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VIA ELECTRONIC MAIL

August 4, 2022

TO: Service List, dated April 21, 2022

FROM: Melanie Bachman, Executive Director MAB

RE: **DOCKET NO. 508** – The United Illuminating Company (UI) application for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project that consists of the relocation and rebuild of its existing 115- kilovolt (kV) electric transmission lines from the railroad catenary structures to new steel monopole structures and related modifications to facilitate interconnection of the rebuilt 115-kV electric transmission lines at UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations along approximately 9.5 miles of the Connecticut Department of Transportation's Metro-North Railroad corridor traversing the municipalities of Milford, Orange, West Haven and New Haven, Connecticut.

In accordance with the Connecticut Siting Council's (Council) July 8, 2022 Close of Evidentiary Record Memorandum, after the Connecticut Siting Council (Council) issues its draft findings of fact, parties and intervenors may identify errors or inconsistencies between the Council's draft findings of fact and the record; however, no new information, evidence, argument, or reply briefs will be considered by the Council.

Parties and Intervenors may file written comments with the Council on the Draft Findings of Fact issued on this matter by August 11, 2022.

MB/MP/lm

Enclosure

DOCKET NO. 508 – The United Illuminating Company (UI) application for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kV Rebuild Project that consists of the relocation and rebuild of its existing 115- kilovolt (kV) electric transmission lines from the railroad catenary structures to new steel monopole structures and related modifications to facilitate interconnection of the rebuilt 115-kV electric transmission lines at UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations along approximately 9.5 miles of the Connecticut Department of Transportation's Metro-North Railroad corridor traversing the municipalities of Milford, Orange, West Haven and New Haven, Connecticut.	}	Connecticut Siting Council July 29, 2022

DRAFT Findings of Fact

Introduction

1. Pursuant to Connecticut General Statutes (C.G.S.) §16-50g et seq., on February 28, 2022, The United Illuminating Company (UI), applied to the Connecticut Siting Council (Council) for a Certificate of Environmental Compatibility and Public Need for the Milvon to West River Railroad Transmission Line 115-kilovolt (kV) Rebuild Project (Project) that traverses the municipalities of Milford, Orange, West Haven and New Haven and consists of the construction, maintenance and operation of a rebuilt 115-kV overhead electric transmission line entirely within approximately 9.5 miles of the existing Connecticut Department of Transportation's Metro-North Railroad corridor by relocating existing electric transmission lines from railroad catenary structures to new steel monopole structures and related modifications to facilitate the interconnection of the rebuilt 115-kV transmission lines with UI's existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations. (UI 1, Vol. 1, pp. ES-1 to ES-5)

2. UI's service area consists of the following municipalities in Connecticut: Ansonia, Bridgeport, Derby, East Haven, Easton, Fairfield, Hamden, Milford, New Haven, North Branford, North Haven, Orange, Shelton, Stratford, Trumbull, West Haven, and Woodbridge. (UI 5, response 3)

3. The purpose of the Project is to maintain the reliability of the bulk transmission grid by addressing the age-related physical limitations of the existing transmission lines located on existing railroad catenary structures (catenaries) and rebuild the lines to meet current National Electrical Safety Code (NESC) and UI standards. (UI 1, pp. ES-2 and ES-3)

4. The parties in this proceeding are UI and the City of Milford. (Transcript 1, April 28, 2022, 2:00 p.m. [Tr. 1], p. 5)

5. Pursuant to C.G.S. §16-50*l*(b), UI provided legal service and notice of the application. This included notice to municipalities traversed by the proposed Project; municipalities within 2,500 feet of the proposed Project; federal, state, local and regional agencies, elected officials, and abutters of the substations. UI published notice of the application filing in the New Haven Independent on January 18 and February 11, 2022, New Haven Register on January 18 and February 11, 2022, Milford Mirror on January 20 and February 17, 2022, Orange Town News on February 11, 2022, and the West Haven Voice on January 20 and February 17, 2022. UI included a project information insert in one of its monthly bills to customers within Milford, Orange, West Haven, and New Haven within 60 days before submission of the application to the Council. (UI 1, Vol. 1, p. 8-5; UI 1, Vol. 1A, Appendices – Part II, Appendix F, Affidavit Regarding Notice Provided to Customers)

6. In accordance with the Council's Application Guide for an Electric and Fuel Transmission Line Facility, UI provided notice to a number of community groups including applicable economic development commissions, land trusts, environmental groups, river protection organizations, historic preservation groups, and water companies with watersheds within the Project area. (UI 1, Vol. 1A, Appendices – Part II, Appendix F, Affidavit Regarding Notice to Community Organizations and Water Companies)

7. Pursuant to C.G.S. §16-50*l*(b), UI served a copy of the application for the proposed Project on federal, state, regional and local officials listed therein. (UI 1, Vol. 1A, Appendices – Part II, Appendix F, Affidavit of Service of Application)

Procedural Matters

8. On March 10, 2020, Governor Lamont issued a Declaration of Public Health and Civil Preparedness Emergencies, proclaiming a state of emergency throughout the state as a result of the COVID-19 pandemic. (Council Administrative Notice Item No. 79)

9. On March 12, 2020, Governor Lamont issued Executive Order No. (EO) 7 ordering a prohibition of large gatherings, among other orders and directives. (Council Administrative Notice Item No. 79)

10. On March 14, 2020, and as subsequently extended, Governor Lamont issued EO 7B ordering suspension of in-person open meeting requirements of all public agencies under CGS §1-225. (Council Administrative Notice Item No. 55, CGS §1-200, et seq. (2021))

11. Public Act 22-3 took effect on April 30, 2022. It permits public agencies to hold remote meetings under the Freedom of Information Act (FOIA) and the Uniform Administrative Procedure Act. FOIA defines "meeting" in relevant part as "any hearing or other proceeding of a public agency." (Council Administrative Notice Item No. 79; Council Administrative Notice Item No. 80; CGS §1-200, et seq. (2021))

12. PA 22-3 allows public agencies to hold remote meetings provided that:
    a) The public has the ability to view or listen to each meeting or proceeding in real-time, by telephone, video, or other technology;
    b) Any such meeting or proceeding is recorded or transcribed and such recording or transcript shall be posted on the agency's website within seven (7) days of the meeting or proceeding;
    c) The required notice and agenda for each meeting or proceeding is posted on the agency's website and shall include information on how the meeting will be conducted and how the public can access it any materials relevant to matters on the agenda shall be submitted to the agency and posted on the agency's website for public inspection prior to, during and after the meeting; and
    d) All speakers taking part in any such meeting shall clearly state their name and title before speaking on each occasion they speak.

    (Council Administrative Notice Item No. 80)

13. On March 4, 2022, the Council sent a letter to the State Treasurer, with copies to the Chief Elected Officials of Milford, Orange, New Haven, and West Haven, stating that $25,000 was received from UI as payment to the Municipal Participation Fund (Fund) and deposited in the office of the State Treasurer's department account. The Fund is available for any or all of the municipalities to apply for as reimbursement to defray expenses incurred by the municipalities if they participated as a party in the proceeding, pursuant to C.G.S. §16-50bb. The City of Milford participated as a party in the proceeding. (Record)

14. During a regular Council meeting on March 24, 2022, the application was deemed complete pursuant to Regulations of Connecticut State Agencies (R.C.S.A.) §16-50*l*-1a and the public hearing schedule was approved by the Council. (Record)

15. Pursuant to C.G.S. §16-50m, the Council published legal notice of the date and time of the public hearing in the New Haven Register on March 26, 2022. (Record)

16. Pursuant C.G.S. § 16-50m, on March 25, 2022, the Council sent a letter to the Cities of Milford, West Haven and New Haven and the Town of Orange to provide notification of the scheduled public hearing via Zoom conferencing and to invite each municipality to participate in the proceeding. (Record)

17. On April 6, 2022, the Council held a remote pre-hearing conference on procedural matters for parties and intervenors to discuss the requirements for pre-filed testimony, exhibit lists, administrative notice lists, expected witness lists and filing of pre-hearing interrogatories. Procedures for the remote public hearing via Zoom conferencing were also discussed. (Council Pre-Hearing Conference and remote hearing procedure Memoranda, dated March 30, 2022)

18. On April 14, 2022, in compliance with R.C.S.A. §16-50j-21, UI installed a total of five, four-foot by six-foot signs throughout the Project area. The signs presented information regarding the Project and the Council's public hearing. One sign was installed at each of the following locations:

    a) Milford Train Station* at 1 Railroad Avenue, Milford;
    b) Intersection of Marsh Hill Road and Metro North Railroad, Orange;
    c) UI Operations Building at 100 Marsh Hill Road, Orange;
    d) West Haven Train Station* at 20 Railroad Avenue, West Haven; and
    e) West River Substation at 255 Ella T. Grasso Boulevard (Route 10), New Haven.

    *Railroad station locations for signs were included in order for the signs to be visible to both passenger train traffic and the general public.

    (UI 4; Tr. 1, pp. 17-18)

19. Pursuant to C.G.S. § 16-50m, after giving due notice thereof, the Council held a remote public hearing on April 28, 2022, beginning with the evidentiary session at 2:00 p.m. and continuing with the public comment session at 6:30 p.m. via Zoom conferencing. The Council provided information for video/computer access or audio only telephone access. (Council's Hearing Notice dated March 25, 2022; Tr. 1, p. 1; Transcript 2, April 28, 2022, 6:30 p.m. [Tr. 2], p. 121)

20. On May 20, 2022, the City of Milford submitted a Motion for an Additional Evidentiary Hearing (Motion for Additional Hearing) beyond the scheduled May 24, 2022 continued evidentiary hearing session. (City of Milford Motion for Additional Hearing dated May 20, 2022)

21. The Council continued the remote evidentiary hearing session via Zoom conferencing on May 24, 2022 beginning at 2:00 p.m. (Council Evidentiary Hearing Continuation Memorandum dated April 29, 2022; Transcript 3 – 2:00 p.m. [Tr. 3], p. 143)

22. At the conclusion of the May 24, 2022 continued evidentiary hearing session, the City of Milford's Motion for Additional Hearing was rendered moot because party appearances and cross-examination were not yet complete, and thus, the Council scheduled an additional evidentiary hearing session for June 14, 2022. (Tr. 3, p. 241; Council Evidentiary Hearing Continuation Memorandum dated May 25, 2022)

23. The Council continued the remote evidentiary hearing session via Zoom conferencing on June 14, 2022 beginning at 2:00 p.m. (Council Evidentiary Hearing Continuation Memorandum dated May 25, 2022; Transcript 4 – 2:00 p.m. [Tr. 4], p. 246)

24. In compliance with PA 22-3:
    a) The public had the ability to view and listen to the remote public hearings in real-time, by computer, smartphone, tablet or telephone;
    b) The remote public hearings were recorded and transcribed, and such recordings and transcripts were posted on the Council's website on April 28, 2022 and May 17, 2022; May 24, 2022 and June 8 2022; and June 14, 2022 and June 20, 2022, respectively;
    c) The Hearing Notice, Hearing Program, Citizens Guide for Siting Council Procedures and Instructions for Public Access to the Remote Hearings were posted on the agency's website;
    d) The record of the proceeding is available on the Council's website for public inspection prior to, during and after the remote public hearings; and
    e) The Council, parties and intervenors provided their information for identification purposes during the remote public hearings.

    (Hearing Notice dated March 25, 2021; Tr. 1; Tr. 2; Tr. 3; Tr. 4; Record)

25. Pursuant to C.G.S. §16-50n(f), during a regular meeting held on July 7, 2022 the Council closed the evidentiary record for Docket 508 and established August 6, 2022 as the deadline for the submission of briefs and proposed findings of fact. (Record)

Municipal Consultation and Community Outreach

26. UI began its outreach efforts to the Cities of Milford, West Haven, and New Haven and the Town of Orange in 2020 by meeting with municipal officials. Specifically, UI conducted the following meetings with municipal officials:

    a) UI met with the City of Milford's Planning and Wetlands departments on October 14, 2020 to discuss the Project. A site walk was conducted with a Milford wetlands representative on October 28, 2020. Follow-up meetings were held on February 18, 2021 and January 5, 2022, and a public informational meeting was held on February 28, 2022;
    b) UI met with the City of West Haven Planning, Public Works and Wetlands departments, as well as the Building Official and City Engineer on November 11, 2020 to discuss the Project. UI provided additional information in October 2021 and a follow-up meeting was held on January 19, 2022;
    c) UI requested a meeting with the City of New Haven in November and December 2020 to discuss the Project. Although a specific meeting to discuss the Project was not held, UI introduced the

Project to attendees at the City of New Haven's December 21, 2020 and February 16, 2021 Quarterly Utility Coordination Meetings, and discussed the DEEP temporary Authorization for Project-related survey work in regulated wetlands areas; and

d) UI met with the Town of Orange on November 16, 2020 to discuss the Project. A follow-up meeting was held on December 8, 2021 with the Town Engineer and Inland Wetlands and Zoning Enforcement Officer.

(UI 1, Vol. 1, pp. 8-4 and 8-8)

27. Pursuant to C.G.S. §16-50*l*(e), UI delivered a Municipal Consultation Filing (MCF) to the Cities of Milford, West Haven, and New Haven and the Town of Orange on October 28, 2021 to begin the 60-day municipal consultation process. (UI 1, Vol. 1, p. 8-6)

28. UI created a website (www.UIRailroadTLineUpgrades.com) to provide information to the community about the Project. (UI 1, Vol. 1, p. 8-5)

29. UI mailed a postcard to Project abutters on January 5, 2022. The mailing included a description of the Project and an invitation to a Virtual Open House (VOH) for the Project. The VOH is accessible via the Project website and went live in mid-January 2022. (UI 1, Vol. 1, p. 8-5)

30. UI offered two Zoom appointment sessions in January 2022 to allow the public to ask questions or provide comments to UI representatives. No members of the public signed up to speak for either Zoom session. (UI 1, Vol 1, p. 8-5)

31. UI discussed the Project with the City of Milford Planner, Director of Public Works and Wetlands Officer. Concerns included, but weren't limited to, wetland impacts, disturbance near the Milford Cemetery, visibility at the Milford Train Station, parking impacts and conflicts with a new development approved for construction at 44-64 River Street. (City 4)

32. By letter dated March 16, 2022, the City of Milford requested the following information from UI:

a) Additional information regarding the economic and environmental viability of rebuilding any portion of the transmission line between Beardsley Avenue and River Street (for Structures Nos. P905N to P912N) in an underground configuration;
b) Identify the height of proposed Structure No. P912N;
c) Identify the quantity of additional structures required and the approximate locations of such structures if the maximum heights of Structures Nos. P908N, P910N, P912N, P914N, P915N, P916N, and P918N are listed to 120 feet for each;
d) Additional information regarding the economic and environmental viability of part (c); and
e) Photo-simulations for the area between Beardsley Avenue and River Street to allow for a visual comparison of the Project and the alternative with lower heights identified in part (c).

(UI 1, Bulk Filing 2, Municipal Consultation Filing - UI Letter Regarding Milford Recommendations)

33. On April 11, 2022, UI submitted responses to the City of Milford's request for information. (UI 3)

34. After the application was submitted to the Council, UI received three comments from residents of Milford related to DOT encroachment letters and three comments from residents of West Haven related to potential rail service interruption and Project structures. UI responded to each resident comment. (UI 5, response 2)

35. By letter dated May 12, 2022, the City of West Haven Department of Planning and Development expressed support for the Project and noted that it would strengthen the electrical system and benefit the residents and businesses in West Haven. (City of West Haven Comments dated May 12, 2021)

36. By letter dated May 23, 2022, State Representatives Ferraro, Kennedy and Smith, and Senator Maroney requested consideration of an alternative configuration for the Project to rebuild the existing railroad catenary structures to support the new transmission line. Representatives Kennedy and Smith also provided oral limited appearance statements during the public comment session. (Milford Legislative Delegation comments, dated May 23, 2022; Tr. 2)

State Agency Comment

37. Pursuant to C.G.S. § 16-50j (g), on March 25, 2022, the following state agencies were solicited by the Council to submit written comments regarding the proposed facility: Department of Energy and Environmental Protection (DEEP); Department of Public Health (DPH); Council on Environmental Quality (CEQ); Public Utilities Regulatory Authority (PURA); Office of Policy and Management (OPM); Department of Administrative Services (DAS); Department of Labor (DOL); Department of Economic and Community Development (DECD); Department of Agriculture (DOAg); Department of Transportation (DOT); Connecticut Airport Authority (CAA); Department of Emergency Services and Public Protection (DESPP); and State Historic Preservation Office (SHPO). (Record)

38. The Council received comments from DEEP[1] on April 21, 2022; CEQ[2] on April 27, 2022; and DOT[3] on June 13, 2022. These comments are addressed in the Environmental Considerations section of this document. (Record)

39. No other state agencies responded with comment on the application. (Record)

40. While the Council is obligated to consult with and solicit comments from state agencies by statute, the Council is not required to abide by the comments from state agencies. (*Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007))

System Planning and Mandatory Reliability Standards

41. The Federal Energy Policy Act of 2005 required the Federal Energy Regulatory Commission (FERC) to designate an Electric Reliability Organization (ERO) to develop and enforce a system of mandatory reliability standards for planning and operations of the bulk power electric system. Compliance with the standards is mandatory under federal law and violations are punished by fines. (Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #34)

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[1] https://portal.ct.gov/-/media/CSC/1_Dockets-medialibrary/1_MEDIA_DO500_600/DO508/PROCEDURALCORRES/DO508-20220422-DEEPrecd-final.pdf

[2] https://portal.ct.gov/-/media/CSC/1_Dockets-medialibrary/1_MEDIA_DO500_600/DO508/PROCEDURALCORRES/do508-sacrcdpi-ceq-20220427.pdf

[3] https://portal.ct.gov/-/media/CSC/1_Dockets-medialibrary/1_MEDIA_DO500_600/DO508/PROCEDURALCORRES/DO508-SACRCDPI_DOT.pdf

42. FERC designated the North American Electric Reliability Corporation Inc. (NERC) to be ERO. As the ERO, NERC is charged with improving the reliability of the bulk-power electric system by developing mandatory reliability standards for planning and operations. (Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #35)

43. The Northeast Power Coordinating Council (NPCC) is a regional reliability council that was established to improve the reliability of the interconnected bulk power system in New York, the six New England states, and eastern Canadian provinces. The US systems of the NPCC formed two regional reliability councils to ensure the reliability of their portions of the interconnected bulk-power electric system - ISO-NE, and New York Independent System Operator (NYISO). (Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #36)

44. ISO New England Inc. (ISO-NE) is the not-for-profit corporation responsible for power system planning, as well as grid operation and market administration in the six New England States. ISO-NE uses a ten-year planning horizon. It has adopted planning standards, criteria and procedures consistent with the standards and criteria established by NERC and the NPCC, designed to ensure that New England's electric system will provide adequate and reliable electric power. (Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #37; Council Administrative Notice Item No. 21 – ISO-NE 2022 Regional System Plan, p. iii)

45. As a transmission owner in New England, UI must comply with the reliability standards and criteria adopted by NERC, NPCC, and ISO-NE. These standards and criteria establish a set of performance tests or contingency simulations under which UI's electric transmission system must perform without experiencing overloads or voltage problems. (Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #40)

46. ISO-NE is responsible for the reliable and economical operation of New England's electric power system, which includes managing the comprehensive, long-term planning of the regional power system to identify the region's electricity needs and plans for meeting those needs. The planning process involves the preparation of an annual Regional System Plan (RSP) that provides forecasts of annual energy use and peak loads for a ten-year planning horizon; information about amounts, locations, and characteristics of market responses; and descriptions of transmission projects for the region that could meet the identified needs, as summarized in the RSP Project List. (Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #38)

47. The *2021 ISO- NE Regional System Plan* (RSP21) and the regional system planning process identify the region's electricity needs and plans for meeting these needs for 2021 through 2030. (Council Administrative Notice Item No. 21 – ISO-NE 2021 Regional System Plan, p. iii)

48. The RSP Project List is a summary of projects that have a reliability need based on a criteria violation, e.g. voltage violation. The Project is not listed on the March 2022 ISO-NE RSP Project List. (Council Administrative Notice Item No. 22 – March 2022 ISO-NE RSP Project List; Tr. 1, p. 156)

49. The ISO-NE RSP Asset Condition List is a summary of pool transmission facilities in the region that are being rebuilt or modified due to their condition, age, or physical deterioration and to comply with the updated NESC standards. The Project is listed on the March 2022 ISO-NE RSP Asset Condition List due to the physical deterioration of the structures to which the transmission lines are attached. (Tr. 1, p. 156; Tr. 3, p. 155; Council Administrative Notice Item No. 21 – ISO-NE 2021 Regional System Plan, p. 86)

