission circuit A152, an overhead crossing of public land, notably the Ashuelot Rail trail, a span between Structures 152 and 154.<sup>4</sup>

- a. Structure 152, placed just inside this public land parcel, is an existing type A, double pole, tangential wood structure that will not be replaced. It is a Class 3, set of wooden poles 55 feet in height and directly embedded 7.5 feet.
- b. Structure 153 will be replaced in this public land parcel with a type SRAX-, a 2-pole, direct embed, steel running angle structure that is 60 feet in height and embedded 8 ft. Its rating will be a Class H1 structure.
- c. Structure 154 will be placed in this public land parcel, will be type A, double pole, tangential wood structure that will not be replaced. It is a Class 3, set of wooden poles 55 feet in height and directly embedded 7.0 feet.
- d. For this overhead crossing of public lands, EVERSOURCE owns a permanent easement for its lines and facilities of the existing locations.
- e. EVERSOURCE will also maintain a fiber optic cable (ADSS cable) on its existing overhead line structures across the entire span between Structures 75 through 83, below the A152 circuit. The ADSS cable will provide operational

---

<sup>3</sup> Re. Original Petition, statement 9.

<sup>4</sup> Re. Original Petition and Exhibits 1 and 5; Supplemental Petition, and Exhibits 1 and 5.

communications capabilities. It is this cable under heavy loading conditions that became the primary factor of the review of clearances. In addition, EVERSOURCE will maintain 2 static lines used for lightening protection that are above the A152 circuit. Each static line uses 7/#8 Alumoweld.

- f. The span between Structure 153 and 154 shows a clearance of 18 feet while the rail portion requirement would be 22 feet. This is acceptable because the portion of the rail trail that is being sought requires only 9.5 feet for pedestrian or bike use. See Attachment 3.

### **3. Public Lands Parcel Winchester near Westport Substation (Staff Attachment 4)**

The third public lands parcel as identified in the petition and engineering drawings, is located near Old Westport Rd and the Westport Substation owned by Eversource. It traverses a former railroad right of way that is used as a bike and pedestrian path in the Town of Winchester, NH. This unused rail trail is known as the Ashuelot Rail Trail owned by the New Hampshire Department of Transportation but managed by the New Hampshire State Parks-Trails Bureau. The reliability project will require the Commission to grant a single public land crossing license related to this parcel. The license will be for the 115 kV A152 Transmission Line for approximately 474 feet. Map 4 depicts the crossing as a portion between Support Structure 175 and Support Structure 532 of a different 345kV Transmission Line identified as 379. This crossing then proceeds from Support Structure 532 of the 345KV transmission line at an angle to Support Structure 176 of the A152 115kV Transmission Line. This configuration applies only to the ADSS communication cable. The electric conductors span from Support Structure 175 to the Support Structure 175.5 within the Westport substation but outside of the public land. It then continues to Support Structure 176 and re-enters the public land. The amount of public land for the electric conductor portion is only approximately 241 feet. The project will require the Commission to grant a single public land crossing license related to this parcel. A description of the crossing is as follows:

#### **License 3.**

License 3 is specific to the proposed 115 kV transmission circuit A152, an overhead crossing of public land a span between Structures 175, 175.5 and 176.<sup>5</sup>

- a. Structure 175 will be placed just inside the eastern boundary of the rail trail and Structure 175.5 is an existing structure placed inside the Westport Substation (outside of the eastern boundary of this public land parcel). Structure 175.5 is to provide a support for the conductors and static lines from Structure 175.  
Structure 175 will be a 60 feet steel triple pole type SDA dead end structure that is embedded 8 feet. Its rating will be a Class H1.  
Structure 176 will be a 65 feet steel triple pole type SDA dead end structure that is embedded 8.5 feet. Its rating will be a Class H1.
- b. For this overhead crossing of public lands, EVERSOURCE owns a permanent easement for its lines and facilities of the existing locations.
- c. EVERSOURCE will also maintain a fiber optic cable (ADSS cable) on its existing overhead line structures across the entire span between Structures

---

<sup>5</sup> Re. Original Petition, Exhibits 1A and 6; Supplemental Petition and Exhibits 1 and 6.

