APRIL 2016

VISUAL ASSESSMENT

for the Seacoast Reliability Project

Prepared by:

LandWorks

228 Maple Street, Suite 32
Middlebury, VT 05753
Phone: 802.388.3011
Fax: 802.388.1950
Web: www.landworksvt.com
Email: info@landworksvt.com

Prepared for:

Public Service Company of New Hampshire, doing business as Eversource Energy ("PSNH")

Table of Contents

1. Executive Summary

A. Overview

Public Service Company of New Hampshire, doing business as Eversource Energy ("PSNH"), is proposing to construct a new transmission line in an existing utility corridor in southeast New Hampshire, and hired LandWorks to conduct a Visual Assessment (VA) of the Project. The Project will consist of a new 115 kilovolt (kV) transmission line between its existing Madbury and Portsmouth substations to enhance the electric reliability in the seacoast region. The Seacoast Reliability Project (SRP) is located in the Towns of Madbury, Durham and Newington as well as the City of Portsmouth, in Strafford and Rockingham Counties, New Hampshire. The SRP is proposed to be approximately 12.9 miles long, including an approximately one mile crossing under Little Bay. The entire line will be constructed primarily within existing electric corridors, with minor adjustments to right-of-way widths in several locations.

LandWorks employs a multi-step approach for determining whether a project will have an unreasonable adverse effect on aesthetics consistent with the provisions of the New Hampshire ("NH") Statute RSA 162-H. This is a methodology that we have developed specifically for transmission projects and have refined over 20 years of experience in assessing the aesthetics of transmission projects in the Northeast. It is an amalgamation of a number of established processes which include, but are not limited to, those developed by the Bureau of Land Management's ("BLM") *Visual Resource Management* ("VRM"), the United States Forest Service's ("USFS") Scenery Management System ("SMS") outlined in *Landscape Aesthetics*, and the Federal Highway Administration's ("FHWA") *Visual Impact Assessment for Highway Projects* ("FHWA-VIA"). Our comprehensive approach and screening process helps to determine: 1) the scenic resources within the study area, 2) the sensitivity of a scenic resource, 3) the visual change the Project may have to that sensitive resource, and 4) the effect the visibility may have on the typical viewer. These findings are weighed in concert with other relevant factors such as the regional context of the Project area and its significance within the state of New Hampshire, the efficacy and application of mitigation measures and the overall visibility and visual effects of the Project as a whole. Taken together, these analyses and considerations yield the overall conclusion and determination of the Project's potential effect on the scenic resources within the study area.

B. Conclusion

For the purpose of the VA the geographic scope, or study area, has been delineated as a 10-mile linear corridor on either side of the proposed transmission Project's centerline, for an overall 20-mile corridor. The study area runs parallel to the transmission line corridor and contains 361 square miles through 20 towns, 4 of which are where the Project will be physically located.

The predominant topographic landscape within the study area is elevations less than 500 feet, and contains generally flat tidal marshes, wetlands, river valleys, and rocky shores. This area does not provide dramatic or striking landscape views, such as portions of the Mount Washington Valley or the Champlain Valley in Vermont, where long distant and panoramic views of prominent features are visible from wide-open roadsides and numerous vantage points. Overall, the study area has a dense network of local, state, and federal routes compared to areas further north in New Hampshire, and also a greater overall development density--more settled towns and

developed areas within it. It is a suburban landscape that alternates with remnant woodlands and agricultural open spaces, particularly within the river valley and environs.

Only documented national, state, and local recreational and scenic resources that are readily accessible to the public are reviewed in this analysis. Scenic resources were identified on a town-by-town basis through a consistent and systematic process including, but not limited to, review of available GIS data, published maps and guidebooks, online research, and town and regional plans. The study area is located within the state's Seacoast tourism region, but most of the visitor activities and attractions are focused on the historic port city of Portsmouth and the shoreline of the Atlantic Ocean, located just outside the Project area.

The comprehensive inventory of scenic resources found several resources of national importance within the study area, such as Spruce Hole Bog or the Lamprey River, but most do not have visibility of the Project. Only Great Bay National Wildlife Refuge has the potential to see the Project, but the visual effect would be insignificant. Within the 361 square mile study area, only 30 resources have the potential to see the Project. Of those 30, only 9 of those are considered sensitive (1/3 of all resources with potential visibility). Primary Project visibility from scenic resources is limited to several local roads and a few local and regional viewpoints. Additionally, the average viewing distance of all resources with potential visibility will be 0.9 or more miles, and 1.75 or more miles for the 9 sensitive resources.

The visual sensitivity of the 30 identified scenic resources with potential visibility is determined by evaluating each resource's 1) *cultural designation* - how a resource has been valued by the public through official designation, and 2) *scenic quality* - the character and features of a resource that make it scenic. For *cultural designation*, each resource is given a rating of low, moderate or high based on the local, regional, statewide or national cultural significance of a particular resource, often indicated by formal designation, ownership or inclusion in a current or recent community (or official) planning document that recognizes its cultural, natural resource, recreational, or scenic value. A *scenic quality* rating of low, moderate or high is also given to each resource by using the Bureau of Land Management (BLM) Scenic Inventory and Evaluation Chart, which considers seven criteria - landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. The two ratings (cultural designation and scenic quality) are then combined to obtain an overall sensitivity rating. Those resources with an overall rating of 'Moderate-High' or 'High' continue to the next step in the screening process. Of the 30 scenic resources identified as having potential visibility, 9 have a rating of 'Moderate-High' or 'High' and therefore move forward to the next step of the assessment process.

The next step determines the visual effect the Project may have on the 9 sensitive scenic resources. Visual effect is determined by scoring each sensitive resource under each of the following categories to establish a combined overall rating of low, moderate or high:

1. *Scale and spatial presence* – is the Project a dominant element in the view
2. *Prominence* – does the Project stand out and draw attention
3. *Compatibility* – is the Project consistent or inconsistent with the built or natural elements currently visible in the landscape

The three scores for each resource are then combined to determine the overall visual effect the Project may have on the resource. Those resources with an overall rating of 'Moderate-High' or 'High' continue to the next step in

the screening process, viewer effect. Based on this step of the review only 1 of the 9 scenic resources, Little Bay Road, was determined to have moderate-high visual effect. Note that this rating does not necessarily translate into high viewer effect, which is covered in the next step of the analysis process, nor does this determination imply that there will necessarily be a substantive visual impact if the Project is built. That conclusion comes at the end of the analysis process.

The next step includes a detailed assessment for determining what the Project's effect will be on the typical viewer from a scenic resource with higher visual effect. This is considered to the "viewer effect" as articulated in the methodology. The considerations used in the analysis are well established in both the BLM VRM and USFS SMS, as well as the USFS Recreation Opportunity Spectrum (ROS). This last piece of the screening process indicates that the effect to a typical viewer visiting Little bay Road would be low-moderate.

The final piece of the VA provides an overall summary and LandWorks' professional opinion as to whether the Project, as proposed, will have an unreasonable adverse effect on aesthetics. Incorporated into the results of the foregoing evaluation, LandWorks considered a number of other relevant factors, including:

- The Project Corridor and Study Area Characteristics - The transmission Project is reasonably scaled and located in this corridor and the overall Project area, and this is based on: 1) existing topography (flat, level terrain), vegetation and intervening structures in the Project area limit overall visibility of the Project; 2) placement within an existing PSNH utility corridor requires limited adjustments and clearing; 3) the Project area is urban, highly developed and the scale of the Project is consistent with existing land use patterns; and, 4) utility corridors are already present throughout the Project area and is therefore less sensitive to a transmission upgrade.

- Local Conditions - Detailed analyses and several site visits to all resources with potential visibility (30 total) confirmed that most of these destinations have limited, insignificant, or unnoticeable views. Users are less likely to be aware of the Project given the developed and urban nature of portions of the Project area coupled with extensive woodland areas and existing vegetation. Given these factors, the typical viewer will not be deterred by Project visibility in making their recreational choices or in going about their everyday lives. The upgrade of a utility corridor in this landscape will not undermine the quality of the resources or the viewer experience. Furthermore, Project visibility is limited to crossing points on local roads and state highways, such as New Market Road in Durham, and a few open areas like parking lots and cleared meadows. The Project will not be visible from most other roads, town centers, cities and other areas where human activity is predominant within the study area.

- Efficacy of Mitigation/Avoidance/Minimization – Taken together, the number of mitigation/avoidance/minimization measures that the Project has incorporated or proposed represent a substantial effort to effectively reduce the overall visual effect of the Project, including but not limited to: co-location within an existing PSNH utility corridor; the selection of structure heights, types, and placements to reduce visual presence; the undergrounding of the line in some locations like the UNH Durham campus at the Main Street crossing; the reduction of pole heights in Madbury and Durham; the use of H-frame structures at the Nimble Hill Road crossing and the relocation of the 34.5kV line in Newington; purchasing property on the west shore of Little Bay so the cable can be buried as it comes ashore; retaining vegetative

buffers at road crossings and continuing to utilize selective vegetative management methods; and the placement of the new transmission line under the waters of Little Bay.

LandWorks has determined that, from a visual assessment perspective, the Project area is an appropriate location and corridor for a utility project. The visual effects are extraordinarily limited given the densely settled nature of the Project area and when one considers the number of roads, town centers, rivers, and resources within the area. The regional vantage points that typically have views of the proposed Project are experienced within a much broader context and quite distant from the Project itself, therefore diminishing any potential objectionable visual effects, as well. In light of the comprehensive analysis described in the VA, LandWorks concluded that the Project will not have an unreasonable adverse effect on the aesthetics and scenic resources in the Project area.

2. Methodology

A. Overview

New Hampshire law requires that to be acceptable, a project not have an "unreasonable adverse effect on aesthetics," and has recently adopted an approach for determining how to assess whether or not a project will result in this conclusion. Given that the rules were just adopted in mid-December 2015, a consistent, clear precedent for preparing visual assessments (VA's) using this approach has not evolved from previously reviewed SEC projects (approved or denied). Such VA's could provide a model methodology, but no two VA's have been alike in their approach[1]. This VA presents a clear, comprehensive, objective, and efficient visual analysis methodology.

There are a multitude of resources and approaches that have been developed across the United States and the world for conducting a visual assessment. Each has their differences, and no one method has risen to the top as the "best" process or preeminent source[2] or model. There are, however, several established and accepted processes that are frequently identified in academic publications and professional VA's. These include the Bureau of Land Management's (BLM) *Visual Resource Management* (VRM), the United States Forest Service's (USFS) Scenery Management System (SMS) outlined in *Landscape Aesthetics*, and the Federal Highway Administration's (FHWA) *Visual Impact Assessment for Highway Projects* (FHWA-VIA). The BLM VRM and the USFS SMS were used as primary sources in the development of the methodology for this VA. The FHWA-VIA was used minimally, as it evolved largely out of the USFS Visual Resource Management (VRM), which was later replaced by the SMS, and many of the concepts overlap between the two. None of these three VA methodologies are applied in their entirety to this Project due to the specificity of each for their particular use.

The VRM was developed to ensure that the visual impacts of surface disturbing activities or developments would meet the specific management objectives established for BLM-managed areas. The majority of BLM-managed lands (surface and mineral) are located west of the Mississippi, typically in far less developed and settled regions and within a landscape that is vastly different from that of the northeast. The activity types are generally resource extraction. The USFS VRM, and later the SMS, were developed to evaluate changes in land cover of USFS managed lands caused by land management practices, primarily resource extraction (e.g. forestry). The majority of USFS managed lands are also located in the west (only two USFS areas are found in New England – one in Vermont and one in New Hampshire and a small portion of Maine), and most of the photographs and character descriptions are of western forests or grasslands. The FHWA-VIA was developed to provide guidance to state DOTs on how to address NEPA criteria, which ensures that visual quality is maintained along the National Highway System (NHS) corridor.

Although each of these visual analysis processes was developed for a specific purpose and specific types of lands or land uses, all methodologies share some commonalities. Each characterizes the landscape's baseline visual condition, which establishes a point of comparison for any proposed changes; defines the geographic scope or area

[1] All "Projects" between 2000-2021 listed on the SEC website that had visual assessments (VA) prepared by professional consultants were reviewed. None were identical but most include the basic components of a VA, such as a landscape overview, definition of geographic scope, viewshed mapping, resource identification, visual simulations, and an evaluation of visual effect; however, each varies in its approach, from delineation of viewshed to identification of resources to determination of visual effect, and none emerge as a preeminent source.
[2] NCHRP Report 741: Evaluation of Methodologies for Visual Impact Assessments, Transportation Research Board, Washington D.C., 2013

to be studied; conducts a viewshed analysis, site visits and/or visual simulations; identifies sensitive receptors or locations and the attributes that determine their visual quality or value; and, establishes a method for understanding the effect the proposed change may have on the landscape and, by association, viewers or users of that landscape.

Determining the visual effect of the proposed change is perhaps the least similar or precise in approach between each. For the SMS and VRM, a natural-looking scene is always most desirable, and is considered the baseline condition. The FHWA-VIA on the other-hand considers human-made aspects of the landscape since highways pass through and are inevitably a part of that developed landscape ("natural" is only desired in certain locations). Additionally, the management objectives outlined by the USFS and BLM establish the criteria for determining the impact of the visual change for the SMS and VRM. These vary between the two agencies and the different types of management areas. SMS measures visual impact through landscape character goals and scenic integrity objectives. VRM measures visual impact as the contrast between the existing and proposed condition. The FHWA does not have a clear set of management standards or objectives from which to evaluate the effect of visual change, so the FHWA-VIA assesses change to "visual quality" based on "vividness, intactness and unity."

The methodology developed for the Seacoast Reliability Project has also drawn upon LandWorks' extensive experience in conducting VA's for large-scale energy projects in Maine and Vermont to help develop the methodology for this VA. In Vermont, VA's for energy projects must complete the two-steps of the so-called Quechee test, in which a determination must first be made as to whether a proposed project will have an adverse impact on aesthetics and the scenic and natural beauty of an area. If the answer is in the affirmative, the inquiry then advances to the second step to determine if the adverse impact would be undue. This approach identifies similar values addressed by the VRM, SMS, and FHWA-VIA, such as identifying the nature of the project surroundings, where the project is visible from, if the project violates a clearly written community standard, and if the project is shocking or offensive to the average person.

In Maine, state statute[3] outlines six criteria Maine Department of Environmental Protection (DEP) must consider when determining whether a project has an "unreasonable adverse effect on the scenic character and existing uses related to scenic character of a scenic resource of state or national significance." These criteria include the significance of the resource, the existing character of the area, the expectations of the typical person, the project purpose and context, the extent, nature and duration of public use and the project's impact on continued public use, and the scope and scale of visibility. Maine also identifies what resources are significant and must therefore be analyzed.

In New York, the Department of Environmental Conservation (DEC) has developed a review policy for facilities that are proposed within the viewshed of a designated aesthetic resource. DEC's policy defines what the scenic resources are, what visual and aesthetic impacts are, describes when a visual assessment is necessary and how to review a visual impact assessment, differentiates State and local concerns, and defines possible mitigation measures to reduce or eliminate negative visual effects.

There are also a number of publications that were used in preparing the methodology for this VA, which include but are not limited to *Guidelines for Landscape and Visual Impact Assessment*; *Visual Simulation: A User's Guide for*

[3] Maine Wind Energy Act

Architects, Engineers, and Planners; *Evaluation of Methodologies for Visual Impact Assessments*; *Foundations for Visual Project Analysis*; *Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands*; *Energy and Environment*; and, *National Forest Landscape Management Vol. 2 Ch. 2 Utilities* (see bibliography for complete citations).

Because not one of these processes or publications emerges as the finest, most pertinent, or directly applicable option, we have drawn upon relevant portions or elements of each so as to prepare an approach that is most logical, intuitive, efficient and comprehensive. It is a multi-step approach that helps to: 1) determine the sensitivity or significance of a resource, 2) the visual change the project may have to that sensitive resource, 3) the effect the visibility may have on the typical viewer, and 4) an overall conclusion on whether the site and facility has an unreasonable effect on aesthetics.

B. Project Description, Geographic Scope and Existing Landscape Character

VA's typically begin by defining the project, the geographic scope of the analysis, and the existing condition and landscape character of the study area to provide a baseline of information from which to conduct the review.

1. PROJECT DESCRIPTION

An essential first step is to understand the details of the project that have the potential for visual effects in the landscape. This includes but is not limited to the type, size, number, colors, materials, lighting, and location of all project components. Associated facilities such as roads and storage areas are also identified. Additional information that may be considered, as applicable, includes site clearing, cut and fill or earth/soil alteration, landscaping and site re-grading. This information forms the basis for the review of visual change.

2. GEOGRAPHIC SCOPE

It is important to define or limit the geographic scope or area to be studied. This area is typically defined by the area of potential visual impact - the area that would be visible to or from the proposed project. The new rules adopted by the NH Site Evaluation Committee have defined a 10-mile radius (overall 20-mile overall corridor) for projects longer than 1 mile within any rural area where there is a "new transmission corridor or in an existing transmission corridor if either or both the width of the corridor or the height of the towers, poles, or other supporting structures would be increased." For this analysis, the area with the 'greatest' potential for visual impact is determined to be within a 6-mile corridor running parallel to the project's center line – 3 miles on each side of that center line. This determination is based on a number of precedents and standards for the visual assessment of transmission projects established in other projects in New England.[4] It is reinforced by the fact that beyond 3 miles, the visibility and potential for visual impact from transmission structures diminishes significantly.

[4] A Visual Impact Analysis conducted for Narragansett Electric defined the study area for this project as the area within a 1-mile radius of the proposed transmission line corridor and substation. Any sensitive sites outside 1-mile but within 3 miles of the project with potential views were also identified and field checked to determine if they needed to be included in the VIA. In Vermont, several cases before the Public Service Board (PSB) have established a 3-mile distance or less for the visual analysis of some electric generation projects (e.g. meteorological/cell towers, transmission lines, solar farms). Wind projects in Vermont have established a larger study area of 10 miles from the turbines. In Maine, the Wind Energy Act requires that resources within 3-miles of generating facilities be reviewed (including transmission lines), but may require up to 8 miles.

Within this 6-mile area of greatest potential impact, all scenic resources are identified regardless of visibility. Given the relatively flat topography of the region, as well as intervening vegetation and structures, this approach errs on the side of being more inclusive. Beyond 6 miles and within the 20-mile width of the overall corridor study area, only resources within the area of potential visual impact (areas of potential visibility) are identified and analyzed. This work is all derived from a computer-based visibility analysis (see Exhibits 1 and 2).

3. EXISTING LANDSCAPE CHARACTER

A description of the surrounding natural and cultural landscape (and the "built environment") within the study corridor includes typical features such as landform, water, and vegetation, as well as land use (i.e. urban, agricultural) and distinctive features (i.e. prominent ridgelines) that contribute to the visual character. This information describes existing conditions: how the area looks currently in order to compare it with how the proposed project will change the landscape in the future. It is the reference point from which the effect of the project will be evaluated.

C. Inventory

The next step of the analysis is to conduct an inventory of all public viewpoints.[5] This includes extensive research as well as field visits and site photography, and provides the basis for determining visual sensitivity and evaluating the extent of project visibility. To identify these locations, data is obtained from local town plans and regional documents, online media sources such as Wikipedia (i.e. for population data), local, state, national, and organizational websites, reference books on geology/geomorphology/physiography/ecology, topographic maps, aerial photography, road atlases, and field observation[6].

1. IDENTIFICATION OF SCENIC RESOURCES

The New Hampshire permitting process indicates the project as proposed cannot have an "unreasonable adverse effect on aesthetics..." and requires an identification of all scenic resources within the area of potential visual impact that have visibility. Assessing views from every possible vantage point within a 20-mile project corridor has been shown to be unnecessary, and is not typical protocol for a VA. A generally consistent set of resources to be analyzed has emerged from the review of a range of projects that have been decided before the SEC, as well as other state and federal regulatory bodies reviewing electrical generation or transmission projects[7]. They have also been generally defined in the new rules adopted by the NH Site Evaluation Committee, which include "resources to which the public has a legal right of access" and are designated for their scenic quality like lakes, parks or recreational trails.[8] Publically conserved areas and land trust or non-profit properties with a publicly accessible recreational or scenic component are also typically included in a visual assessment. Tourism destinations connected with scenic resources or that have an aesthetic component are also identified and inventoried. This VA is focused on those resources that have a scenic value or purpose associated with them and where public access is established.

[5] Also referred to as "key observation points" from which the project will potentially be seen.

[6] See also Section 6. Bibliography for a complete list of sources used.

[7] In Vermont, the Quechee Analysis establishes aesthetic and/or scenic resources that are clearly defined in a local planning document (e.g. town plan). Recent cases before the SEC in NH, such as Granite Reliable, Antrim, and Groton Wind, primarily reviewed resources with public access or interest. Maine WEA specifies scenic resources of state or national significance, such as great ponds, national natural landmarks, or viewpoints along the Appalachian Trail.

[8] Site 102.45, page 6

Not included in this VA are private commercial businesses and residences, since admission or access to these locations is prohibited, fee-based, or not readily accessible to the public at large (e.g. individual residences, private campgrounds, bed and breakfasts, commercial tourist attractions). They also are generally not accessible to the consultant conducting the inventories. Furthermore, abutters are typically granted party rights and have legal standing in the review process; non-abutters may express concerns during the public hearing process. For purposes of this VA, only listed historic sites that have setting included as a feature of their significance are reviewed in this analysis. All other historic sites and resources are reviewed as a separate component of the application.

The resource identification phase relies primarily on the fieldwork of the VA team and any applicable or publicly available information or descriptions of the resource found in books, pamphlets, magazines, GIS data, or the Internet[9]. Guidance from the applicant or public official or entities may also be included.

Visual assessments for utility-scale energy projects commonly have a defined listing of resource categories as a starting point for the inventory process; a project may have some or all of these types of resources within the project area. These include national, state, and local recreational and scenic resources that are accessible to the public. Only those resources that fall within one of the listed categories are typically analyzed for visual effect. The resource categories are listed as follows:

National Resources

- National Historic Sites
- National Heritage Areas
- National Historic Landmarks
- National Natural Landmarks
- National Scenic Byways
- National Scenic Trails
- National Wild and Scenic Rivers
- National Wildlife Refuges
- Affiliated Areas of the National Park Service
- Other National Park System Areas[10]
- Other Federal Lands with a Specific Public Use or Scenic Resource Component (e.g. U.S. Army Corps of Engineers, Bureau of Land Management)

[9] Information used to identify resources was derived from nearly 100 publicly available sources, including GIS data (available through NH Granit, USGS), town plans, published guidebooks (e.g. Explorer's Guide to New Hampshire), publications (e.g. local recreational brochures), online media (e.g. visitNH.org), as well as general field observations. See also Section 6. Bibliography for a complete list of sources used. Online media not relied upon, though possibly publicly available, include independent websites of commercial businesses such as bed and breakfasts. Collectively, the different data sources provide a comprehensive understanding of the scenic resources to be evaluated, and the potential effect the Project may have on users of those resources.