Project Need

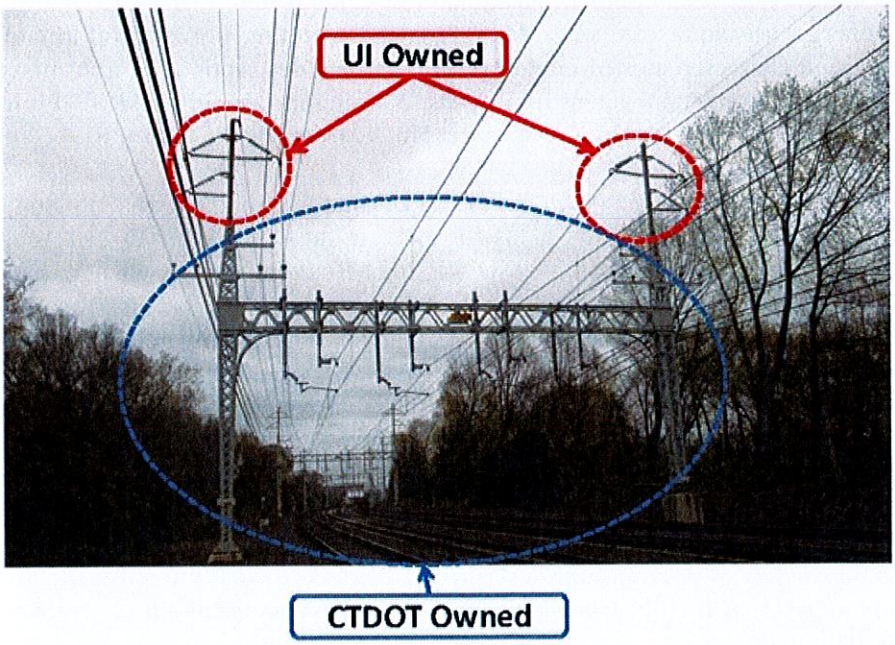
50. UI has a lease agreement with DOT for collocation of electric transmission facilities within the railroad right-of-way (ROW) and a maintenance agreement with Metro-North Railroad (MNR) for the bonnets on the catenary structures. The DOT lease has a 30-year term with two 15-year extensions. The current lease was executed in May 2003. (UI 1, p. 1-4; UI 6, response 5; Tr. 1, p. 109)

51. The existing catenaries along the ROW, which are owned by DOT and operated by MNR, were originally built between 1912 and 1914 to support MNR signal and feeder wires for the electric operation of the trains. The catenaries consist of heavy-duty steel lattice gantries (bridges) that extend above the railroad tracks and support overhead wires that supply electricity to the trains. The catenaries also support an aerial ground wire, which acts as a shield wire and provides lightning protection for the railroad's signal and feeder wires. (UI 1, p. 1-1, 1-3)

52. UI attached 69-kV transmission lines to the catenaries in the 1940s. At that time, UI constructed support columns (bonnets) on the top of both ends of the catenaries and installed the 69-kV transmission lines on the bonnets along with shield wires for lightning protection. (UI 1, Vol. 1, pp. 1-3 and 1-4)

53. UI's transmission lines were upgraded to 115-kV in the 1960s. In the years since the installation of UI's 115-kV facilities, in some locations, changes in the position or configuration of MNR equipment has resulted in UI's shield wire also providing lightning protection to railroad facilities. (UI 1, Vol. 1, p. 1-4)

54. The existing catenaries are approximately 60 feet wide (measured perpendicular to the railroad tracks). The tops of the UI-owned bonnets (with the existing 115-kV transmission attached) reach a typical height of approximately 60 feet above ground level (agl). See figure below.



(UI 1, pp. 1-4 and 1-5; UI 1, Vol. 2)

55. UI's removal of its 115-kV lines from catenary structures along six miles of the MNR corridor between the Cities of Bridgeport and Milford was approved by the Council in Petition Nos. 1110, 1138, 1176, and 1304. (UI 1, p. 1-3; Council Administrative Notice Item 44)

56. The Milvon Substation to West River Substation segment of 115-kV lines is currently located on top of 186 catenary structures. These existing 115-kV lines have circuit designations or line numbers as identified below.

Location (Substation) / Circuit designation	Northern 115-kV Line	Southern 115-kV
Milvon Substation – Woodmont Substation	88005A	89005B
Woodmont Substation – Allings Crossing Substation	8804A	8904B
Allings Crossing Substation – West River Substation	88003A	89003B

(UI 1, pp. 1-3 and 1-4)

57. In 2018, UI conducted engineering analyses that included, but weren't limited to, the 115-kV transmission lines between Milvon Substation and West River Substation. The analyses included field observations of the catenaries and evaluation of the asset condition of the catenaries, given the existing railroad mechanical loading, as well as the age of both the bonnets and the catenaries. (UI 1, Vol. 1, p. 1-7)

58. The engineering analyses found that the existing bonnet support system for the UI transmission line has age-related physical limitations such as loss of structural steel thickness, missing structural members, corrosion expansion, and exposed anchor bolts. As a result, UI identified and evaluated alternative solutions for upgrading the lines, and determined that, to maintain the reliability of the bulk power grid, the 115-kV lines must be relocated off of the bonnets attached to the catenaries and rebuilt using new monopoles, conductor, and optical ground wire (OPGW). (UI 1, p. 1-7; UI 5, response 12)

59. UI also concluded that the 115-kV lines must be rebuilt to meet current NESC and UI standards, which include the ability to withstand extreme weather conditions such as a Category 3 hurricane wind loading*.

*A Category 3 hurricane has a minimum wind speed of 130 miles per hour.

(UI 1, p. 1-7; Tr. 1, p. 22; UI 17, response 10)

60. The Project would adhere to current NESC standards and UI design criteria, e.g. withstand Category 3 wind loads. (UI 1, p. 9-1; UI 17, response 10)

61. The March 2022 ISO-NE Asset Condition List identifies the Project as "Planned" (as of March 2022) which means it is a regulated transmission solution upgrade that has been approved by ISO-NE. (Council Administrative Notice Item No. 21 – ISO-NE 2022 Regional System Plan; March 2022 Asset Conditions List; June 2022 Asset Conditions List)

62. The Project was listed in UI's March 2021 and March 2022 *Forecast of Loads and Resources Reports* as a planned 115-kV electric transmission line facility upgrade due to asset condition needs. (UI March 2022 Forecast of Loads and Resources Report)

63. The Project is consistent with the *Conservation and Development Policies Plan for Connecticut 2013-2018* (C&D Plan). It will serve a public need for a reliable source of electricity to support development in regional centers, ensure the safety and integrity of infrastructure over its useful life and minimize risks from natural hazards. (Council Administrative Notice Item No. 70 – C&D Plan; UI 1, Vol. 1, p. 5-29)

64. The four municipalities in the Project area are part of the South Central Regional Council of Governments (SCRCOG). The Project is consistent with the policies of SCRCOG by providing resilient utility infrastructure and facilitating the use of renewable and reliable energy sources. (UI 1, Vol. 1, p. 5-29)

65. In January 2022, the U.S Department of Energy launched a "Building a Better Grid" initiative to facilitate deployment of new and upgraded electric transmission lines and work with community and industry stakeholders to identify national transmission needs that are critical for reaching President Biden's goal of 100% clean electricity by 2035 making the U.S. power grid more resilient to the impacts of climate change, increasing access to affordable and reliable clean energy, and boosting electric transmission jobs. (UI 5, response 7)

66. Located along the coast, the Project could potentially support the transmission of energy from offshore wind projects, by supporting power flows and service to Connecticut customers on the proposed UI replacement transmission lines. (UI 5, response 7; Tr. 1, pp. 21-22)

67. Connecticut's Comprehensive Energy Strategy (CES) proposes further investments in grid reliability and identifies three important components to grid reliability: resource adequacy, transmission security and distribution resiliency. (Council Administrative Notice Item 57 – 2018 CES, p. 45)

Project Cost

68. Neither the Project, nor any portion thereof, is proposed to be undertaken by state departments, institutions or agencies or to be funded in whole or in part by the state through any grant or contract. (Tr. 3, p. 156; CGS §22a-1, *et seq.* (2021))

69. The estimated capital cost of the Project is $295,000,000*. Of this total, transmission line costs would be approximately $222,550,000; distribution costs would be approximately $1,250,000; substation work costs would be $3,850,000; and the remaining $67,350,000 would be miscellaneous costs including, but not limited to, bonnet decommissioning. See Figure 15.

*The total cost has an accuracy band of +/- 25 percent.

(UI Late Filed Exhibit 6; Tr. 1, p. 30)

70. The entire cost of the Project (except for distribution costs) is anticipated to be regionalized with Connecticut ratepayers paying approximately 25 percent of the Project cost.* Any incremental costs (cost delta) beyond the least cost alternative as identified by ISO-NE (i.e. the proposed Project) would be expected to be paid by Connecticut ratepayers.

*Connecticut ratepayers are comprised of UI, Eversource and municipal electric energy cooperative customers.

(Council Administrative Notice Item 39, FOF #67; Tr. 3, p. 163-164; UI 11, Late Filed Exhibit No. 4; Tr. 4, pp. 283-284)

71. The life-cycle costs for this project could not be calculated because life-cost cost data on double-circuit transmission configurations are not available. (UI 2; Council Administrative Notice Item 35 – 2017 Life-cycle Report)

72. Project construction is anticipated to begin in the second quarter of 2023 and would be completed by the end of 2028. (UI 1, p. 4-2)

Project Alternatives

73. A "no-action" alternative would not resolve the known asset condition issues, associated with the alignment of the existing 115-kV lines on top of the catenaries; thus, it would not allow conformance with industry codes and UI standards. As a result, the 115-kV lines would continue to be at risk for structural failures associated with mechanical loadings or stress associated with major weather events such as hurricanes. Such structural failures and stress could lead to extended duration outages that would adversely affect electrical customers and the bulk power system. (UI 1, Vol. 1, p. 9-5)

74. UI evaluated four overhead transmission alternatives:

    a) Install new double-circuit monopoles to the north of the railroad tracks to support the 115-kV lines, which is the proposed Project (Alternative 1);
    b) Install single-circuit monopoles such that one circuit is located to the north of the railroad tracks and the other circuit is located to the south of the railroad tracks (Alternative 2);
    c) Rebuild one 115-kV circuit on new single-circuit monopoles and perform structural modifications to the catenaries/bonnets to allow continued support of the other circuit (Alternative 3); and
    d) Rebuild the existing catenaries/bonnets to completely correct all structural deficiencies to continue to support both 115-kV lines.

    (UI 1, Vol. 1, p. 9-9)

75. UI evaluated an all underground configuration alternative which includes a double-circuit cross-link polyethylene (XLPE) cable configuration between Milvon Substation and West River Substation either within the north side (Option E) or south side (Option F) of the DOT ROW or within public roads (Option G). An all-underground configuration alternative would cost approximately $364M if located within streets; $1.4B if located along the southern side of the ROW; or nearly $1.6B if located along the northern side of the ROW. (UI 1, Vol. 1, pp. 9-5 to 9-6; UI 20 – Late-Filed Exhibit June 23, 2022)

76. UI evaluated three overhead transmission line rebuild configuration alternatives as follows:

    a) install single-circuit monopoles to support the north and south circuits located on either side of the railroad tracks;
    b) rebuild one 115-kV circuit on single-circuit monopoles and modify the catenary structures and bonnets to support the other circuit; and
    c) rebuild the existing catenary structures and bonnets to support both 115-kV lines.

    (UI 1, p. 9-9)

77. Extensive structural modifications would be required to rebuild any portion of the lines on the existing catenary structures. These rebuild alternatives would also have ~200% higher costs than the proposed Project. (UI 1, pp. 9-9, 9-10)

78. Acquisition of more permanent easement acreage would be required to rebuild the line on single circuit monopoles on either side of the railroad tracks. (UI 1, p. 9-13)

79. UI selected the proposed Project among the other alternatives because it maintains reliability and resiliency of the transmission system, uses DOT's existing railroad ROW, minimizes the need to acquire additional property, minimizes environmental impacts and is a cost-effective solution. (UI 1, p. 9-21)

Additional Alternatives Explored During the Proceeding

80. During the proceeding, the following additional alternatives suggested by the Council and the City of Milford were explored:

a) Overhead Transmission Line along the south side of the railroad ROW (Option B);
b) Overhead Transmission Line with reductions in structure heights from 905N to 914N (Milford Overhead Alternative 1/Option C);
c) Overhead Transmission Line shifted to the south side of the railroad ROW from Structures 905N to 914N (Option D);
f) Underground Transmission Line from Structures 905N to 914N within the railroad ROW (Milford Underground Alternative/Option H);
g) Underground Transmission Line from Structures 900N to 914N (Morissette Alternative/Option I);
h) Overhead Transmission Line with reductions in structure heights from Structures 904N to 916N (Milford Overhead Alternative 2/Option J);
i) Overhead Transmission Line on north side of railroad (ROW) shifted to rebuilt catenary structures from Structures 904N to 914N; and
k) Overhead Transmission Line with fewer structures of taller heights. (SHPO Alternative).

(UI 16, response 15; UI 17; UI 18; UI 20 Late-Filed Exhibit June 23, 2022; Tr. 4, pp. 263-283; UI 18 – SHPO Letter dated June 8, 2022)

81. The total cost estimate for the overhead alternative along the south side of the railroad ROW, or Option B, is $339,800,000. This alternative would require additional permanent easements for approximately 30 structures to be located on private property, as opposed to the 13 structures to be located on private property for the Proposed project. (UI 20)

82. The total cost estimate for Milford Alternative 1/Option C is $296,000,000. This alternative would require 3 additional structures and 6 structures with lower heights, which would result in additional vegetation clearing and land rights. (UI 17; UI 20)

83. The total cost estimate for the overhead alternative with structures 905N to 914N shifted to the south side of the railroad ROW, or Option D, is $306,700,000. This alternative would require two railroad crossings. (UI 17; UI 20)

84. The total cost estimates for the Milford Underground Alternative/Option H and the Morissette Alternative/Option I are $357,887,000 and $413,205,000, respectively. Both underground alternatives would require approval from DOT/MNR to install a cable system within the railroad ROW, may uncover unknown archaeological resources, and the Morissette Alternative/Option I would require a transition station with 2 riser poles and a control enclosure. (UI 20)

85. The total cost estimate for Milford Overhead Alternative 2/Option J is $295,350,000. This alternative would require installation of anti-galloping devices in the span between Structures 914N and 916N to remove Structure 915N, a net increase in 1 additional structure and 7 structures with decreased heights in comparison to the proposed Project. (UI 20)

86. The Milford City Planner prefers an underground configuration through Downtown Milford, or, alternatively, for an overhead configuration, transmission structure heights should be minimized; ~~and~~ Option J would minimize structure heights. See Figure 15. (Tr. 4, pp. 305-306, 311-312)

87. The total cost estimate for the overhead alternative on the north side of the ROW shifted to rebuilt catenary structures from Structures 904N to 914N is $335,340,000. (UI 16, response 15)

88. In correspondence dated June 8, 2022, SHPO concurs that structural reinforcement and installation of larger bonnets would adversely impact the catenaries, which are eligible as contributing resources for listing on the NRHP. It recommended an alternative with fewer structures and taller heights to mitigate the visual impact to historic resources (SHPO Alternative). (UI 18)

89. Rebuilding the electric transmission lines on the existing catenaries would require UI to install its equipment on infrastructure that it does not own and to conduct an analysis of each catenary in coordination with DOT, as well as require extensive railroad outages and four-track crossing at each catenary location for construction. This alternative would fail to meet the overall objective of the Project to add resiliency to the transmission system. (UI 12, response 2; UI 16, response 10)

90. The total cost estimate for the overhead alternative with fewer structures and taller heights (SHPO Alternative) is the same as Option A. (Tr. 4, pp. 263, 283)

Project Description

91. The proposed Project entails the installation of rebuilt 115-kV electric transmission lines and related improvements as listed below:

    a) Rebuild the existing 115-kV lines between Milvon Substation and West River Substation in a double-circuit configuration, supported on galvanized steel monopole structures, and including 72-fiber OPGW shield wire. A total of 142 new double-circuit monopoles would be installed. In addition, 16 new single-circuit monopoles would be installed to either maintain the existing 115-kV line substation interconnections or to support one of the rebuilt 115-kV lines at locations where existing single-circuit monopoles existing and would remain to support the second rebuilt 115-kV;
    b) Interconnect the rebuilt 115-kV liens to UI's existing Milvon, Woodmont, Allings Crossing, Elmwest, and West River Substations, perform minor associated modifications within the substation boundaries and install single-circuit and double-circuit monopoles as necessary to maintain the existing 115-kV connections to the substations and/or support OPGW;

c) Remove, partially remove, or modify (e.g. replace hardware) certain existing steel monopoles that were installed within the Milvon to West River Substation railroad corridor as part of previous UI transmission upgrade projects; and
d) Decommission and remove the existing 115-kV facilities on the catenaries.

Detail of each portion of the Project is described in the following subsections. (UI 1, Vol. 1, pp. 1-7 and 1-8)

Proposed Overhead 115-kV Transmission Lines

92. The proposed 115-kV overhead transmission line would consist of double-circuit monopole structures supporting two sets of three 1,590-kcmil Lapwing phase conductors plus 0.583-inch 72 count fiber OPGW and shield wires. (UI 1, Vol. 1, p. 2-9)

93. The monopoles would support conductors arranged in a vertical configuration. (UI 1, Vol. 1, p. 2-9)

94. UI does not have a policy related to telecommunications equipment collocations on its transmission line structures. The proposed monopoles are not designed to accommodate third party telecommunications equipment. (UI 5, response 9)

95. The monopoles would primarily be installed on drilled pier foundations. Direct embed structures and structures supported by pile type foundations might be installed in certain locations, subject to final engineering analyses. (UI 1, p. 3-10)

96. The new monopoles would range in height from approximately 70 feet to 170 feet. The specific heights of the monopoles would vary by location due to factors such as span length (typically 300 to 400 feet), sensitive environmental resources that could require greater span lengths, and land uses (e.g. parking lots, roadways, railroad spurs, and steep terrain) under the lines. (UI 1, Vol. 1, p. 2-10)

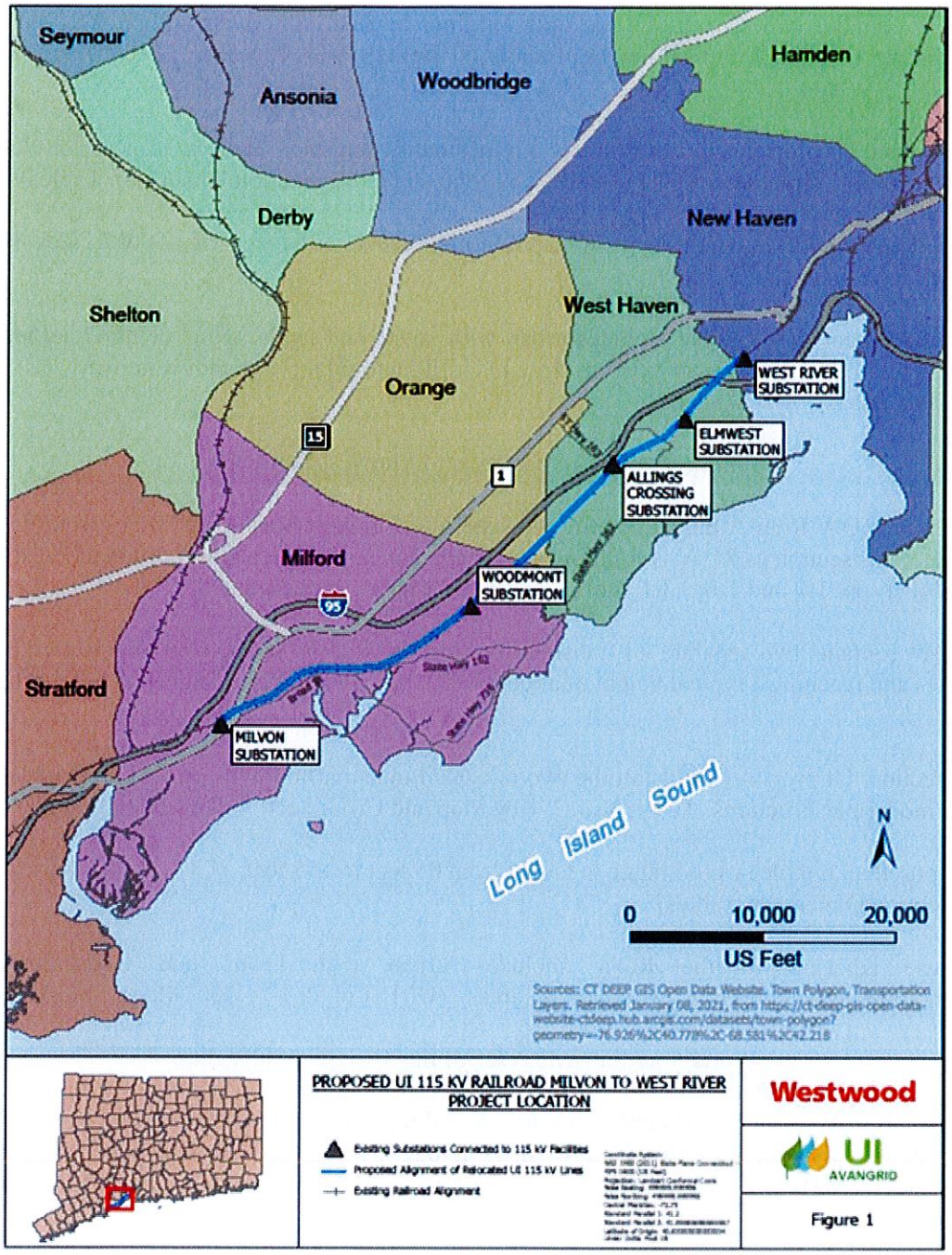
97. The new monopoles would typically be installed in line with other existing UI bonnets in the ROW. (UI 1, Vol. 2)

98. The proposed transmission lines would be located within existing DOT ROW along approximately 9.5 miles through the Cities of New Haven (0.1 mile), West Haven (3.86 miles), Milford (5.03 miles), and the Town of Orange (0.46 mile). (UI 1, Vol. 1, p. 2-3)

99. Sections of the ROW are:

a) Elmwest Substation in West Haven to West River Substation in New Haven;
b) Allings Crossing Substation in West Haven to Elmwest Substation in West Haven;
c) Woodmont Substation in Milford to Allings Crossing Substation in West Haven; and
d) Milvon Substation in Milford to Woodmont Substation in Milford.