- A. *Petition Contents and History*
- B. *New Hampshire statute*
- C. *Existing license*
- D. *Land ownership*

- d. 175, attached to a 345kV pole and back to Structure 176. It will be configured below the A152 circuit and 379 circuit. The ADSS cable will provide operational communications capabilities. It is this cable under heavy loading conditions that became the primary factor of the review of clearances.
- e. In addition EVERSOURCE will maintain 2 static lines used for lightening protection that are above the A152 circuit. Each static line uses 7/#8 Alumoweld and travel a separate configuration than the ADSS.

**B. New Hampshire statute referenced in petition**

**371:17 Licenses for New Poles.** – Whenever it is necessary, in order to meet the reasonable requirements of service to the public, that any public utility should construct a pipeline, cable, or conduit, or a line of poles or towers and wires and fixtures thereon, over, under or across any of the public waters of this state, or over, under or across any of the land owned by this state, it shall petition the commission for a license to construct and maintain the same. For the purposes of this section, "public waters" are defined to be all ponds of more than 10 acres, tidewater bodies, and such streams or portions thereof as the commission may prescribe. Every corporation and individual desiring to cross any public water or land for any purpose herein defined shall petition the commission for a license in the same manner prescribed for a public utility.

**Source.** 1921, 82:1. PL 244:8. RL 294:16. 1951, 203:48 par. 17. 1953, 52:1, eff. March 30, 1953. 2013, 82:1, eff. June 19, 2013.

In its Petition, EVERSOURCE states that in order to meet the reasonable requirements of service to the public for existing service and future capacity it has determined it is necessary to replace structures on the existing A152 115 kV line. Maintaining the existing transmission line will allow EVERSOURCE to continue to provide reliable electric service to its customers in the southwesterly region of the New Hampshire.

**C. Existing license(s) and permissions previously granted by the PUC for these locations**

Staff was not able to confirm the existence of any previously granted crossing licenses for the overhead crossing locations. EVERSOURCE stated these State land crossings have not been previously licensed by the Commission, due either to oversight, or because the lands involved were in private ownership at the time of the original construction of the existing lines and no crossing license was required.

**D. Land ownership at existing facility locations**

As noted in its petition, at statement 14, EVERSOURCE is using existing power line rights of way. For each of its overhead crossings EVERSOURCE owns permanent, easements for its lines and facilities across public lands at the proposed crossing locations. Each of the crossings will be constructed within the limits of those easements.

**E. NESC code requirements as described in Puc 300**

N.H. Code of Administrative Rules Puc 306 requires:

- (a) each utility shall construct, install, operate and maintain its plant, structures and equipment and lines, as follows:
  - (1) In accordance with good utility practice;
  - (2) After weighing all factors, including potential delay, cost and safety issues, in such a manner to best accommodate the public; and
  - (3) To prevent interference with other underground and above ground facilities, including facilities furnishing communications, gas, water, sewer or steam service.
- (b) For purposes of this section, “good utility practice” means in accordance with the standards established by:
  - (1) The National Electrical Safety Code C2-2012....

The Company explicitly states that the required technical information provided in its petition is based on the 2017 National Electric Safety Code (NESC) C2-2017. The Company continues by stating the proposed crossings have been designed and will be constructed, maintained and operated by EVERSOURCE in accordance with the applicable requirements of the NESC.<sup>6</sup>

Safety Division Staff reviewed the specifications related to the maps, design and proposed construction plan and profile drawings of the crossing projects as provided in the Petition, and supporting Exhibits 1, 1A, 2 through 6, as filed on September 20, 2019, in its revisions to the Petition, and supporting Exhibits, as filed on April 29, 2020, in subsequent email correspondence. Based on its review, Staff finds the project’s applicable technical specifications to be in conformance with the applicable sections of NESC code C2-2012 and Puc 300. There were no significant changes between the 2017 and 2012 editions that affected clearance requirements.

**F. Public need and public impact, including applicability of other State regulations**

In order to meet the reasonable requirements of electric service to the public, EVERSOURCE has previously constructed, and currently operates and maintains three-phase 115 kV transmission lines on its system. The proposed upgrades to the Support

---

<sup>6</sup> Re. Petition, paragraph 7.