[10] "In the Act of August 18, 1970, the National Park System was defined in law as 'any area of land and water now or hereafter administered by the Secretary of the Interior through the National Park Service for park, monument, historic, parkway, recreational or other purposes.'" National Park System Areas are directly administered by the National Park Service and include Memorials, National Battlefields, National Battlefield Parks, National Historical Parks, National Historic Sites, National Lakeshores, National Monuments, National Memorials, National Military Parks, National Parks, National Preserves, National Recreation Areas, National Recreational Rivers, National Reserves, National Seashores, National Scenic Riverways, National Scenic Trails, or Parkways. *The National Parks: Index 2009-2011*, U.S. Dept. of the Interior National Park Service, Jan. 3, 2009, pg. 96. Note that for purposes of this VA, only listed historic sites that have setting included as a feature of their significance are reviewed in this analysis. All other historic sites and resources are reviewed as a separate component of the application.

State Resources

- State Parks
- State Historic Sites
- State Conserved Lands with a Specific Public Use or Scenic Resource Component (e.g. Wildlife Management Areas, State Forests)
- Non-Motorized Trails in New Hampshire's State Parks, Forests and on Recreational Rail Trails
- Covered Bridges Maintained by NH Department of Transportation
- NH Department of Transportation Designated Scenic and Cultural Byways
- NH Department of Transportation Designated Scenic Overlooks and Rest Areas
- Fire Towers Listed in the Fire Lookout Tower Quest Program by the NH Division of Forest and Lands
- Rivers Designated by the NH Rivers Management and Protection Program
- Public Waters[11] with Designated State Access Areas (i.e. NH Fish and Game)

Local Resources

- Scenic Drives or Locally Identified Scenic Roads
- Locally Identified Scenic Vistas, Viewsheds or Resources
- Covered Bridges Maintained by Local or Non-Government Groups
- Non-Motorized Trails in Conserved or Public Lands (other than state or national)
- Public Parks and Recreational and Gathering Areas (such as village greens, picnic areas, or day use areas)
- Public Waters with Designated Local Access Areas (i.e. town beaches or boat launches)
- Conserved Lands (other than state or national) with a Specific Public Use or Scenic Resource Component
- Other Resources with a Public Use or Recreational Opportunity (e.g. waterfalls, visitor centers) or Other Unique or Outstanding Resources

2. FIELD VISITS AND SITE PHOTOGRAPHY

Once scenic resources have been identified, field visits and site photography are conducted. LandWorks uses viewshed maps, topographic maps, aerial photography, field guides, books, brochures, pamphlets, websites, local information sources and the New Hampshire Atlas & Gazetteer to provide information regarding access to the sites, and to orient and determine visibility in the field. Field visits were conducted on a variety of days throughout the different seasons, which included May 30, 2014, July 18, 2014, August 13, 2014, November 21, 2014, January 20, 2015, March 10, 2015, May 29, 2015, July 31, 2015, and February 5, 2016.

Throughout the field visits, a variety of digital photographs are taken: 1) to provide information on area context, 2) to provide information on resource quality, 3) to illustrate scenic views, 4) to demonstrate intervening vegetation or lack of visibility, 4) to document existing structures, land uses, and other cultural modifications, and 5) for the purpose of developing visual simulations. For general photographs of the Project area, LandWorks uses a Canon PowerShot SD850 IS set at varying focal lengths to capture the intended image. For visual simulations, LandWorks uses an Olympus Stylus TG-3 or a Canon EOS 6D DSLR with a 50 mm (35 equivalent) lens for the photography and the camera's built-in GPS to collect waypoint data. Field notes are also recorded from all locations with

[11] "Public waters in New Hampshire are prescribed by common law as great ponds (natural waterbodies of 10 acres or more in size), public rivers and streams, and tidal waters. These common law public waters are held by the State in trust for the people of New Hampshire. The State holds the land underlying great ponds and tidal waters (including tidal rivers) in trust for the people of New Hampshire…Public waters include artificial impoundments of 10 acres or more in size…" *NH Official List of Public Waters Revision Date January 17, 2014*, New Hampshire Department of Environmental Services Water Division Dam Bureau (pg. 2)

visibility using a Field Record, which includes fields for noting such things as time of day, direction of view, cultural modifications, landforms, and site amenities.

D. Determination of Visibility

There are a number of industry standard tools and techniques that are used in this VA to determine visibility and to understand the nature of that visibility.

1. VIEWSHED MAPPING

An important step in the VA process is to conduct a viewshed analysis to define the area of potential visual impact, and to determine which of the identified resources may have potential visibility of the project within that area. A viewshed is defined as all the area that is visible from a particular viewing location or selected vantage point(s) within a given area (i.e. 3-mile radius). It is a computer-intensive process prepared using industry standard methodologies and software, such as Geographic Information Systems (GIS). A viewshed analysis is used to determine how visible the Project might be in the landscape.

Viewshed analyses are used mainly as a point of departure for identifying areas with potential visibility. They show that, due to topography or intervening vegetation, that some resources will have no views of the Project and therefore will not be affected. Due to the coarseness and uncertainty of the quality of the raster data, viewsheds cannot be relied upon to represent what will actually be seen on the ground from a specific location (i.e. the view from someone's second story bedroom window). While viewsheds can indicate how many structures can be seen from each location (i.e. 3 structures will be visible), they can not specify how much (just the top of a structure or the entire structure), which one (when there are multiple observation points), or perspective (how big or small it will appear in the landscape). They also do not account for any clearing. Therefore, the viewshed analyses prepared for this Project provide the first step in ruling out those areas with no visibility, and identifying what areas **might** have visibility. Additional visual studies (e.g. visual simulations, line-of-sight sections, 3D modeling, field analysis) are necessary to understand the details and context of a view from any location.

A viewshed analysis is prepared using the elevation values of a digital elevation model (DEM) -- a digital representation of the ground surface, or topography. DEM's are represented as a raster (grid of pixels or cells), each with an assigned value (i.e. elevation), and are typically created using remote sensing (i.e. collection of data by satellite, airplane or other high altitude origin). The sharpness or accuracy of maps created from raster data depends on the size of the pixel relative to the size of the area being mapped (i.e. the larger the pixel cell the less accurate the viewshed). Typical cell size for a DEM ranges from 10-30 meters[12]. As such, they are generally designed for regional scale analyses.

To prepare a viewshed, two files are input into the GIS software – the DEM and a file containing the point or points you want to analyze (i.e. structures). The GIS software then estimates the difference of elevation from the top of the structure to the ground. To determine the visibility of a structure, each point (or pixel) between the top of the structure and ground is examined for line of sight. If any pixels of higher value are between the top of

[12] The National Elevation Dataset (NED) is the primary elevation data provided by United States Geological Survey (USGS) and all data is in public domain (ned.usgs.gov). NED data is generally available at resolutions of 1 arc-second (about 30 meters) and 1/3 arc-second (about 10 meters), and in limited areas at 1/9 arc-second (about 3 meters).

the structure and the ground, then the line of sight is obstructed. If the line of sight is obstructed (e.g. by a hill) then the structure is determined to not have visibility. If it is not blocked then it is included in the raster viewshed output file.

Viewshed analyses based solely on DEMs account only for topography and not other possible obstructions such as buildings and trees, overestimating what is actually visible. To improve the model, several variables can be included to adjust the calculation to ensure the most accurate results. For example, height can be added to the DEM by integrating land cover data (i.e. forested areas). A prescribed tree height can be attributed to the DEM for those areas identified as having forested land cover to model the limited visibility from adjacent areas. Digital elevation models are also available for purchase from commercial retailers, which integrate into the model vegetation and other cultural features such as buildings, improving the results of the viewshed.

Once the software analyzes the two data inputs to produce an output viewshed raster, which records the number of times each area can be seen from the input point (i.e. structures), the output is further reduced by eliminating areas that are forested because it is assumed visibility is not probable from these areas. The final output, as illustrated in the viewshed exhibits, is displayed using color-coding to show the number of structures that are potentially visible.

A viewshed analysis has been conducted for this Project using ArcMap GIS 10.1 software[13] to identify areas with potential visibility using two input datasets. It is based on the elevation values of the National Elevation Dataset (NED), the primary elevation data product of the United States Geological Survey (USGS), at a resolution of 1/9 arc-second (about 3 meters). The structure dataset used for this analysis includes structure locations, structure heights, and viewer height.[14] Two viewsheds were completed for this VA, which include:

1. Exhibit 1: Viewshed Map 10-Mile radius [topography and vegetation] – this map identifies potential visibility from the top of the structure within a 10-mile radius and accounts for the screening effects of three types of vegetation. Adding a standardized height of 40 feet to the three classes identified as forest (Classes 41, 42, and 43 of the NLCD 2006 land cover database[15]) provides a more realistic yet still conservative representation of potential visibility. **This represents the most reasonable approach to potential visibility.**
2. Exhibit 2: Viewshed Map 3-Mile radius [topography and vegetation] – this map uses the same data inputs as described in Exhibit 1, but displays the 3-mile viewshed, as this is the area with the higher potential for visibility.

[13] ArcGIS for Desktop by ESRI (http://www.esri.com/software/arcgis/arcgis-for-desktop)

[14] The average height of all adults in the United States is 5.5 feet according to the Centers for Disease Control and Prevention (http://www.cdc.gov/nchs/data/series/sr_11/sr11_252.pdf)

[15] National Land Cover Database 2006 (NLCD 2006) is a 16-class land cover classification scheme that has been applied consistently across the conterminous United States at a spatial resolution of 30 meters. NLCD 2006 is based primarily on a decision-tree classification of circa 2006 Landsat satellite data. The forest classifications are as follows:
41, Deciduous Forest - areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.
42, Evergreen Forest - areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.
43, Mixed Forest - areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.
http://www.mrlc.gov/nlcd2006.php

The viewshed mapping prepared for this analysis does not account for other factors such as buildings and structures, actual tree height and density, site-specific vegetation and/or removal (e.g. landscaping around residences), variations in eyesight, and atmospheric and weather conditions. **Therefore, the viewshed maps will often overstate potential visibility.** In particular, 40-foot tree height is conservative and can have a significant effect on potential visibility, i.e. indicating much more potential visibility of the Project than if 50-foot or 60-foot tree heights were used. Tree heights in this region are more characteristically 55-60 feet or higher, as was confirmed in site visits using a hypsometer, an instrument for measuring height. Limiting vegetation to only the three forest classes is also conservative because other areas likely have vegetation that screens views such as in forested wetlands. It should be noted that this regional scale viewshed analysis does not, and cannot, represent actual conditions on the ground. Due to the coarseness of the data (i.e. each cell represents a 9.8 square foot area), not every tree or structure can be accounted for, and vice versa. As such, there are areas that depict visibility of structures when in fact they may not be visible due to existing on ground screening, and vice versa. This keenly evident in urban areas where there are concentrations of structures, landscaping and other site specific vegetation that is not accounted for and would block views. The results of the viewshed mapping are illustrated in map form, as well as a Resource Visibility Matrix that identifies the resource, and whether or not it has potential views of the Project.

2. 3D MODELING

LandWorks uses basic 3D modeling to generate three-dimensional digital representations of perspective scenes. While crude in form, it can be a valuable tool for evaluating the context of a view and the potential visual effect the Project might have. 3D models help determine:

- what terrain and vegetation features block or affect views to the project
- which structures are visible
- where structures are visible
- how much of a structure(s) is visible
- how big or small structures appear in the landscape
- how much of the angle of view the project occupies

3D models can be generated using GIS based software, such as the ArcView 3D Analyst extension, which is used for this Project. The types of input can vary, from raster to vector data. For this Project, contour data derived from the digital surface model are used in combination with structure location data (the same data used in the viewshed mapping).

3. VISUAL SIMULATIONS

Visual simulations provide a photo-realistic perspective view of proposed project elements in the landscape, thereby allowing people to clearly visualize how a project might look from a particular vantage point. Visual simulations are useful in terms of revealing the nature and extent of potential visibility of a project from key vantage points, providing more accurate and refined information than a viewshed analysis or 3D model can provide. They often reveal how topography and vegetation can limit or block project views, sometimes in surprising ways. It has been demonstrated that LandWorks' simulations accurately represent the actual project view post-construction.

Visual simulations are used in this analysis to better understand the presence the Project might have within the context of the existing landscape. They add a higher level of detail that 3D modeling cannot do. The simulations presented in this VA are from identified scenic resources and represent one or more of the following features: 1) a point within an area of the resource identified by the viewshed analysis that has the highest range of structures potentially visible, 2) a point where the highest amount of use is anticipated from the resource, or 3) a point where access to the resource is most easily or likely achieved (See Exhibits 3-13). Visual simulations from a sample of private property observation points within the area of potential visual impact are also included (See Exhibits 14-18).

The weather and atmospheric conditions presented in the visual simulations depict a range of conditions experienced during our site visits. While every effort was made to plan field visits on days where weather and atmospheric conditions were forecast to be most favorable, due to the highly variable and changing weather of the northeast, not all photos depict sunny, blue-sky conditions. Thus, the visual simulations depict a range of weather and light conditions that typically occur in the area.

In order to mimic the perceived scale of the views in the field, the recommended viewing distance for the simulations is approximately 21.3". The simulations represent the central angle of view, which occurs within 40-60 degrees, and is the area that most highly influences human perception of a scene given a fixed viewing direction.[16]

Simulations were developed for this Project using the following methodology, and meet the requirements of the recently adopted rules by the NH Site Evaluation Committee:

Step 1: Data Gathering

A. Site Visit: Site information for simulation viewpoint is recorded, including view location (GPS point), date, time and weather.
B. Site Photography: Site photographs are taken for use in simulation. Camera type, focal length (approx. 50-55mm), camera elevation, direction of view, and horizontal angle of view are noted.

Step 2: Model Creation

A. Base map & Terrain Model: A digital base map is created of the project and view areas. GIS data acquired from United States Geological Survey (USGS) National Elevation Dataset (NED) 1/9 Arc-Second and the client; Aerial photographs and USGS maps used as needed. Utilizing the base map and GIS data, a 3D digital terrain model is created. Where forested, the terrain model is adjusted to account for the additional height contributed by trees. When tree height information is available from LIDAR or in field hypsometer readings it is incorporated. If specific information is unavailable an average height of 40' is used.
B. 3D model: Using data and drawings obtained from the project engineer, a 3D digital model is created for each type and size of structure as well as associated conductors and guides. This model is then merged with the terrain model, placing the structures and conductors at their appropriate proposed locations and elevations.
C. View Setting: The existing conditions photograph is imported into the terrain model. The data gathered from the site visit is then inputted into the modeling program (VectorWorks 2008), and a "camera view" matching the original site conditions is created. A digital image of this view is exported for use in the next step.

[16] The viewing distance was calculated using the method described in "Visual Simulation: A User's Guide for Architects, Engineers and Planners," by Stephen R. J. Sheppard.

Step 3: Simulation Rendering

A. Conditions Overlay: Using a photo editing and rendering program (Photoshop CS5), the exported digital image of the perspective view is precisely overlaid and registered to the original existing conditions photograph. Simulations are typically composed of a single photo taken with a Full Frame Sensor camera that represents the way views are actually perceived given the normal range of eye and head motion.
B. Structure and Conductor Placement: High-resolution images of the Structure and Conductor models (from SketchUp Pro 8) are placed at proper locations, scale and perspective to match the exported view image.
C. Final Rendering: Structures and Conductors are adjusted to mimic quality of light, distance and detail in site photograph. Vegetation and other visual obstructions are accounted for. Using a perspective view created in 3D Analyst that models required project clearing, visual effects from R.O.W clearing is rendered and reflected in all the visual simulations.

E. Identification of Sensitive Scenic Resources

The next step in the screening analysis process is to determine each of the resources significance, or its visual sensitivity. Typically, the lower its significance or visual sensitivity, the higher its ability to accept change. Each resource identified as scenic in Sections C.1 and D.1 with potential visibility is evaluated for its visual sensitivity based on two distinct categories:

1. ***Cultural Designation*** – how a resource has been valued by the public through official designation (e.g. conserved) or advertisement
2. ***Scenic Quality*** - the character and features of a resource that make it scenic

These two criteria were selected as the key factors in establishing a ranking of importance of visual resources in terms of both their inherent value as scenic/recreational/cultural/natural resources and the anticipated level of sensitivity a typical viewer would have to potential alteration of the landscape within view of those resources. Each criterion for each resource is given a rating between 'Low' and 'High,' as defined in the subsections that follow. Note that this is a step in the process of determining whether the effect is adverse. In this stage of the screening process, "High" does NOT translate into an unreasonable adverse determination. This determination is still dependent on other factors yet to be considered in the subsequent process.

1. CULTURAL DESIGNATION

This indicator considers the local, regional, statewide or national cultural significance of a particular resource, often indicated by formal designation or inclusion in a current or recent community (or official) planning document that recognizes its cultural, natural resource, recreational, or scenic value. The resource may not necessarily have high scenic quality, but visual character could be important to how it is valued. Many places have been recognized for their beauty and designated through Federal or State democratic political processes, reinforcing the notion that aesthetic values are shared (e.g. National Forests or State Parks). Similarly, local community may have given the resource some sort of protection due to its cultural value or listed it as a recognized local feature. The FHWA–VIA[17] considers local values and the cultural association of a resource, often found in local publications and

[17] See *Visual Impact Assessment for Highway Projects*, FHWA, Publication No. FHWA-HI-88-054 (pg. 97-98)

municipal planning documents, as helpful in determining the importance of a landscape or as an indication of the visual significance of a resource.

This criterion is assessed in order to assign value to the relative importance of scenery assigned to that resource by the public. Some resources with lower scenic quality may have identified scenic management/protection goals that would elevate the visual sensitivity of these resources (e.g. scenic road designation). Likewise some resources with higher scenic quality may have reduced visual sensitivity due to the fact that they are designated for purposes other than scenic. Their scenic value may also be diminished if the resource is primarily restricted to local users of the resources, especially if scenic quality is not of primary importance to the users based on their typical activities (e.g. town beach restricted to local resident use only). Rating descriptions are as follows:

- **Low:** Local, quasi-public and private conserved or designated resources that are identified primarily for values other than purely scenic (e.g. forest or wildlife management). Examples include town greens, town/community forests, playgrounds and recreational fields, public waters with locally maintained access (i.e. town beach), or private conserved lands with public access. Also includes non-motorized trails in conserved or public lands (other than state or national) or as locally identified. The rating for a trail or other local resource can be elevated to moderate if it is found on regional or state websites, or identified in several guidebooks. A low rating would also include resources that are mentioned on local/town websites for their local interest or recreational value, but not typically found in guidebooks appealing to or used by a wider potential user or interest group.
- **Moderate:** State or federal resources that have been conserved or designated primarily for purposes or values other than purely scenic. State forests or wildlife management areas, national wildlife refuges, public waters with NH Fish and Game access are examples of resources considered for a moderate cultural value rating. Also includes non-motorized trails in New Hampshire's State Parks, Forests and Recreational Rail Trails. Resources that are found on regional websites for their scenic/recreational values, but may not be in a guidebook may also be considered moderate.
- **High:** Resources that have been conserved or designated because scenery and scenic quality are ***primary*** to their value. National parks, National trails (e.g. Appalachian Trail), state scenic byways, state parks, and scenic easements are examples of resources with a high cultural value rating. Also includes non-motorized trails in National Parks and Forests or other National Park System areas. Local community resources (e.g. scenic roads, scenic vistas) that are specifically identified in a comprehensive plan or other regulatory document because of their scenic value would warrant a high rating, as would a resource that is highly advertised in multiple guidebooks, websites, and brochures for its scenic value.

2. SCENIC QUALITY

From a visual perspective, highly scenic landscapes are typically considered more valuable than less scenic ones and are subsequently more sensitive to alteration. Depending on the level of access, highly scenic landscapes tend to draw more visitors and may be crucial in defining the character of a region. Often highly scenic and unique landscapes have some sort of protection status or particular management objectives to ensure that their scenic quality is maintained. By contrast, common landscapes or those with lower scenic quality are typically less valuable from a visual perspective, and their scenic qualities are less likely to be a draw for visitors.

The Bureau of Land Management (BLM) has developed a clear, consistent, and objective process to help its managers rate the visual quality of a resource that becomes part of a resource management plan.[18] In this process each resource is evaluated and scored using the seven key factors that make up the landscape: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. The scores for each factor are added up to determine which scenic quality class the resource belongs in (A, B, or C). An important premise to the evaluation is that all BLM lands have scenic value, but areas with the most variety and most harmonious composition have the greatest scenic value.

The BLM process for determining visual quality is applicable beyond BLM lands, and the BLM Scenic Quality Inventory and Evaluation Chart (the "Chart"), which follows, has been adapted with minor modification to analyze the scenic quality of each identified public resource with potential visibility (based on the Viewshed Analysis) for the Project. Landform descriptions in the Chart were adjusted to depict the northeastern landscape, and the BLM scenic quality classes A, B, and C become High, Moderate, and Low, respectively, for this analysis.

Each resource is evaluated using the seven rating criteria (landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications) and given a score. For this Project the Chart is administered in the office by at least two staff members, and up to four, which greatly reduces the possibility of bias affecting the rating for this criterion. Professional Landscape Architects and Planners compare notes, field observations, photographs and general knowledge of each resource to make a rating determination. The transparent nature of the evaluation allows reviewers to make their own assessment if deemed necessary.

SCENIC QUALITY INVENTORY AND EVALUATION CHART			
Key Factors	Rating Criteria and Score [1]		
1. Landform	High vertical or dramatic relief as expressed in prominent/distinct peaks, cliffs, or massive rock outcrops; or severe surface variation or highly eroded formations such as rockslides; or detail features dominant and exceptionally striking and intriguing. **Score 5**	Mountains of moderate elevation but not highly dramatic; or interesting erosional patterns or variety in size and shape of landforms; or detail features which are interesting though not dominant or exceptional. **Score 3**	Low rolling hills, foothills, or flat valley bottoms; or few or no interesting features. **Score 1**
2. Vegetation	A variety of vegetative types as expressed in interesting forms, textures, and patterns. **Score 5**	Some variety of vegetation, but only one or two major types. **Score 3**	Little or no variety or contrast in vegetation. **Score 1**
3. Water	Clear and clean appearing, still, or cascading white water, any of which are a dominant factor in the landscape. **Score 5**	Flowing, or still, but not dominant in the landscape. **Score 3**	Absent, or present, but not noticeable. **Score 0**
4. Color	Rich color combinations, variety or vivid color; or pleasing or dominant contrasts in the soil, rock, vegetation, water or snow fields. **Score 5**	Some intensity or variety in colors and contrast of the soil, rock, and vegetation, but not a dominant scenic element. **Score 3**	Subtle color variations, lack of contrast, or interest; generally muted tones. **Score 1**
5. Influence of Adjacent Scenery	Adjacent scenery greatly enhances visual quality. **Score 5**	Adjacent scenery moderately enhances overall visual quality. **Score 3**	Adjacent scenery has little or no influence on overall visual quality. **Score 0**

[18] BLM Handbook H-8410-1, Visual Resource Inventory

SCENIC QUALITY INVENTORY AND EVALUATION CHART			
Key Factors	Rating Criteria and Score (1)		
6. Scarcity	One of a kind; or uniquely memorable, or very rare within region. Consistent chance for exceptional wildlife or wildflower viewing, etc. **Score 5**	Distinctive, though somewhat similar to others within the region. **Score 3**	Interesting within its setting, but fairly common within the region. **Score 1**
7. Cultural Modifications	Modifications add favorably to visual variety while promoting visual harmony. **Score 2**	Modifications add little or no visual variety to the area, and introduce no discordant elements. **Score 0**	Modifications add variety but are very discordant and promote strong disharmony. **Score -4**

(1) Values for each rating criteria are maximum and minimum scores only. It is also possible to assign scores between these ranges.