Such sections are shown below.



(UI 1, Vol. 1, pp. 1-2, 3-2, 3-5)

Elmwest Substation to West River Substation

100. The existing ROW from Elmwest Substation to West River Substation ranges from 79 to 232 feet wide. This section of ROW extends for approximately 1.25 miles between portions of West Haven and New Haven. (UI 1, Vol. 1, pp. 1-2 and 1-6; UI 1, Vol. 2, 1" = 400' Maps – Maps 8 and 9)

101. The ROW contains two separate UI transmission lines located on bonnets on opposite ends of the catenaries and reaching a typical height of about 60 feet agl. (UI 1, Vol. 2, Sheets XS-12 through XS-14)

102. In this section, UI proposes to install the two relocated transmission lines on 12 new double-circuit vertical monopole structures. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

103. The proposed monopoles would range in height from 95 feet to 125 feet. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

104. Land use adjacent to the ROW includes urban with lawns and landscaping, commercial/industrial buildings with parking areas, an existing closed landfill, and tidal floodplain/waterway. (UI 1, Vol. 2, 1" = 400' Maps – Maps 8 and 9)

Allings Crossing Substation to Elmwest Substation

105. The existing ROW from Allings Crossing Substation to Elmwest Substation ranges from 93 to 240 feet wide. This section of ROW is 1.24 miles in length and extends through a portion of West Haven. (UI 1, Vol. 1, pp. 1-2 and 1-6; UI 1, Vol. 2, 1" = 400' Maps – Maps 8 and 9)

106. The ROW contains two separate UI transmission lines located on bonnets on opposite ends of the catenaries and reaching a typical height of about 60 feet agl. (UI 1, Vol. 2, Sheets XS-9 through XS-11)

107. In this section, UI proposes to install the two relocated transmission lines on 13 new double-circuit vertical monopole structures. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

108. The proposed monopoles would range in height from 85 feet to 155 feet. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

109. Land use adjacent to the ROW includes urban with lawns and landscaping, and commercial/industrial buildings with parking areas. (UI 1, Vol. 2, 1" = 400' Maps – Maps 7 and 8)

Woodmont Substation to Allings Crossing Substation

110. The existing ROW from Woodmont Substation to Allings Crossing Substation ranges from 107 to 276 feet wide. This section of ROW is 2.91 miles in length and extends through portions to Milford, Orange and West Haven. (UI 1, Vol. 1, pp. 1-2 and 1-6; UI 1, Vol. 2, 1" = 400' Maps – Maps 4 through 7)

111. The ROW contains two separate UI transmission lines located on bonnets on opposite ends of the catenaries and reaching a typical height of about 60 feet agl. (UI 1, Vol. 2, Sheets XS-7 through XS-8)

112. In this section, UI proposes to install the two relocated transmission lines on 45 new double-circuit vertical monopole structures. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

113. The proposed monopoles would range in height from 80 feet to 115 feet. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

114. Land use adjacent to the ROW includes urban/suburban with lawns and landscaping, and commercial/industrial buildings with parking areas. (UI 1, Vol. 2, 1" = 400' Maps – Maps 4 through 7)

Milvon Substation to Woodmont Substation

115. The existing ROW from Milvon Substation to Woodmont Substation ranges from 65 to 291 feet wide. This section of ROW is 4.05 miles in length and extends through a portion of Milford. (UI 1, Vol. 1, pp. 1-2 and 1-6; UI 1, Vol. 2, 1" = 400' Maps – Maps 1 through 2)

116. The ROW contains two separate UI transmission lines located on bonnets on opposite ends of the catenaries and reaching a typical height of about 60 feet agl. (UI 1, Vol. 2, Sheets XS-1 through XS-6)

117. In this section, UI proposes to install the two relocated transmission lines on 58 new double-circuit vertical monopole structures. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

118. The proposed monopoles would range in height from 85 feet to 145 feet. (UI 1, Vol. 2, Key Map and Cross Section Dimension Tables)

119. Land use adjacent to the ROW includes urban/suburban with lawns and landscaping, commercial/industrial buildings with parking areas, tidal floodplain/waterways, and deciduous woodlands. (UI 1, Vol. 2, 1" = 400' Maps – Maps 1 through 4)

Substation Modifications

120. The existing Milvon Substation is located in the western section of Milford and is accessed off Bridgeport Avenue (Route 1). (UI 1, Vol. 2, 1" = 400' Maps – Map 1 of 9)

121. The existing Woodmont Substation is located in the eastern section of Milford and is accessed off Quarry Road. (UI 1, Vol. 2, 1" = 400' Maps – Map 4 of 9)

122. The existing Allings Crossing Substation is located in the western section of West Haven and is accessed off Frontage Road. (UI 1, Vol. 2, 1" = 400' Maps – Map 7 of 9)

123. The existing Elmwest Substation is located in the central section of West Haven and is accessed off Elm Street. (UI 1, Vol. 2, 1" = 400' Maps – Map 8 of 9)

124. The existing West River Substation is located in the southwest section of New Haven and is accessed off Plymouth Street. (UI 1, Vol. 2, 1" = 400' Maps – Map 9 of 9)

125. UI proposes to modify the existing Milvon, Woodmont, Allings Crossing, Elmwest and West River substations by performing hardware modifications on the existing structures within and just outside each substation to accommodate the proposed 1590 kcmil conductor size as well as the new OPGW and associated OPGW splice boxes. The hardware modifications would not result in increased structure heights. (UI 1, Vol. 1, pp. 2-4; Tr. 3, pp. 161-162)

126. At all of the five substations, new underground fiber optic cable would be installed to connect the fiber at the OPGW splice box (either located within the substation or at a steel monopole outside the substation) to the control enclosures within the substations. (UI 1, Vol. 1, pp. 2-4 and 2-5)

127. In order to maintain existing 115-kV line substation connections, single-circuit monopoles and/or new monopoles located on the south side of the railroad tracks would be installed directly outside each substation to correctly align the phases of different circuits to the existing line terminal switches in each substation yard. The table below indicates the types and locations of the monopoles to be installed adjacent to each of the five substations.*

Substation	Type, # of Monopoles	Location (N, S of MNR Tracks)
Milvon	1 single-circuit	South
Woodmont	4 single-circuit	South
Allings Crossing	2 single-circuit	North
Elmwest	3 double-circuit; 3 single-circuit	South
West River	1 single-circuit 2 single-circuit	North South

*Two of the new monopoles at West River Substation would be used to support only OPGW. (UI 1, Vol. 1, pp. 1-8 and 2-4)

General Project Construction Procedures

128. The following subsections describe the general construction procedures for each portion of the project. If the Project is approved, UI intends to submit one or more partial Development and Management Plans for the Project. (UI 1, Vol. 1, p. ES-9)

129. Pursuant to CGS Section 22a-430b, DEEP retains final jurisdiction over stormwater management and administers permit programs to regulate stormwater discharges. DEEP regulations and guidelines set forth standards for erosion and sedimentation control, stormwater pollution control and best engineering practices. (CGS §22a-430b; DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities. (DEEP-WPED-GP-015)

130. The DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (General Permit) requires implementation of a Stormwater Pollution Control Plan (SWPCP) to prevent the movement of sediments off construction sites into nearby water bodies and to address the impacts of stormwater discharges from a proposed project after construction is complete. In its discretion, DEEP could require an Individual Permit for discharges and hold a public hearing prior to approving or denying any General or Individual Permit (Stormwater Permit) application. (CGS Section 22a430b; CGS Section 22a-430(b))

131. The SWPCP incorporates project designs consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control (2002 E&S Guidelines) and the *2004 Connecticut Stormwater Quality Manual* (2004 Stormwater Manual). (DEEP-WPED-GP-015)

132. DEEP has the authority to enforce proposed project compliance with its Individual or General Permit and the SWPCP, including, but not limited to, the installation of site-specific water quality protection measures in accordance with the 2002 E&S Guidelines and 2004 Stormwater Manual. (CGS Section 22a-430b)

133. The project would require a DEEP-issued Stormwater Permit prior to commencement of construction activities as defined in the General Permit. (CGS Section 22a-430b)

134. The Council may impose a condition that requires subsequent compliance with DEEP standards and regulations. (Council Administrative Notice No. 83)

Proposed Overhead 115-kV Transmission Lines

135. UI's proposed general construction sequence is as follows:

a) Survey and stake construction work areas, including the edge of the DOT property and UI easement (where different) and proposed structure locations. Confirm and re-flag environmental resource areas (e.g. wetland and watercourse boundaries) or other sensitive areas to be avoided. Mark vegetation clearing limits and locate and mark utilities;

b) Establish laydown/material staging areas/contractor yard(s) to support the construction;

c) Establish temporary erosion and sedimentation controls as necessary;

d) Remove or mow vegetation where necessary;

e) Install temporary matting in wetlands and install temporary bridges to traverse small watercourses as necessary;

f) Establish or upgrade access roads to reach the proposed monopole locations;

g) Install new structure foundations and assemble new structures;

h) Existing 115-kV line (e.g. existing shield wires, conductors, hardware, and steel bonnets) from the north side of the catenaries. Any existing monopoles, lattice towers, and wide flange structures that are no longer required on the north side of the railroad tracks would also be removed;

i) Attach conductors, shield wire and OPGW to the new structures;

j) Install rebuilt 115-kV line connections to UI substations;

k) Place the rebuilt 115-kV lines into service (by segment);

l) Remove existing 115-kV line (e.g. existing shield wires, conductors, hardware, and steel bonnets) from the south side of the catenaries. This activity would include establishing temporary construction access and work pads at the locations of the facilities to be removed. Existing access, upgrades to existing access, or new access roads would be required;

m) Remove existing monopoles, lattice towers and wide flange structures that are no longer required on the south side of the railroad tracks;

n) Construct permanent access roads where necessary and remove temporary construction access and work pads along with temporary wetland matting and watercourse crossing bridges;

o) Perform final cleanup and restoration/stabilization of areas affected by construction and would restore to pre-construction conditions by seeding and revegetating such as areas as necessary; and

p) Maintain erosion and sedimentation controls until areas affected by construction are stabilized.

(UI 1, Vol. 1, p. 3-4)

136. Project construction would be staged from one or more laydown/material staging/contractor yards. Multiple smaller laydown areas could also be used along the 115-kV line route. Field offices would also be required. Final sites would not be determined until a few months prior to commencement of construction, and UI would seek Council approval of these sites prior to use. (UI 1, Vol. 1, p. 3-3)

137. A primary laydown/material storage/contractor yard requires approximately 2 to 5 acres to accommodate field office trailers, parking, project material storage, construction equipment and supplies, fractionization tanks (for temporary storage of water removed from foundation excavations), and temporary stockpiling of existing 115-kV facility materials removed (e.g. bonnets, 115-kV conductor, old monopole structures). (UI 1, Vol. 1, pp. 3-4 and 3-5)

138. The laydown/material staging area/contractor yards also would provide a site for marshalling construction crews, holding daily safety meetings, and assigning daily work. (UI 1, Vol. 1, p. 3-5)

139. The laydown/material staging areas/contractor yard areas would be restored and stabilized to approximate pre-construction conditions in accordance with the UI's SWPCP requirements as necessary. (UI 1, Vol. 1, p. 3-12)

140. UI would utilize a combination of public roads and proposed or existing access road within or adjacent to the DOT railroad corridor. UI would utilize existing (e.g. paved or gravel) access roads where available. Existing paved access would not be expected to require significant upgrades. Existing non-paved access might require the addition of gravel or asphalt patch. (UI 1, Vol. 1, pp. 3-7 and 3-8)

141. Project access roads would generally be approximately 16 feet wide. (UI 1, Vol. 1, p. 3-8)

142. Existing vegetation would be removed from construction sites (including access roads and work pads) and as required both to provide access for construction equipment and to maintain clearance from the rebuilt 115-kV line conductors. Vegetation clearing would be required along portions of both the northern and southern sides of the railroad corridor. (UI 1, Vol. 1, p. 3-6)

143. Clearing and grubbing would be performed via conventional methods such as a combination of chain saws, hand labor, and mechanized equipment. Trees would be directionally felled to minimize impacts. (UI 1, Vol. 1, p. 3-6)

144. In wetlands, trees and brush would be cut flush to the ground, and stumps would be left in place unless removal is required for Project construction. (UI 1, Vol. 1, p. 3-7)

145. In certain areas, "danger trees" or "hazard trees" (i.e. trees deemed a potential risk to overhead transmission lines) might also need to be trimmed or removed. Such trees would typically be identified after the rebuilt lines are installed. If these trees require trimming or removal and are located on private property, UI would coordinate with the property owner. (UI 1, Vol. 1, p. 3-6; UI 5, response 50)

146. Temporary erosion and sedimentation (E&S) controls would be installed as practicable prior to and/or during vegetation clearing in compliance with the 2002 E&S Guidelines, the DEEP General Permit, and the SWPCP. Temporary controls include, but are not limited to, straw bales and silt fence, to be used during construction involving soil disturbance. (UI 1, Vol. 1, pp. 3-7 and 3-20)

147. Work pads would be required to install the new monopoles as well as to remove the existing 115-kV facilities from the northern and southern side of the catenaries and remove the existing structures (e.g. monopoles, lattice towers, W-flange structures) that would no longer be needed. (UI 1, Vol. 1, p. 3-9)

148. The work pads would be used to provide a safe, level base for construction equipment used to install structure foundations and to erect structures. Specifically, along the 115-kV line route, work pads would be required at each new structure location, at conductor and OPGW pulling sites, and at each location where existing 115-kV facilities would be removed or modified. (UI 1, Vol. 1, p. 3-9)

149. Work pads would consist of gravel or timber construction mats (or equivalent). The size of each work pad would vary based on location and space available within or adjacent to the DOT railroad corridor. Generally, the typical work pad for installing a monopole would approximately 100 feet by 40 feet. In most areas, minimal grading is expected to be necessary to establish work pads. (UI 1, Vol. 1, p. 3-9)

150. For the installation of new foundations within the DOT corridor, UI would coordinate with DOT/MNR to determine appropriate drilling methods to avoid any potential for impacts to the rail bed. (UI 1, Vol. 1, p. 3-11)

151. Generally, auger drilling would be used to perform the excavations for the drilled pier foundations. The size of each excavation would typically be approximately 6 to 10 feet in diameter. Temporary or permanent vibratory casings may be used to provide soil support as needed to complete excavation work and place concrete. The temporary casing may be removed from the pier foundations as concrete is placed or soon thereafter. (UI 1, Vol. 1, pp. 3-10 and 3-11)

152. After the foundation excavation is complete, steel reinforcing bars and an anchor bolt cage would be placed in the excavation and encased in concrete. (UI 1, Vol. 1, p. 3-11)

153. After the structure foundation is in place and the concrete is cured, the transmission monopole would be assembled and erected. Transmission structure components would be delivered to work pads, assembled on the ground and then erected as a complete unit or assembled in pieces with a crane. (UI 1, Vol. 1, p. 3-11)

154. After a structure is erected and framed with support insulators and hardware, it would be ready for the installation of overhead lines. Conductor pulling blocks would typically be installed at this time. (UI 1, Vol. 1, p. 3-11)

155. Pulling and tensioning equipment, as well as reels of conductor, would be located at temporary pulling work pads along the transmission line route for the installation of line conductors and shield wires. Helicopters may be used to install pulling ropes at the commencement of the conductor/OPGW pulling process. (UI 1, Vol. 1, p. 3-12)

156. To maintain clearance at road crossings during conductor and OPGW installation, temporary guard structures or boom trucks would be positioned adjacent to the crossings. (UI 1, Vol. 1, p. 3-12)

157. Conductors and shield wires would be pulled to their design tensions and attached to the hardware. This process would be performed via bucket trucks. (UI 1, Vol. 1, p. 3-12)

158. Localized traffic congestion may occur when heavy construction equipment or large components are transported to the work sites, as well as when construction personnel travel to and from the Project area. However, traffic impacts on local roads during construction are generally expected to be minor and short term. UI would coordinate with impacted landowners and the host municipality to minimize potential traffic impacts on local roads. (UI 1, Vol. 1, p. 6-26)

159. Upon completion of the transmission line installation, most work pads would remain in place in upland areas unless otherwise specified by the landowner. Work pads would be removed from wetland areas. Access roads in wetland areas would be removed. Access roads in upland areas would remain in place unless otherwise specified by the landowner. (UI 1, Vol. 1, pp. 3-12 and 3-13)

160. Following construction of the proposed project, cleanup would include the removal of construction debris, signs, flagging, and fencing, as well as access and work pads from wetland areas. Areas affected by construction and laydown/staging areas would be restored and stabilized, as necessary, to approximately pre-construction conditions (e.g. seeded, graveled, and repaved). Restoration work would be performed in accordance with the SWPCP. (UI 1, Vol. 1, p. 3-12)

161. UI's Vegetation Management would comply with the NERC Reliability Standard FAC-003 to maintain Minimum Vegetation Clearance Distance as outlined in the "Transmission and Vegetation Management Operating Procedure" (TVOP) to prevent vegetation-related outages under various weather and operating conditions. (UI 5, response 49)

162. UI's TVOP are based on the following industry standards and procedures:
    a) OSHA 29 CFR 1910.269 Electric Power Generation, Transmission and Distribution;
    b) ANSI Z133.3 "Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush Requirements";
    c) ANSI A300 Part 1 "Tree, Shrub, and other Woody Plant Maintenance – Standard Practices;
    d) ANSI A300 Part 7 "Integrated Vegetation Management, Electric Utility Rights-of-way; and
    e) NESC Rule 2018.