Structures of the existing A152 Line will be an integral part of the EVERSOURCE system, as well as the regional ISO-NE Grid.

EVERSOURCE asserts in the petition that the construction, maintenance and operation of these crossings will be exercised without affecting the rights of the public of the public lands at each crossing location. The Safety Division agrees. Minimum safe line clearances above ground surfaces will be maintained at all times. The use and enjoyment of the public lands at each of the Winchester and Swanzey locations by the public will not be diminished in any material respect as a result of the overhead line crossings.

The Safety Division notes the review of the clearances was based on the Ashuelot Rail Trail being able to be converted back to rail function with clearances about the rails.

Current use of Ashuelot Rail Trail provide allow the clearance requirements to be even less than those proposed by EVERSOURCE. NHPUC Safety Division Staff concludes the impact to the public in terms of safety will be *de minimis* and not measurable in terms of meeting minimum NESC clearance requirements over the public lands at each location.

#### **G. Areas not reviewed by the Safety Division**

The scope of the Safety Division review was limited to analysis of the functional use and safety at the crossings. Aesthetics and environmental topics were not reviewed.

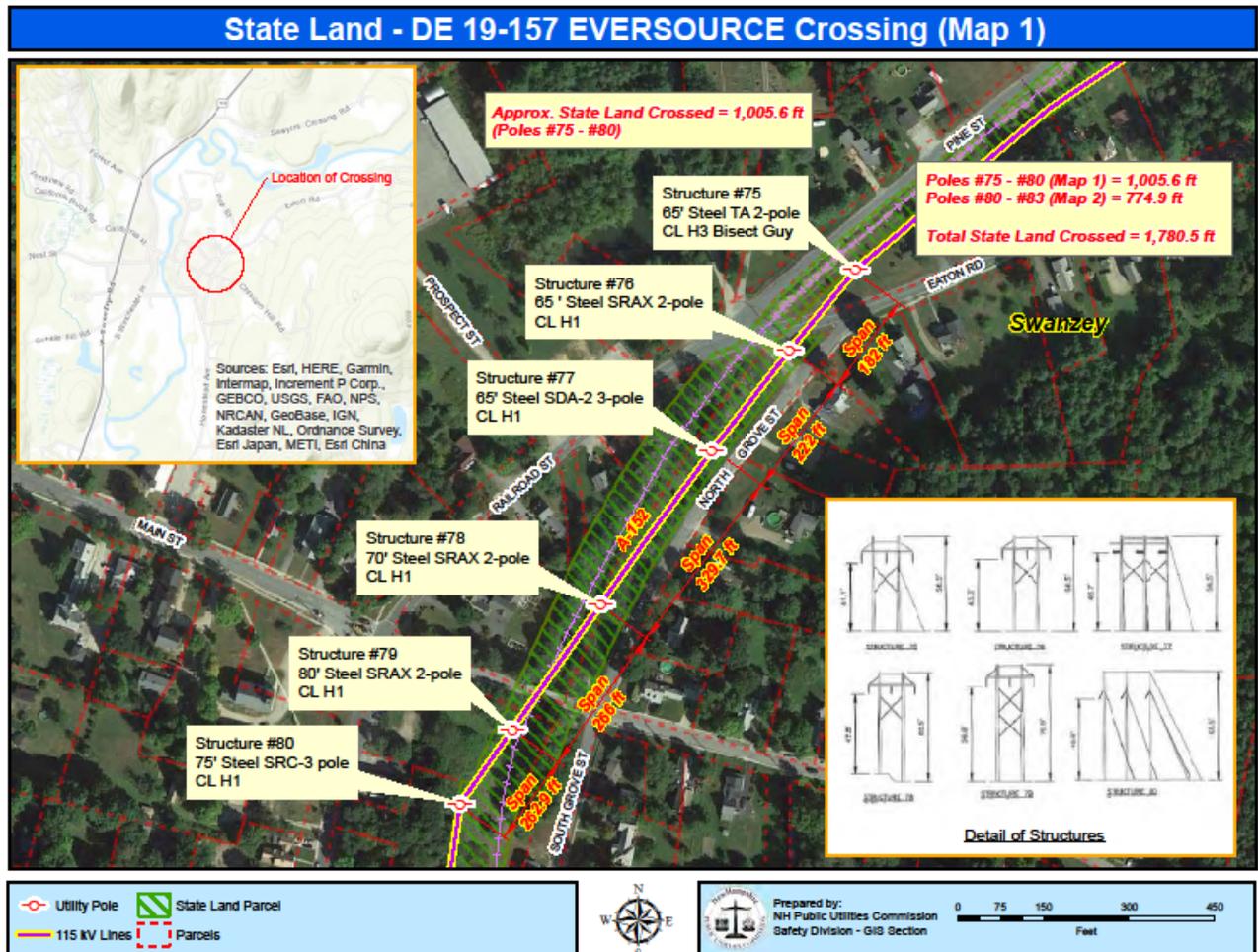
#### **H. Safety Division Staff Recommendations:**