The total scores for each resource are calculated and assigned one of three ratings based on the total points:

- **Low**: Resource has features that are fairly common to the physiographic region (11 or less points)
- **Moderate**: Resource has a combination of some outstanding features and some that are fairly common to the physiographic region (12-18 points)
- **High**: Resource combines the most outstanding characteristics of each rating factor (19 or more points)

3. OVERALL SENSITIVITY RATING

The ratings for each of the aforementioned criteria for each resource are then combined to obtain an Overall Sensitivity Level rating[19]. The combination of the two criteria provides a good picture of visual sensitivity by considering the inherent scenic qualities of the landscape, and the value placed upon these resources by the public, either in the form of some sort of protection or by the way they are promoted as scenic/recreational destinations. The overall ratings are defined[20] as follows:

- **Low (L)** – "having little value or quality; below an average or a standard"
- **Moderate (M)** – "within due or reasonable limits; of average quality or extent; having average or less than average quality"
- **High (H)** – "very important; of relatively great importance; of greater value than average, usual, or expected"

A resource that receives an Overall Sensitivity Level rating of 'Low,' 'Low-Moderate' or 'Moderate' has the ability to accept change in the landscape, and is not further analyzed (i.e. the Project will not have an unreasonable visual effect given the low to moderate value of the resource). Resources that receive a 'Moderate-High' or 'High' rating

[19] Rating system:
Each rating is assigned a point value:
Low = 1
Moderate = 2
High = 3
Total points are combined and assigned overall ratings based on the following breakdown:
Low = 2 points
Low-Medium = 3 points
Moderate = 4 points
Moderate-High = 5 points
High = 6 points

[20] Definitions obtained online from the Collins English Dictionary and the Merriam-Webster's Dictionary.

are more sensitive to changes in the landscape due to their greater visual quality or scenic significance and are further analyzed to determine the level of visual effect the Project may have on the resource. These resources are considered "sensitive." Note that this is a step in the process of determining whether the effect is adverse. In this stage of the screening process, "High" does NOT translate into an adverse unreasonable determination. This determination is still dependent on other factors yet to be considered in the subsequent process.

F. Determination of Visual Effect from Sensitive Scenic Resources

1. DETERMINING VISUAL EFFECT

Those resources that are determined to be sensitive or receive an Overall Sensitivity Rating of 'Moderate-High' or 'High' as a result of the previous step in this methodology, are further analyzed for Visual Effect, which is based on evaluating the following categories:

1. *Scale and Spatial Presence* - is the project a dominant element in the view
2. *Prominence* - does the project stand out and draw attention
3. *Compatibility* - is the project consistent or inconsistent with the built or natural elements currently visible in the landscape

Each sensitive resource is evaluated and given a score for each of the three criteria, as described in the section that follows. The evaluation of visual effect is conducted from a point of highest potential visibility/impact for each resource. Note that this is a step in the process of determining whether the effect is unreasonable adverse. In this stage of the screening process, "High" does NOT translate into an unreasonable adverse determination. This determination is still dependent on other factors yet to be considered in the final steps of this methodology.

A. Evaluation Factors

In the case of transmission corridor upgrades, where existing structures will be replaced with new ones, the *change* in visual presence of the transmission corridor – both in terms of the structures and vegetation clearing - needs to be assessed. In many cases existing structures and clearing may already be visible, and replacing the existing structures with new ones of different scale and character (and possible expanded clearing) could result in an increased visual presence. If the visual scale of a transmission line becomes much greater, either in terms of perceived structure heights or expansiveness in the landscape, it could become a dominant element in the view and potentially undermine the scenic quality of a scene. This factor is accounted for under the criterion **Scale and Spatial Presence**.

Under certain conditions, new structures may gain an elevated level of visual presence within a particular view. For example, new taller structures could become 'skylined' or silhouetted by a backdrop of sky, which typically results in an increased visual presence compared to structures that are backgrounded by forest. In other cases, new structures may become visible within a view toward a scenic focal point, which tends to draw the focus of the viewer. These factors are accounted for under the criterion **Prominence**.

Because the new transmission line is proposed in an existing utility corridor, viewers are already used to the presence of a transmission line in the landscape, and the new line would be far less likely to be perceived as an

incompatible element in the landscape than if it were a completely new transmission corridor. In some cases the existing structures may not be visible from a given vantage point. The new structures or expanded clearing, however, may become visible. In such cases, the structures could be a totally new element within that view and have a higher likelihood of drawing attention. This factor, which considers the similarity between proposed project element forms and existing forms in the landscape, is accounted for under the criterion **Compatibility**.

B. Additional Considerations

Two other principal factors need to be considered in conjunction with the above criteria, as they can serve to either amplify or lessen the visual presence of changes to the transmission corridor. The first factor to consider is **Distance**, as changes in a view become less noticeable as the distance between the viewer and the structures increases. Conversely, changes that are in the foreground can be seen more clearly and have a more immediate presence in the landscape. The second factor to consider is **Contrast**, which in this case has primarily to do with the color of the structures and how well they would blend with the landscape. Even if new structures are taller or more expansive in the landscape, they may not be much more readily visible if their color doesn't contrast greatly with their environment.

(1) Distance

Aesthetic experts agree that visual perception of landscape elements change or become less obvious with distance. The National Forest's Handbook on Scenery Management, which is based on years of research and work in the National Forest, and is relied on as a basis for visual assessment by professional and regulatory review bodies, sets forth the use of distance zones for "classification, analysis, and simplification of inventory data."

These distance zones are related to the types of objects and level of detail that are typically perceptible in the landscape at these distances under ideal viewing conditions, and can be used to define the geographic scope of a project. The Handbook identifies the fact that visual impact is based, in part, on the "degree of discernible detail" and that the background of a view has less detail, insofar as "texture has disappeared and color has flattened," and indicates that with increased distance the "concern" level for visual impact or impacts to overall scenic integrity lessens (pg. 4-11). The BLM VRM and FHWA-VIA also use or refer to distance zones, and the table below provides a comparison and similarities between the three:

Table 1. Comparison of Distance Zones

	FOREGROUND	MIDDLEGROUND	BACKGROUND
USFS SMS	< 1/2 mile	1/2 to 4 miles	> 4 miles
BLM VRM	< 3-5 miles		< 15 miles
FHWA VIA	< 1/4 mile	1/4 to 3 miles	> 3 miles
Narragansett Electric VIA[21]	< 1/2 mile	1/2 to 1 mile	> 1 mile

[21] Visibility and Visual Impact Assessment, Southern Rhode Island Transmission Project. Environmental Design & Research, P.C., for The Narragansett Electric Company. Syracuse, NY. October 2005. A Visual Impact Analysis was conducted for Narragansett Electric to assess a new transmission line being proposed for an existing corridor and included a 65-foot proposed widening of the existing corridor. That VIA relied on a 1-mile corridor width on each side of the proposed structures and lines. The basis for this methodology was articulated in the VIA:

(2) Contrast

Determining the visual contrast of proposed modifications in the landscape – in terms of form, line, color and texture - is a well-established means of assessing the potential for these modifications to attract the viewer's attention. In establishing the degree of visual contrast for transmission structures, emphasis will be placed on color (value and hue) because it is a factor that can potentially be mitigated to reduce a transmission structure's likelihood of standing out from its immediate environment. The man-made forms and lines of the structures and conductors – in particular when viewed in the foreground zone – are not likely to blend with the forms and lines of their immediate natural environment. Structures with a backdrop of similar tonal value (e.g. dark structures against dark evergreen backdrop), for example, are more likely to blend with their environment than light structures against a dark backdrop. Color becomes more difficult to distinguish as distance increases, with color flattening in the background zone (USFS Handbook pg. 4-12). The level of contrast in terms of form and line is assessed separately in the section Compatibility, in the context of other natural and built elements in the overall view. Contrasts in terms of material texture only tend to be perceived at very close distances, while the pattern of forms (coarse "texture" of broader landscape) becomes apparent at middleground distances.

The contrast associated with the vegetation of ROW clearings varies over time. A new clearing will likely have very short and potentially sparse vegetation for the first year after construction. Over time, shrubs and small trees will fill in, potentially reducing the level of contrast between surrounding vegetation in terms of color/texture. The greatest contrast may be evident where evergreen vegetation is present at the clearing edge, and this contrast may be amplified in the winter when snow blankets the ground. Snow-covered ROW clearings set against evergreen forest edges may be readily visible from distances beyond 3 miles.

2. VISUAL EFFECT CRITERIA

A. Scale and Spatial Presence

The 'scale and spatial presence' of a project can be determined by considering the following sub-criteria, in combination with the factors of distance and contrast:

(1) Vertical Scale Relationship

This factor focuses on two potential conditions where new structures could become more visually dominant due to their perceived heights. The first condition involves new structures that have a high disparity in relative size compared to existing landscape elements (including utility structures, buildings or other infrastructure).[22] For a situation where structures are drastically out of scale with other elements in their environment, they are more likely to draw attention and be considered an incompatible or dominant element in the view. The second condition involves a close-proximity view where new structures are either so close to the viewer or taller to the point where they can have the perception of "towering" over the viewer.[23]

"Based on established visual assessment methodology and site-specific topographic and land use conditions that limit project visibility, the study area for this project was defined as the area within a 1-mile radius of the proposed transmission line corridor and substation." (p. 3) The VIA also adopted a secondary, broader analysis area: "To evaluate potential project visibility, EDR performed a viewshed analysis of the existing and proposed transmission line structures. To determine potential project visibility from sensitive sites outside the 1-mile radius study area, the viewshed analysis was extended out to 3 miles. Any sensitive sites outside the study area with potential views of the project could thus be identified and field checked to determine if they needed to be included in the VIA." (p. 14)

[22] See Appendix C Generic Visual-Impact Checklist, Section III. Power Transmission: Overhead Transmission, p. C4 from *Visual Resources Assessment Procedure for US Army Corps of Engineers*, by Richard S. Smardon, James F. Palmer, Alfred Knopt, Kate Grinde, 1988.

[23] Ibid

Each key view from an identified resource of moderate-high visual sensitivity is assessed to determine if any of the following conditions would apply due to the proposed transmission line upgrades:

1. Over 50% of new visible transmission structures appear significantly taller than existing visible transmission structures or adjacent landscape elements where existing transmission structures are not visible (50%+ taller, measuring visible portion of structure only)
   - 3 points if most are within .5 mile
   - 2 points if most are within 1 mile
   - 1 point if most over 1 mile away

   NOTE: For structures more than .5 mile away, multiply score by 1 for galvanized steel (light grey) structures, multiply by .5 for self-weathering steel (rust brown) structures (do not alter score if structures are "skylined")

2. Where this was not the case with existing structures, new structures have the potential to result in the perception that they are "towering over the observer," which is defined as the condition where the ratio of the structure's height (above the observer) to the observer's distance from the structure is greater than 1:2 (e.g. 1:1.5)[24].
   - 3 points if this condition applies, where the existing structure was not previously visible)
   - 2 points if this condition applies, where the ratio of the existing structure's height to the observer's distance from the structure was previously greater than 1:4 (e.g. 1:5).
   - 1 point if this condition applies, where the ratio of the existing structure's height to the observer's distance from the structure was previously between 1:2 and 1:4 (e.g. 1:3)
   - 0 points if this condition does not apply

(2) Spatial Presence

Spatial presence is here defined as the degree to which a project's visual presence across the landscape is altered. The proportion of a view (measured horizontally) that is occupied by a modification in the landscape can affect the likelihood that a viewer will perceive the change or have the sense that the project is geographically expansive. A project that occupies a wide portion of the view (extending beyond a 50-degree field of view in a fixed direction[25]) is more likely to substantially affect the view versus a project that occupies a narrow portion of the view from a given location. Relevant factors include the number of visible structures, the distance, and the orientation of the viewer in relation to the transmission corridor alignment (i.e. broad view vs. head-on view down a line of structures). Significant breaks in visual continuity, potentially due to intervening vegetation, can reduce the spatial presence of the line.

Views along a ROW that extend from one distance zone to another, particularly through the middleground to the background, also have the potential to be perceived as geographically expansive, in particular when there is visual continuity of structures (Smardon, Appendix C). This effect can be even more heightened when the ground plane

[24] Visual Resources Assessment Procedure for US Army Corps of Engineers, by Richard C. Smardon et al ,March 1988

[25] The human field of view for stereoscopic vision is approximately 120 degrees, while our peripheral vision extends to approximately 180 degrees. The central field of view occurs within 40-60 degrees and is the area that most highly influences human perception of a scene, given a fixed viewing direction. The simulations prepared for Visual Assessments depict this central angle/field of view. Vantage points within open areas such as lakes typically allow for 360-degree views, and in such cases a proposed project may occupy a limited portion of this overall view.

within a ROW clearing is visible. Intervening vegetation can often cause breaks in the visual continuity of transmission corridors, thereby reducing the spatial presence of the line.[26]

Each key view from an identified resource of moderate-high visual sensitivity is assessed to determine if any of the following conditions would apply due to the proposed transmission line upgrades:

1. Where existing structures were not visible, new visible structures take up a high horizontal angle of view (visibility of cross-arms minimum, high = when looking toward project, structures occupy and extend beyond entire 50-degree field of view, with breaks in visual continuity no greater than 35 degrees).
   SCORE:
   - 3 points if most are within .5 mile
   - 2 points if most are within 1 mile
   - 1 point if most over 1 mile away

   NOTE: For structures more than .5 mile away, multiply score by 1 for galvanized steel (light grey) structures, multiply by .5 for self-weathering steel (rust brown) structures

2. Where existing structures were not visible spanning more than one distance zone, structures are now visible extending continuously through multiple distance zones into the background, making the project's geographic expansiveness now apparent.
   - 3 points if structures now visible through foreground, midground, and background
   - 2 points if structures now visible through midground and background

NOTE: For galvanized steel (light grey) structures, multiply score by 1, for self-weathering steel (rust brown) structures, multiply by 0.5.

B. Prominence

Oxford Dictionaries[27] online offers the following applicable definitions of "prominence":

> *The fact or condition of standing out from something by physically projecting or being particularly noticeable.*
>
> *A thing that projects from something, especially a projecting feature of the landscape or a protuberance on a part of the body.*

Smardon references work by Jackson, Hudman and England addressing the visual impact of electric utility lines:

"Transmission lines become more important in environmental assessment only when they are highly visible in environments which otherwise have little evidence of man's impact. The degree of negative impact increases as power lines become more visually *dominant*. In urban areas or other settings which are not regarded as 'natural', power transmission lines do not significantly distract from the aesthetic quality of the scene."[28]

[26] Other factors related the viewer could also lessen the visual effect.- these factors are accounted for in the subsequent analysis conducted under Section G.1 "Determining Viewer Effect." For example if a continual feature of extended view occurs at a road crossing, one must consider how the nature of that view would be affected given a driver's cone of vision and traffic speed.

[27] http://www.oxforddictionaries.com/us/definition/american_english/prominence

[28] Smardon, Richard C. (Ed.) (1983). *The Future of Wetlands: Assessing Visual-Cultural Value*. New Jersey: Allanheld, Osmun & Co. Publishers Inc. pg. 175

The 'prominence' of a project is determined by considering the following sub-criteria, in combination with the factors of distance and contrast:

(1) Skyline (or "Skylining")

Structures that are or skylined or silhouetted typically have a higher likelihood of drawing attention due to the potential for the forms and lines to stand out in strong contrast to the sky background. Time of day and orientation are factors that can influence the intensity of the effect, as the contrast is particularly pronounced when structures are backlit, thereby appearing dark against a light sky background. Skylined structures that are elevated in the landscape, such as those located on ridges are even more likely to draw attention and affect a scene, particularly if in close proximity to the vantage point.

1. Structures are skylined (visibility of cross-arms/conductors minimum).
   - 3 points if 1-2 structures are within .5 mile OR 3+ structures are within 1 mile
   - 2 points if 1-2 structures are within 1 mile OR 3+ structures are between 1-3 miles
   - 1 point if 1-2 structures are 1-3 miles away OR 3+ structures are beyond 3 miles

   NOTE: If existing transmission structures are skylined, multiply score by .5. Color/contrast does not affect the point rating for this factor because dark silhouetting can occur regardless of structure color under certain lighting conditions.

(2) Scenic Focal Point

A scenic focal point is a portion of a view that attracts viewer attention due to its high level of scenic interest distinguished from the rest of the scene, often based on the presence of water bodies or distinct topographic elements in the background. Interesting landscape elements and high diversity in the middleground may also contribute to creating a scenic focal point. Due to the inherent tendency for a viewer's eye to be drawn to such locations in the landscape for their scenic enjoyment, disruption of these views can result in undesirable effects on the view. This disruption can range from a minor distraction to a situation where structures directly block views of the most distinct element in the view, thereby having the potential to undermine the quality of an otherwise engaging or pleasing view.

Each key view from an identified resource of moderate-high to high visual sensitivity is assessed to determine if any of the following conditions would apply due to the proposed transmission line upgrades:

1. Structures within 50-degree field of view looking toward scenic focal point, competing for viewer attention (where existing structures are not visible or visible only above cross-arms/conductors).
   - 3 points if structures are within .5 mile OR if structures directly overlap view of scenic focal point (e.g. distinct/iconic mountain backdrop)
   - 2 points if structures are within 1 mile
   - 1 point if structures are over 1 mile away

NOTE: For structures more than .5 mile away that do not directly overlap the view of a scenic focal point, multiply score by 1 for galvanized steel (light grey) structures, multiply by .5 for self-weathering steel (rust brown) structures.

C. Compatibility

The 'compatibility' of a project can be determined by considering the following:

Compatibility here is the degree to which additions or modifications to the landscape are visually unified with their setting.[29] In other words it is an assessment of the degree to which a proposed alteration (new structure, clearing, etc.) is consistent or inconsistent with the built or natural elements that are visible in the landscape. It is here that the contrast of form, line, and texture is accounted for by assessing whether or not similar structures are within the existing view. Where no similar elements are present in the landscape, the proposed modification is more likely to attract viewer attention and be perceived as less compatible with the environment.

In an article published in the *Journal of Environmental Psychology* about the public perception of transmission lines, it was found that "there is considerable agreement across groups regarding relative compatibility of various scenes that include transmission lines, suggesting that individuals use the same visual features to judge compatibility regardless of their attitudes about land use and development."[30]

Each key view from an identified resource of moderate-high visual sensitivity is assessed to determine if any of the following conditions would apply due to the proposed transmission line upgrades:

1. Forms of structures contrast highly with environment.
   - 9 points if form is completely foreign to the environment (e.g. proposed lattice structures where no other electrical utility structures of any type are in view[31])
   - 3 points if form is significantly different than existing forms in the environment (e.g. proposed lattice transmission structures with pole-type transmission/distribution lines in view, or proposed monopole transmission structures with no other electrical utility structures of any type in view32)
   - 2 points if form is somewhat different than existing forms in the environment (e.g. proposed monopole transmission structures with pole-type transmission/distribution lines in view)

   NOTE: Multiply score by .5 for instances where all structures are over 3 miles away or visibility only above cross-arms/conductors, or color/finish of structure is similar to existing structures.

2. Expanded ROW clearing is noticeable where it wasn't previously and is clearly unnatural, geometric, and highly visible/contrasting
   - 3 points if linear clearing is highly visible (extensive ground can now be seen) and completely foreign to the environment (no other linear clearing visible)
   - 2 points if linear clearing is moderately visible (limited ground can now be seen) and completely foreign to the environment (no other linear clearing visible)
   - 1 point if linear clearing is somewhat visible (no ground visible) and completely foreign to the environment (no other linear clearing is visible)

[29] See Table 8, p. 60 from *Visual Resources Assessment Procedure for US Army Corps of Engineers*, by Richard S. Smardon, James F. Palmer, Alfred Knopt, Kate Grinde, 1988.

[30] Furby, L., Slovic, P., F. Baruch and Gregory, R. (1988). Public Perceptions of Electric Power Transmission Lines. *Journal of Environmental Psychology 8*, 19-43. (pg. 25)

[31] In this case the "view" is defined as the entire panorama view available to the viewer.

[32] Note that although monopole structures are man-made in appearance, they more closely resemble natural forms such as trees compared to the highly geometric appearance of lattice structures. The geometric nature of their form is typically more readily apparent when viewed within the foreground zone, where details are easier to discern.

3. OVERALL VISUAL EFFECT

The total points for each of the three aforementioned criteria for each resource are then combined to obtain an Overall Visual Effect rating.[33] The combination of the three criteria provides a good picture of visual effect by considering all the factors that relate not only to the surrounding context of the site, but to the project itself, and how it is seen from the selected locations. Ratings for **Low**/Low-Moderate/**Moderate**/Moderate-High/**High** are defined as follows:

- **Low (L)** - The project is not readily visible within the view due to the level of visibility, proximity, spatial presence, contrast, prominence, compatibility, or a combination of these factors. The project causes a low alteration to the landscape character, and the landscape remains clearly dominant.
- **Moderate (M)** - The project is visible within the view and may attract attention due to the level of visibility, proximity, spatial presence, contrast, prominence, compatibility, or a combination of these factors. The project causes a moderate alteration to the landscape character, but the change is limited and other features of the landscape remain the primary focus.
- **High (H)** - The project commands or controls the view due to the level of visibility, proximity, spatial presence, contrast, prominence, compatibility, or a combination of these factors. The project causes a fundamental alteration to the landscape character, and the project becomes a primary feature in the landscape.

Those resources that emerge with a 'Moderate-High' or 'High' Overall Visual Effect rating have the potential to be significantly affected by the visual change that could result if the project is constructed, and additional analysis is provided in the following section. No additional evaluation is provided for those resources that emerge with a 'Low' to 'Moderate' rating because the visibility of the project is not considered significant. Note that this is a step in the process of determining whether the effect is adverse. In this stage of the screening process, "High" does NOT translate into an unreasonable adverse determination. This determination is still dependent on other factors yet to be considered in the final steps of the methodology.