    (UI 5, response 49)

163. For the DOT ROW, a minimum of 25-foot clearance from conductors at rest is required per the TVOP. (UI 5, response 49)

164. UI would develop a final Wetland Invasives Species Control Plan (WISCP) to be included in the D&M Plan(s). The WISCP would include standard procedures including, but not limited to, ensuring that temporary timber wetland mats are cleaned prior to bringing them to the site and relocating them from wetland to another during construction. (UI 1, Vol. 1, pp. 3-18 and 3-19)

Environmental Resources

165. The edges of the railroad corridor are interspersed with mature mixed deciduous hardwood trees among narrow strips of primarily non-native, shrub/scrub invasive vegetation, escaped ornamentals associated with residential landscaping, and species common to freshwater and tidal wetlands. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 1)

166. Elevations along the railroad corridor range from 5 feet above mean sea level (amsl) to 100 feet amsl. The highest and the lowest elevations are both located in West Haven. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 1; UI 1, Vol. 2, 1" = 400' Maps - Maps 7 and 9 of 9)

167. The Project is consistent with the FERC Guidelines for the Protection of Natural, Historic, Scenic and Recreational Values in the Design and Location of Rights-of-Way and Transmission Facilities as it utilizes existing rights-of way within a railroad corridor. (UI 5, response 44; Council Administrative Notice Item No. 11; UI 13, response 2-4)

Watercourses

168. The western portion of the Project area in Milford lies within the Housatonic Drainage Basin, and the remainder of the Project is within the South Central Coast Drainage Basin. (UI 1, Vol. 1, p. 5-6)

169. The Project area extends across a total of 36 watercourses. Of these, 13 are perennial streams, and 23 are intermittent streams. (UI 1, Vol. 1, p. 5-10)

170. Eight proposed monopoles would be installed within the 100-year flood zone, and five proposed monopoles would be installed within the 500-year flood zone. The addition of these structures would have a negligible effect on floodplain storage capacity. (UI 1, Vol. 1, p. 6-5)

171. None of the rivers in the Project area are designated under the Federal Wild and Scenic Rivers Act. (UI 1, Vol. 1, p. 1-3)

172. The rebuilt 115-kV lines would span the Wepawaug River and the Indian River in Milford and the West River on the New Haven/West Haven City Line. Thus, no work would be performed in these watercourses. (UI 1, Vol. 1, p. 6-6; UI 1, Vol. 2)

173. Smaller watercourses, including the narrow streams that parallel the railroad tracks within the DOT corridor, would be crossed using temporary construction mats or equivalent. Construction equipment would be prohibited from directly fording through streams. (UI 1, Vol. 1, p. 6-6)

174. The Project would not affect Phipps Lake in West Haven. However, some vegetation along the DOT corridor adjacent to the lake would be removed to provide access for construction equipment as required to remove UI's existing 115-kV facilities from the southern side of the catenaries. (UI 1, Vol. 1, p. 6-5)

175. The Project would not affect either freshwater or marine fisheries because the rebuilt transmission lines would span all the watercourses that have been identified as potential fisheries habitat. (UI 1, Vol. 1, p. 6-17)

176. UI would install permanent access roads across three un-named intermittent streams that serve as drainage swales within the DOT corridor. These permanent access roads would require the installation of a culvert or equivalent at each stream crossing. Two of the three streams would be traversed twice; thus, there would be a total of five permanent crossings resulting in approximately 0.03 acre of permanent fill. (UI 1, Vol. 1, p. 6-8)

177. The projected impacts to inland watercourses are listed below.

Volume 2 Mapsheet No. (100/400 scale)	Watercourse No. & Flow Type Intermittent (I) or Perennial (P)	Estimated Project Impact, by Type (Acres)		
		Temporary Impacts		Permanent Access Road Impacts
		Access Roads	Work Pads	
City of Milford				
1/1	M-WC2 (I)	0.02	0.03	-
13/4	M-WC4 (I)	0.01	0.01	-
13/4	M-WC5 (P)	0.01	-	-
15/4	M-WC6 (I)	-	0.01	-
16/5	M-WC8 (P)	0.01	0.01	-
18/5	M-WC9 (I)	-	0.01	0.01
18/5	M-WC10 (I)	0.01	-	-
	Subtotal Impacts	0.06	0.07	0.01
Town of Orange				
19/5	O-WC1 (I)	-	0.02	0.01
20/5	O-WC2 (I)	-	-	0.01
	Subtotal Impacts	-	0.02	0.02
City of West Haven				
21/6	WH-WC2 (I)	0.01	0.01	-
21/6	WH-WC3 (I)	0.01	0.01	-
21/6	WH-WC4 (I)	-	0.02	-
22/6-7	WH-WC6 (I)	0.01	0.01	-
25/7	WH-WC9 (P)	-	0.01	-
25/7	WH-WC10 (I)	0.01	0.01	-
25/7	WH-WC11 (I)	-	0.01	-
25/7	WH-WC14 (I)	-	0.05	-
	Subtotal Impacts	0.04	0.13	-
	Total Impacts	0.10	0.22	0.03

(UI 1, Vol. 1, p. 6-7)

178. The Project would not affect any watercourses in the City of New Haven. (UI 1, Vol. 1, p. 6-7)

179. UI would utilize the following measures to minimize potential impacts on watercourses:
    a) Small streams would be spanned with timber mats (or equivalent) to maintain water flows;
    b) Concrete (for structure foundations) would be mixed, poured and disposed of in manner to minimize the risk of concrete materials entering a watercourse;
    c) Installation of new culverts for permanent intermittent stream crossings would be in accordance with the DEEP *Stream Crossing Guidelines* as applicable; and
    d) Existing riparian vegetation within 25 feet of watercourse banks would be maintained or cut selectively to the extent practical.

(UI 1, Vol. 1, p. 6-8)

180. UI would obtain the necessary permits from State and federal agencies for the permanent watercourse crossings. (UI 1, Vol. 1, p. 6-8)

Wetlands

181. The Inland Wetlands and Watercourses Act (IWWA), CGS §22a-36, *et seq.*, contains a specific legislative finding that the inland wetlands and watercourses of the state are an indispensable and irreplaceable but fragile natural resource with which the citizens of the state have been endowed, and the preservation and protection of the wetlands and watercourses from random, unnecessary, undesirable and unregulated uses, disturbance or destruction is in the public interest and is essential to the health, welfare and safety of the citizens of the state. (CGS §22a-36, et seq.)

182. The IWWA grants regulatory agencies with the authority to regulate upland review areas in its discretion if it finds such regulations necessary to protect wetlands or watercourses from activity that will likely affect those areas. (CGS §22a-42a)

183. The IWWA forbids regulatory agencies from issuing a permit for a regulated activity unless it finds on the basis of the record that a feasible and prudent alternative does not exist. (CGS §22a-41)

184. A total of 41 wetland areas were delineated within the existing DOT ROW. (UI 1, Vol. 1, p. 6-8)

185. Vegetation clearing would impact 23 of the 41 wetlands. (UI 1, Vol. 1, pp. 6-9 and 6-10)

186. The projected impacts to wetlands are listed below.

Volume 2 Mapsheet No. (100/400 scale)	Wetland No.	Estimated Project Impact, by Type (Acres)			
		Temporary Impacts		Permanent Impacts	Wetland Vegetation Clearing*
		Access Roads	Work Pads		
City of Milford					
1/1	Wetland M-W2	-	0.11	-	-
7/2	Wetland M-W4	-	0.08	-	0.09
9/3	Wetland M-W6	-	0.28	-	0.44
10/3	Tidal Wetland M-TW1	-	0.01	-	0.01
10/3	Tidal Wetland M-TW2	-	-	-	0.01
10/3	Tidal Wetland M-TW3	0.13	0.10	-	0.14
13-14/4	Wetland M-W8	0.57	0.38	-	0.42
13-14/4	Wetland M-W9	0.16	0.26	0.002 (pole foundation)	0.21
15/4	Wetland M-W10	-	0.02	-	0.01
16/5	Wetland M-W12	-	-	-	0.02
16-17/5	Wetland M-W13	0.01	0.45	0.002 (pole foundation) & 0.34 (access road)	0.76
17/5	Wetland M-W14	-	0.04	-	0.02
18/5	Wetland M-W16	0.02	0.03	-	-
18/5	Wetland M-W17	-	0.01	-	0.12
Subtotal Inland Wetland Impacts		0.76	1.66	0.344	2.09
Subtotal Tidal Wetland Impacts		0.13	0.11	-	0.16
Town of Orange					
20/6	Wetland O-W1	0.01	-	-	0.01
Subtotal Inland Wetland Impacts		0.01	-	-	0.01
City of West Haven					
21-22/6	Wetland WH-W1	0.19	0.47	0.002 (pole foundation)	0.61
23/6	Wetland WH-W2	0.01	0.11	0.001 (pole foundation)	0.09
24/7	Wetland WH-W3	0.02	0.06	0.05 (access road)	0.08
25/7	Wetland WH-W4	-	0.08	-	0.06
25/7	Wetland WH-W5	-	0.03	-	-
29/8	Wetland WH-W10	-	-	-	0.07
32/9	Wetland WH-W11	0.02	-	-	-
32-33/9	Wetland WH-W12	0.36	0.32	-	0.03
32-33/9	Wetland WH-W13	0.06	1.12	0.003 (pole foundation) & 0.69 (access road)	0.41
33-34/9	Tidal Wetland WH-TW1	-	0.01	-	-
Subtotal Inland Wetland Impacts		0.66	2.19	0.746	1.35
Subtotal Tidal Wetland Impacts		-	0.01	-	-
TOTAL INLAND WETLAND IMPACTS		**1.43**	**3.85**	**1.09**	**3.45**
TOTAL TIDAL WETLAND IMPACTS		**0.13**	**0.12**	**-**	**0.16**

(UI 1, Vol. 1, pp. 6-9 and 6-10)

187. Ten new monopoles would be located within inland wetlands. Additionally, UI would install permanent access roads across three wetlands to provide access to rebuilt structures for operations and maintenance purposes. (UI 1, Vol. 1, p. 6-10)

188. UI would coordinate with DEEP and/or U.S. Army Corps of Engineers and obtain the necessary authorizations for proposed activities in wetlands. (UI 1, Vol. 1, p. 6-10)

189. No vernal pool habitat is located within or proximate to the Project corridor. (UI 1, Vol. 1A, Appendix B, Ecological Assessment Report, p. 7)

190. There are no DEEP-designated Aquifer Protection Areas (APAs) near the Project area. The nearest APA is located in the City of Shelton, approximately 7 miles northwest of the proposed transmission line route. (UI 1, Vol. 1, p. 5-15; Council Administrative Notice Item No. 102 – DEEP Statewide APA Map)

191. If groundwater is encountered during any Project excavations, dewatering would be performed in accordance with applicable local and/or state permitting requirements. (UI 1, Vol. 1, p. 6-5)

Wildlife

192. By letter dated December 27, 2020, DEEP indicated that its review of the Natural Diversity Database (NDDB) identified seven state-listed species that may occur within or proximate to the Project area. The seven state-listed species are listed below:

State-listed Plant Species	**Designation**
Parker's pipewort	Endangered
Salt marsh bulrush	Special Concern
State-listed Bird Species	**Designation**
Seaside sparrow	Threatened
Saltmarsh sharp-tailed sparrow	Special Concern
State-listed Amphibian Species	**Designation**
Northern leopard frog	Special Concern
State-listed Reptile Species	**Designation**
Eastern box turtle	Special Concern
Northern diamondback terrapin	Special Concern

(UI 1, Vol. 1A, Appendix A, DEEP NDDB Letter dated December 27, 2020)

193. To be protective of the state-listed plant species, the Parker's pipewort and salt marsh bulrush, DEEP recommends that UI perform the following, including, but not limited to:
    a) Provide a botanical survey for the Indian River section of the ROW to DEEP prior to construction in this area;
    b) Perform structure replacements outside of the growing season; and
    c) Utilize temporary wooden matting when replacing structures in this area.

    (UI 1, Vol. 1A, Appendix A, DEEP NDDB Letter dated December 27, 2020)

194. UI conducted a field botanical survey for the two state-listed plant species in September 2020 when both target species would be expected to be in an identifiable state. The survey included the two saltwater marsh habitats associated with the Indian River in Milford and the West River in West Haven. These species were not identified during the survey, and the survey results were submitted to DEEP. (UI 1, Vol. 1A, Appendix B, Ecological Assessment Report, pp. 10-12)

195. To be protective of the state-listed bird species, the seaside sparrow and the saltmarsh sharp-tailed sparrow, DEEP recommends that UI perform the following, including, but not limited to:
    a) Commence construction before May 1 or after August 31 to avoid impacting an active nest;
    b) Minimize excessive noise between April 15 and August 1; and
    c) If work must occur between May 1 and August 31, perform nest surveys by an ornithologist and provide the results of the surveys to DEEP.

    (UI 1, Vol. 1A, Appendix B, Ecological Assessment Report, pp. 10-12)

196. To be protective of the state-listed amphibian species, the northern leopard frog, UI would implement the following measures during the active season (between March and October), including, but not limited to:
    a) Avoid placing gravel or hard surfaces within floodplain or alluvial marsh habitat;
    b) Provide contractor education regarding this species;
    c) Utilize geotextile silt fence along the perimeter of the Project disturbance limits serve as a barrier for the northern leopard frog;
    d) Notify DEEP if any northern leopard frogs are encountered.

    (UI 1, Vol. 1A, Appendix B, Ecological Assessment Report, p. 17)

197. To be protective of the eastern box turtle (EBT), DEEP recommends that UI implement the following measures during the inactive period (October through March) including, but not limited to:
    a) Keep heavy equipment in the open ROW and utilize hand-felling of trees were possible;
    b) Minimize ground disturbance along the forest edges;
    c) Limit equipment use within 50 feet of streams and brooks;
    d) Provide contractor education regarding this species;
    e) Notify DEEP if any EBTs are encountered.

    (UI 1, Vol. 1A, Appendix A, DEEP NDDB Letter dated December 27, 2020)

198. To be protective of the northern diamondback terrapin (NDT), DEEP recommends that ground disturbance in the vicinity of Golf Pond/Indian River be performed during the NDT's inactive period (November 1 through April 1). (UI 1, Vol. 1A, Appendix A, DEEP NDDB Letter dated December 27, 2020)

199. To be protective of the EBT during the active period (April through September) and/or the NDT during its active period (April through November), DEEP recommends that UI implement the following measures including, but not limited to:
    a) Hire a herpetologist to ensure that protective measures are performed and to monitor areas with heavy equipment in use;
    b) Utilize exclusionary fencing of at least 20 inches tall to isolate construction areas;
    c) Perform turtle sweeps of staging and storage areas;
    d) Avoid parking heavy machinery or vehicles in any turtle habitat;
    e) When felling trees adjacent to brooks and streams, the trees should be felled in a direction away from the waterway;
    f) Limit equipment use within 50 feet of streams and brooks; and
    g) Notify DEEP if any EBTs are encountered.

    (UI 1, Vol. 1A, Appendix A, DEEP NDDB Letter dated December 27, 2020)

200. On September 14, 2021, UI consulted with the U.S. Fish and Wildlife Services (USFWS) Information for Planning and Consultation (iPaC) to determine if any federally-listed species may be present within the Project area. The iPaC review identified three species: northern long-eared bat (NLEB), a federally-listed Threatened Species; red knot, a federally-listed Threatened Species; and the monarch butterfly, a candidate for the Federal Endangered Species Act listing (but not currently listed as Threatened or Endangered). (UI 1, Vol. 1, pp. 5-22 and 5-23; UI 1, Vol. 1A, Appendix B, Ecological Assessment Report, p. 18)

201. While the NLEB is currently federally-listed as Threatened, it is also under review by USFWS for possible reclassification as Endangered. (Tr. 1, p. 34)

202. The Project area is not located within 150 feet of a known occupied maternity roost tree or within 0.25-mile of a known NLEB hibernaculum. The nearest NLEB habitat resource to the Project area is located over six miles to the northeast in the Town of North Branford. (UI 1, Vol. 1, p.. 5-22; Council Administrative Notice Item No. 104 – DEEP NLEB Map)

203. The red knot is a shorebird that typically forages along the waterline within the intertidal zone. The Project is located within highly developed areas that do not provide suitable foraging habitat for the red knot. Thus, the Project is not expected to impact red knot habitat. (UI 1, Vol. 1, p. 5-22)

204. No critical habitat has been designated for the monarch butterfly at this time. (UI 1, Vol. 1, pp. 5-22 and 5-23)

Scenic, Historic and Recreation Areas

205. A Phase 1A Cultural Resources Assessment Survey was performed by Heritage Consultants (Heritage) and a report dated September 2021 (Phase IA Report) identified five properties/districts listed on the National Register of Historic Places (NHRP)*. The five properties/districts are as follows:
    a) The Academy of Our Lady of Mercy – Lauralton Hall at 200 High Street, Milford;
    b) River Park Historic District between Boston Post Road and Milford Harbor, Milford;
    c) U.S. Post Office – Milford Main at 6 West River Street, Milford;
    d) Saint Peter's Episcopal Church at 61, 71 and 81 River Street, Milford; and
    e) Taylor Memorial Library at 5 Broad Street, Milford.

    *The properties/districts listed on the NRHP are also listed on the State Register of Historic Places (SRHP), but no properties/districts listed only on the SRHP were identified proximate to the DOT rail corridor.
    (UI 1, Vol. 1A, Appendix D, Phase IA Report, pp. 10-12)

206. The Phase IA Report also identified a previously identified archaeological site (Site 107-15) that could be impacted by a Project access road. Thus, the Phase IA Report recommended that a Phase IB Cultural Resources Reconnaissance Survey (Phase IB Survey) be performed. (UI 1, Vol. 1A, Appendix D, Phase IA Report)

207. By letter dated December 22, 2021, SHPO indicated that all five NRHP resources would be impacted by the Project. UI met with SHPO to discuss mitigation measures. SHPO suggested the production of a pedestrian survey, mapping, and historic research of Charles Island to be codified and submitted in a report to SHPO, as well as the production and installation of interpretive signage based on such report. SHPO requested the Charles Island mitigation measures be included as a requirement for

project approval and solidified in an agreement once permitting is secured. (UI 1, Vol. 1A, Appendix A, SHPO Letter dated December 22, 2021)

208. Rather than install interpretive signage at Charles Island, which is located over a mile away and bears no relationship to the historic resources in the Project area, the City recommends mitigation measures that are more closely aligned with the Project, such as building conditions assessments or preservation plans for the Taylor Memorial Library or the Milford Railroad Station, updating the River Park Historic District NRHP nomination or installing historic interpretive signage on the Milford Green. (City 2; City 3)

209. A Phase 1B Survey was performed by Heritage and a report dated December 2021 (Phase IB Report) was submitted to SHPO. The Phase IB Report indicated that Site 107-15 does not extend into the proposed access road location and would not be impacted by the Project. Thus, SHPO concurred with the conclusion in the Phase IB Report that additional archaeological investigations are not warranted. (UI 1, Vol. 1A, Appendix A, SHPO Letter dated December 22, 2021)

210. The City of Milford Historic Commission believes that new monopole structures would affect the image and character of properties on either side of the ROW and would have long-term historic impacts. The Milford Historic Commission also believes that an underground configuration would be consistent with grid resiliency. (Tr. 4, pp. 304-305; City 3)

Visibility

211. UI used a combination of predictive computer modeling, in-field analysis, and a review of various data sources to evaluate the visibility of the proposed facility. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 1)

212. Information obtained during the field reconnaissance was incorporated into a viewshed map that depicts areas with year-round and seasonal visibility for areas within a one-mile radius Study Area (14,015 acres) from the route of the proposed structures based on computer modeling and in-field observations from publicly-accessible locations. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 1 and Attachment 2, Viewshed Analysis Map Sheet 1 of 3)

213. Based on the final viewshed analysis (refer to Figure Nos. 16 through 18), the existing catenaries are visible year-round from approximately 1,673 acres (12% of the Study Area) and seasonally visible from about 477 acres (3.4% of the Study Area)*.

*These visibility areas do not take into account the heights of the 21 existing UI structures, but the existing viewshed analysis approximates existing conditions.