Based on the results of its review of the petition, appendix, exhibits, and other available supporting documents, the Safety Division Staff recommends that the Commission:

- a) Find that the public lands crossing licenses EVERSOURCE requests in this docket may be exercised without substantially affecting the public rights of the public lands which are the subject of the petition;
- b) Grant EVERSOURCE three licenses to construct and maintain electric transmission lines including communication wires, across the public lands, and identified as follows:
  1. 115 kV transmission circuit A152, overhead crossing of Ashuelot Rail Trail between Support Structures 75 and 83 east of Pine Street, Swanzey;
  2. 115 kV transmission circuit A152, overhead crossing of Ashuelot Rail Trail between Support Structures 152 and 154 near Old Westport Rd, Winchester;
  3. 115 kV transmission circuit A152, overhead crossing of Ashuelot Rail Trail between Support Structures 175 and 176 near the Westport Substation, Winchester; and

- c) Require EVERSOURCE to notify the Commission Safety Division Staff within 60 days of any proposed changes related to the location or other technical specifications to any of the three overhead crossings of public lands identified in this Staff Recommendation.

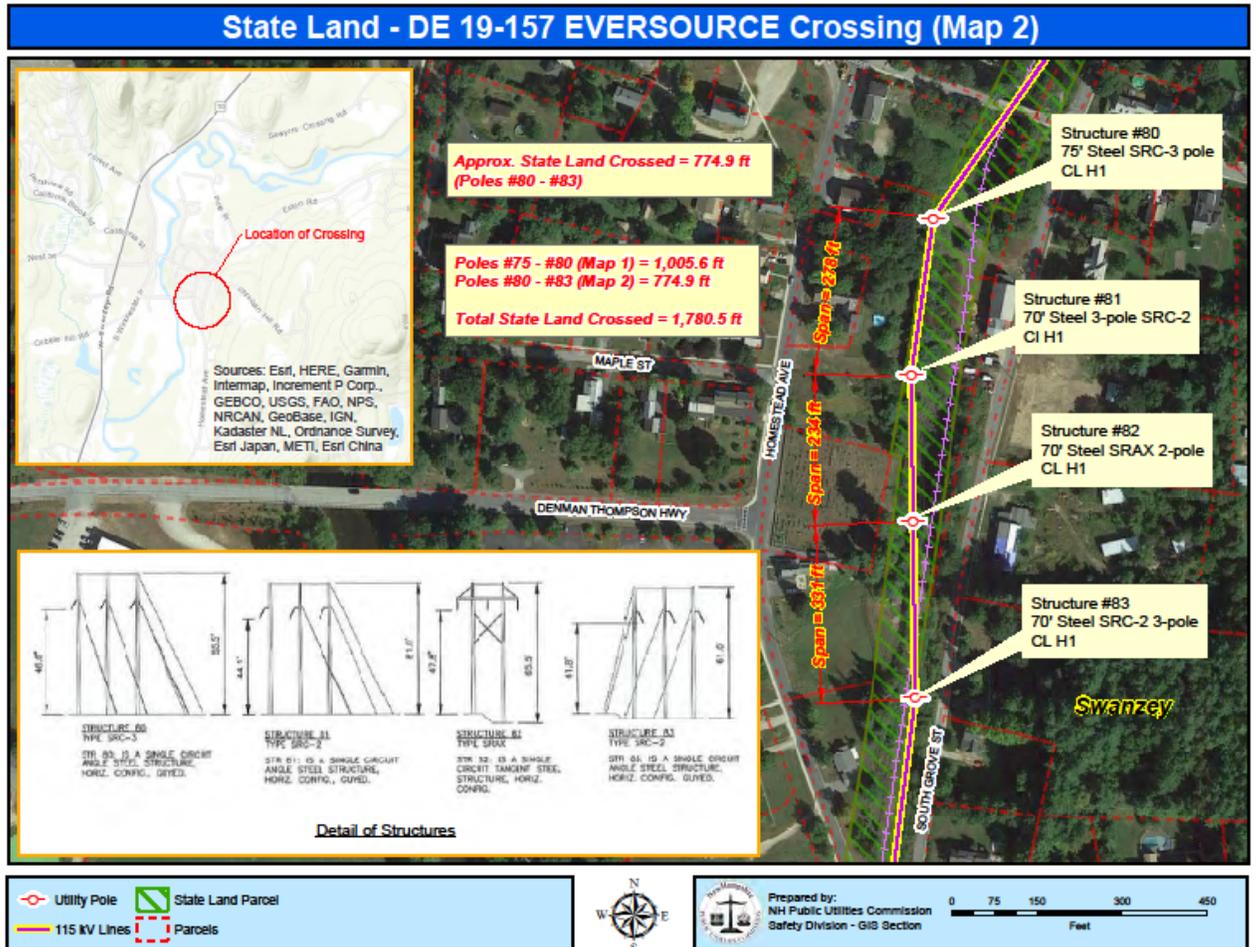
# Staff Attachment 1



## Public Land Parcel 1

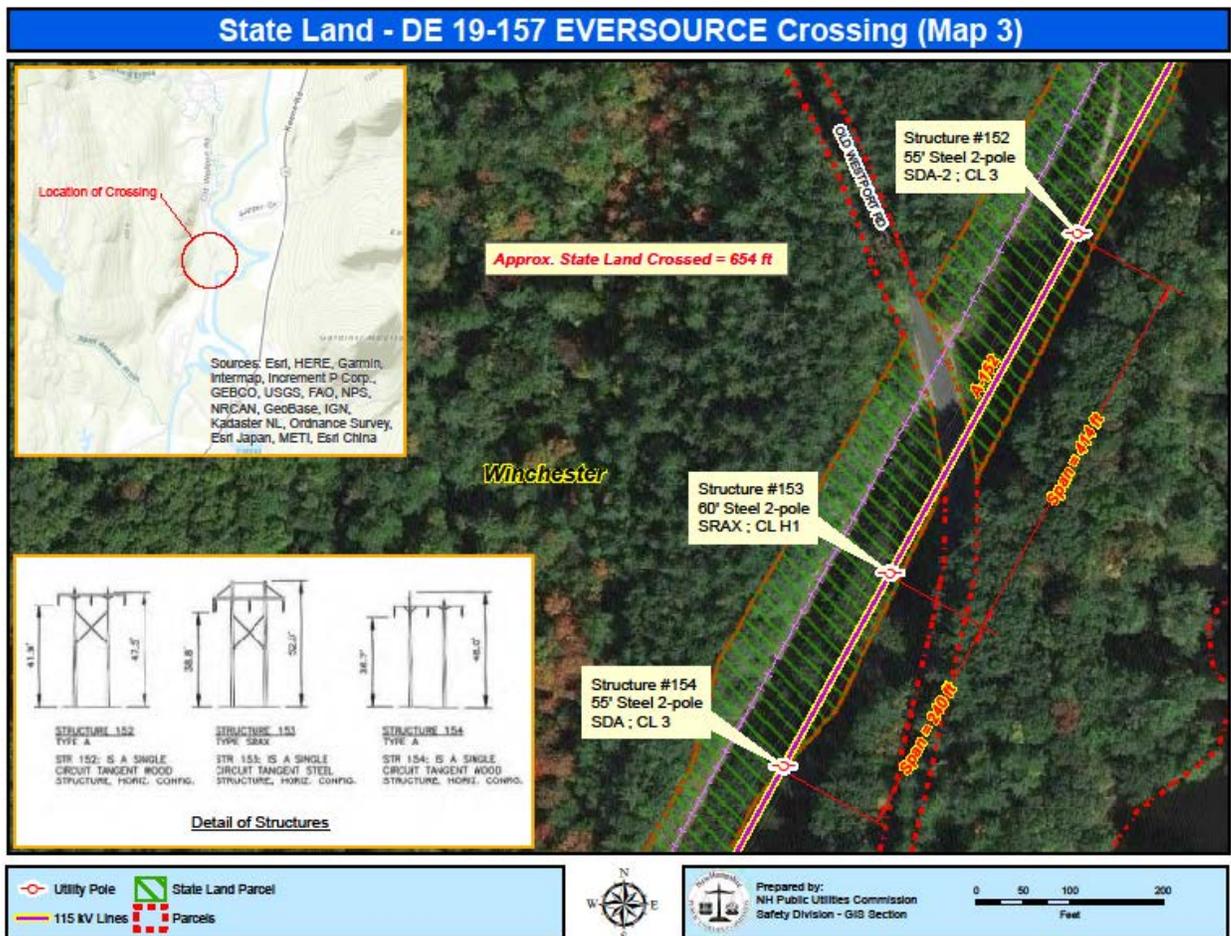
**Parcel 1** as identified in the petition and engineering drawings, is located east of Pine St and traverses a former railroad right of way that is used as a bike and pedestrian path in the Town of Swanzey, NH. This unused rail trail is known as the Ashuelot Rail Trail owned by the New Hampshire Department of Transportation but managed by the New Hampshire State Parks-Trails Bureau. The reliability project will require the Commission to grant a single public land crossing license related to this parcel. The license will be for the 115 kV A152 Transmission Line for approximately 1,780 feet. Map 1 breaks this further into 1005 feet between Support Structure 75 and Support Structure 80. Map 2 depicts the remaining 775 feet between Support Structure 80 and Support Structure 83.