G. Determining Effect on the Viewer from Significant Scenic Resources

1. DETERMINING VIEWER EFFECT

For those resources determined to have the potential for a 'Moderate-High' or 'High' Overall Visual Effect rating as identified in Section F, additional analysis is provided (on a resource by resource basis) that incorporates and weighs a range of possible factors to determine how a typical viewer may be affected by the visibility of the project. The expectations of a typical viewer can be assessed using a multitude of sources such as background polling, user surveys, studies, guide books, publications, online media, anecdotal and interview sources, as well as general field observations and professional expertise. As such, this step in the assessment requires a judgment informed by both quantitative *and* qualitative data, as well as professional experience and expertise. The considerations and

[33] Scoring system:
Total points for each of the three criteria are combined and assigned overall ratings based on the following breakdown:
Low = .5 to 1.5 total combined points
Low-Medium = 2 to 3.5 total combined points
Moderate = 5 to 5.5 total combined points
Moderate-High = 6 to 11.5 total combined points
High = 12+ total combined points

thresholds for determining what the project's effect will be to the typical viewer from a particular significant scenic resource include:

(1) **Activity.** The type of activity users are engaged in can influence their expectations, since scenic quality may not be central to some types of activities, and vice versa. This consideration has been established in both the BLM VRM and the USFS SMS. Thresholds for activity types include the following:

- **Low:** Activities where visual quality and scenery of the landscape are unimportant to the experience. This would include activities such as visiting museums or historic architecture, or ice fishing in a shanty.
- **Moderate:** Activities where visual quality and scenery of the landscape are important but secondary to the experience. This would include activities such as fishing, motorboating, camping, hunting, rafting, and snowmobiling.
- **High:** Activities in which visual quality and scenery of the landscape are central to and significantly affect the experience. This would include activities such as paddling, viewing wildlife or scenery, and hiking.

(2) **Extent of Use.** This indicator measures the amount of use of the resource. Both the BLM VRM and the USFS SMS reference this consideration, contending that areas seen and used by large numbers of people are potentially more sensitive. VRM states "Protection of visual values usually becomes more important as the number of viewers increase" and SMS says "A landscape readily accessible to viewing by large numbers of people is often subject to greater scrutiny of its landscape character and scenic integrity." The extent of use can be determined quantitatively by user surveys, trail logs, visitor records, etc. However, because this information is not always available, or not statistically reliable, other measures must be used to ascertain extent of use. This includes qualitative considerations: how easy or difficult is the resource to access, and what types of facilities are available that may attract potential users (e.g. campgrounds, picnic areas, boat launches, beaches, etc.). Resources that are more difficult to access are typically less visited and therefore experience lower overall use. Likewise, the easier the access the higher the potential for use. Resources that are highly publicized and with available and attractive facilities such as campgrounds, boat launches, picnic areas or beaches, also tend to draw in more users. Therefore, thresholds for extent of use are defined by the following:

- **Low:** Access is difficult, limited and/or unclear (e.g. walk-in, portage). Interaction between users is extremely rare, and evidence of other users is negligible. There are no boat launches, campsites, picnic areas or other maintained facilities. Motorized or mechanized use is not permitted or not possible.
- **Moderate:** Access is somewhat evident and available. Interaction between users may be low to moderate. There are boat launches, campsites, picnic areas or other maintained facilities, but they are limited and not always noticeable. Motorized or mechanized use may be possible.
- **High:** Access is quick, obvious, and easy. Interaction between users is moderate to high. There are multiple boat launches, campsites, picnic areas or other maintained facilities, which can accommodate a large number of people (i.e. pavilions, parking lots). Motorized or mechanized use is allowed and evident.

(3) **Duration of View.** The type of activity and location must be considered when evaluating duration of view. An activity with a fixed and involuntary view of a project would have a higher potential for effect, whereas an activity with limited exposure to the view would have lower potential for effect, either due to the limited

extent of visibility from the resource or because the context and nature of the user's activity allows for other unaffected views. Thresholds include the following:

- **Low:** Activities whose focus would be away from a project or would be constrained due to limited viewing opportunities (e.g. ice fishing in a shanty; visibility limited to small portion of the resource). Effect may also be low due to limited use of the resource (i.e. as resource activities/visitation decreases the duration of view decreases).
- **Moderate:** Views of a project would be tempered by focusing on the activity (i.e. fisherman focusing on the water), shifting location and altering context and viewpoint (i.e. views are continually changing as in rafting, motorboating or fishing), and access to 360° views. In this situation, the effect potential lessens, because, although views would be present, they would be ever-changing and mitigated by the activity.
- **High:** Activities whose primary focus would be toward a project and fixed on a project. For example, a scenic pull-off with static, unchanging views focused entirely on a project site would have a high potential effect, even though a visitor may only stay at the site for 5 to 10 minutes.

(4) **Remoteness**. Remoteness indicates the absence of development and a primitive character and experience. Generally, the more remote the resource, the higher its contribution to scenic character, the higher a users expectation for a natural experience. Using the Recreation Opportunity Spectrum (ROS), it is possible to determine a resource's remoteness. The ROS was originally formulated in the late 1970's for use on public lands in the Western United States to help plan and manage recreation resources that match the qualities, settings and experiences that recreationists might expect. The ROS is divided into six, well-defined classes for understanding these relationships and interactions: Urban (U), Rural (R), Roaded Natural (RN), Semi-Primitive Non-Motorized (SPNM), Semi-primitive Motorized (SPM), and Primitive (P). Each class is delineated by a typical setting based on a number of factors such as size, naturalness, and the presence of motorized vehicles. The different settings inform expected experiences such as a sense of isolation, self-reliance, and closeness to nature at the primitive end.

Because application of the ROS became problematic to public lands in the East, the ROS was adapted for use on non-federal lands in New England.[34] One of the most evident changes was the renaming of some classes to better represent the landscape conditions of New England. The six ROS classes for New England are summarized as follows (see Tables 1-7 of Appendix II of *Extending the Recreation Opportunity Spectrum to Nonfederal Lands in the Northeast: An Implementation Guide*):

- **Primitive (P)** – Area appears to be an essentially unmodified natural environment of relatively large size. Interaction between users is very low, and evidence of other users is minimal. The area is essentially free from evidence of management restrictions and controls. Motorized or mechanized use is not permitted. Extremely high probability of experiencing isolation from human development, use, and impact. Extremely high probability of experiencing independence, closeness to nature, tranquility, and self-reliance by applying outdoor skills in an environment that offers a high degree of challenge and risk. Area is 2-3 miles from maintained roads, railroads or trails with designated motorized or mechanized use.
- **Semi-Primitive Non-Motorized (SPNM**) - Area appears to be a predominantly natural or natural appearing environment of relatively medium-to-large size. Interaction between users is low, but there is

[34] More, Thomas A., Susan Bulmer, Linda Henzel, and Ann E. Mates. 2003. *Extending the Recreation Opportunity Spectrum to Nonfederal Lands in the Northeast: An Implementation Guide.* Gen. Tech. Rep. NE-309. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station

often evidence of other users. The area is managed so that minimum on-site controls and restrictions, if needed, are subtle. Non-mechanized uses predominate. Mechanized uses may be permitted. Motorized use is not permitted. Moderately high probability of experiencing isolation from human development, use, and impact. High probability of experiencing independence, closeness to nature, tranquility, and self-reliance by applying outdoor skills in an environment that offers challenge and risk. Area is at least 0.5 mile (but not farther than 2 miles) from all maintained roads, railroads, or trails with designated motorized or mechanized use; can include unimproved roads and trails if usually closed to motorized use.

- **Semi-Primitive Motorized (SPM**) - Area appears to be a predominantly medium-to-large size natural or natural appearing environment. Interaction between users is low, but there is often evidence of other users. The area is managed so that minimum on-site controls and restrictions, if needed, are subtle. Mechanized uses may be permitted. Moderate probability of experiencing isolation from human development, use, and impact. Opportunity for high degree of interaction with the natural environment. Moderate probability of experiencing independence, closeness to nature, tranquility, and self-reliance by applying outdoor skills in an environment that offers challenge and risk. Opportunity to use motorized equipment. Area may contain unimproved roads or secondary trails but is at least 0.5 mile from any improved, maintained roads, railroads, or primary motorized or mechanized trails.
- **Semi-Developed Natural (SDN)** - Area is a natural appearing environment. Evidences of the sights and sounds of people are moderate. Such evidences usually harmonize with the natural environment. Interaction between users may be low to moderate, but evidence of other users is prevalent. Resource modification and utilization practices are evident but harmonize with the natural environment. Construction standards and facility design accommodate conventional motorized and mechanized uses. About equal probability of encountering other user groups and isolation from sights and sounds of people. Opportunity for a high degree of interaction with the natural environment. Challenge and risk opportunities generally are not important. Practicing and testing outdoor skills might be important. Opportunities for both motorized and nonmotorized forms of recreation are possible. Area is within 0.5 mile from improved, maintained roads, railroads, or trails.
- **Developed Natural (DN)** - Area is a substantially modified natural environment. Resource modification and utilization practices enhance specific recreation activities and maintain vegetative cover and soil. Sights and sounds of people are readily evident. Interaction between users often is moderate to high. Many facilities are designed for use by a large number of people. Density levels decline with increasing distance from developed sites. Facilities often are provided for special activities. Facilities for intensified motorized and mechanized uses and parking are available. Encounters with other individuals and groups are common. Site/activity access is convenient. The physical setting is not as important as the activity opportunity. Wildland challenges, risk taking, and testing of outdoor skills generally are unimportant except for specific activities in which challenge and risk-taking are important elements, e.g. mountain skiing. No distance criteria.
- **Highly Developed (HD)** - The setting contrasts with the surrounding cityscape, but urban elements are common and readily apparent. Large numbers of users can be expected, both onsite and in nearby areas. Facilities are designed to serve individuals or small groups but can accommodate high use. Facilities accommodate access by a variety of means, including pedestrian, motorized, mechanized, and mass transit. Design generally offers users a choice between social encounters and solitude in an urban setting. Observing natural appearing elements is important. Nature related challenge and risk opportunities generally are not important. No distance criteria.

Thresholds for determining remoteness are therefore derived from the ROS classes of the East and are defined by the following:

- **Low:** (HD and DN) - Resource is noticeably developed. Interaction between users is moderate to high. There are boat launches, campsites, picnic areas or other maintained facilities, which can accommodate a large number of people (i.e. pavilions, parking lots). Motorized or mechanized use is allowed and evident.
- **Moderate:** (SPNM, SPM, and SDN) - Resource appears to maintain its natural quality. Development is present but is not always noticeable by the average person and usually harmonizes with the natural environment. Interaction between users may be low to moderate. There are boat launches, campsites, picnic areas or other maintained facilities, but they are limited and not always noticeable. Motorized or mechanized use may be possible.
- **High:** (P) - Resources that are essentially unmodified and pristine. Interaction between users is extremely rare, and evidence of other users is negligible. There are no boat launches, campsites, picnic areas or other maintained facilities. Motorized or mechanized use is not permitted or not possible.

2. OVERALL VIEWER EFFECT

The ratings for each of the four-abovementioned criteria for each resource are then combined to obtain an Overall Viewer Effect rating.[35] The combination of the four criteria provides a good picture of how the project may affect the typical viewer's experience, and the resultant effect on future use and enjoyment of the scenic resource. For those resources that emerge with a 'Low' to 'Moderate' rating, the effect to the typical viewer is not considered significant. Those resources that emerge with a 'Moderate-High' to 'High' Overall Viewer Effect rating will result in a significant change if the project is constructed, and may affect future use and enjoyment. Note that this is a step in the process of determining whether the effect is adverse. In this stage of the screening process, "High" does NOT translate into an unreasonable adverse determination. This determination is still dependent on other factors that will be considered in the next step of the process.

H. Overall Conclusion and Determination of Reasonable/Unreasonable

This final component of the methodology will conclude whether or not the Project will have an unreasonable adverse effect on aesthetics consistent with the provisions of the NH Statute RSA 162-H. This component of the VA will assess and integrate the overall results of the multi-step Visual Effect analysis and the effect that the Project will have on typical viewers within the Project area. These findings will be weighed in concert with other relevant factors including the suitability of the Project site; the landscape character of the region and the Project's place in that landscape; local conditions in the immediate vicinity of the Project and the potential visual effects of the

[35] Rating system:
Each rating is assigned a point value:
Low = 1
Moderate = 2
High = 3
Total points are combined and assigned overall ratings based on the following breakdown:
Low = 5 points or less
Low-Medium = 6-7 points
Moderate = 8-9 points
Moderate-High = 10-11 points
High = 12 points

Project within that context; and the efficacy of the applicant's mitigation, avoidance, and minimization measures. Taken together, these analyses and considerations will yield the overall conclusion and determination of the Project's potential effect on the aesthetics within the study area.

3. Background

A. About the Project

Public Service Company of New Hampshire, doing business as Eversource Energy ("PSNH"), is proposing to construct a new, 115 kilovolt (kV) AC electric power transmission line between their existing Madbury and Portsmouth substations to enhance the electric reliability in the seacoast region. The Seacoast Reliability Project (SRP) is located in the Towns of Madbury, Durham and Newington as well as the City of Portsmouth, in Strafford and Rockingham Counties, New Hampshire. The SRP is proposed to be approximately 12.9 miles long, including a 1-mile crossing under Little Bay as well as new line terminal additions at each of the PSNH substations. The new transmission line will be designated Line F 107 and will be constructed primarily within existing electric corridors, 12.1 miles of which will be a new transmission route and 0.8 miles will be in an existing transmission corridor.

There will be minor adjustments to right-of-way (ROW) widths in several locations, ranging from 40-130 feet wide, but predominantly 100 feet wide. For most of the length of the ROW, a mowed corridor approximately 60 feet in width has been maintained by PSNH in support of the existing electric distribution line. The edges of the ROW are unmaintained and frequently support forest (20 feet on either side), which will need to be cleared for the SRP. The cable crossing proposed in Little Bay will affect a corridor approximately 150 feet wide within a mapped cable area approximately 1000 feet wide.

The new line leaving the Madbury Substation will travel approximately 1.4 miles aboveground and will then transition to underground within the UNH campus. The line will pass under Main Street in Durham and continue underground through the UNH campus for a total distance of 0.4 miles. The line will then transition back to overhead and travel for approximately 2.0 miles to the Packers Falls Substation. The line then turns east and runs approximately 4.0 miles to the westerly shoreline of the Little Bay portion of Great Bay in Durham, where it will transition to underground.

After transitioning to underground, the line will continue via buried submarine cable across Little Bay within a designated cable corridor, to the easterly shoreline of Little Bay in Newington, a distance of approximately 1.0 mile. After crossing the bay, the Project will make landfall within an existing utility corridor owned in fee or under permanent easement by PSNH. The line will leave the ROW at Gundalow Landing and continue underground in the street.

The Project will travel underground for approximately 0.3 miles to the riser structure and then transition back to overhead east of Little Bay Road. The Project will continue overhead but will transition to an H-frame structure for approximately 0.5 miles through the Newington Center Historic District. From just east of Nimble Hill Road, the line continues overhead on a monopole structure to the Portsmouth Substation, a distance of approximately 2.9 miles.

The Project will require work at each of the terminal substations, including structural bracing modification to the existing terminal structure, installation of a new circuit breaker and new coupling capacitor voltage transformers ("CCVT") at Madbury Substation and a new terminal structure, control enclosure expansion, bus extension, circuit

breaker, and new CCVTs at Portsmouth Substation. The work conducted at both substations will be constructed within the substation fence line.

B. Project Area/Landscape Character

1. INTRODUCTION

As an integral part of the aesthetic assessment for the Seacoast Reliability Project, it is important to reference the existing "landscape character." Landscape character is a function of the innate natural and physiographic components of an area coupled with the effects of human use and development.

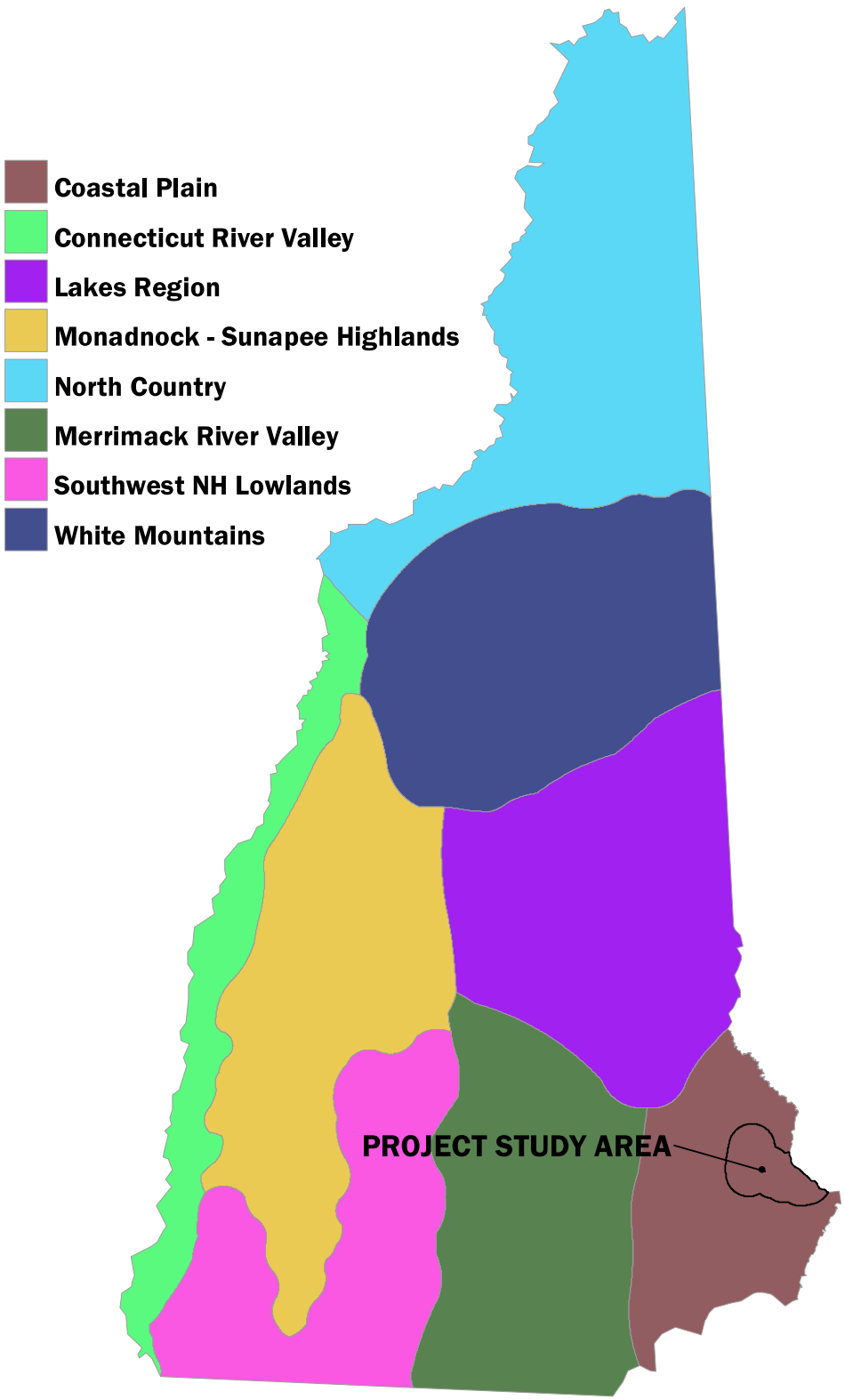
The State of New Hampshire has been delineated by a number of different physiographic and political regions which include but are not limited to 1) Planning Regions — overseen by the Regional Planning Commissions and Agencies; 2) Marketing and Tourism Regions — designed to promote investment, development and tourism; 3) Ecological Regions derived from habitat and the distribution of flora and fauna coupled with landform; and 4) Physiographic Regions, which are simply a delineation of basic landforms and topography.

The New Hampshire Landscape can be characterized in terms that provide a basis for understanding the context for new development on a local, regional or statewide scale. It is important to understand that there are two distinct descriptive categories: 1) the natural environment and 2) the human-altered environment. In the review of a project such as Seacoast Reliability, a three-step approach is required to understand the visual and physical setting for the Project. First, it is the natural environment that is to be characterized and visualized. Secondly, the elements of the human-altered environment (also referred to as the "built environment") are articulated and recognized as an influential landscape determinant. These two components are integrated to provide an overall summary of the key elements that characterize the context for this particular Project. It is important to note that nowhere within the Project Corridor does there exist a totally pristine, unaltered natural environment — from the time the first native settlers arrived up until the present day the landscape of New England has been harvested, farmed, and developed with the infrastructure of its human residents.

The Natural Environment includes both an understanding of eco-regions and habitat and physiography, and how these physical elements are translated into visual patterns. Physiography is defined as the geography of the earth's natural physical features. New Hampshire is divided into 3 basic regions:

1. The White Mountains
2. The Eastern New England Upland
3. The Coastal Lowlands

A more detailed manner in which to look at the state's regions is to use the "Ecological Regions" delineation as set forth in the publication *The Nature of New Hampshire* (Sperduto and Kimball). These 8 regions incorporate physiography, land cover, and habitat to set forth the distinct ecological boundaries of the state. The Project, as proposed, is to be located entirely within the Coastal Plain region.



Ecological Regions of New Hampshire

The human-altered environment includes local, regional and statewide infrastructural networks such as roads and highways, rail and transmission corridors. Connected to these networks are the physical patterns and density of urban, suburban and rural land uses. Finally, the land uses are typically categorized into several major types: 1) urban developed areas which include residential, commercial and municipal/cultural/institutional land uses; 2) village and town centers which often include some, if not all, of the uses found in urban centers; 3) suburban residential; 4) rural residential; 5) industrial/infrastructural; 6) forestry-related land uses and 7) agricultural land uses.

In order to describe the Project context within New Hampshire's physical environment, the patterns of the natural landscape are considered together with the development and management patterns of the human environment. While there exists examples of "working landscapes" [36] - land in productive use for silvicultural and agricultural purposes – this area, the Coastal Plain presents more of a settled, residential (both year-round and seasonal), and village-oriented landscape.

This overview of the Project's landscape environs is thus divided into sections that focus on 1) The Natural Environment, and 2) The Human-Altered Environment.

2. THE NATURAL ENVIRONMENT

The *Coastal Plain Ecological Region*, containing the land south of the Lakes Region and east of the Merrimack River Valley, is most notably unique from the 7 other ecological regions due to its coastal border. This region's geomorphological, vegetative, hydrological, and climate patterns are often very different from the others throughout the state, as the Atlantic Ocean has a significant moderating effect on the climate of this part of the state.[37]

Key landscape elements in this Ecological Region include:

a. Geomorphology

Geomorphology reflects the influence of significant geological forces and surficial glaciation that results in a pattern of hills, linear ridges and higher mountainous areas. The typical elevation ranges in this area are mostly below 500', with the exception of hills such as the Pawtuckaway Mountains rising just above 1,000'.[38]

Compared with the other regions of the state, drumlins are relatively common in the Coastal Plain, and marine silts and clays are present in river valleys up to 15 miles inland. Marshes and swamps frequently leave behind peatlands in their outwash areas. Directly on the seacoast, tidal marshes (specifically, the Great Bay Estuary,

[36] "Working Landscape" is defined extensively in the 2010 Report entitled Strategies for Promoting Working Landscapes in North America and Europe – A Report for the Vermont Council on Rural Development, principal author, Cheryl E. Morse, Ph.D, which states (with regard to Vermont, but applicable to New Hampshire as well) that "The term points to the unique environmental history of the state, in which agriculture – particularly sheep, dairy, haying, vegetable and orchard farming – as well as timber, forest products, and maple syrup production have sustained the extractive economy and shaped the natural landscape."

[37] Sperduto, Dan and Ben Kimball. The Nature of New Hampshire. Lebanon, New Hampshire: University Press of New England, 2011. 35-36. Print.