(UI 5, response 47; Tr. 1, pp. 33-34)

214. Based on the final viewshed analysis (refer to Figure Nos. 19 through 21), the Project would be visible year-round from approximately 1,673 acres (12% of the Study Area) and seasonally visible from about 477 acres (3.4% of the Study Area). (UI 5, response 47)

215. The areas of visibility generally extend to distances of 0.5-mile from the Project route. In some areas undeveloped areas, open water and marsh, it would extend to at least 0.75 mile. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 3)

216. The tops of the new transmission line structures would not be prominent features, particularly with the amount of intervening existing infrastructure common within the Project area. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 3)

217. While some locations would experience changes in visibility from existing conditions due to the relocation and modified heights of new structures, such areas would also have the removal of bonnets and other supporting infrastructure, particularly along the southern side of the railroad corridor. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 3)

218. The most substantial change in visibility would occur at the West River crossing where four 120-foot monopoles would replace the 89-foot tall catenary bonnets (to be removed). This area contains extensive open marshland on either side of West River; developed portions of this area contain commercial and industrial land uses. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 3)

219. There are no state or locally-designated scenic roads located within the one-mile Study Area. (Applicants 1, Bulk File – Town Plan for Conservation and Development)

220. Construction of facilities defined under CGS §16-50i, including but not limited to, electric transmission line facilities, is permissible on ridgelines within the state. (CGS §8-1aa; CGS §8-2; C.G.S. §16-50*x*)

221. There are no "blue-blazed" hiking trails maintained by the Connecticut Forest and Park Association within one-mile of the Project route. (UI 1, Vol. 1A – Appendices – Part II, Appendix C, Visual Assessment, p. 1 and Attachment 2, Viewshed Analysis Map Sheets 1, 2, 3; Council Administrative Notice Item No. 106 – Blue Blazed Hiking Trail System Map)

222. The Project is not located proximate to any National Heritage Corridors or any State designated heritage areas. (UI 1, Vol. 1, p. 5-34)

223. The Project is not located proximate to any DOT designated Scenic Land Strips. (UI 1, Vol. 1, p. 5-34)

224. The Project is not located proximate to any locally-designated scenic roads. (UI 1, Vol. 1, p. 5-34)

Noise

225. UI expects only minor and short-term construction-related noise effects from the Project. Typical construction related noise would occur during normal work hours of 7 AM to 7 PM Monday through Saturday. Construction may occur on nights and Sundays as necessary to perform work during non-peak railroad use periods in order to minimize impacts to the rail system. Furthermore, 24/7 work would be necessary during certain critical periods requiring electrical outages on the UI system. (UI 1, p. 6-28)

226. In some areas along the Project route, bedrock will be encountered at a shallow depth. UI anticipates utilizing mechanical means to remove the bedrock as necessary to create level work pads or access. However, based on the depth, extent, and type of bedrock identified, it might be necessary to utilize controlled blasting. Potential impacts from rock removal may include dust, vibration and noise. If blasting is required, UI would consult with DOT and MNR prior to securing approvals for its Blasting Plans. (UI 1, Vol. 1, pp. 3-19 and 6-2; Tr. 4, pp. 267-268)

227. Construction noise is exempt from the State of Connecticut Noise Control Regulations §22a-69-1.8(g), which includes, but is not limited to, "physical activity at a site necessary or incidental to the erection, placement, demolition, assembling, altering, blasting, cleaning, repairing, installing, or equipping of buildings or other structures, public or private highways, roads, premises, parks, utility lines, or other property." (R.C.S.A. §22a-69-1.8(g))

228. UI is utilizing larger conductors for the proposed Project than the existing conductors. This increases the capacity of the lines to transfer power while minimizing noise. (Tr. 1, pp. 35-36)

229. Once completed, operation of the Project would comply with DEEP Noise Control Regulations. (Tr. 1, p. 38)

Electric and Magnetic Fields

230. Electric fields (EF) and magnetic fields (MF) are two forms of energy that surround an electrical device. Transmission lines are a source of both EF and MF. In the United States, electric utilities provide power at 60 hertz (oscillates 60 times per second). (Council Administrative Notice Item No. 30 – Council's Best Management Practices for Electric and Magnetic Fields, p. 1)

231. Electric fields result from voltages applied to electrical conductors and equipment. Appliances within homes and the workplace are the major sources of electric fields indoors, and power lines are the major sources of electric fields outdoors. EF levels decrease rapidly with distance from the source, diminishing even faster when interrupted by conductive materials, such as buildings and vegetation. The scientific community does not regard EF levels to be a concern to the general public, and thus studies of health effects from electrical transmission lines and equipment has focused on MF. (Council Administrative Notice Item No. 30 – Council's Best Management Practices for Electric and Magnetic Fields, p. 1; Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #220)

232. MF are produced by the flow of electric currents. The level of a magnetic field is commonly expressed as magnetic flux density in units called gauss (G), or in milliGauss (mG). The magnetic field level at any point depends on characteristics of the source, which can include the arrangement of conductors, the amount of current flow through the source, and its distance from the point of measurement. MF levels decrease rapidly with distance from the source but are not easily interrupted as they pass through most materials. (Council Administrative Notice Item No. 30 – Council's Best Management Practices for Electric and Magnetic Fields, p. 2; Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #221)

233. In the United States, no state or federal exposure standards for 60-hertz MF based on demonstrated health effects have been established. Nor are there any such standards established world-wide. However, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) has established a level of 2,000 mG, based on extrapolation from scientific experimentation, and the International Committee on Electromagnetic Safety (ICES) has calculated a guideline of 9,040 mG for exposure to workers and the general public. (Council Administrative Notice Item No. 30 – Council's Best Management Practices for Electric and Magnetic Fields, p. 3; Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #222)

234. In accordance to the Council's *Electric and Magnetic Fields Best Management Practices for the Construction of Electric Transmission Lines in Connecticut* guidelines (EMF BMP), UI is required to provide an analysis of recent scientific literature regarding MF exposure, an analysis of pre and post construction MF levels, and investigate 'no cost" and "low cost" transmission line design alternatives to reduce MF levels at the edge of a ROW and in areas of particular interest, as long as such designs do not compromise system reliability or worker safety, or environmental and aesthetic project goals. (Council Administrative Notice Item No. 30 – Council's Best Management Practices for Electric and Magnetic Fields, pp. 4-10; Council Administrative Notice Item No. 39 – Docket No. 474 Finding of Fact #223)

235. As required by the Council's EMF BMPs, UI provided an analysis of recent scientific literature regarding MF exposure and determined there were no relevant changes in current research conclusions or the recommended exposure standards established by ICES and ICNIRP. (UI 1, Vol. 1A, Appendix E – EMF Report, p. 10; Council Administrative Notice Item No. 30 – Council's Best Management Practices for Electric and Magnetic Fields, p. 3)

236. As required by the Council's EMF BMP, UI examined the project route to determine the location of any schools, daycare facilities, playgrounds, hospitals, and residential areas, as defined under C.G.S. § 16-50p(a)(3)(D), for specific MF analysis. Such locations are identified below.

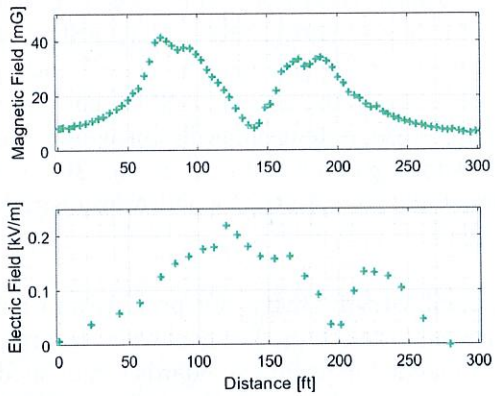
Location Name	**Category**	**Address**	**Distance from proposed transmission line**
Duck Pond Day Care Preschool	Day Care	132 New Haven Avenue, Milford	245 feet south
Gingerbread House of Milford	Day Care	61 River Street, Milford	175 feet north
Day Care	Day Care	37 George Street, West Haven	315 feet south
Great Beginnings Preschool	Day Care	100 Washington Street, Milford	90 to 380 feet north
Beaver Brook Trails	Parks & Recreation	631 West Avenue, Milford	~630 feet north
Playground	Playground	1-11 Hill Street, Milford	165 to 525 feet north
Harborside Middle School	School	175 High Street, Milford	380 feet north
Milford Center for the Arts	Youth Camp	40 Railroad Avenue, Milford	65 feet south

(UI 1, Vol. 1A, Appendix E – EMF Report, p. D-2)

237. The nearest residence to the proposed transmission line is located approximately 40 feet to the north at Clark Street, West Haven. (UI 1, Vol. 1A, Appendix E – EMF Report, p. D-3)

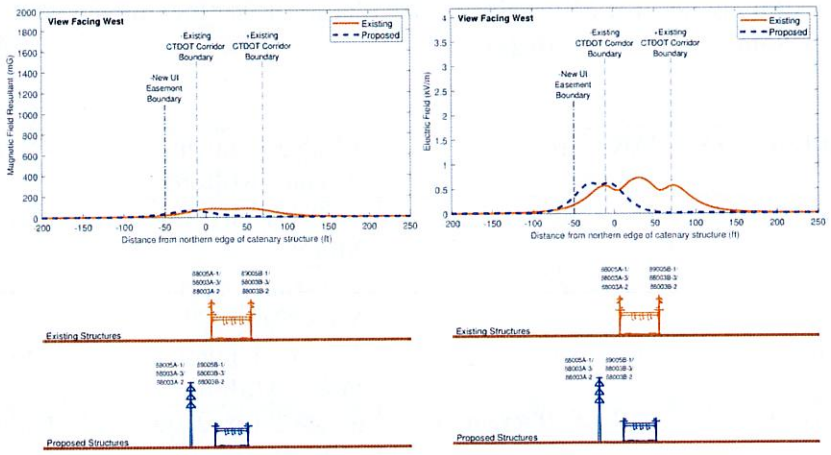
238. Field measurements of existing, preconstruction MF and EF were taken along the existing DOT corridor and along the Woodmont Road overpass in Milford, where it transects the transmission centerlines. (UI 1, Vol. 1A, Appendix E – EMF Report, p. 12)

239. Field measurements of existing MF and EF along the Woodmont Road overpass in Milford are listed below.



(UI 1, Vol. 1A, Appendix E – EMF Report, p. D-13)

240. A cross-section of the Project with existing and proposed EMF values is listed below.



(UI 1, Vol. 1A, Appendix E – EMF Report, p. 16)

241. A vertical conductor arrangement was selected by UI to accommodate a double-circuit configuration, i.e. one circuit on each side of the structures and because a horizontal conductor configuration would require nearly double the ROW width. (Tr. 1, p. 31)

242. The EMF BMPs directs an Applicant to initially develop a baseline Field Management Design Plan that incorporates "no-cost" MF mitigation design features. The Applicant shall then study potential design alternatives by adding "low-cost" MF mitigation design features specifically where portions of the project are adjacent to residential areas, public or private schools, licensed child day-care facilities, licensed youth camps, or public playgrounds. The overall cost of "low-cost" design features are to be calculated at four percent of the initial Field Management Design Plan. The four percent guideline for "low-cost" mitigation should aim at a magnetic field reduction of 15 percent or more at the edge of the utility's ROW. This 15 percent reduction should relate specifically to those portions of the project where the expenditures would be made. (Council Administrative Notice Item No. 30 – Council's Best Management Practices for Electric and Magnetic Fields, pp. 4-10

243. UI's base Field Management Design Plan incorporates "no cost/low cost" magnetic field reduction measures, consistent with the Council's EMF BMPs, through the use of the following: distance via the rebuilt lines located farther from the southern DOT boundary and the use the permanent easements (where necessary) north of the DOT boundary; taller structures to raise the heights of the transmission conductors; and double-circuit vertical structures while arranging the conductor phases to achieve substantial MF cancellation. This "no cost/low cost" design was used to develop the pre and post project MF calculations. (UI 1, Appendix E – EMF Report, pp. 10-11)

Public Safety

244. The proposed Project would be constructed in full compliance with the National Electric Safety Code, standards of the Institute of Electrical and Electronic Engineers, and the American National Standards Institute, good utility practice, UI's technical specifications. (UI 1, Vol. 1, p. 3-1)

245. UI would utilize existing protective relaying equipment to automatically detect abnormal operational system conditions and to send a protective trip signal to circuit breakers to isolate the faulted section of the transmission system. (UI 1, Vol. 1, p. 3-21)

246. Fiber optic cable would be installed on the replacement transmission lines to provide a reliable communications path for the existing protective relaying systems. (UI 1, Vol. 1, p. 3-22)

247. Protective relaying and associated equipment, along with a Supervisory Control and Data Acquisition (SCADA) system for 24/7 remote control and equipment monitoring is housed at UI's System Operations Center. (UI 1, Vol. 1, p. 3-22)

248. Smoke detection systems are already in place in the existing relay and control enclosures at the five UI substations. In the event smoke is detected, an alarm would be activated at UI's Electric Control Center, and system operators would take appropriate action. (UI 1, Vol. 1, p. 3-22)

249. The relay and control enclosures at each of the five substations are equipped with both manual and automatic fire suppression systems and methods. Specifically, the substations are equipped with portable manual fire extinguishers and fire alarm system. (UI 1, Vol. 1, p. 3-22; UI 5, response 37)

250. The Project would be consistent with the Council's *White Paper on the Security of Siting Energy Facilities*. The white paper guidelines focused on security issues related to intentional physical destruction of substation equipment. (Council Administrative Notice Item No. 33; UI 1, Vol. 1, p. 3-23)

251. The five substations are equipped with lighting to facilitate work at night under emergency conditions or during inclement weather. (UI 1, Vol. 1, p. 3-22)

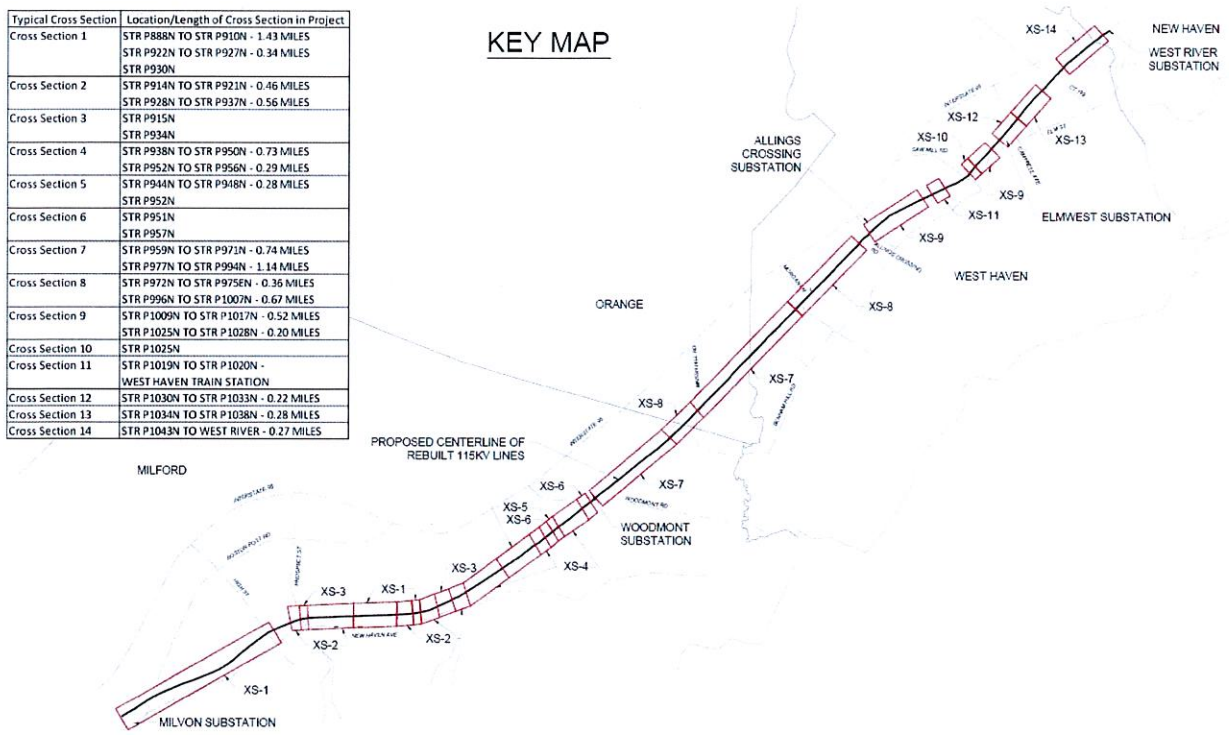
252. Lighting would be required for Project construction activities that must occur during nighttime hours. For such work, temporary portable lighting would be needed. (UI 1, p. 6-29)

253. Operation of the Project would not require any lighting along the replacement 115-kV transmission route or any new lightning at the five substations. (UI 1, Vol. 1, p. 6-29)

254. Signs are installed at each substation to alert the public to the presence of high voltage at the facilities. (UI 1, p. 3-22)

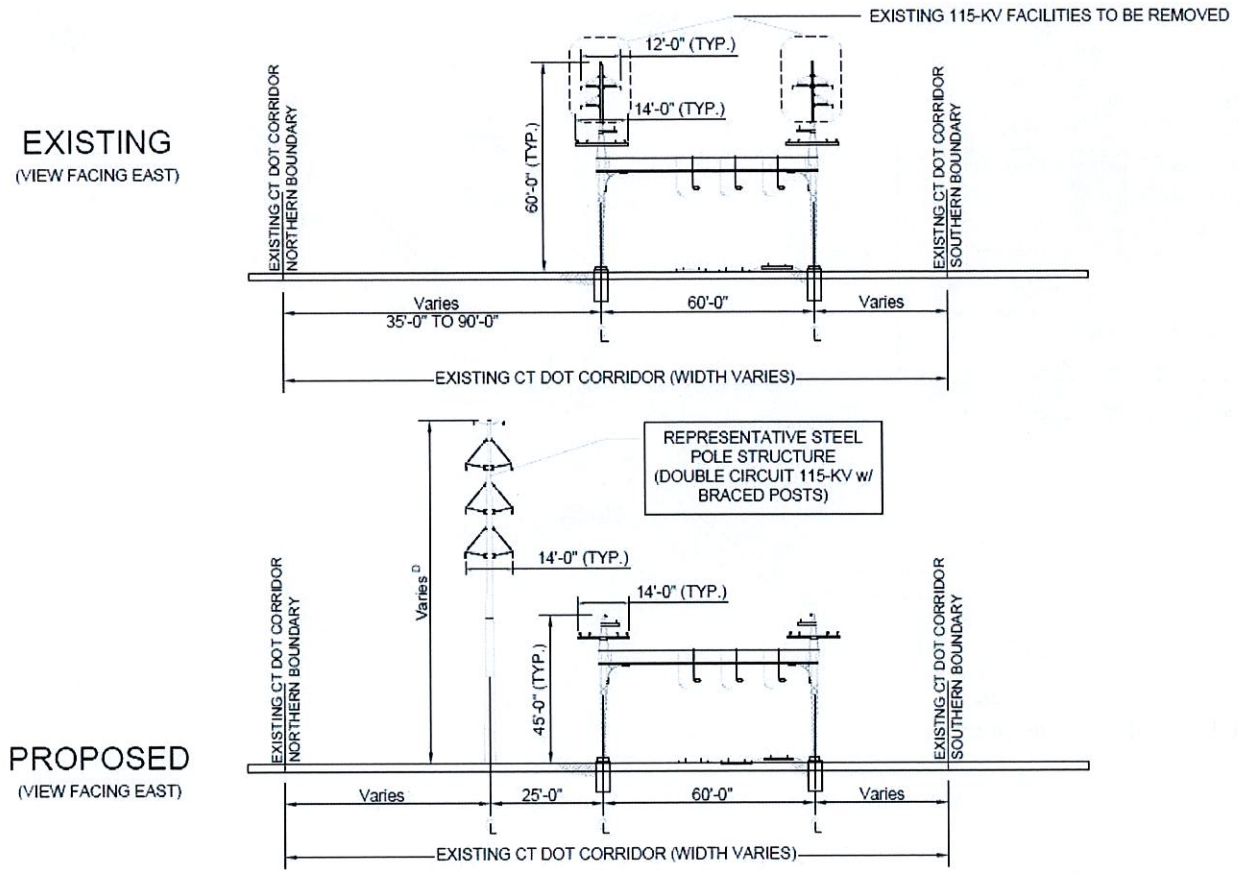
Figure 1 – Map Key

Typical Cross Section	Location/Length of Cross Section in Project
Cross Section 1	STR P888N TO STR P910N - 1.43 MILES STR P922N TO STR P927N - 0.34 MILES STR P930N
Cross Section 2	STR P914N TO STR P921N - 0.46 MILES STR P928N TO STR P937N - 0.56 MILES
Cross Section 3	STR P915N STR P934N
Cross Section 4	STR P938N TO STR P950N - 0.73 MILES STR P952N TO STR P956N - 0.29 MILES
Cross Section 5	STR P944N TO STR P948N - 0.28 MILES STR P952N
Cross Section 6	STR P951N STR P957N
Cross Section 7	STR P959N TO STR P971N - 0.74 MILES STR P977N TO STR P994N - 1.14 MILES
Cross Section 8	STR P972N TO STR P975EN - 0.36 MILES STR P996N TO STR P1007N - 0.67 MILES
Cross Section 9	STR P1009N TO STR P1017N - 0.52 MILES STR P1025N TO STR P1028N - 0.20 MILES
Cross Section 10	STR P1025N
Cross Section 11	STR P1019N TO STR P1020N - WEST HAVEN TRAIN STATION
Cross Section 12	STR P1030N TO STR P1033N - 0.22 MILES
Cross Section 13	STR P1034N TO STR P1038N - 0.28 MILES
Cross Section 14	STR P1043N TO WEST RIVER - 0.27 MILES



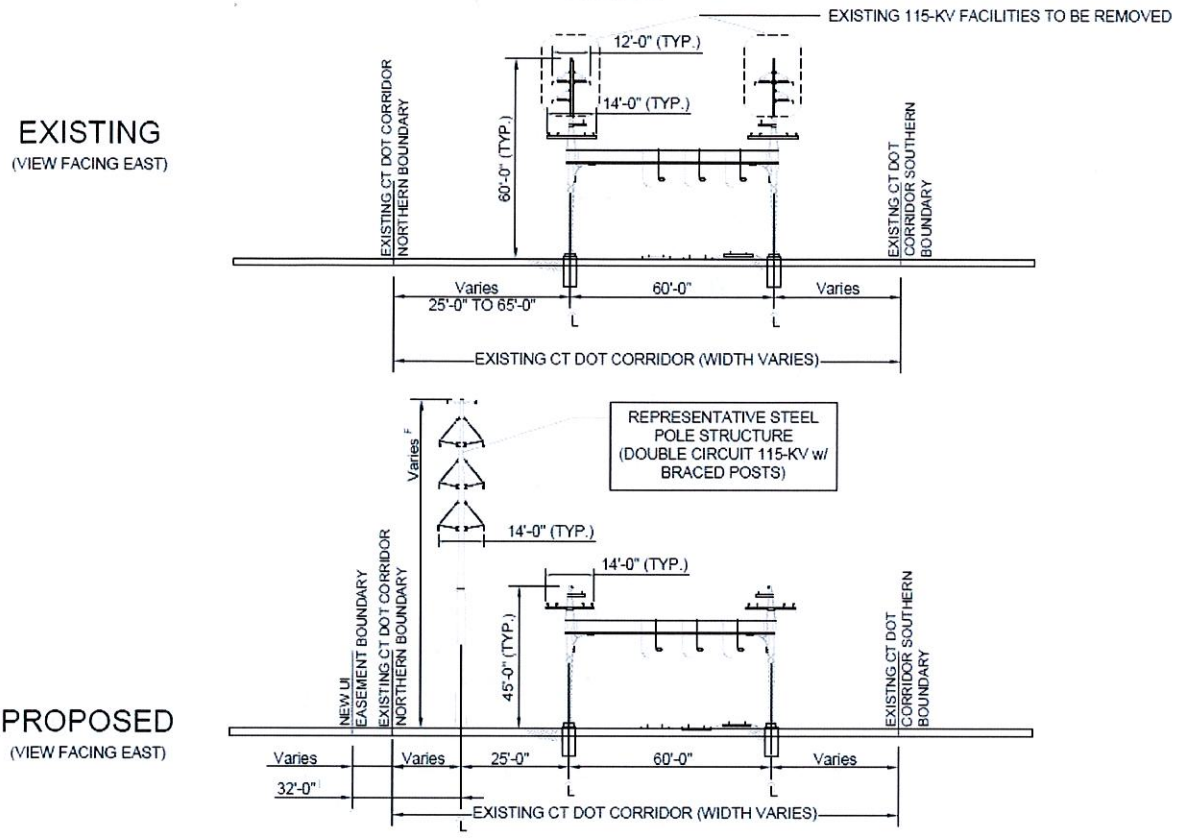
(UI 1, Vol. 2, Attachment V2.2)