## Staff Attachment 2



### Public Land Parcel 1: (continued)

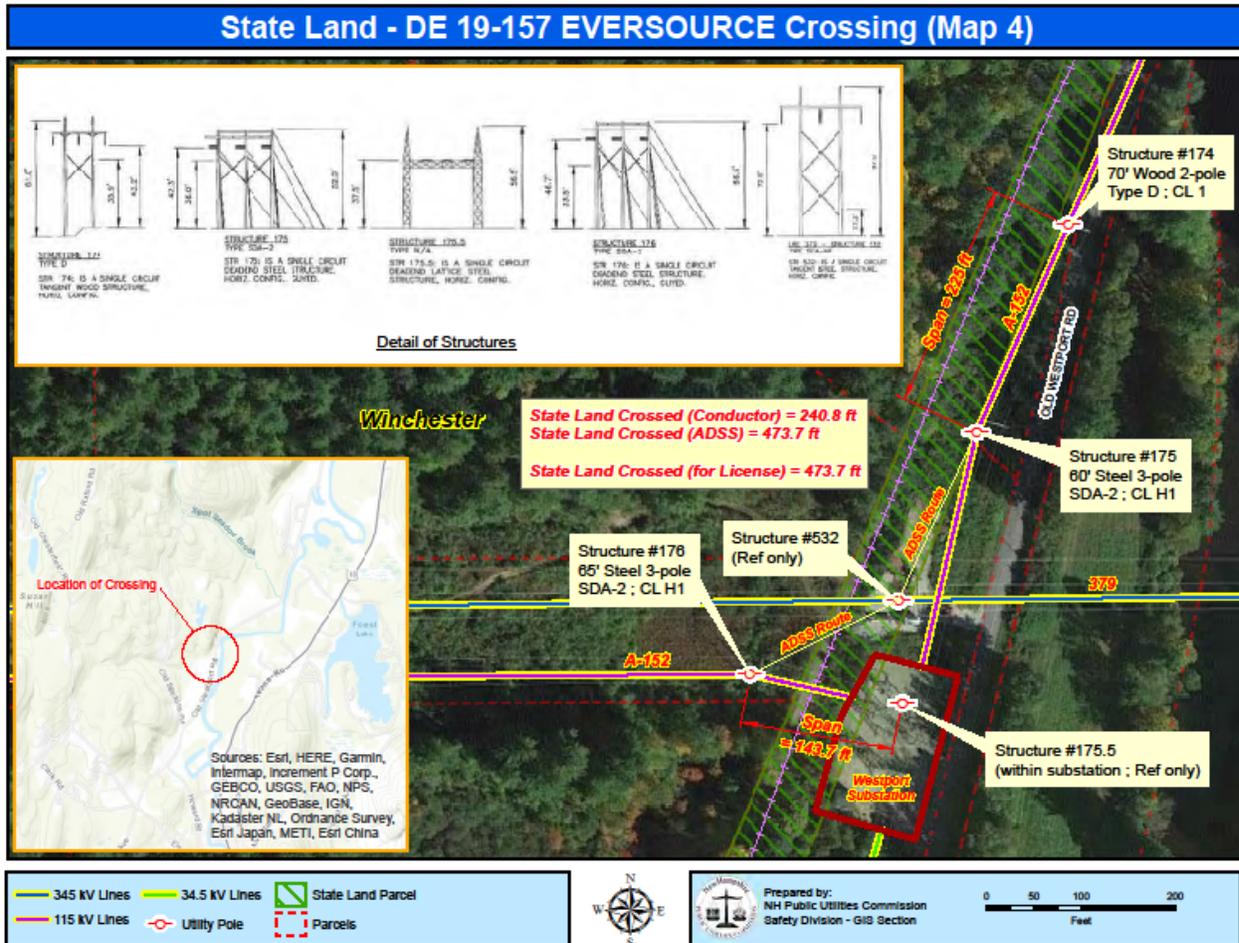
**Parcel 1** as identified in the petition and engineering drawings, is located east of Pine St and traverses a former railroad right of way that is used as a bike and pedestrian path in the Town of Swanze, NH. This unused rail trail is known as the Ashuelot Rail Trail owned by the New Hampshire Department of Transportation but managed by the New Hampshire State Parks-Trails Bureau. The reliability project will require the Commission to grant a single public land crossing license related to this parcel. The license will be for the 115 kV A152 Transmission Line for approximately 1,780 feet. Map 1 breaks this further into 1005 feet between Support Structure 75 and Support Structure 80. Map 2 depicts the remaining 775 feet between Support Structure 80 and Support Structure 83.



**Public Land Parcel 2:**

**Parcel 2** as identified in the petition and engineering drawings, is located near Old Westport Rd traverses a former railroad right of way that is used as a bike and pedestrian path in the Town of Winchester, NH. This unused rail trail is known as the Ashuelot Rail Trail owned by the New Hampshire Department of Transportation but managed by the New Hampshire State Parks-Trails Bureau. The reliability project will require the Commission to grant a single public land crossing license related to this parcel. The license will be for the 115 kV A152 Transmission Line for approximately 654 feet. Map 3 depicts the crossing as a portion between Support Structure 152 and Support Structure 154. While the total spans 654 feet, it is comprised of 414 feet between Support Structure 152 and 153 with the remaining 240 feet between Structure 153 and 154.

# Staff Attachment 4



### Public Land Parcel 3:

**Parcel 3** as identified in the petition and engineering drawings, is located near Old Westport Rd and the Westport Substation owned by Eversource. It traverses a former railroad right of way that is used as a bike and pedestrian path in the Town of Winchester, NH. This unused rail trail is known as the Ashuelot Rail Trail owned by the New Hampshire Department of Transportation but managed by the New Hampshire State Parks-Trails Bureau. The reliability project will require the Commission to grant a single public land crossing license related to this parcel. The license will be for the 115 kV A152 Transmission Line for approximately 474 feet. Map 4 depicts the crossing as a portion between Support Structure 175 and Support Structure 532 of a different 345kV Transmission Line identified as 379. This crossing then crosses from Support Structure 532 of the 345KV transmission line at an angle to Support Structure 176 of the A152 115kV Transmission Line. This configuration applies only to the ADSS communication cable. The electric conductors span from Support Structure 175 to the Support Structure 175.5 within the Westport substation but outside of the public land. It then continues to Support Structure 176 and re-enters the public land. The amount of public land for the electric conductor portion is only approximately 241 feet.