[38] Sperduto, Dan and Ben Kimball. The Nature of New Hampshire. Lebanon, New Hampshire: University Press of New England, 2011. 35-36. Print.

described in greater detail below), dunes, beaches, and rocky shores are abundant, and unique to this portion of New Hampshire.

b. Vegetative Patterns

The forest vegetation of New Hampshire developed after the post-glacial era beginning about 10,000 years ago, and the vegetation of the Coastal Plain eco-region ranges from the plant associations of the Appalachian oak and pine forests (most dominant forest type) to a variety of coastal plain plant species, the highest concentration of their kind in the state. "Plants with southern distributions…distinguish Appalachian oak and pine forests from other New Hampshire forests. These species are largely absent from Laurentian forests".[39] Sperduto and Kimball also note that "Appalachian forests have more locally rare plant species than Laurentian forests, in part because many temperate forest species reach the northeastern end of their geographic ranges in central New England".

Sperduto and Kimball go on to explain in further detail the vegetation that comprises the Appalachian oak and pine forest communities:

> Red oak is usually abundant and mixes with…white oak, black oak, and scarlet oak. Shagbark and pignut hickories are occasional. Other common trees include red maple, paper birch, black birch, gray birch, and ironwood. Common shrubs include lowbush blueberry, hillside blueberry, dangleberry, black huckleberry, maple-leaved viburnum, sweet fern, and witch hazel…Wintergreen, Pennsylvania and woodland sedge, common hairgrass, rough-leaved rice grass, poverty oat-grass, bracken, whorled loosestrife, and pinweeds are common herbs. [40]

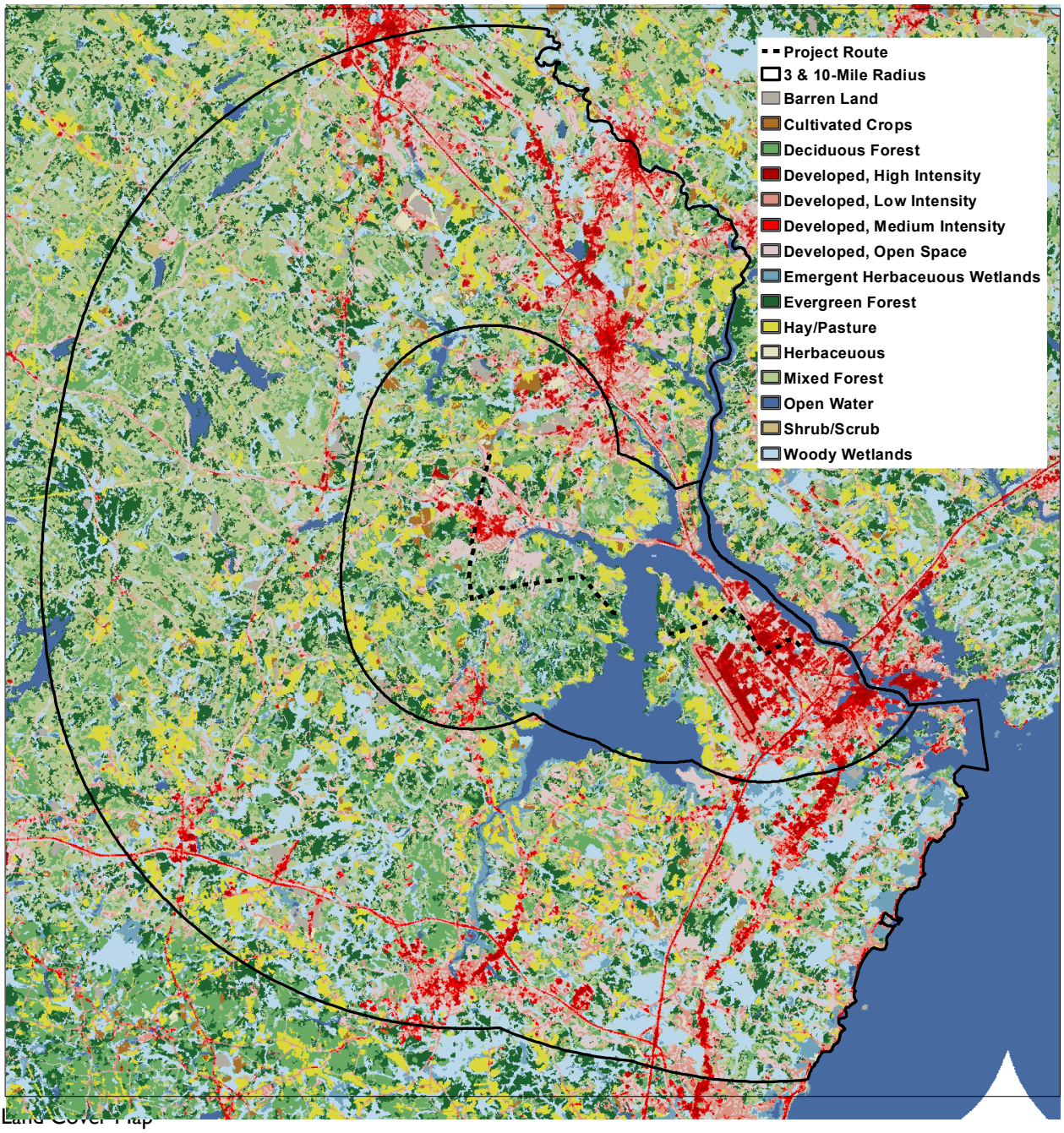
From a visual perspective, the color range of this region varies seasonally from the contrasting lighter greens of the deciduous species in early spring with the persistent dark green of conifers, to the deep green of summer and then the culmination of the fall season with the spectacular red, yellow and orange colors that are distinctive in New England. The typical 5-month period when deciduous trees have lost their leaves is also distinct for the contrast between the extensive grey to brown, to even black branching of the deciduous trees in contrast with the deep green and conical or windswept forms of spruce, cedar, fir, and even white pine. Thus the visual background of a drape of woodland over the terrain provides at times a homogenous textural character, and at other times a distinct level of vivid contrast between winter colors and conifers, or the fall coloration of the deciduous foliage.

c. Surface Water Features

In this eco-region within which the Project is located, the primary water feature is, of course, the Atlantic Ocean, with its actual waterfront but also feeding of many streams, rivers, marshes and wetlands as one moves inland. The Oyster and Piscataqua Rivers feed a variety of small streams, creeks. Great Bay, an over 6,000 acre[41] tidal estuary, is the most prominent physiographic water feature in the region, and is entered into via its northern portion, Little Bay. "Great Bay lies at the confluence of tidally-driven salt water from the Gulf of Maine and fresh water from the Salmon Falls, Cocheco, Bellamy, Oyster, Lamprey, Squamscott, and Winnicut rivers. Before reaching Great Bay,

[39] Sperduto and Kimball 123.
[40] Sperduto, Dan and Ben Kimball. The Nature of New Hampshire. Lebanon, New Hampshire: University Press of New England, 2011. 124-125. Print.
[41] http://en.wikipedia.org/wiki/Great_Bay_(New_Hampshire)

seawater travels 15 miles inland through the Piscataqua River and Little Bay." The estuary creates five unique water habitats: eelgrass meadows, mudflats, salt marsh, channel bottom, and rocky intertidal. These specialized conditions provide habitat to hundreds of bird, fish and plant species.[42]



Land Cover Map

[42] http://www.greatbay.org/about/heritage.htm

3. THE HUMAN-ALTERED ENVIRONMENT

a. A Historical Perspective Regarding New Hampshire's Coastal Land Use

"… the very idea of "untouched" wilderness may be an illusion. There is no such thing as stasis in nature; nature IS change." [43] This holds true for New Hampshire, where nature's slow, relentless change has accelerated ever since the first settlers realized they could make a profit from its landscape.

European interest in New Hampshire began in the 1500s, though New Hampshire itself has been inhabited for about 12,000 years prior to now, by many Native Americans seasonally fishing, hunting, gathering, and planting various crops.[44] "Control over the [Great Bay Region] was contested throughout the French and Indian Wars"[45] between Native Americans and the colonists. European settlement began permanently in 1623, and 57 years later, New Hampshire became a state.

Located geographically closer to the coast, which throughout history and around the world has been the beginning point of countless settlements and cities, the southern portion of New Hampshire began as, and remains, the most developed area of the state. "The economic and social life of the Seacoast revolved around sawmills, shipyards, merchants' warehouses, and established village and town centers." The tidal influence provided a relatively effortless way to move goods, and in this way, exports such as dried fish, furs and lumber were traded for much needed supplies. The variety of freight expanded rapidly as locals recognized what the Bay itself could provide, including marine clay and saltmarsh hay. Lumber supported the burgeoning shipbuilding industry along the New England coast, and brickyards contributed to building construction around the region.[46] Eventually, industries diversified, through the growing popularity of the manufacture of textiles, paper and cotton.

As roads increased in size and use, they followed the paths of the state's major rivers north to south, as did railroads later on. To the south and over the border, Boston was growing rapidly and much commerce and business occurred between there and the southern portion of New Hampshire. Tourism and residential uses began to popularize as well.

By this time, much of the valued lumber and clay had been exhausted, but this was only the beginning of Great Bay's resource exploitation. The estuary had quickly become a conveniently located dumping ground for waste from many industries, and this took a significant toll on the ecosystem's fragile health. This practice eventually ended in 1976, and the area was allowed to begin recovery.

Recognizing the importance of the Great Bay Region, a National Estuarine Research Reserve was designated in 1989 in order to ensure its recreational and educational opportunities for the region's future.[47] New Hampshire's

---

[43] Rous, Emma. North Country, New Hampshire Stories. Web. 18 Nov. 2013. <http://www.northcountrynhstories.org/story_Emma_Rous.html>.

[44] Wallace, R. Stuart. "New Hampshire History in Brief." New Hampshire Division of Historical Resources. 2007. Web. 18 Nov. 2013. <http://www.nh.gov/nhdhr/markers/brief.html>.

[45] http://www.greatbay.org/about/history.htm

[46] http://www.greatbay.org/about/history.htm

[47] http://www.greatbay.org/about/history.htm

coastal region remains a popular seasonal tourist destination as well as a desirable residential and industrial location.

New Hampshire's Coastal Plain region is indeed part of the greater Eastern Seaboard "megalopolis" -- a concept first forwarded in the 1960s by the study of the same name.[48] This continuous developed area has an overall urban density which is in evidence by the increase in overall road networks and coverage, the pattern of residential and commercial development spreading out from the urban centers such as Concord, and the shift from a sense of a more natural, rural landscape to one in which suburban and urban patterns alternate with remnant woodlands and agricultural open spaces, particularly within the river valley and environs.

It is clear that every portion of New Hampshire, from North Country to Seacoast, has been the subject of dramatic landscape change since the mid-1600s.[49] This is not by any means a "pristine" landscape; it has been changed repeatedly over the years at the whim of economic, industrial and touristic fluctuation.

b. The Human Environment of the Coastal Plain Region

Overview

The focus for this description is an area located entirely within the Coastal Plain Region of New Hampshire. This region is unique from the other 7 other ecological regions due to its coastal border. The Atlantic Ocean has a significant moderating effect on the climate of this part of the state,[50] and this region's geomorphological, vegetative, hydrological, and climate patterns are often very different from the others throughout the state. The Great Bay and its corresponding wetlands are the most predominant landscape features, as topography is generally very low, as compared with the rest of the state. The Project area has a fairly dense network of regional, state, and federal routes, and also a significant development density, with its settled towns and developed areas.

The Working Landscape

This region has little in the way of timber harvesting or major forest resources given the more fragmented nature of properties and the road networks that delineate wooded areas. Many of the agricultural land uses are remnant from an earlier period of agriculture that has been eclipsed by the spread of suburban development, and are small in scale. The retention and restoration of wooded areas has been coupled with a predominantly rural and suburban-type (in subdivision) residential land use and landscape pattern.

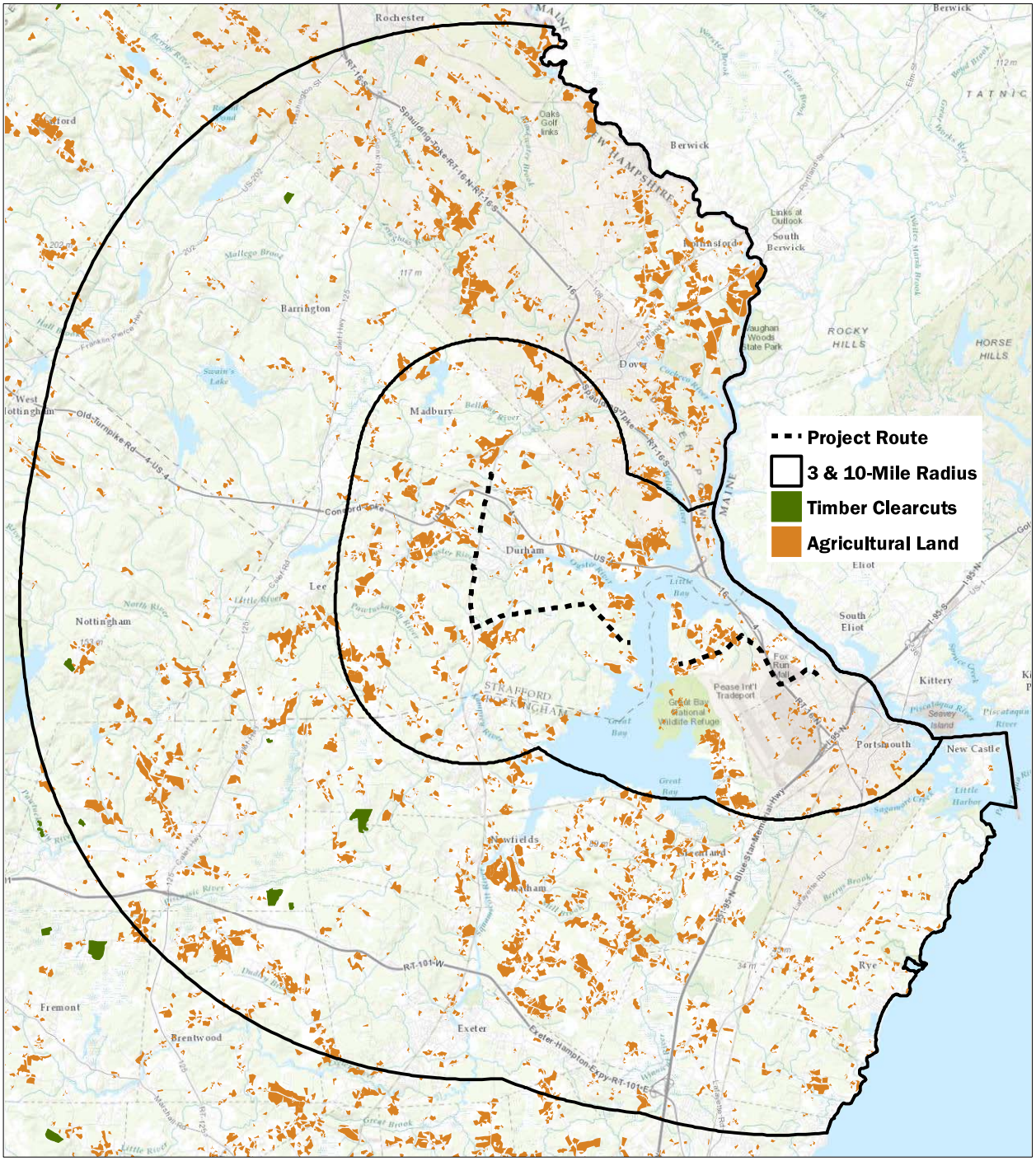
---

[48] Gottman, Jean. "Megalopolis." Cambridge: MIT Press 1961, 7th ed., 1973. Print.

In Megalopolis, Professor Gottman sets forth a concept, now adopted into popular lexicon and accepted as an urban planning principle (and fact), of an interwoven urban landscape: "The Northeastern seaboard of the United States is today the site of a remarkable development - an almost continuous stretch of urban and suburban areas from southern New Hampshire to Northern Virginia and from the Atlantic shore to the Appalachian foothills. The processes of urbanization, rooted deep in the American past, have worked steadily here, endowing the region with unique ways of life and land use." (pg. 3)

[49] Wallace, R. Stuart. "New Hampshire History in Brief." New Hampshire Division of Historical Resources. 2007. Web. 18 Nov. 2013. <http://www.nh.gov/nhdhr/markers/brief.html>.

[50] Sperduto, Dan and Ben Kimball. The Nature of New Hampshire. Lebanon, New Hampshire: University Press of New England, 2011. 35-36. Print.



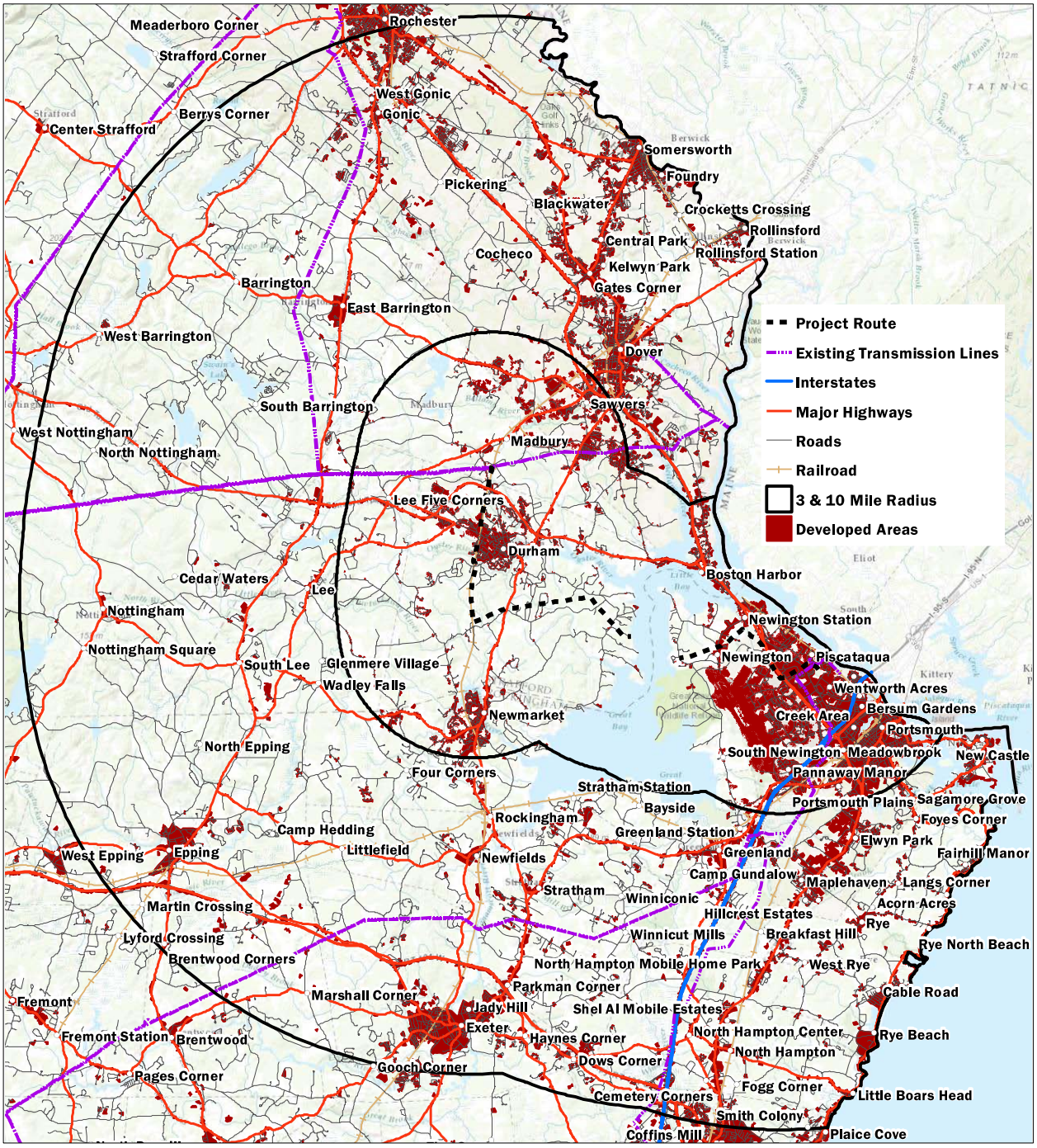
The Working Landscape

Land Use, Development and Infrastructure

The map that follows tells the story--urban land use density increases in both linear patterns and in connection with the town and regional centers in this region. The development patterns are due primarily to the presence of the ocean, lakes and ponds that have continuous shoreline development providing both seasonal and year-round housing. Small commercial centers are present in many of these communities, and around exit areas of major roads. This is a typical development pattern for the region, and this type of mixed use can be seen along the highway corridors and adjacent to, or part of, settled areas. The development pattern, as it does for so much of New Hampshire, follows lakeshores, valley roads, the Interstate and highway corridors and developable land adjacent to water bodies. The landscape in the vicinity of the Project corridor is primarily an urban, developed landscape.

This region has a more highly developed infrastructure when compared to other regions of New Hampshire. There are several infrastructure networks in place for electrical transmission and transportation. There is a more intensive linear landscape devoted to the Interstate and its environs, and in connection with the primary road corridors of I-95, and Routes 108, 4, 155/155A, 16, and 1/1A. Linear development follows these routes. This

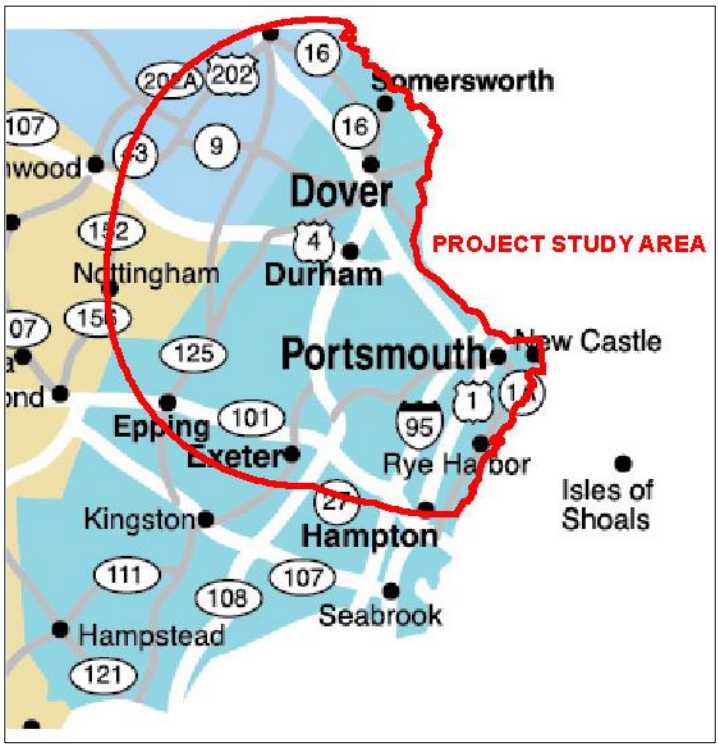
region also has several rail corridors. Several additional statewide transmission corridors are also located in this region.