Figure 2 – Milvon Substation to Woodmont Substation Structure Nos. P888N to P910N – Cross Section



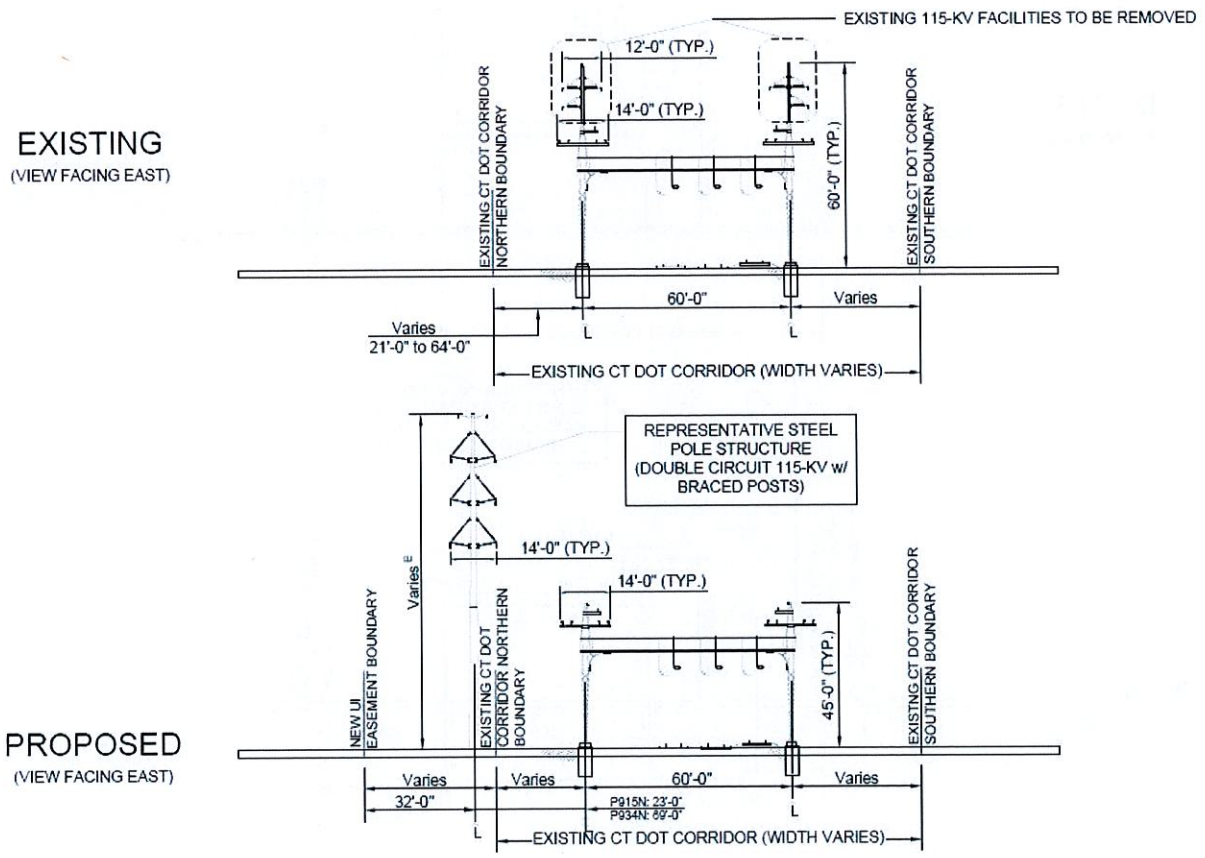
(UI 1, Vol. 2, Attachment V2.2)

Figure 3 – Milvon Substation to Woodmont Substation Structure Nos. P914N to P921N – Cross Section



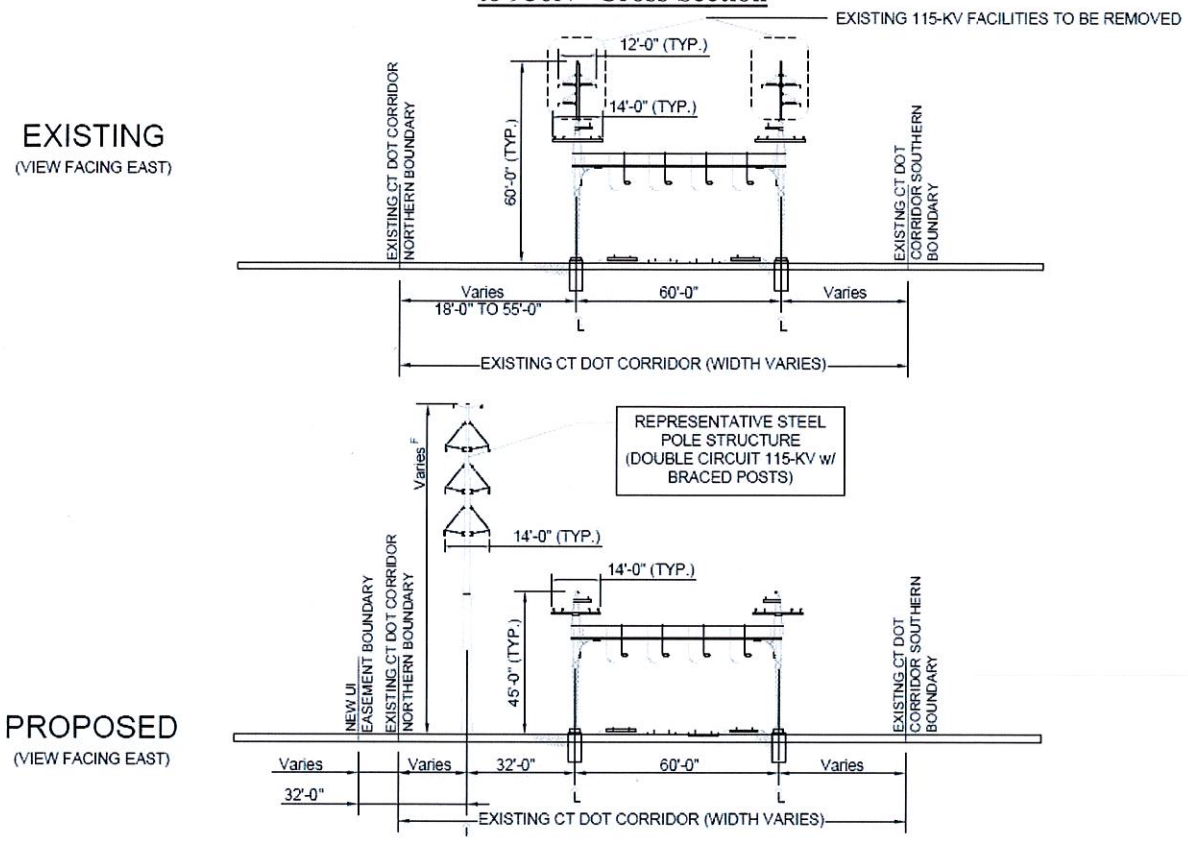
(UI 1, Vol. 2, Attachment V2.2)

Figure 4 – Milvon Substation to Woodmont Substation Structure Nos. P915N and P934N – Cross Section



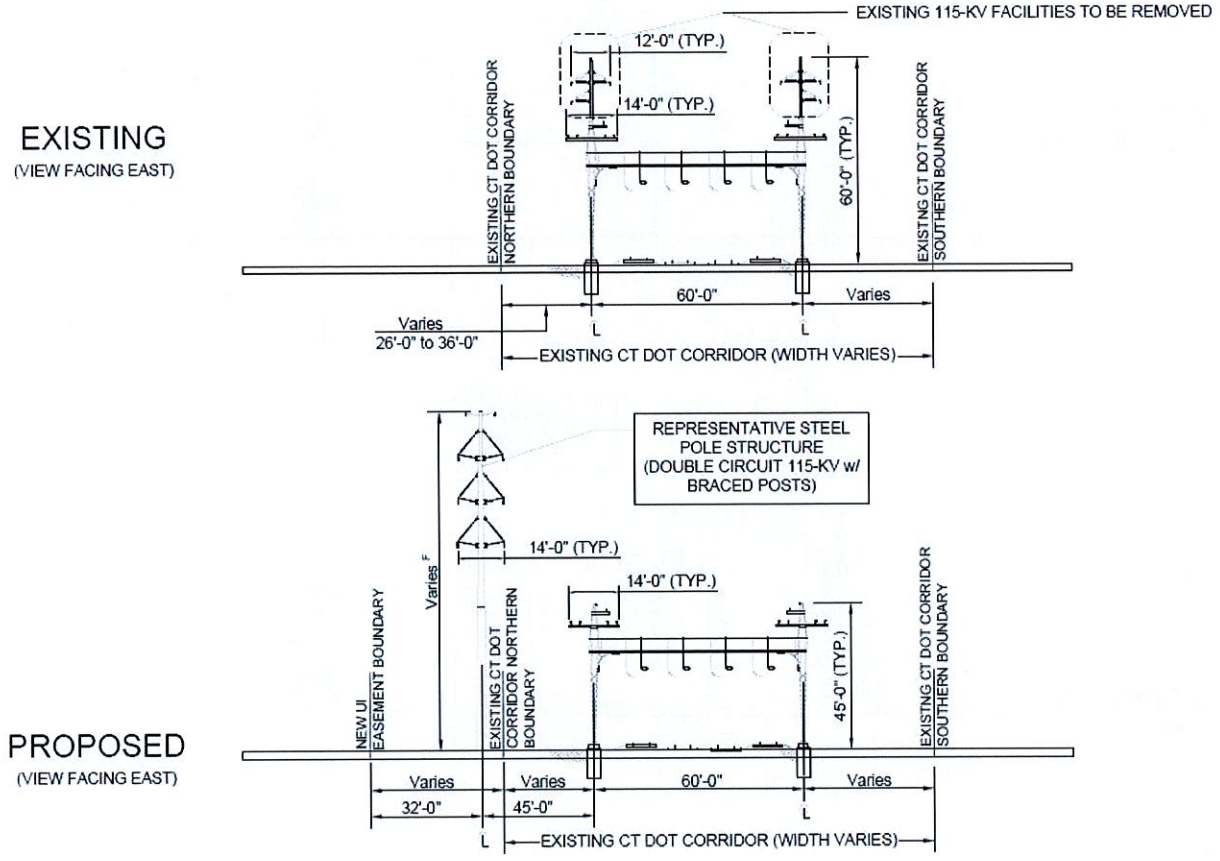
(UI 1, Vol. 2, Attachment V2.2)

Figure 5 – Milvon Substation to Woodmont Substation Structure Nos. P938N to P950N and P952N to 956N– Cross Section



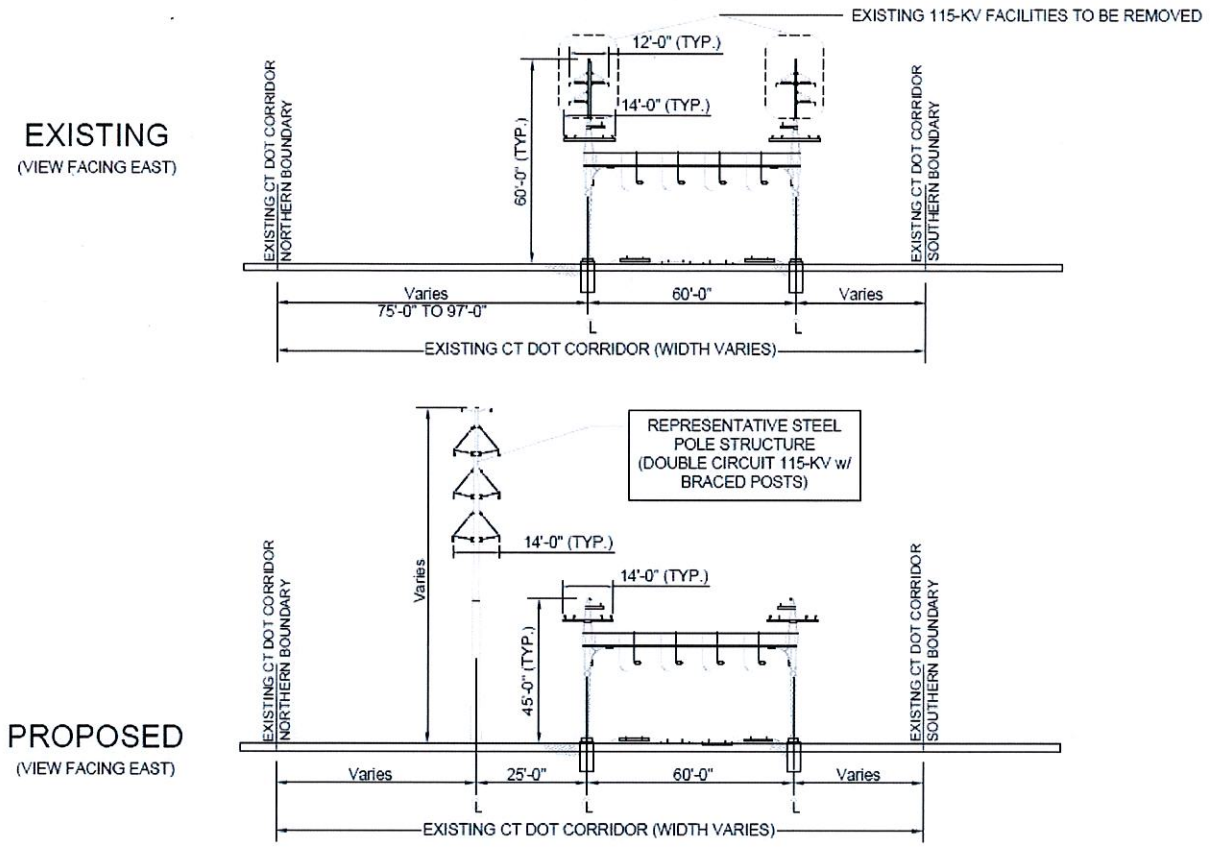
(UI 1, Vol. 2, Attachment V2.2)

Figure 6 – Milvon Substation to Woodmont Substation Structure Nos. P944N to P948N– Cross Section



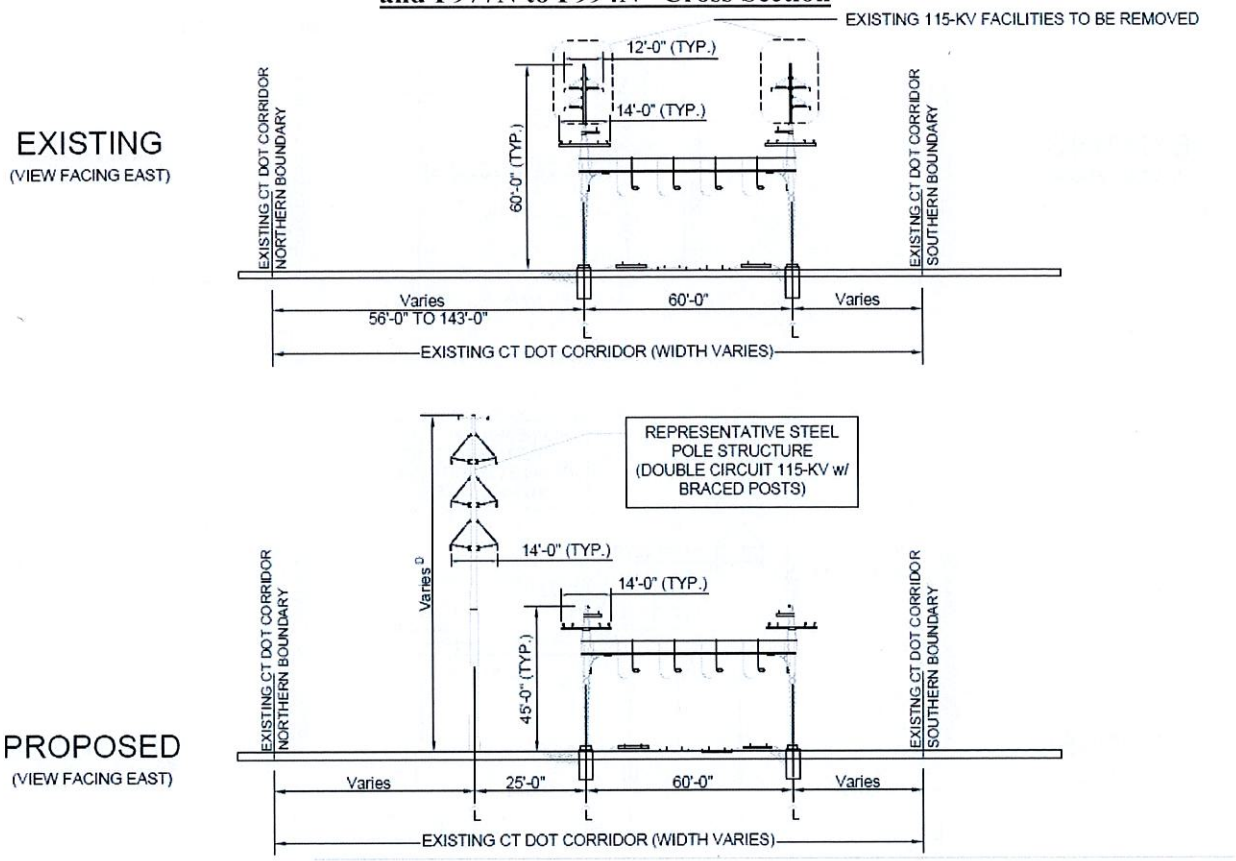
(UI 1, Vol. 2, Attachment V2.2)

Figure 7 – Milvon Substation to Woodmont Substation Structure Nos. P951N and P957N– Cross Section



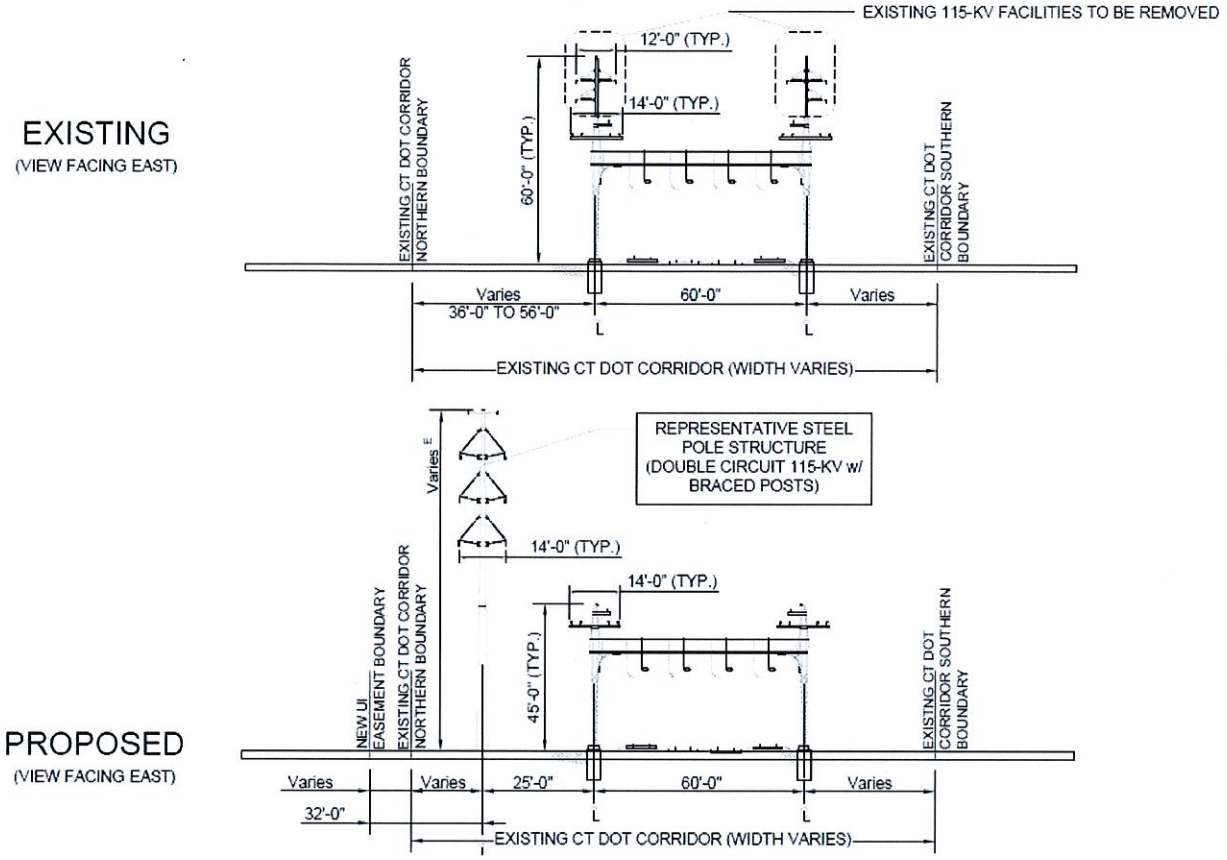
(UI 1, Vol. 2, Attachment V2.2)