Infrastructure and Development

Tourism

The Project is located within the state's "Seacoast" tourism region (see map that follows). This is an urban area where activities are primarily focused around the historic port city of Portsmouth and the shoreline of the Atlantic Ocean. The abundant shops, restaurants, museums, hotels, and other attractions draw visitors from all over the region and places afar. Much of the tourists come to the beaches of Rye and Hampton, which are located further south and outside of the Project area.



Seacoast Tourism Region[51]

[51] Map from the NH Tourism website, NH Department of Resources and Economic Development

4. The Visual Assessment

A. Inventory of Scenic Resources

A comprehensive inventory of potential local, state, and national scenic, recreational, and publicly accessible resources was conducted for the study area. The identification of resources was a time intensive process, requiring a great deal of research to ensure that all possible resources were identified. Resources were identified on a town-by-town basis through a consistent and systematic process.

First, GIS data available from NH Granit was collected and reviewed, which included:

- Geographic Names Information System (GNIS)
- Key Destinations
- OEP Recreation Inventory: Points
- OEP Recreation Inventory: Polygons
- Recreation Facilities

Next the NH Gazetteer (DeLorme) was reviewed. Any resources found in this source that were not already identified through the GIS data were added to the list. The official website of the New Hampshire Office of Travel and Tourism[52] was then studied. A search was completed for every town within the study area for key destinations[53] that fell within the primary categories (local, state, national). Any resources not already identified in the previous steps were added to the list. All available guidebooks were then reviewed, such as *An Explorer's Guide to NH* or *Quiet Water New Hampshire & Vermont 2nd Edition* (see *Section 6. Bibliography* for a detailed list). Any new resources not already identified were added to the list. Each regional and town website and applicable regulatory or guiding documents were then reviewed (i.e. Town Plans, Open Space Plans, Recreational Plans, etc.) to identify any new resource not identified in the previous steps. New resources were again added to the list. Next, a variety of additional sources were reviewed for every town to confirm or identify new resources within each, such as (but not limited to):

- NH Byways and Scenic Tours website (http://www.nh.gov/dot/programs/scbp/tours/index.htm)
- NH Division of Parks and Recreation website (nhstateparks.org) – includes Heritage Trail, Rail Trails, State Parks, etc.
- Area Chambers of Commerce websites
- NH designated rivers (http://des.nh.gov/organization/divisions/water/wmb/rivers/desigriv.htm)
- NH Covered Bridges website (http://www.nh.gov/nhdhr/bridges/table.html)
- NH Fish & Game website (http://www.wildnh.com/Fishing/bathy_maps.htm)
- NH Division of Forest and Lands website (http://www.nhdfl.org)

Finally, for every resource identified in the list, additional searches were conducted online using the resources name as the key word (e.g. Great Bay National Wildlife Refuge or MacDonald Lot), to obtain specific information about that resource, or to aid in the identification of any new resource within the area that was not already identified. Therefore, the resource list presented in the table below is considered to be all-inclusive.

[52] http://www.visitnh.gov

[53] http://www.visitnh.gov/what-to-do/key-attractions/default.aspx

TABLE 2. SCENIC RESOURCES WITHIN AREA OF 'GREATEST' POTENTIAL VISUAL IMPACT

Resource	Town	Nearest Distance to Project[54]	# of Structures Potentially Visible[55]
NATIONAL RESOURCES			
National Historic Sites			
1. Newington Center Historic District	Newington	0 miles	0 to 60
National Heritage Areas			
NONE			
National Historic Landmarks			
2. John Sullivan House	Durham	No Project Visibility	
3. Governor John Langdon Mansion	Portsmouth	No Project Visibility	
4. John Paul Jones House	Portsmouth	No Project Visibility	
5. MacPheadris-Warner House	Portsmouth	No Project Visibility	
6. Moffatt-Ladd House	Portsmouth	No Project Visibility	
7. Richard Jackson House	Portsmouth	No Project Visibility	
8. USS *Albacore* (submarine)	Portsmouth	No Project Visibility	
9. Wentworth-Gardiner House	Portsmouth	No Project Visibility	
National Natural Landmarks			
10. Spruce Hole Bog	Portsmouth	No Project Visibility	
National Scenic Byways			
NONE			
National Scenic Trails			
NONE			
National Wild and Scenic Rivers			
11. Lamprey River	Durham, Lee, Newmarket	No Project Visibility	
National Wildlife Refuges			
12. Great Bay National Wildlife Refuge	Newington	.251 miles	0 to 75
Affiliated Areas of the National Park Service			
NONE			

[54] Measurements are approximate.

[55] Visibility based on Exhibits 1 and 2: Viewshed Maps, as well as field visit and/or 3D modeling, as noted.

TABLE 2. SCENIC RESOURCES WITHIN AREA OF 'GREATEST' POTENTIAL VISUAL IMPACT

Resource	Town	Nearest Distance to Project[54]	# of Structures Potentially Visible[55]
Other National Park System Areas[56]			
NONE			
Other Federal Lands with a Specific Public Use or Scenic Resource Component (e.g. U.S. Army Corps of Engineers, Bureau of Land Management)			
NONE			
STATE RESOURCES			
State Historic Sites			
NONE[57]			
State Parks			
13. Hilton State Park	Dover	No Project Visibility	
State Conserved Lands with a Specific Public Use or Scenic Resource Component (e.g. Wildlife Management Areas, State Forests)			
14. Bellamy River WMA	Dover	No Project Visibility	
15. Adams Point WMA	Durham	.75 miles	0 to 15
16. Wilcox Point WMA	Durham	No Project Visibility	
Non-Motorized Trails in New Hampshire's State Parks, Forests and on Recreational Rail Trails			
NONE			
Covered Bridges Maintained by NH Department of Transportation			
NONE			
NH Department of Transportation Designated Scenic and Cultural Byways			
17. Mills Scenic Byway	Dover, Durham, Madbury, Newmarket	0 miles	0 to 60
18. Coastal Byway	Portsmouth	No Project Visibility	
19. Colonial NH Seacoast Ride	Portsmouth	No Project Visibility	
NH Department of Transportation Designated Scenic Overlooks and Rest Areas			
NONE			
Fire Towers Listed in the Fire Lookout Tower Quest Program by the NH Division of Forest and Lands			
NONE			
Rivers designated by the NH Rivers Management and Protection Program			
20. Lamprey River	Durham, Lee, Newmarket	No Project Visibility	

[56] "In the Act of August 18, 1970, the National Park System was defined in law as 'any area of land and water now or hereafter administered by the Secretary of the Interior through the National Park Service for park, monument, historic, parkway, recreational or other purposes.'" National Park System Areas are directly administered by the National Park Service and include Memorials, National Battlefields, National Battlefield Parks, National Historical Parks, National Historic Sites, National Lakeshores, National Monuments, National Memorials, National Military Parks, National Parks, National Preserves, National Recreation Areas, National Recreational Rivers, National Reserves, National Seashores, National Scenic Riverways, National Scenic Trails, or Parkways. *The National Parks: Index 2009-2011*, U.S. Dept. of the Interior National Park Service, Jan. 3, 2009, pg. 96. Note that for purposes of this VA, only listed historic sites that have setting included as a feature of their significance are reviewed in this analysis. All other historic sites and resources are reviewed as a separate component of the application.

[57] None with potential visibility

TABLE 2. SCENIC RESOURCES WITHIN AREA OF 'GREATEST' POTENTIAL VISUAL IMPACT

Resource	Town	Nearest Distance to Project[54]	# of Structures Potentially Visible[55]
21. Oyster River	Durham, Lee, Madbury	No Project Visibility[58]	
22. Piscassic River	Durham, Newmarket	No Project Visibility	
Public Waters[59] with Designated State Access Areas (i.e. NH Fish and Game)			
23. Little Bay	Durham, Newington	.078 miles	0 to 30
24. Great Bay	Durham, Greenland, Newington, Newmarket	.61 miles	0 to 30
LOCAL RESOURCES			
Scenic Drives or Locally Identified Scenic Roads			
25. Old Garrison Road	Dover	No Project Visibility	
26. Bay Road	Durham, Newmarket	No Project Visibility	
27. Bennett Road	Durham, Newington	.04 miles	0 to 15
28. Durham Point Road	Durham	0 miles	0 to 60
29. Packers Falls Road	Durham	No Project Visibility	
30. Sheep Road	Lee	No Project Visibility	
31. Cherry Lane	Madbury	No Project Visibility	
32. Nute Road	Madbury	No Project Visibility	
33. Airport Road	Newingon	No Project Visibilty	
34. Beame Lane	Newington	No Project Visibility	
35. Bloody Point Road	Newington	No Project Visibility	
36. Brickyard Way	Newington	.16 miles	0 to 5
37. Captain's Landing	Newington	No Project Visibility	
38. Carter's Lane	Newington	No Project Visibility	
39. Coleman Drive	Newington	No Project Visibility	
40. Dumpling Cove	Newington	No Project Visibility	
41. Fox Point Road	Newington	0 miles	0 to 30
42. Gundalow Landing	Newington	.018 miles	0 to 15
43. Hannah Lane	Newington	.026 miles	0 to >75
44. Little Bay Extension	Newington	.17 miles	0 to 15
45. Little Bay Road	Newington	.005 miles	0 to 60
46. Mcintyre Road	Newington	No Project Visibility	
47. Old Dover Road	Newington	.23 miles	0 to 30
48. Old Post Road	Newington	0 miles	0 to 30
49. Patterson Lane	Newington	No Project Visibility	

[58] Although the line does cross the river, it is not at a point where the general public navigates or can access the river. There will be no visibility from other locations along the river based on site visit and 3D modeling.

[59] "Public waters in New Hampshire are prescribed by common law as great ponds (natural waterbodies of 10 acres or more in size), public rivers and streams, and tidal waters. These common law public waters are held by the State in trust for the people of New Hampshire. The State holds the land underlying great ponds and tidal waters (including tidal rivers) in trust for the people of New Hampshire…Public waters include artificial impoundments of 10 acres or more in size…" *NH Official List of Public Waters Revision Date January 17, 2014*, New Hampshire Department of Environmental Services Water Division Dam Bureau (pg. 2)

TABLE 2. SCENIC RESOURCES WITHIN AREA OF 'GREATEST' POTENTIAL VISUAL IMPACT

Resource	Town	Nearest Distance to Project[54]	# of Structures Potentially Visible[55]
50. Piscataqua Drive	Newington	.25 miles	0 to 45
51. River Road	Newington	No Project Visibility	
52. Shattuck Way	Newington	No Project Visibility	
53. Swan Island Lane	Newington	No Project Visibility	
54. Welsh Cove	Newington	.15 miles	0 to 45
55. Airline Drive	Portsmouth	No Project Visibility	
56. Gosling Road	Portsmouth	No Project Visibility	
57. International Drive	Portsmouth	No Project Visibility	
58. New Hampshire Avenue	Portsmouth	No Project Visibility	
59. Wedgewood Road	Portsmouth	No Project Visibility	
60. Windsor Road	Portsmouth	No Project Visibility	
Locally Identified Scenic Vistas, Viewsheds or Resources			
61. Views of the Oyster River from New Market Road	Durham	No Project Visibility	
62. Views of the Bedard Farm from New Market Road	Durham	No Project Visibility	
63. View toward Mill Pond Center from New Market Road	Durham	No Project Visibility	
64. Views of the Cutter Farm from New Market Road	Durham	No Project Visibility	
65. Views of the LaRoche Farm from New Market Road	Durham	No Project Visibility[60]	
66. Views of the Lamprey River from New Market Road	Durham	No Project Visibility[61]	
67. Views of the LaRoche Farm from Bennett Road	Durham	No Project Visibility	
68. Views of the Lamprey River from Bennett Road	Durham	No Project Visibility	
69. Views of the Highland Farm from Bennett Road	Durham	No Project Visibility	
70. Views of Johnson Creek from Route 4	Durham	No Project Visibility	
71. Views of Bunker Creek from Route 4	Durham	No Project Visibility	
72. Views of Emery Farm Fields from Route 4	Durham	No Project Visibility	
73. Views at Cedar Point/Black River Roads from Route 4	Durham	1.57 miles	0 to 30
74. Views at Durham Business Park from Route 4	Durham	No Project Visibility	
75. Views from Scammell Bridge from Route 4	Durham	2.00 miles	0 to 60

[60] No visibility determined after site visit and review of aerial photography and 3D modeling.
[61] No visibility determined after site visit and review of aerial photography and 3D modeling.

TABLE 2. SCENIC RESOURCES WITHIN AREA OF 'GREATEST' POTENTIAL VISUAL IMPACT

Resource	Town	Nearest Distance to Project[54]	# of Structures Potentially Visible[55]
76. Views of Wagon Hill Farm from Route 4	Durham	No Project Visibility[62]	
77. View of Mill Pond from Mill Pond Road	Durham	No Project Visibility	
78. View at Horsehide Brook from Durham Point Road	Durham	No Project Visibility	
79. View across from Colony Cove Road from Durham Point Road	Durham	No Project Visibility[63]	
80. View north side of "Crombie Curve" from Durham Point Road	Durham	No Project Visibility	
81. Views at Crommet Ceek from Durham Point Road	Durham	No Project Visibility	
82. View toward the Bay at 540 Bay Road	Durham	No Project Visibility	
83. Views of Thompson Farm from Packers Falls Road	Durham	No Project Visibility	
84. View north side of Wiswall Road from Packers Falls Road	Durham	No Project Visibility	
85. View of Fogg Farm from Mill and Packers Falls Road	Durham	No Project Visibility	
86. Views of Tecce Farm from Mast Road	Durham	No Project Visibility[64]	
87. Views of UNH Farm Fields from Mast Road	Durham	No Project Visibility	
88. Views toward Bellamy River from Black River Road	Durham	No Project Visibility[65]	
89. Views of Beards Creek/Oyster River from Dover Road	Durham	No Project Visibility	
90. View of Oyster River from Old Landing Road	Durham	No Project Visibility	
91. View of UNH Horse Barns from Main Street	Durham	No Project Visibility	
92. View of College Brook from Main Street	Durham	No Project Visibility	
93. View of Bay from Adams Point Road	Durham	No Project Visibility	
94. Views to the north and from Langley Road	Durham	No Project Visibility	
Covered Bridges Maintained by Local or Non-Government Groups			
NONE			
Non-Motorized Trails in Conserved or Public Lands (other than state or national) or as Locally Identified			
95. Sweet Trail	Durham, Newmarket	No Project Visibility	

[62] No visibility determined after site visit and review of aerial photography and 3D modeling.
[63] No visibility determined after site visit and review of aerial photography and 3D modeling.
[64] No visibility determined after site visit and review of aerial photography and 3D modeling.
[65] Views are away from the project.

TABLE 2. SCENIC RESOURCES WITHIN AREA OF 'GREATEST' POTENTIAL VISUAL IMPACT

Resource	Town	Nearest Distance to Project[54]	# of Structures Potentially Visible[55]
96. Madbury Town Trails	Madbury	No Project Visibility	
Public Parks and Recreational and Gathering Areas (such as village greens, local parks, picnic areas or day use areas)			
97. Bellamy Park	Dover	No Project Visibility	
98. Spruce Lane Park	Dover	No Project Visibility	
99. Cedar Point	Durham	1.9 miles	0 to 75
100. Jackson Landing Recreation Area	Durham	No Project Visibilty[66]	
101. Oyster River Park	Durham	No Project Visibility	
102. Wiswall Falls Park	Durham	No Project Visibility	
103. Woodridge Recreation Area (Father Lawless Park)	Durham	No Project Visibility	
104. Demerritt (Madbury Town) Park	Madbury	No Project Visibility	
105. Hayes Hill Playground	Madbury	No Project Visibility	
106. Carter Rock & Picnic Area	Newington	No Project Visibility	
107. Fox Point	Newington	1.27 miles	0 to 30
108. Town Forest and Picnic Grove	Newington	No Project Visibility	
109. Leo Landroche Field	Newmarket	No Project Visibility	
110. Piscassic Street Park	Newmarket	No Project Visibility	
111. Trotter Park	Newmarket	No Project Visibility	
112. Albacore Park	Portsmouth	No Project Visibility	
113. Aldrich Park	Portsmouth	No Project Visibility	
114. Big Rock Park	Portsmouth	No Project Visibility	
115. Cater Park	Portsmouth	No Project Visibility	
116. Clough Field	Portsmouth	No Project Visibility	
117. Court Street Park	Portsmouth	No Project Visibility	
118. Daniel Street Pocket Park	Portsmouth	No Project Visibility	
119. Four Tree Island Park	Portsmouth	2.307 miles	0 to 15
120. Goodwin Park	Portsmouth	No Project Visibility	
121. Hanscom Park	Portsmouth	No Project Visibility	
122. Haven Park	Portsmouth	No Project Visibility	
123. Hislop Park	Portsmouth	No Project Visibility	
124. Jones Avenue Recreation Area	Portsmouth	No Project Visibility	
125. Lafayette Playground	Portsmouth	No Project Visibility	
126. Langdon Park	Portsmouth	No Project Visibility	
127. Leary Field	Portsmouth	No Project Visibility	
128. McDonough Street Neighborhood Park & Playground	Portsmouth	No Project Visibility	
129. Pannaway Playground	Portsmouth	No Project Visibility	
130. Pierce Island	Portsmouth	No Project Visibility	

[66] No visibility determined after site visit and review of aerial photography and 3D modeling.

TABLE 2. SCENIC RESOURCES WITHIN AREA OF 'GREATEST' POTENTIAL VISUAL IMPACT

Resource	Town	Nearest Distance to Project[54]	# of Structures Potentially Visible[55]
131. Pine Street Playground	Portsmouth	No Project Visibility	
132. Portsmouth Plains Playground	Portsmouth	No Project Visibility	
133. Prescott Park	Portsmouth	No Project Visibility	
134. South Mill Pond Playground	Portsmouth	No Project Visibility	
135. South Street Playground	Portsmouth	No Project Visibility	
Public Waters with Designated Local Access Areas (i.e. town beaches or boat launches)			
136. Mill Pond	Durham	No Project Visibility[67]	
137. Barbadoes Pond	Madbury	No Project Visibility	
138. Bellamy Reservoir	Madbury	No Project Visibility	
139. Hoyt Pond	Madbury	No Project Visibility	
140. North Mill Pond	Portsmouth	No Project Visibility	
Conserved Lands (other than state or national) with a Specific Public Use or Scenic Resource Component			
141. Bellamy River Wildlife Sanctuary	Dover	No Project Visibility	
142. Burley-Demeritt Farm - UNH	Durham	No Project Visibility	
143. College Woods - UNH	Durham	No Project Visibility	
144. Davis Park - UNH	Durham, Lee	No Project Visibility	
145. Doe Farm and Moat Island	Durham	No Project Visibility	
146. Dudley Lot - UNH	Durham	No Project Visibility	
147. East Foss Farm - UNH	Durham	No Project Visibility	
148. Johnson and Bunker Creeks	Durham, Madbury	No Project Visibility[68]	
149. Linn Ponds	Durham	No Project Visibility	
150. Longmarsh Preserve	Durham	0 miles	0 to 30
151. Macdonald Lot – UNH	Durham	No Project Visibility	
152. Old Town Landing	Durham	No Project Visibility	
153. Old Reservoir - UNH	Durham	No Project Visibility[69]	
154. Packer's Falls	Durham	No Project Visibility	
155. Stolworthy Wildlife Sanctuary	Durham	No Project Visibility	
156. Thompson Farm - UNH	Durham	No Project Visibility	
157. Wagon Hill Farm	Durham	.816 miles	0 to 75
158. Weeks Property	Durham	No Project Visibility	
159. West Foss Farm - UNH	Durham	0 miles	0 to 30
160. Great Bay Farms	Greenland, Newington	No Project Visibility[70]	
161. Ford Wildlife Sanctuary	Lee	No Project Visibility	
162. Garrity Reserve	Lee	No Project Visibility	
163. James Farm	Lee	No Project Visibility	

[67] No visibility determined after site visit and review of aerial photography and 3D modeling.
[68] No visibility determined after site visit and review of aerial photography and 3D modeling.
[69] No visibility determined after site visit and review of aerial photography and 3D modeling.
[70] No visibility determined after site visit and review of aerial photography and 3D modeling.

TABLE 2. SCENIC RESOURCES WITHIN AREA OF 'GREATEST' POTENTIAL VISUAL IMPACT

Resource	Town	Nearest Distance to Project[54]	# of Structures Potentially Visible[55]
164. Lee Five Corners Reserve	Lee	No Project Visibility	
165. Maud Jones Memorial Forest	Lee	No Project Visibility	
166. Old Mill Reserve	Lee	No Project Visibility	
167. Bolstridge (Madbury) Forest	Madbury	No Project Visibility	
168. Fernway Property	Madbury	No Project Visibility	
169. Hayes Farm Conservation Easement	Madbury	No Project Visibility	
170. Hicks Hill	Madbury	No Project Visibility	
171. Hoyt Pond Conservation/Recreation Area	Madbury	No Project Visibility	
172. Kingman Farm - UNH	Madbury	No Project Visibility[71]	
173. Pudding Hill Landfill and Town Forest	Madbury	No Project Visibility	
174. Crommet & Lubberland Creek Preserve	Newmarket	No Project Visibility	
175. Follets Brook Conservation Area	Newmarket	No Project Visibility	
176. Heron Point Sanctuary	Newmarket	No Project Visibility	
177. Riverbend Environmental Education Area	Newmarket	No Project Visibility	
Other resources with a Public Use or Recreational Opportunity (e.g. waterfalls, visitor centers) or other Unique or Outstanding Resource			
178. University of New Hampshire (UNH) Campus	Durham	0 miles	0 to >75

TABLE 3. SCENIC RESOURCES WITH POTENTIAL VISIBILITY WITHIN 3-10 MILE AREA OF POTENTIAL VISUAL IMPACT

Resource	Town	Nearest Distance to Project[72]	# of Structures Potentially Visible[73]
NATIONAL RESOURCES			
National Historic Sites			
179. Garrison Hill Park & Tower	Dover	4.5 miles	0 to >75[74]
Other Federal Lands with a Specific Public Use or Scenic Resource Component (e.g. U.S. Army Corps of Engineers, Bureau of Land Management)			
180. Great Bay National Estuarine Research Reserve	Greenland	4.2 miles	0 to >75

[71] No visibility determined after site visit and review of aerial photography and 3D modeling. No visibility from UNH approved trails.
[72] Measurements are approximate.
[73] Visibility based on Exhibits 1 and 2: Viewshed Maps, as well as field visit and/or 3D modeling, as noted.
[74] Visibility is only from the observation tower – the Project is not visible from the park on the ground

TABLE 3. SCENIC RESOURCES WITH POTENTIAL VISIBILITY WITHIN 3-10 MILE AREA OF POTENTIAL VISUAL IMPACT

Resource	Town	Nearest Distance to Project[72]	# of Structures Potentially Visible[73]
LOCAL RESOURCES			
Locally Identified Scenic Vistas, Viewsheds or Resources			
181. Stratham Hill Fire Tower	Stratham	5.3 miles	0 to >75

B. Identification of Sensitive Scenic Resources

The next step in the screening and analysis process is to determine each of the resources' visual sensitivity. Typically, the lower its visual sensitivity, the higher its ability to accept change. Each resource identified as scenic in Section 4.A above and with potential visibility, is evaluated for its visual sensitivity based on two distinct categories:

1. ***Cultural Designation*** – how a resource has been valued by the public through official designation (e.g. conserved) or advertisement
2. ***Scenic Quality*** - the character and features of a resource that make it scenic

Of the all the scenic resources identified, only 30 have potential visibility of the Project, which are listed in Table 4 below.

TABLE 4. RESOURCES WITH POTENTIAL VISIBILITY

RESOURCE WITH POTENTIAL VISIBILITY	NEAREST DISTANCE TO PROJECT	# OF STRUCTURES POTENTIALLY VISIBLE
1. Newington Center Historic District (#1)	0 miles	0 to 60
2. Great Bay National Wildlife Refuge (#12)	.251 miles	0 to 75
3. Adams Point WMA (#15)	.75 miles	0 to 15
4. Mills Scenic Byway (#17)	0 miles	0 to 60
5. Little Bay (#23)	.078 miles	0 to 30
6. Great Bay (#25)	.61 miles	0 to 30
7. Bennett Road (#27)	.04 miles	0 to 15
8. Durham Point Road (#29)	0 miles	0 to 60
9. Brickyard Way (#36)	.158 miles	0 to 5
10. Fox Point Road (#41)	0 miles	0 to 30
11. Gundalow Landing (#42)	.018 miles	0 to 15
12. Hannah Lane (#43)	.026 miles	0 to >75
13. Little Bay Extension (#44)	.17 miles	0 to 15
14. Little Bay Road (#45)	.005 miles	0 to 60
15. Old Dover Road (#47)	.23 miles	0 to 30
16. Old Post Road (#48)	0 miles	0 to 30
17. Piscataqua Drive (#50)	.25 miles	0 to 45
18. Welsh Cove (#54)	.15 miles	0 to 45
19. Views at Cedar Point/Black River Roads from Route 4 (#73)	1.57 miles	0 to 30
20. Views from Scammell Bridge from Route 4 (#75)	2.00 miles	0 to 60

TABLE 4. RESOURCES WITH POTENTIAL VISIBILITY

RESOURCE WITH POTENTIAL VISIBILITY	NEAREST DISTANCE TO PROJECT	# OF STRUCTURES POTENTIALLY VISIBLE
21. Cedar Point (#99)	1.9 miles	0 to 75
22. Fox Point (#107)	1.27 miles	0 to 30
23. Four Tree Island Park (#119)	2.307 miles	0 to 15
24. Longmarsh Preserve (#150)	0 miles	0 to 30
25. Wagon Hill Farm (#157)	.816 miles	0 to 75
26. West Foss Farm – UNH (#159)	0 miles	0 to 30
27. UNH Campus (#178)	0 miles	0 to >75
28. Garrison Hill Park & Tower (#179)	4.5 miles	0 to >75
29. Great Bay National Estuarine Research Reserve (#180)	4.2 miles	0 to 15
30. Stratham Hill Fire Tower (#181)	5.3 miles	0 to >75

1. CULTURAL DESIGNATION

This indicator considers the local, regional, statewide or national cultural significance of a particular resource, often indicated by formal designation, ownership or inclusion in a current or recent community (or official) planning document that recognizes its cultural, natural resource, recreational, or scenic value. Ratings are given to those resources identified as having potential visibility, as indicated in Table 4 above. Ratings for cultural designation were determined as follows:

- **Low:** Local, quasi-public and private conserved or designated resources that are identified primarily for values other than purely scenic (e.g. forest or wildlife management). Examples include town greens, town/community forests, playgrounds and recreational fields, public waters with locally maintained access (i.e. town beach), or private conserved lands with public access. Also includes non-motorized trails in conserved or public lands (other than state or national) or as locally identified. The rating for a trail or other local resource can be elevated to moderate if it is found on regional or state websites, or identified in several guidebooks. A low rating would also include resources that are mentioned on local/town websites for their local interest or recreational value, but not typically found in guidebooks appealing to or used by a wider potential user or interest group.
- **Moderate:** State or federal resources that have been conserved or designated primarily for purposes or values other than purely scenic. State parks, forests or wildlife management areas, national wildlife refuges, public waters with NH Fish and Game access are examples of resources considered for a moderate cultural value rating. Also includes non-motorized trails in New Hampshire's State Parks, Forests and Recreational Rail Trails. Resources that are found on regional websites for their scenic/recreational values, but may not be in a guidebook are also considered moderate.
- **High:** Resources that have been conserved or designated because scenery and scenic quality are ***primary*** to their value. National parks, National trails (e.g. Appalachian Trail), state scenic byways, state parks, and scenic easements are examples of resources with a high cultural value rating. Also includes non-motorized trails in National Parks and Forests or other National Park System areas. Local community resources (e.g. scenic roads, scenic vistas) that are specifically identified in a comprehensive plan or other regulatory document because of their scenic value would warrant a high rating, as would a resource that is highly advertised in multiple guidebooks, websites, and brochures for its scenic value.

In addition to reviewing relevant municipal and regional planning documents, sixteen (16) different guidebooks, books, and websites of statewide and national appeal were evaluated to see if any of the 30 resources were referenced or identified as possible destinations. The results of this research are shown in Table 5 that follows.

TABLE 5. INVENTORY OF SOURCES OF STATEWIDE OR NATIONAL APPEAL

RESOURCE	BOOKS/PUBLICATIONS										WEBSITES								
	Flyfisher's Guide to Northern New England	Quiet Water NH & VT, 2nd ed.	Fodor's ME, VT, & NH	Southern New Hampshire Trail Guide 3rd Edition	New Hampshire: An Explorer's Guide, 7th ed.	Hiking NH-2nd ed.	NH Hiking	Off the Beaten Path NH	The Wildlife of New England	Total books the resource was mentioned in	U.S. National Park Service Website	U.S. DOT National Scenic Byways Website	NH DOT Scenic and Cultural Byways Website	Visit NH Website	NH Parks and Recreation Website	NH Fish and Game Website	NH Division of Forest and Lands Website	Total websites the resource was mentioned in	**TOTAL**
	Resources mentioned: yes (y), no (n)																		
1. Newington Center Historic District (#1)	n	n	n	n	n	n	n	n	n	0	y[75]	n	n	n	n	n	n	1	**1**
2. Great Bay National Wildlife Refuge (#12)	n	n	n	y[76]	y[77]	y[78]	n	n	y[79]	4	n	y[80]	n	n	n	n	y[81]	2	**6**
3. Adams Point WMA (#15)	n	y[82]	n	y[83]	y[84]	y[85]	n	y[86]	y[87]	6	n	n	n	n	n	y[88]	n	1	**7**

[75] http://focus.nps.gov/AssetDetail/NRIS/87002106, http://focus.nps.gov/AssetDetail/NRIS/91000665
[76] Pg. 224
[77] pg. 87
[78] pg. 25-27
[79] pg. 130
[80] http://www.efl.fhwa.dot.gov/files/programs/tip/EFLHD-DRAFT-TIP_FY-2015-2018.pdf
[81] http://www.nhdfl.org/about-forests-and-lands/bureaus/natural-heritage-bureau/photo-index/intertidal-rocky-shore.aspx
[82] Pg. 62
[83] pg. 225
[84] pg. 87
[85] pg. 23, 24, 27
[86] pg. 21
[87] pg. 131
[88] http://www.wildnh.com/marine/coastal_access.html

TABLE 5. INVENTORY OF SOURCES OF STATEWIDE OR NATIONAL APPEAL

	BOOKS/PUBLICATIONS										WEBSITES								
RESOURCE	Flyfisher's Guide to Northern New England	Quiet Water NH & VT, 2nd ed.	Fodor's ME, VT, & NH	Southern New Hampshire Trail Guide 3rd Edition	New Hampshire: An Explorer's Guide, 7th ed.	Hiking NH-2nd ed.	NH Hiking	Off the Beaten Path NH	The Wildlife of New England	Total books the resource was mentioned in	U.S. National Park Service Website	U.S. DOT National Scenic Byways Website	NH DOT Scenic and Cultural Byways Website	Visit NH Website	NH Parks and Recreation Website	NH Fish and Game Website	NH Division of Forest and Lands Website	Total websites the resource was mentioned in	TOTAL
	Resources mentioned: yes (y), no (n)																		
4. Mills Scenic Byway (#17)	n	n	n	n	n	n	n	n	n	0	n	n	y[89]	n	n	n	n	1	1
5. Little Bay (#23)	n	y[90]	n	n	n	y[91]	n	y[92]	n	3	n	n	y[93]	n	n	y[94]	y[95]	3	6
6. Great Bay (#25)	y[96]	y[97]	n	y[98]	n	y[99]	y[100]	y[101]	y[102]	7	n	y[103]	y[104]	n	n	y[105]	y[106]	4	11
7. Bennett Road (#27)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	0

[89] http://www.nh.gov/dot/media/2014/pr-2014-05-12-scenic-culteral-byways.htm
[90] pg. 59
[91] pg. 24, 27
[92] pg. 20
[93] http://www.nh.gov/dot/programs/scbp/
[94] http://www.wildnh.com/Newsroom/News_2008/News_2008_Q2/Kayak_GB_060908.htm
[95] http://www.nhdfl.org/library/pdf/Natural%20Heritage/BellamyRiverMarshes3.pdf
[96] pg. 141
[97] Pg. 59
[98] pg. 222, 224-229, 246
[99] pg. 18, 21-27
[100] pg. 121
[101] pg. 20
[102] pg. 129
[103] www.fhwa.dot.gov/.../climate_change/adaptation/adaptation_framework/resources/resources.cfm?tagid=103
[104] http://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/bridge_book_stratham.pdf
[105] http://www.wildnh.com/Newsroom/News_2009/News_2009_Q2/kayak_tours_GB_060909.html
[106] http://www.nhdfl.org/library/pdf/Natural%20Heritage/GreatBay2.pdf

TABLE 5. INVENTORY OF SOURCES OF STATEWIDE OR NATIONAL APPEAL

RESOURCE	BOOKS/PUBLICATIONS										WEBSITES								
	Flyfisher's Guide to Northern New England	Quiet Water NH & VT, 2nd ed.	Fodor's ME, VT, & NH	Southern New Hampshire Trail Guide 3rd Edition	New Hampshire: An Explorer's Guide, 7th ed.	Hiking NH-2nd ed.	NH Hiking	Off the Beaten Path NH	The Wildlife of New England	Total books the resource was mentioned in	U.S. National Park Service Website	U.S. DOT National Scenic Byways Website	NH DOT Scenic and Cultural Byways Website	Visit NH Website	NH Parks and Recreation Website	NH Fish and Game Website	NH Division of Forest and Lands Website	Total websites the resource was mentioned in	TOTAL
	Resources mentioned: yes (y), no (n)																		
8. Durham Point Road (#29)	n	n	n	y[107]	n	y[108]	n	y[109]	n	3	n	n	n	n	n	y[110]	n	1	4
9. Brickyard Way (#36)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	0
10. Fox Point Road (#41)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	0
11. Gundalow Landing (#42)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	0
12. Hannah Lane (#43)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	0
13. Little Bay Extension (#44)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	0
14. Little Bay Road (#45)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	0
15. Old Dover Road (#47)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	0
16. Old Post Road (#48)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	0
17. Piscataqua Drive (#50)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	y[111]	n	1	1
18. Welsh Cove (#54)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	0

[107] pg. 225, 227
[108] pg. 23
[109] pg. 21
[110] http://www.wildnh.com/marine/coastal_access.html
[111] http://www.wildnh.com/marine/coastal_access.html

TABLE 5. INVENTORY OF SOURCES OF STATEWIDE OR NATIONAL APPEAL

RESOURCE	BOOKS/PUBLICATIONS										WEBSITES								
	Flyfisher's Guide to Northern New England	Quiet Water NH & VT, 2nd ed.	Fodor's ME, VT, & NH	Southern New Hampshire Trail Guide 3rd Edition	New Hampshire: An Explorer's Guide, 7th ed.	Hiking NH-2nd ed.	NH Hiking	Off the Beaten Path NH	The Wildlife of New England	Total books the resource was mentioned in	U.S. National Park Service Website	U.S. DOT National Scenic Byways Website	NH DOT Scenic and Cultural Byways Website	Visit NH Website	NH Parks and Recreation Website	NH Fish and Game Website	NH Division of Forest and Lands Website	Total websites the resource was mentioned in	**TOTAL**
	Resources mentioned: yes (y), no (n)																		
19. Views at Cedar Point/Black River Roads from Route 4 (#73)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	**0**
20. Views from Scammell Bridge from Route 4 (#75)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	y[112]	n	1	**1**
21. Cedar Point (#99)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	**0**
22. Fox Point (#107)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	y[113]	n	1	**1**
23. Four Tree Island Park (#119)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	**0**
24. Longmarsh Preserve (#150)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	**0**
25. Wagon Hill Farm (#157)	n	n	y[114]	n	n	n	n	n	n	1	n	n	n	n	n	y[115]	y[116]	2	**3**
26. West Foss Farm – UNH (#159)	n	n	n	n	n	n	n	n	n	0	n	n	n	n	n	n	n	0	**0**

[112] http://www.wildnh.com/Fishing/Fishing_Reports/2011/060211.html
[113] http://www.wildnh.com/Newsroom/News_2012/Q3/kayak_tours.html
[114] pg. 160
[115] http://www.wildnh.com/Newsroom/News_2012/Q3/kayak_tours.html
[116] http://www.nhdfl.org/about-forests-and-lands/bureaus/natural-heritage-bureau/photo-index/saline-brackish-intertidal-flat.aspx

TABLE 5. INVENTORY OF SOURCES OF STATEWIDE OR NATIONAL APPEAL

RESOURCE	BOOKS/PUBLICATIONS										WEBSITES									
	Flyfisher's Guide to Northern New England	Quiet Water NH & VT, 2nd ed.	Fodor's ME, VT, & NH	Southern New Hampshire Trail Guide 3rd Edition	New Hampshire: An Explorer's Guide, 7th ed.	Hiking NH-2nd ed.	NH Hiking	Off the Beaten Path NH	The Wildlife of New England	Total books the resource was mentioned in	U.S. National Park Service Website	U.S. DOT National Scenic Byways Website	NH DOT Scenic and Cultural Byways Website	Visit NH Website	NH Parks and Recreation Website	NH Fish and Game Website	NH Division of Forest and Lands Website	Total websites the resource was mentioned in	TOTAL
	Resources mentioned: yes (y), no (n)																			
27. UNH Campus (#178)	n	n	y[117]	n	y[118]	n	n	y[119]	n	3	n	n	n	n	n	n	n	0	3
28. Garrison Hill Park & Tower (#179)	n	n	n	n	n	n	n	n	n	0	y[120]	n	n	n	n	n	n	1	1
29. Great Bay National Estuarine Research Reserve (#180)	n	y[121]	y[122]	y[123]	y[124]	y[125]	y[126]	y[127]	y[128]	8	n	n	n	n	n	n	n	0	8
30. Stratham Hill Fire Tower (#181)	n	n	n	y[129]	n	n	n	n	n	1	n	n	n	n	n	y[130]	n	1	2

[117] pg. 157
[118] pg. 84
[119] pg. 21
[120] http://focus.nps.gov/pdfhost/docs/NRHP/Text/87001413.pdf
[121] pg. 59
[122] pg. 148
[123] pg. 224
[124] pg. 75
[125] pg. 21
[126] pg. 121
[127] pg. 21
[128] pg. 130
[129] pg. 223
[130] http://www.wildlife.state.nh.us/maps/topo/images/Photo_169SE.pdf

TABLE 6. CULTURAL DESIGNATION RATINGS

RESOURCE WITH POTENTIAL VISIBILITY	DESIGNATION/OWNERSHIP/ MANAGEMENT	CULTURAL DESIGNATION RATING
1. Newington Center Historic District (#1)	NATIONAL (National Park Service) HISTORIC SITE POSSESSING INTEGRITY OF SETTING	HIGH
2. Great Bay National Wildlife Refuge (#12)	NATIONAL (U.S. Fish & Wildlife Service) NO SCENIC DESIGNATION	MODERATE
3. Adams Point WMA (#15)	STATE (NH Fish & Game Department) NO SCENIC DESIGNATION	MODERATE
4. Mills Scenic Byway (#17)	STATE (NH Department of Transportation, Bureau of Planning and Community Assistance) SCENIC & CULTURAL BYWAY	HIGH
5. Little Bay (#23)	STATE (NH Fish & Game Department - Several public access sites) NO SCENIC DESIGNATION	MODERATE
6. Great Bay (#25)	STATE (NH Fish & Game Department - Several public access sites) NO SCENIC DESIGNATION	MODERATE
7. Bennett Road (#27)	LOCAL (Town of Durham) SCENIC ROAD	HIGH
8. Durham Point Road (#29)	LOCAL (Town of Durham) SCENIC ROAD	HIGH
9. Brickyard Way (#36)	LOCAL (Town of Newington) SCENIC ROAD	HIGH
10. Fox Point Road (#41)	LOCAL (Town of Newington) SCENIC ROAD	HIGH
11. Gundalow Landing (#42)	LOCAL (Town of Newington) SCENIC ROAD	HIGH
12. Hannah Lane (#43)	LOCAL (Town of Newington) SCENIC ROAD	HIGH
13. Little Bay Extension (#44)	LOCAL (Town of Newington) SCENIC ROAD	HIGH
14. Little Bay Road (#45)	LOCAL (Town of Newington) SCENIC ROAD	HIGH
15. Old Dover Road (#47)	LOCAL (Town of Newington) SCENIC ROAD	HIGH
16. Old Post Road (#48)	LOCAL (Town of Newington) SCENIC ROAD	HIGH
17. Piscataqua Drive (#50)	LOCAL (Town of Newington) SCENIC ROAD	HIGH
18. Welsh Cove (#54)	LOCAL (Town of Newington) SCENIC ROAD	HIGH
19. Views at Cedar Point/Black River Roads from Route 4 (#73)	LOCAL (Town of Durham) SCENIC VIEWSHED	HIGH
20. Views from Scammell Bridge from Route 4 (#75)	LOCAL (Town of Durham) SCENIC VIEWSHED	HIGH
21. Cedar Point (#99)	LOCAL (Town of Durham) NO SCENIC DESIGNATION	LOW
22. Fox Point (#107)	LOCAL (Town of Newington) SCENIC VISTAS	HIGH

TABLE 6. CULTURAL DESIGNATION RATINGS

RESOURCE WITH POTENTIAL VISIBILITY	DESIGNATION/OWNERSHIP/ MANAGEMENT	CULTURAL DESIGNATION RATING
23. Four Tree Island Park (#119)	LOCAL (City of Portsmouth) NO SCENIC DESIGNATION	LOW
24. Longmarsh Preserve (#150)	LOCAL (Town of Durham) NO SCENIC DESIGNATION	LOW
25. Wagon Hill Farm (#157)	LOCAL (Town of Durham) SCENIC VISTAS	HIGH
26. West Foss Farm – UNH (#159)	STATE (University of New Hampshire) NO SCENIC DESIGNATION	MODERATE
27. UNH Campus (#178)	STATE (University of New Hampshire) NO SCENIC DESIGNATION	HIGH*
28. Garrison Hill Park & Tower (#179)	NATIONAL & LOCAL (National Park Service and Town of Dover) HISTORIC SITE POSSESSING INTEGRITY OF SETTING/SCENIC VISTAS	HIGH
29. Great Bay National Estuarine Research Reserve (#180)	NATIONAL & STATE (NOAA and NH Fish and Game Department) NO SCENIC DESIGNATION	MODERATE
30. Stratham Hill Fire Tower (#181)	LOCAL (Town of Stratham) SCENIC VISTAS	HIGH

* Due to its importance to the community, as well as the state, for its cultural and historic value, its aesthetic appeal as New Hampshire's flagship public university, and its traditional New England campus, UNH is elevated to a 'High' rating.

2. SCENIC QUALITY

This indicator considers the scenic quality of the resource to help determine its sensitivity to alteration. Using the BLM Scenic Inventory and Evaluation Chart as a reference, each of the resources identified as having potential visibility in Tables 2 and 3 were visited and assessed to determine their scenic quality rating. Each resource is evaluated using the seven rating criteria listed in the Chart (landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications) and given a score. The total scores for each resource are calculated and assigned one of three ratings based on the total points:

- **Low**: Resource has features that are fairly common to the physiographic region (11 or less points)
- **Moderate**: Resource has a combination of some outstanding features and some that are fairly common to the physiographic region (12-18 points)
- **High**: Resource combines the most outstanding characteristics of each rating factor (19-32 points)

TABLE 6. SCENIC QUALITY RATINGS

RESOURCE WITH POTENTIAL VISIBILITY	SCENIC VALUE CRITERIA								SCENIC QUALITY RATING
	(a) Landform	(b) Vegetation	(c) Water	(d) Color	(e) Adjacent Scenery	(f) Scarcity	(g) Cultural Modification	TOTAL SCORE	
1. Newington Center Historic District (#1)	1	2	0	3	1	2	1	10	LOW
2. Great Bay National Wildlife Refuge (#12)	3	3	4	3	3	3	0	19	HIGH
3. Adams Point WMA (#15)	2	3	4	3	3	3	-1	17	MODERATE
4. Mills Scenic Byway (#17)	2	1	2	2	1	1	0	9	LOW
5. Little Bay (#23)	2	3	4	3	3	2	0	17	MODERATE
6. Great Bay (#25)	2	3	4	3	3	2	0	17	MODERATE
7. Bennett Road (#27)	1	2	0	2	2	1	-1	7	LOW
8. Durham Point Road (#29)	2	3	0	2	2	1	0	10	LOW
9. Brickyard Way (#36)	1	3	1	2	1	1	-3	6	LOW
10. Fox Point Road (#41)	2	2	1	2	2	1	-1	9	LOW
11. Gundalow Landing (#42)	1	3	1	2	1	1	-3	6	LOW
12. Hannah Lane (#43)	1	2	0	2	1	1	-2	5	LOW
13. Little Bay Extension (#44)	1	2	0	2	2	1	-2	6	LOW
14. Little Bay Road (#45)	2	2	1	2	3	2	0	12	MODERATE
15. Old Dover Road (#47)	1	1	0	1	1	1	-4	1	LOW
16. Old Post Road (#48)	2	2	0	2	3	2	0	11	LOW
17. Piscataqua Drive (#50)	1	1	0	1	1	1	-4	1	LOW
18. Welsh Cove (#54)	1	2	1	2	1	1	-1	7	LOW
19. Views at Cedar Point/Black River Roads from Route 4 (#73)	3	1	4	3	3	3	0	17	MODERATE
20. Views from Scammell Bridge from Route 4 (#75)	2	2	4	4	2	2	-1	15	MODERATE
21. Cedar Point (#99)	2	2	4	4	2	1	-2	13	MODERATE
22. Fox Point (#107)	3	3	4	3	3	3	0	19	HIGH
23. Four Tree Island Park (#119)	2	1	3	3	3	2	-3	11	LOW
24. Longmarsh Preserve (#150)	2	2	3	3	1	1	0	12	LOW
25. Wagon Hill Farm (#157)	3	3	3	4	3	2	0	18	MODERATE
26. West Foss Farm – UNH (#159)	2	3	0	2	1	1	-2	7	LOW
27. UNH Campus (#178)	2	4	0	2	1	3	2	14	MODERATE
28. Garrison Hill Park & Tower (#179)	1	2	0	2	3	3	1	12	MODERATE
29. Great Bay National Estuarine Research Reserve (#180)	3	3	4	3	2	3	0	18	MODERATE
30. Stratham Hill Fire Tower (#181)	2	2	3	2	3	3	-1	14	MODERATE

3. OVERALL SENSITIVITY RATING

The ratings for Cultural Designation and Scenic Quality for each resource are combined in the table below to obtain an Overall Sensitivity Level rating. Of the 30 resources identified as having potential visibility, 9 have a rating of Moderate-High or High and are therefore considered sensitive to visual change.