Figure 8 –Woodmont Substation to Allings Crossing Substation Structure Nos. P959N to P971N and P977N to P994N– Cross Section



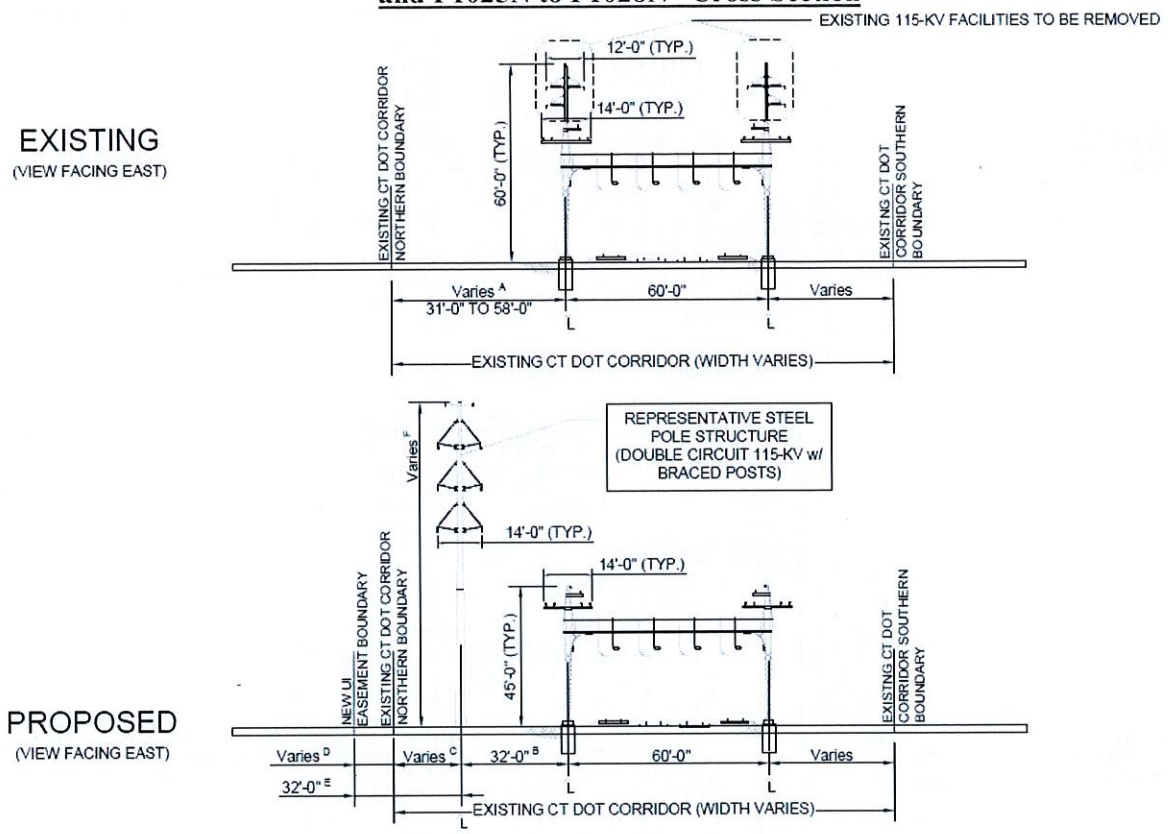
(UI 1, Vol. 2, Attachment V2.2)

Figure 9 –Woodmont Substation to Allings Crossing Substation Structure Nos. P972N to P975EN and P996N to P1007N– Cross Section



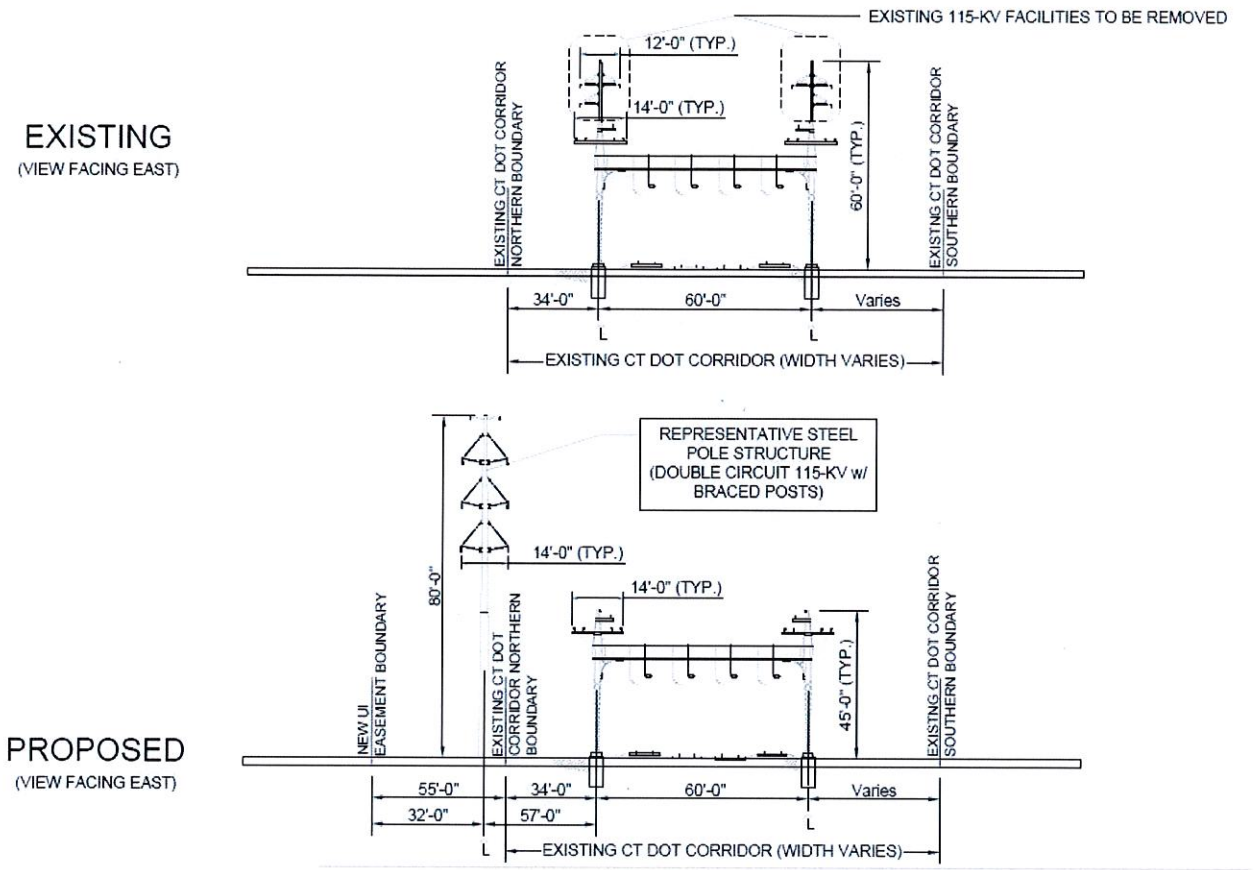
(UI 1, Vol. 2, Attachment V2.2)

Figure 10 –Allings Crossing Substation to Elmwest Substation Structure Nos. P1009N to P1017N and P1025N to P1028N– Cross Section



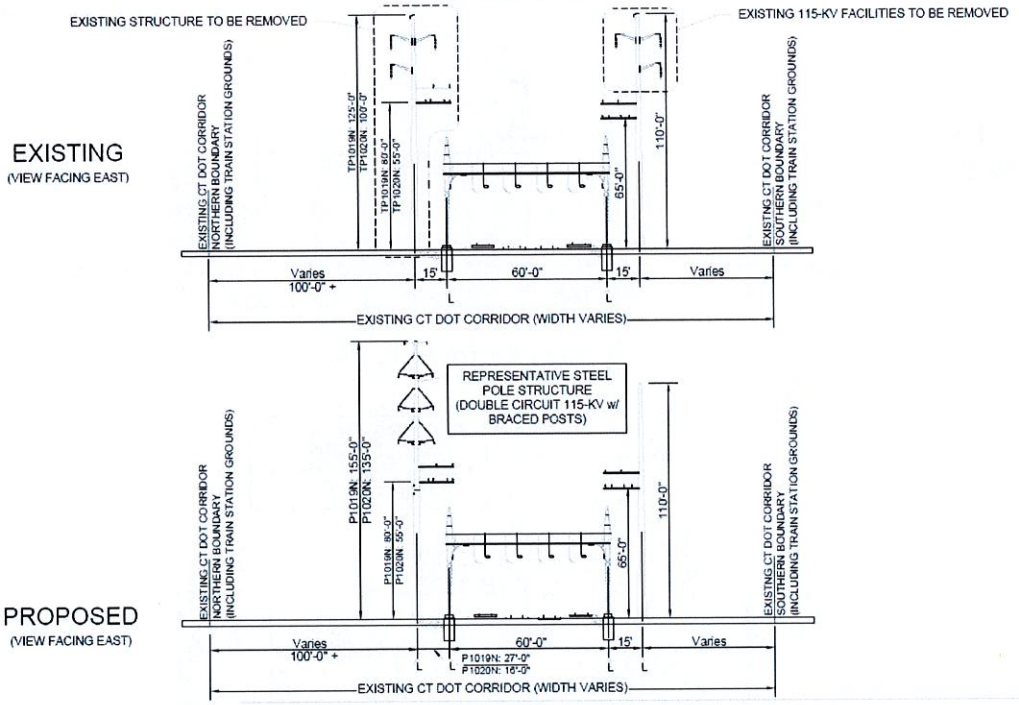
(UI 1, Vol. 2, Attachment V2.2)

Figure 11 –Allings Crossing Substation to Elmwest Substation Structure No. P1025N– Cross Section



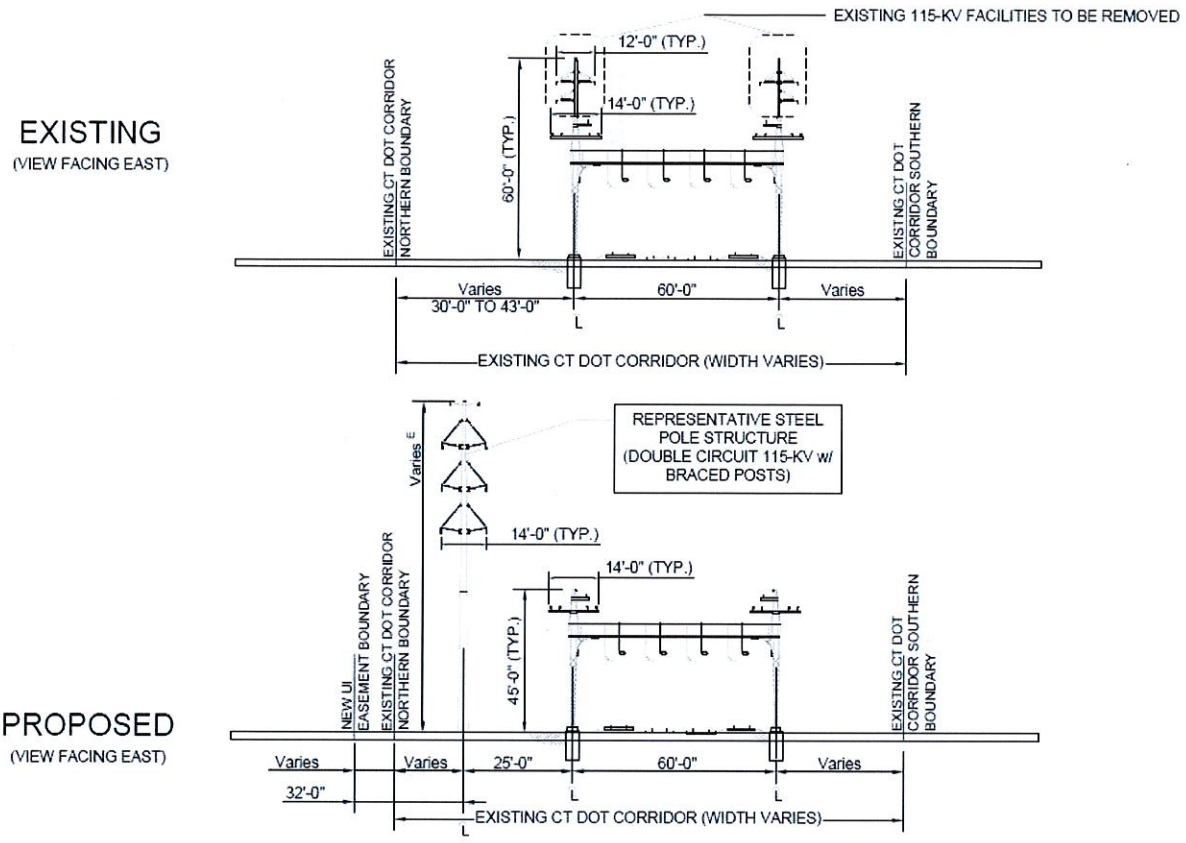
(UI 1, Vol. 2, Attachment V2.2)

Figure 12 –Allings Crossing Substation to Elmwest Substation Structure Nos. P1019N to P1020N – Cross Section



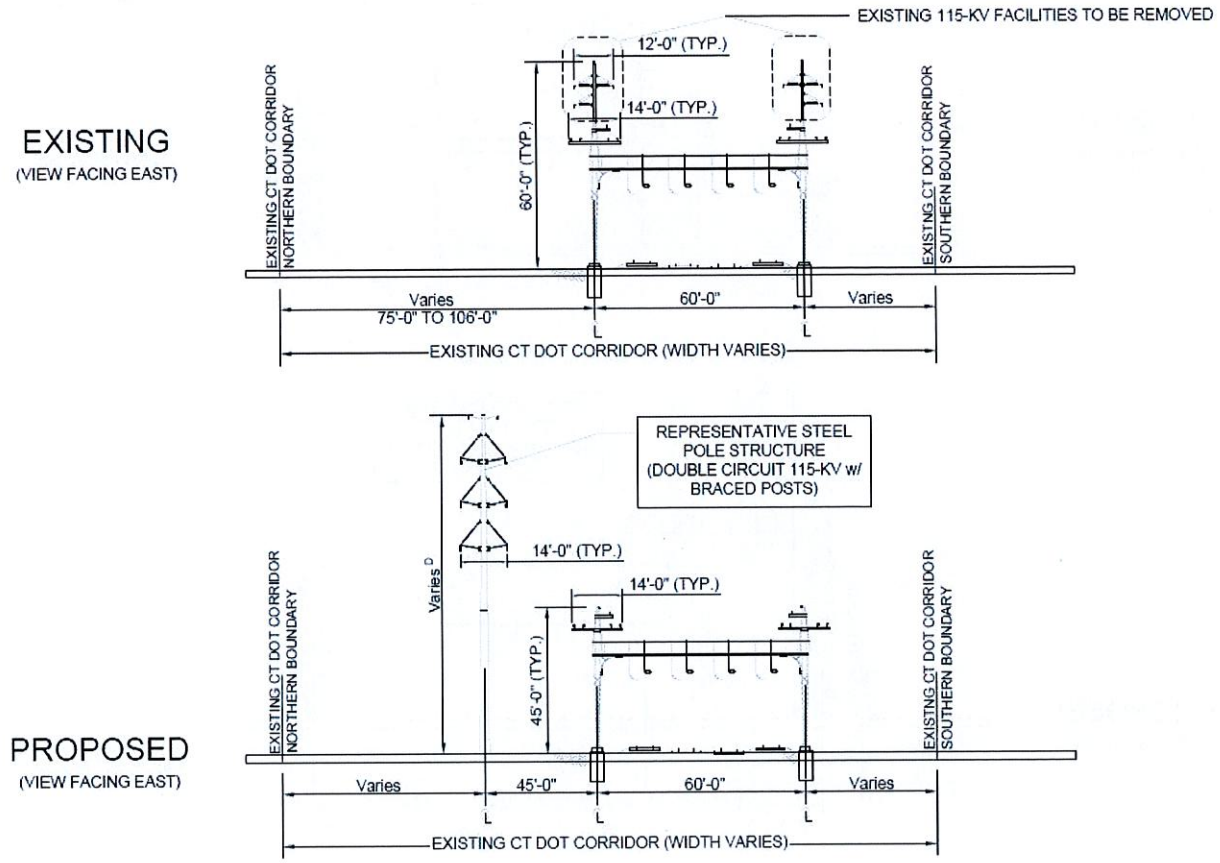
(UI 1, Vol. 2, Attachment V2.2)

Figure 13 –Elmwest Substation to West River Substation Structure Nos. P1030N to P1033N – Cross Section



(UI 1, Vol. 2, Attachment V2.2)

Figure 14 –Elmwest Substation to West River Substation Structure Nos. P1034N to P1038N – Cross Section



(UI 1, Vol. 2, Attachment V2.2)

Figure 15 – Cost Table

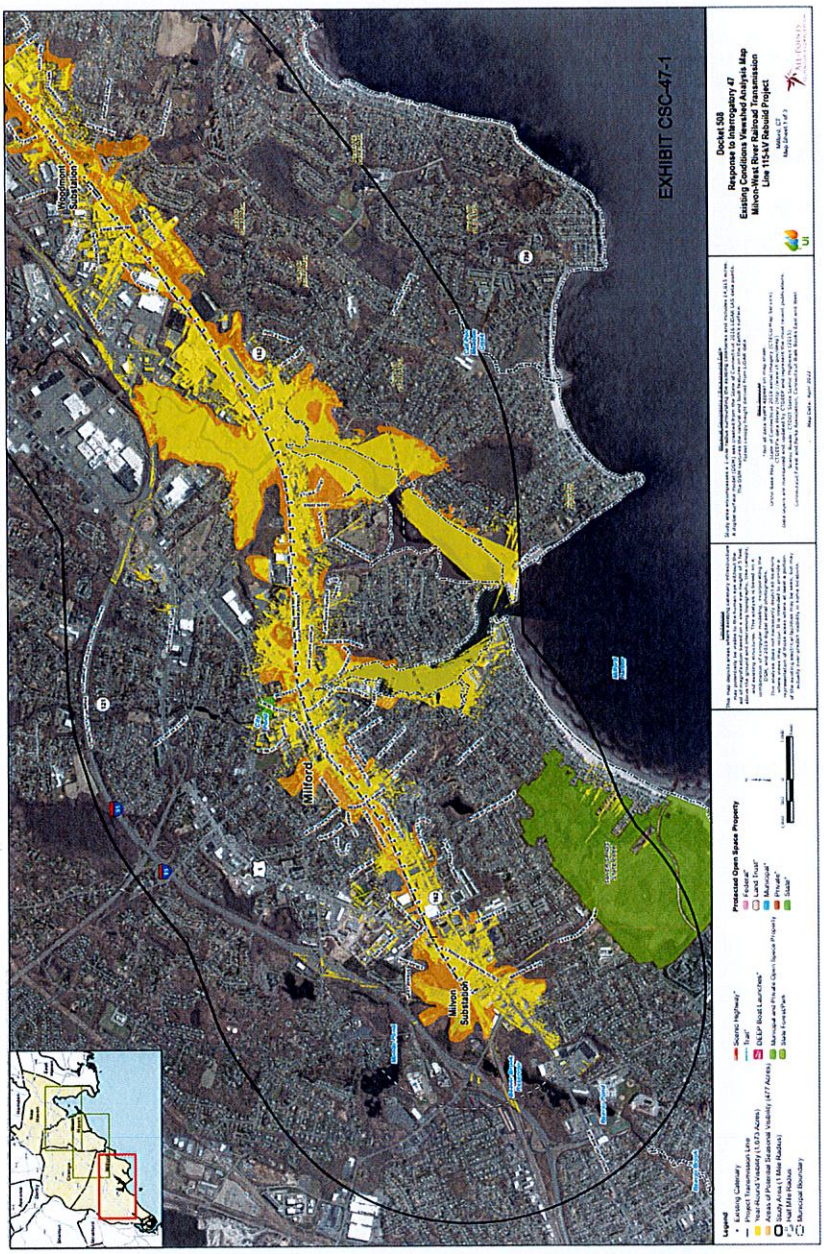
UI MILVON WEST RIVER TRANSMISSION LINE REBUILD PROJECT (D508) - COST TABLE

Option	Project Component	Section Length in Linear Miles	Transmission Line Costs (A)	Distribution Related Costs (B)	Substation Costs (C)	Transition Station Costs (D)	HDD Costs (E)	Jack & Bore Costs (F)	Misc. Costs (e.g. bonnet decommissioning) (G)	Total Cost Estimate (H)* =[A+B+C+D+E+F+G]	Proposed Project Cost for this Section or Alternative (I)	Cost Delta (H-I)
A	Overhead Transmission Line, north side of RR ROW (proposed)	9.5	$222,550,000	$1,250,000	$3,850,000	$0	$0	$0	$67,350,000	$295,000,000	$295,000,000	$0
B	Overhead Transmission Line, south side of RR ROW	9.5	$265,475,000	$3,125,000	$3,850,000	$0	$0	$0	$67,350,000	$339,800,000	$295,000,000	$44,800,000
C	Overhead Transmission Line, Milford Alternative (reduce structure heights from 905N to 914N)	9.5	$223,400,000	$1,400,000	$3,850,000	$0	$0	$0	$67,350,000	$296,000,000	$295,000,000	$1,000,000
D	Overhead Transmission Line, shifted to south side of RR ROW from 905N to 914N	9.5	$234,250,000	$1,250,000	$3,850,000	$0	$0	$0	$67,350,000	$306,700,000	$295,000,000	$11,700,000
E	Underground Transmission Line, north side of RR ROW	9.5	$1,458,630,000	$0	$21,388,000	$0	$19,871,000	$0	$67,350,000	$1,567,239,000	$295,000,000	$1,272,239,000
F	Underground Transmission Line, south side of RR ROW	11.5	$1,291,748,000	$0	$11,458,000	$0	$27,540,000	$6,328,000	$67,350,000	$1,404,424,000	$295,000,000	$1,109,424,000
G	Underground Transmission Line within streets	9.5	$289,822,000	$1,250,000	$3,850,000	$1,522,000	$0	$590,000	$67,350,000	$364,384,000	$295,000,000	$69,384,000
H	Underground Transmission Line, Milford Alternative (from 905N to 914N) – RR ROW	9.5	$300,423,000	$1,250,000	$3,850,000	$1,522,000	$1,492,000	$0	$67,350,000	$357,887,000	$295,000,000	$80,887,000
I	Underground Transmission Line, Morissette Alternative (from 900N to 914N)	9.5	$337,740,800	$1,250,000	$3,850,000	$1,522,000	$1,492,000	$0	$67,350,000	$413,205,000	$295,000,000	$118,205,000
J	Overhead Transmission Line, Milford Alternative (reduce structure heights from 904N to 916N)	9.5	$222,900,000	$1,250,000	$3,850,000	$0	$0	$0	$67,350,000	$295,350,000	$295,000,000	$350,000

*These costs are for the total Project, including the Option described.
Per ISO-NE PP4, Appendix D, these are "Project Initiation" type estimates (-50%/+200% accuracy)
Revision 1 Notes: 1) Option J added to the chart
2) Options E, H, and I have updated transmission costs to include soft digging (~4') with in the railroad corridor per DOT comments
3) Option F is characterized in the above chart as south side of RR tracks. However due to the limited railroad corridor on the south side of the tracks and other constraints, this option is south side of the tracks with public streets
Please see attached Notes and Assumptions documents for further details

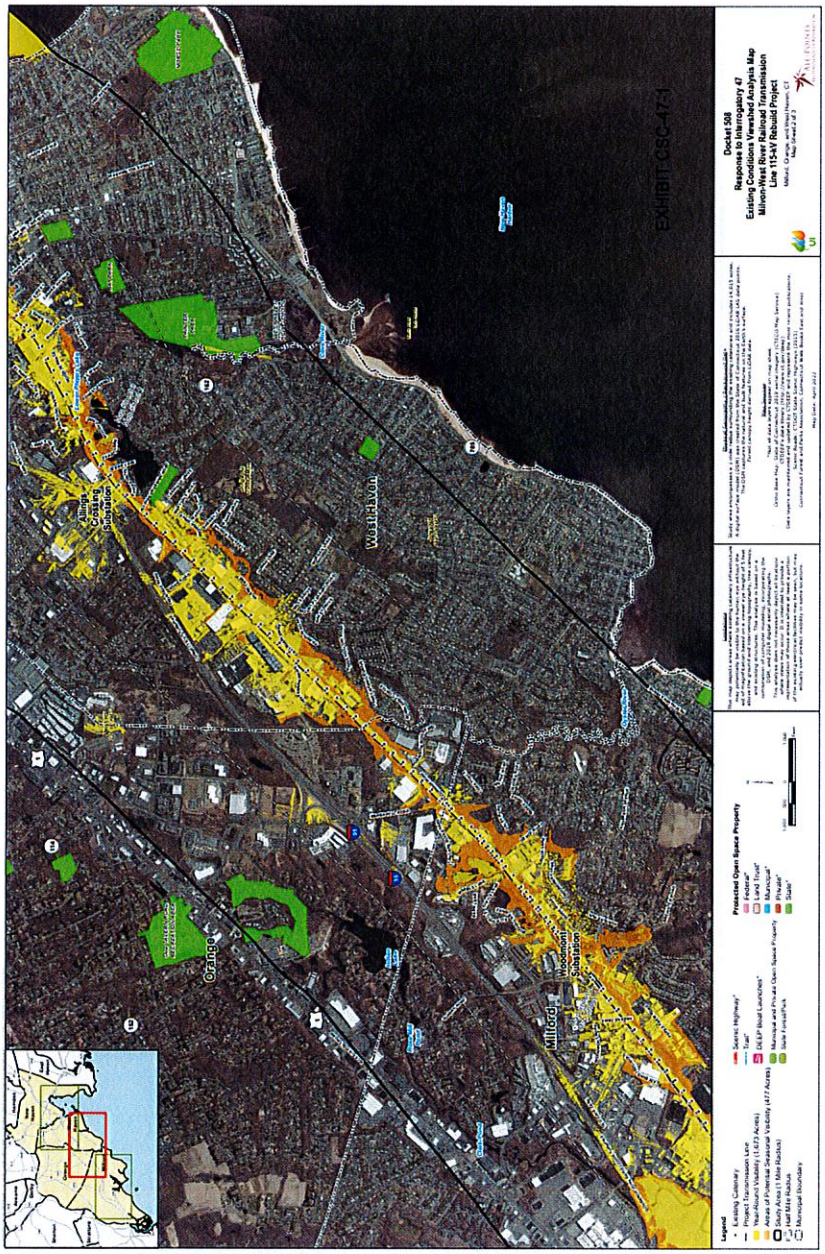
(UI 20 Late-Filed Exhibit June 23, 2022)

Figure 16 – Existing Visibility (Map 1 of 3)



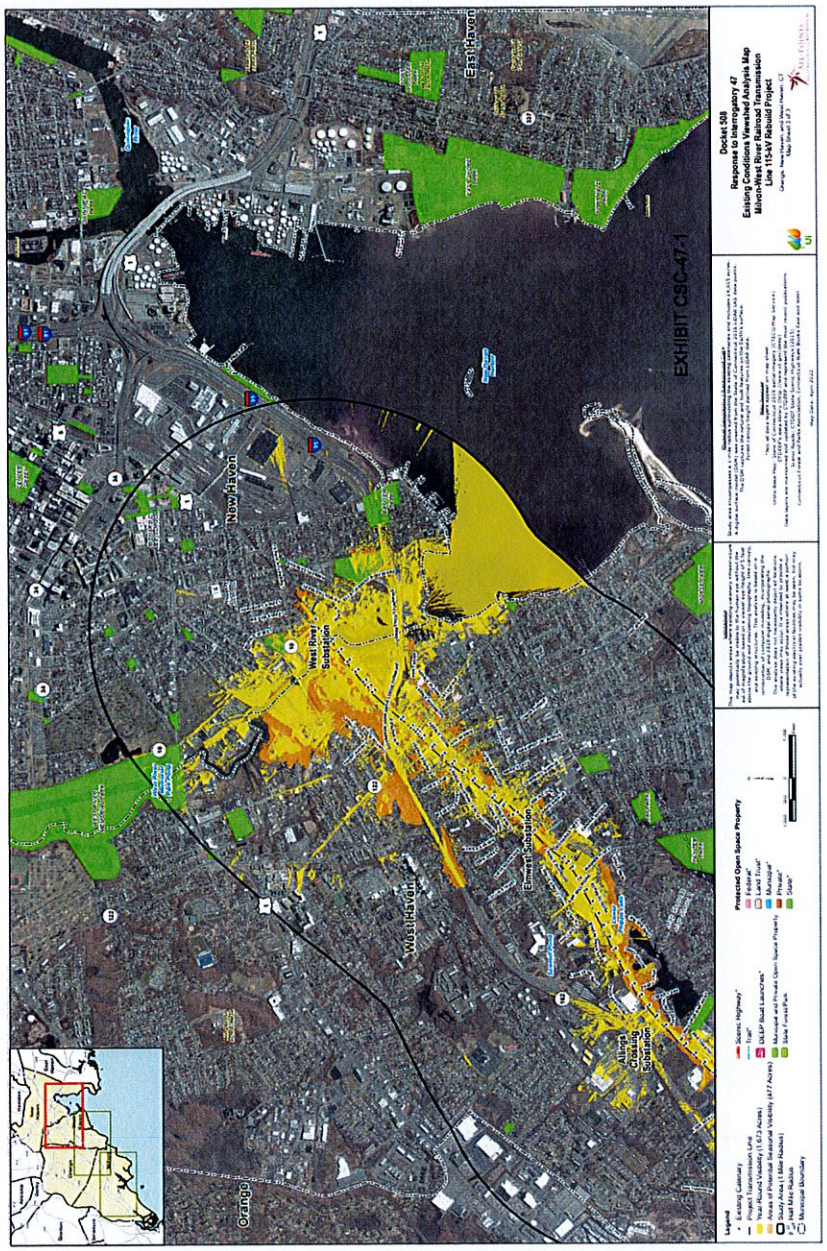
(UI 6, response 47)

Figure 17– Existing Visibility (Map 2 of 3)



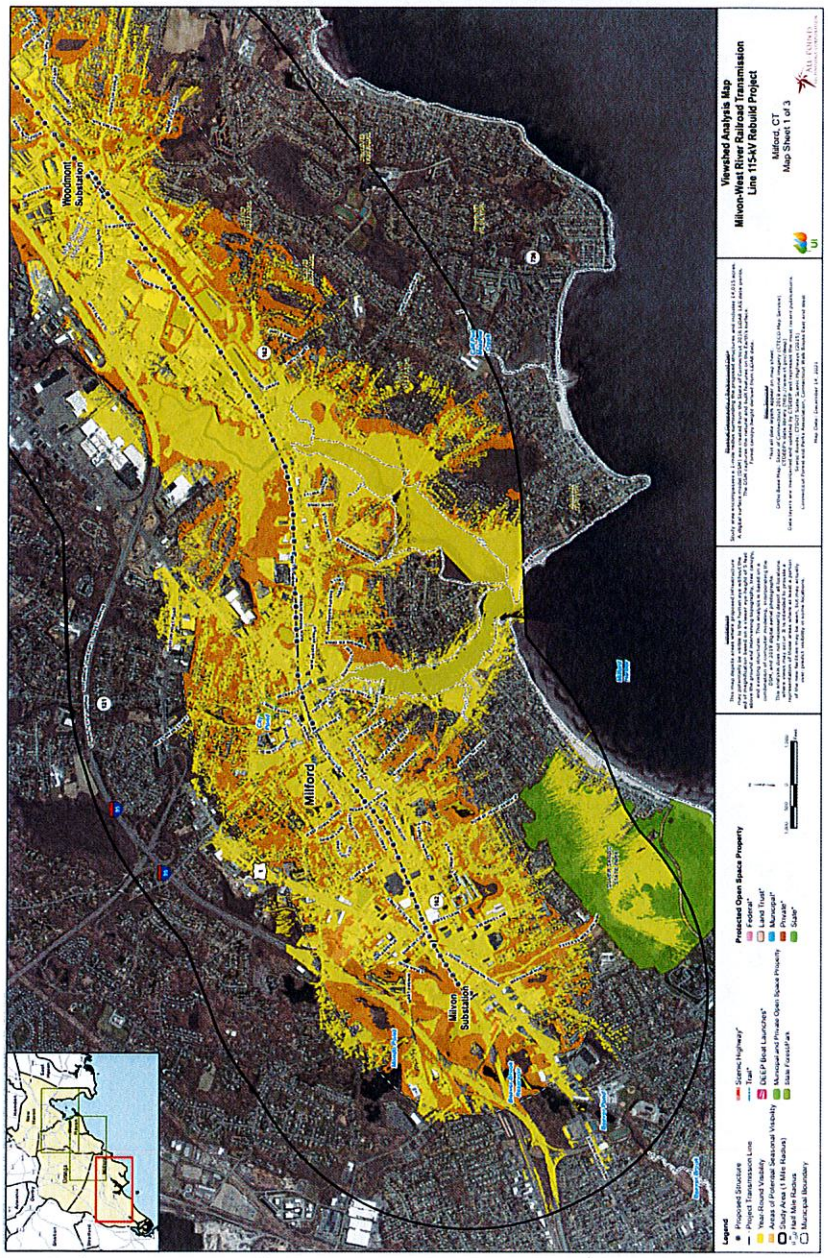
(UI 6, response 47)

Figure 18 – Existing Visibility (Map 3 of 3)



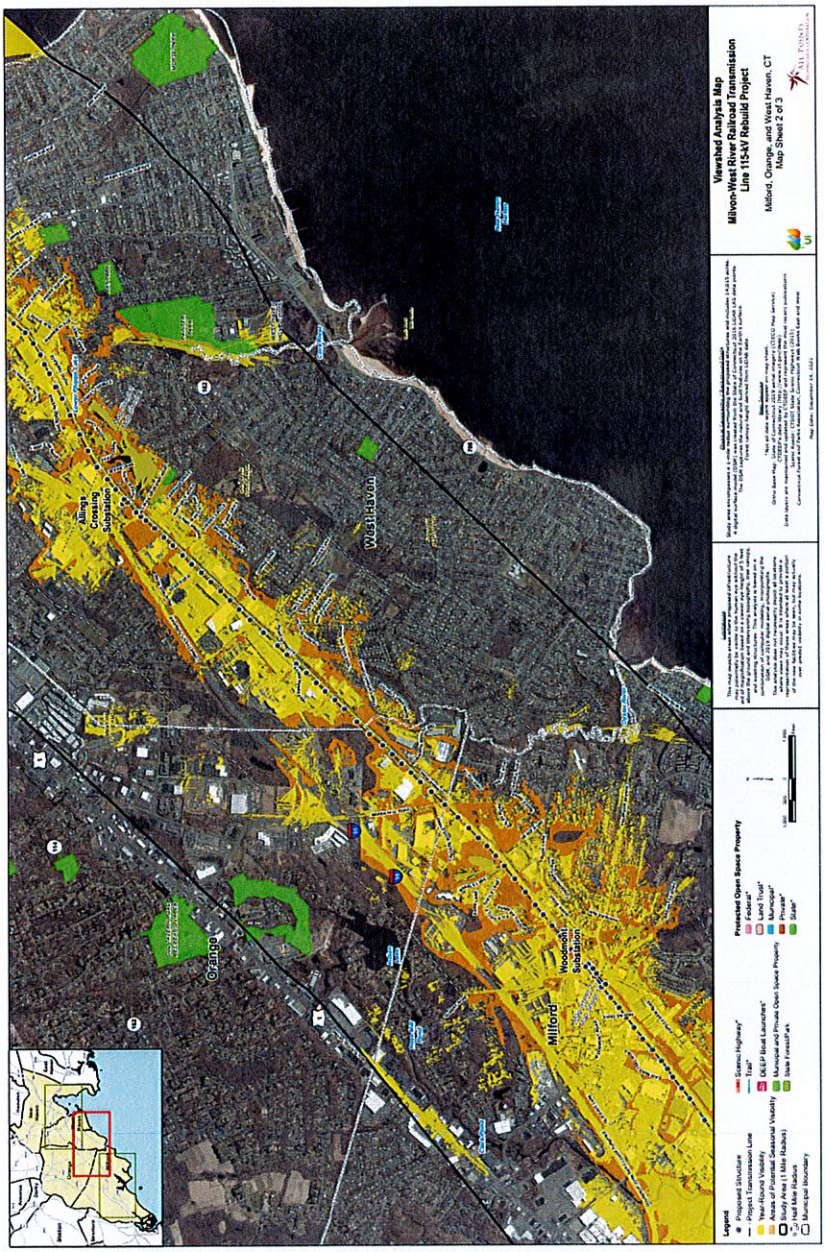
(UI 6, response 47)

Figure 19 – Proposed Visibility (Map 1 of 3)



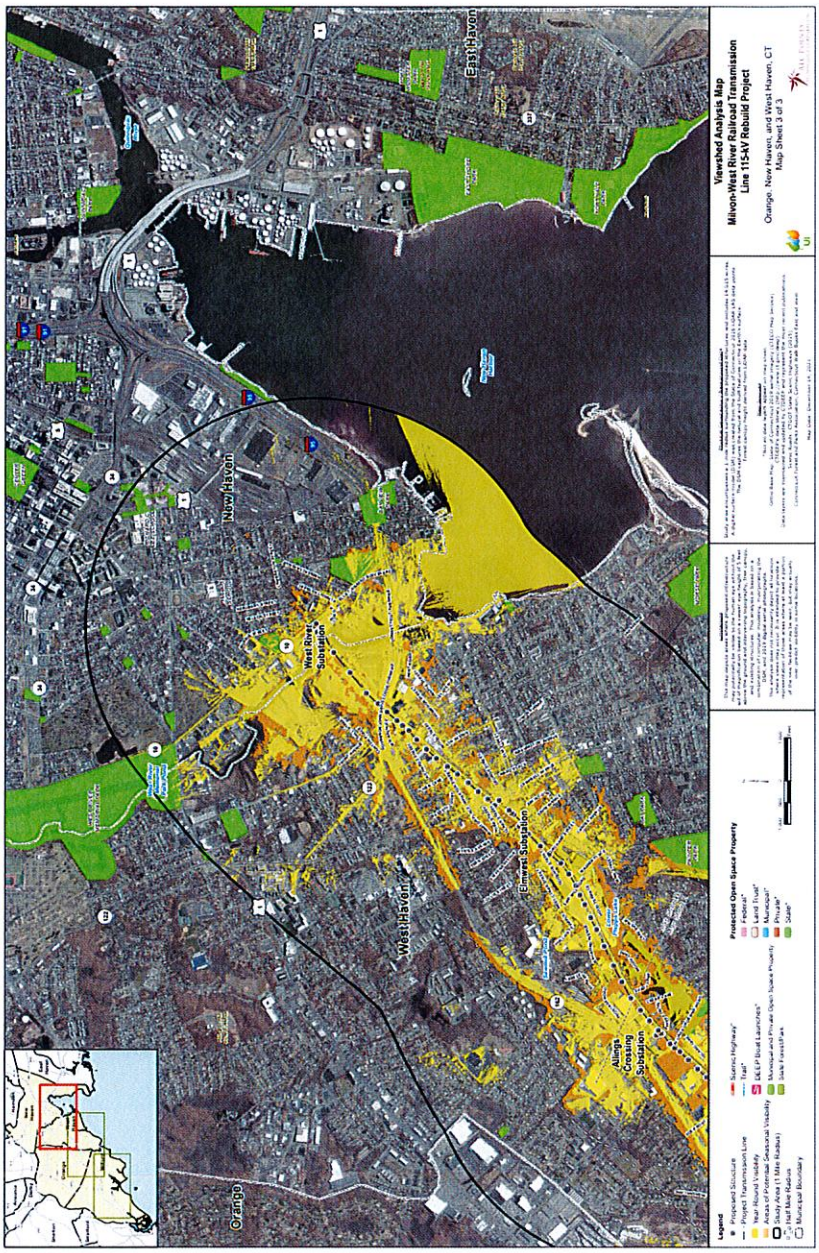
(UI 1, Vol. 1A – Appendices – Part II, Appendix C, Viewshed Analysis Map 1 of 3)

Figure 20 – Proposed Visibility (Map 2 of 3)



(UI 1, Vol. 1A – Appendices – Part II, Appendix C, Viewshed Analysis Map 2 of 3)

Figure 21 – Proposed Visibility (Map 3 of 3)



(UI 1, Vol. 1A – Appendices – Part II, Appendix C, Viewshed Analysis Map 3 of 3)