TABLE 7. OVERALL SENSITIVITY RATINGS

RESOURCE WITH POTENTIAL VISIBILITY	CULTURAL DESIGNATION RATING	SCENIC QUALITY RATING	OVERALL SENSITIVITY RATING[131]
1. Newington Center Historic District (#1)	HIGH	LOW	MODERATE
2. Great Bay National Wildlife Refuge (#12)	MODERATE	HIGH	MODERATE-HIGH
3. Adams Point WMA (#15)	MODERATE	MODERATE	MODERATE
4. Mills Scenic Byway (#17)	HIGH	LOW	MODERATE
5. Little Bay (#23)	MODERATE	MODERATE	MODERATE
6. Great Bay (#25)	MODERATE	MODERATE	MODERATE
7. Bennett Road (#27)	HIGH	LOW	MODERATE
8. Durham Point Road (#29)	HIGH	LOW	MODERATE
9. Brickyard Way (#36)	HIGH	LOW	MODERATE
10. Fox Point Road (#41)	HIGH	LOW	MODERATE
11. Gundalow Landing (#42)	HIGH	LOW	MODERATE
12. Hannah Lane (#43)	HIGH	LOW	MODERATE
13. Little Bay Extension (#44)	HIGH	LOW	MODERATE
14. Little Bay Road (#45)	HIGH	MODERATE	MODERATE-HIGH
15. Old Dover Road (#47)	HIGH	LOW	MODERATE
16. Old Post Road (#48)	HIGH	LOW	MODERATE
17. Piscataqua Drive (#50)	HIGH	LOW	MODERATE
18. Welsh Cove (#54)	HIGH	LOW	MODERATE
19. Views at Cedar Point/Black River Roads from Route 4 (#73)	HIGH	MODERATE	MODERATE-HIGH
20. Views from Scammell Bridge from Route 4 (#75)	HIGH	MODERATE	MODERATE-HIGH
21. Cedar Point (#99)	LOW	MODERATE	LOW-MODERATE
22. Fox Point (#107)	HIGH	HIGH	HIGH
23. Four Tree Island Park (#119)	LOW	LOW	LOW
24. Longmarsh Preserve (#150)	LOW	LOW	LOW
25. Wagon Hill Farm (#157)	HIGH	MODERATE	MODERATE-HIGH
26. West Foss Farm – UNH (#159)	MODERATE	LOW	LOW-MODERATE

[131] Rating system:
Each rating is assigned a point value:
Low = 1
Moderate = 2
High = 3
Total points are then combined and assigned overall ratings based on the following breakdown:
Low = 2 points
Low-Moderate = 3 points
Moderate = 4 points
Moderate-High = 5 points
High = 6 points

TABLE 7. OVERALL SENSITIVITY RATINGS

RESOURCE WITH POTENTIAL VISIBILITY	CULTURAL DESIGNATION RATING	SCENIC QUALITY RATING	OVERALL SENSITIVITY RATING[131]
27. UNH Campus (#178)	HIGH	MODERATE	MODERATE-HIGH
28. Garrison Hill Park & Tower (#179)	HIGH	MODERATE	MODERATE-HIGH
29. Great Bay National Estuarine Research Reserve (#180)	MODERATE	MODERATE	MODERATE
30. Stratham Hill Fire Tower (#181)	HIGH	MODERATE	MODERATE-HIGH

C. Determination of Visual Effect from Significant Scenic Resources with Potential Visibility

Those resources that were determined to be sensitive in Section 4.B.3 above, or receive an Overall Sensitivity Rating of 'Moderate-High' or 'High' as a result of the previous step, are further analyzed for Visual Effect, which is based on evaluating the following categories:

1. *Scale and Spatial Presence* - is the project a dominant element in the view
2. *Prominence* - does the project stand out and draw attention
3. *Compatibility* - is the project consistent or inconsistent with the built or natural elements currently visible in the landscape

Of the 30 scenic resources identified as having potential visibility, only 9 are considered to be sensitive, and are therefore evaluated for visual effect. Note that this is a single step in the process of determining whether the effect is unreasonable adverse. In this stage of the screening process, "High" does NOT translate into an unreasonable adverse effect determination. This determination is still dependent on other factors yet to be considered in the subsequent process.

TABLE 8. SENSITIVE SCENIC RESOURCES

SCENIC RESOURCE	OVERALL SENSITIVITY RATING
1. Great Bay National Wildlife Refuge (#12)	MODERATE-HIGH
2. Little Bay Road (#45)	MODERATE-HIGH
3. Views at Cedar Point/Black River Roads from Route 4 (#73)	MODERATE-HIGH
4. Views from Scammell Bridge from Route 4 (#75)	MODERATE-HIGH
5. Fox Point (#107)	HIGH
6. Wagon Hill Farm (#157)	MODERATE-HIGH
7. UNH Campus (#178)	MODERATE-HIGH
8. Garrison Hill Park & Tower (#179)	MODERATE-HIGH
9. Stratham Hill Fire Tower (#181)	MODERATE-HIGH

PHOTOGRAPHS FROM SENSITIVE SCENIC RESOURCES WITH POTENTIAL VISIBILITY

1. Great Bay National Wildlife Refuge (#12): Ferry Way Trail leads visitors past the former weapons storage area

2. Great Bay National Wildlife Refuge (#12): The viewing platform along Ferry Way Trail

3. Great Bay National Wildlife Refuge (#12): Looking towards the Project from the viewing platform

4. Great Bay National Wildlife Refuge (#12): Ferry Way Trail continues along the wooded Great Bay shoreline

5. Little Bay Road (#45): View of a farm along Little Bay Road

6. Little Bay Road (#45): Open fields and wooded lanes are common along this road

7. Little Bay Road (#45): Existing utility lines along Little Bay Road

8. Views at Cedar Point/Black River Roads from Route 4 (#73): This is the clearing along busy Route 4 that affords views to the water

9. Views at Cedar Point/Black River Roads from Route 4 (#73): This is the view as seen from Route 4 through the clearing

10. Views at Cedar Point/Black River Roads from Route 4 (#73): Beyond the clearing, views are limited or blocked by existing vegetation, structures, and traffic

11. Views from Scammell Bridge from Route 4 (#75): View looking west toward Cedar Point from pedestrian walkway

12. Views from Scammell Bridge from Route 4 (#75): View looking north over the bridge toward Clements Point

13. Views from Scammell Bridge from Route 4 (#75): View looking southeast at Goat Island from the bridge

14. Fox Point (#107): Foot trail along the western shoreline

15. Fox Point (#107): View from western shoreline looking southwesterly into Little Bay

16. Fox Point (#107): View from northernmost point along shoreline looking west at where the Oyster River meets Little Bay

17. Fox Point (#107): Steps leading down from the foot trail to the waters edge

18. Wagon Hill Farm (#157): Entrance to the farm

19. Wagon Hill Farm (#157): Picnic area and boat launch at confluence of Smith Creek and Oyster River

20. Wagon Hill Farm (#157): Community garden plots

21. Wagon Hill Farm (#157): Maintained walking trail


22. Wagon Hill Farm (#157): Views southwest toward Smith Creek and Oyster River

23. UNH Campus (#178): Great Lawn and Thompson Hall Lawn

24. UNH Campus (#177): Looking across Memorial Field towards Main Street, Nesmith (left) and the Field House (right)

25. UNH Campus (#178): Looking northwesterly toward Kingsbury and Gregg building beyond

26. UNH Campus (#178): In front of Scott Hall Lawn looking southwesterly down Main Street

27. UNH Campus (#178): Looking southeasterly at the Observatory at the Old Durham Reservoir

28. UNH Campus (#178): Looking west down McDaniel Drive with Parsons on the right and Forest Park beyond

29. UNH Campus (#178): Looking southeast from Cowell Stadium toward the Field House and power plant beyond

30. Garrison Hill Park & Tower (#179): Looking easterly from the tower observation deck toward Mt. Agamenticus in the background.

31. Stratham Hill Fire Tower (#181): View from the tower looking northerly over Great Bay towards Portsmouth.

NOTE: The evaluation for visual effect is conducted from a point of highest potential visibility/impact for each resource, as shown in the photosimulations.

1. SCALE AND SPATIAL PRESENCE

The 'scale and spatial presence' of a project can be determined by considering the following sub-criteria, in combination with the factors of distance and contrast:

(a) Vertical Scale Relationship

Each key view from a resource identified as having moderate-high to high visual sensitivity is assessed to determine if any of the following conditions would apply due to the proposed transmission line upgrades:

1. Over 50% of new visible transmission structures appear significantly taller than existing visible transmission structures or adjacent landscape elements where existing transmission structures are not visible (50%+ taller, measuring visible portion of structure only)
   - 3 points if most are within .5 mile
   - 2 points if most are within 1 mile
   - 1 point if most over 1 mile away
   - 0 points if does not apply

   NOTE: For structures more than .5 mile away, multiply score by 1 for galvanized steel (light grey) structures, multiply by .5 for self-weathering steel (rust brown) structures (do not alter score if structures are "skylined")

TABLE 9.1 VERTICAL SCALE RELATIONSHIP

SCENIC RESOURCE	SCORE
1. Great Bay National Wildlife Refuge (#12)	0
2. Little Bay Road (#45)	3
3. Views at Cedar Point/Black River Roads from Route 4 (#73)	0
4. Views from Scammell Bridge from Route 4 (#75)	0
5. Fox Point (#107)	0
6. Wagon Hill Farm (#157)	0
7. UNH Campus (#178)	3
8. Garrison Hill Park & Tower (#179)	0
9. Stratham Hill Fire Tower (#181)	0

2. Where this was not the case with existing structures, new structures have the potential to result in the perception that they are "towering over the observer," which is defined as the condition where the ratio of the structure's height (above the observer) to the observer's distance from the structure is greater than 1:2 (e.g. 1:1.5)[132].
   - 3 points if this condition applies, where the existing structure was not previously visible)
   - 2 points if this condition applies, where the ratio of the existing structure's height to the observer's distance from the structure was previously greater than 1:4 (e.g. 1:5).
   - 1 point if this condition applies, where the ratio of the existing structure's height to the observer's distance from the structure was previously between 1:2 and 1:4 (e.g. 1:3)
   - 0 points if this condition does not apply

TABLE 9.2 VERTICAL SCALE RELATIONSHIP

SCENIC RESOURCE	SCORE
1. Great Bay National Wildlife Refuge (#12)	0
2. Little Bay Road (#45)	0
3. Views at Cedar Point/Black River Roads from Route 4 (#73)	0
4. Views from Scammell Bridge from Route 4 (#75)	0
5. Fox Point (#107)	0
6. Wagon Hill Farm (#157)	0
7. UNH Campus (#178)	0
8. Garrison Hill Park & Tower (#179)	0
9. Stratham Hill Fire Tower (#181)	0

(b) Spatial Presence

Each key view from a resource identified as having moderate-high to high visual sensitivity is assessed to determine if any of the following conditions would apply due to the proposed transmission line upgrades:

[132] Visual Resources Assessment Procedure for US Army Corps of Engineers, by Richard C. Smardon et al ,March 1988.

1. Where existing structures were not visible, new visible structures take up a high horizontal angle of view (visibility of cross-arms minimum, high = when looking toward project, structures occupy and extend beyond entire 50-degree field of view, with breaks in visual continuity no greater than 35 degrees).
   SCORE:
   - 3 points if most are within .5 mile
   - 2 points if most are within 1 mile
   - 1 point if most over 1 mile away
   - 0 points if does not apply

   NOTE: For structures more than .5 mile away, multiply score by 1 for galvanized steel (light grey) structures, multiply by .5 for self-weathering steel (rust brown) structures.

TABLE 10.1 SPATIAL PRESENCE

SCENIC RESOURCE	SCORE
1. Great Bay National Wildlife Refuge (#12)	0
2. Little Bay Road (#45)	0
3. Views at Cedar Point/Black River Roads from Route 4 (#73)	0
4. Views from Scammell Bridge from Route 4 (#75)	0
5. Fox Point (#107)	0
6. Wagon Hill Farm (#157)	0
7. UNH Campus (#178)	0
8. Garrison Hill Park & Tower (#179)	0
9. Stratham Hill Fire Tower (#181)	0

2. Where existing structures were not visible spanning more than one distance zone, structures are now visible extending continuously through multiple distance zones into the background, making the project's geographic expansiveness now apparent.
   - 3 points if structures now visible through foreground, midground, and background
   - 2 points if structures now visible through midground and background
   - 0 points if does not apply

   NOTE: For galvanized steel (light grey) structures, multiply score by 1, for self-weathering steel (rust brown) structures, multiply by 0.5.

TABLE 10.2 SPATIAL PRESENCE

SCENIC RESOURCE	SCORE
1. Great Bay National Wildlife Refuge (#12)	0
2. Little Bay Road (#45)	0
3. Views at Cedar Point/Black River Roads from Route 4 (#73)	0
4. Views from Scammell Bridge from Route 4 (#75)	0
5. Fox Point (#107)	0
6. Wagon Hill Farm (#157)	0
7. UNH Campus (#178)	0
8. Garrison Hill Park & Tower (#179)	0
9. Stratham Hill Fire Tower (#181)	0

2. PROMINENCE

(a) Skyline (or "Skylining")

Structures that are or skylined or silhouetted typically have a higher likelihood of drawing attention due to the potential for the forms and lines to stand out in strong contrast to the sky background. Time of day and orientation are factors that can influence the intensity of the effect, as the contrast is particularly pronounced when structures are backlit, thereby appearing dark against a light sky background. Skylined structures that are elevated in the landscape, such as those located on ridges are even more likely to draw attention and affect a scene, particularly if in close proximity to the vantage point.

1. Structures are skylined (visibility of cross-arms/conductors minimum).
   - 3 points if 1-2 structures are within .5 mile OR 3+ structures are within 1 mile
   - 2 points if 1-2 structures are within 1 mile OR 3+ structures are between 1-3 miles
   - 1 point if 1-2 structures are 1-3 miles away OR 3+ structures are beyond 3 miles
   - 0 points if does not apply

   NOTE: If existing transmission structures are skylined, multiply score by .5. Color/contrast does not affect the point rating for this factor because dark silhouetting can occur regardless of structure color under certain lighting conditions.

TABLE 11. SKYLINE

SCENIC RESOURCE	SCORE
1. Great Bay National Wildlife Refuge (#12)	0
2. Little Bay Road (#45)	3
3. Views at Cedar Point/Black River Roads from Route 4 (#73)	0
4. Views from Scammell Bridge from Route 4 (#75)	0
5. Fox Point (#107)	0
6. Wagon Hill Farm (#157)	0
7. UNH Campus (#178)	1.5
8. Garrison Hill Park & Tower (#179)	0
9. Stratham Hill Fire Tower (#181)	0

(b) Scenic Focal Point

A scenic focal point is a portion of a view that attracts viewer attention due to its high level of scenic interest distinguished from the rest of the scene, often based on the presence of water bodies or distinct topographic elements in the background. Interesting landscape elements and high diversity in the middleground may also contribute to creating a scenic focal point. Due to the inherent tendency for a viewer's eye to be drawn to such locations in the landscape for their scenic enjoyment, disruption of these views can result in undesirable effects on the view. This disruption can range from a minor distraction to a situation where structures directly block views of the most distinct element in the view, thereby having the potential to undermine the quality of an otherwise engaging or pleasing view.

1. Structures within 50-degree field of view looking toward scenic focal point, competing for viewer attention (where existing structures are not visible or visible only above cross-arms/conductors).

- 3 points if structures are within .5 mile OR if structures directly overlap view of scenic focal point (e.g. distinct/iconic mountain backdrop)
- 2 points if structures are within 1 mile
- 1 point if structures are over 1 mile away
- 0 points if does not apply

NOTE: For structures more than .5 mile away that do not directly overlap the view of a scenic focal point, multiply score by 1 for galvanized steel (light grey) structures, multiply by .5 for self-weathering steel (rust brown) structures.

TABLE 12. SCENIC FOCAL POINT

SCENIC RESOURCE	SCORE
1. Great Bay National Wildlife Refuge (#12)	0
2. Little Bay Road (#45)	0
3. Views at Cedar Point/Black River Roads from Route 4 (#73)	0
4. Views from Scammell Bridge from Route 4 (#75)	0
5. Fox Point (#107)	0
6. Wagon Hill Farm (#157)	0
7. UNH Campus (#178)	0
8. Garrison Hill Park & Tower (#179)	0
9. Stratham Hill Fire Tower (#181)	0

3. COMPATIBILITY

The 'compatibility' of a project can be determined by considering if the project or project components are consistent or inconsistent with the built or natural elements that are currently visible in the landscape. Each key view from an identified resource of moderate-high to high visual sensitivity is assessed to determine if any of the following conditions would apply due to the proposed transmission line upgrades:

1. Forms of structures contrast highly with environment.
   - 9 points if form is completely foreign to the environment (e.g. proposed lattice structures where no other electrical utility structures of any type are in view)
   - 3 points if form is significantly different than existing forms in the environment (e.g. proposed lattice transmission structures with pole-type transmission/distribution lines in view, or proposed monopole transmission structures with no other electrical utility structures of any type in view)
   - 2 points if form is somewhat different than existing forms in the environment (e.g. proposed monopole transmission structures with pole-type transmission/distribution lines in view)
   - 0 points if does not apply

   NOTE: Multiply score by .5 for instances where all structures are over 3 mile away or visibility above cross-arms/conductors, or color/finish of structure is similar to existing structures.

TABLE 13.1 COMPATIBILITY

SCENIC RESOURCE	SCORE
1. Great Bay National Wildlife Refuge (#12)	1.5
2. Little Bay Road (#45)	2

TABLE 13.1 COMPATIBILITY

SCENIC RESOURCE	SCORE
3. Views at Cedar Point/Black River Roads from Route 4 (#73)	1
4. Views from Scammell Bridge from Route 4 (#75)	0
5. Fox Point (#107)	1.5
6. Wagon Hill Farm (#157)	1.5
7. UNH Campus (#178)	1
8. Garrison Hill Park & Tower (#179)	0
9. Stratham Hill Fire Tower (#181)	0

2. Expanded ROW clearing is noticeable where it wasn't previously and is clearly unnatural, geometric, and highly visible/contrasting
   - 3 points if linear clearing is highly visible (extensive ground can now be seen) and completely foreign to the environment (no other linear clearing visible)
   - 2 points if linear clearing is moderately visible (limited ground can now be seen) and completely foreign to the environment (no other linear clearing visible)
   - 1 point if linear clearing is somewhat visible (no ground visible) and completely foreign to the environment (no other linear clearing is visible)
   - 0 points if does not apply

TABLE 13.2 COMPATIBILITY

SCENIC RESOURCE	SCORE
1. Great Bay National Wildlife Refuge (#12)	0
2. Little Bay Road (#45)	0
3. Views at Cedar Point/Black River Roads from Route 4 (#73)	0
4. Views from Scammell Bridge from Route 4 (#75)	0
5. Fox Point (#107)	0
6. Wagon Hill Farm (#157)	0
7. UNH Campus (#178)	0
8. Garrison Hill Park & Tower (#179)	0
9. Stratham Hill Fire Tower (#181)	0

4. OVERALL VISUAL EFFECT

The total points for each of the three aforementioned criteria for each resource are combined to obtain an Overall Visual Effect rating.[133] The combination of the three criteria provides a good picture of visual effect by considering all the factors that relate not only to the surrounding context of the site, but to the Project itself, and how it is seen from the selected locations. Resulting scores and ratings are as follows:

[133] Scoring system:
Total points for each of the three criteria are combined and assigned overall ratings based on the following breakdown:
Low = 0 to 1.5 total combined points
Low-Moderate = 2 to 3.5 total combined points
Moderate = 4 to 5.5 total combined points
Moderate-High = 6 to 11.5 total combined points
High = 12+ total combined points

TABLE 14. OVERALL VISUAL EFFECT RATING

SCENIC RESOURCE	SCALE AND SPATIAL PRESENCE	PROMINENCE	COMPATIBILITY	TOTAL COMBINED SCORE	RATING
1. Great Bay National Wildlife Refuge (#12)	0	0	1.5	1.5	**LOW**
2. Little Bay Road (#45)	3	3	2	8	**MODERATE-HIGH**
3. Views at Cedar Point/Black River Roads from Route 4 (#73)	0	0	1	1	**LOW**
4. Views from Scammell Bridge from Route 4 (#75)	0	0	0	0	**LOW**
5. Fox Point (#107)	0	0	1.5	1.5	**LOW**
6. Wagon Hill Farm (#157)	0	0	1.5	1.5	**LOW**
7. UNH Campus (#178)	3	1.5	1	5.5	**MODERATE**
8. Garrison Hill Park & Tower (#179)	0	0	0	0	**LOW**
9. Stratham Hill Fire Tower (#181)	0	0	0	0	**LOW**

Ratings for **Low**/Low-Moderate/**Moderate**/Moderate-High/**High** are defined by the following:

- **Low (L)** - The project is not readily visible within the view due to the level of visibility, proximity, spatial presence, contrast, prominence, compatibility, or a combination of these factors. The project causes a low alteration to the landscape character, and the landscape remains clearly dominant.
- **Moderate (M)** - The project is visible within the view and may attract attention due to the level of visibility, proximity, spatial presence, contrast, prominence, compatibility, or a combination of these factors. The project causes a moderate alteration to the landscape character, but the change is limited and other features of the landscape remain the primary focus.
- **High (H)** - The project commands or controls the view due to the level of visibility, proximity, spatial presence, contrast, prominence, compatibility, or a combination of these factors. The project causes a fundamental alteration to the landscape character, and the project becomes a primary feature in the landscape.

Those resources that emerge with a 'Moderate-High' or 'High' Overall Visual Effect rating have the potential to be significantly affected by the visual change that could result if the Project is constructed, and additional analysis is provided in the following section. No additional evaluation is provided for those resources that emerge with a 'Low' to 'Moderate' rating because the visibility of the Project is not considered significant. Note that this is a step in the process of determining whether the effect is adverse. In this stage of the screening process, "High" does NOT translate into a reasonably adverse determination. This determination is still dependent on other factors yet to be considered in the final steps of the methodology.

D. Determining Effect on the Viewer from Significant Scenic Resources

For those resources determined to have the potential for a 'Moderate-High' or 'High' Overall Visual Effect rating as identified in Section 4.C.4 above, additional analysis is provided that incorporates and weighs a range of possible factors to determine how a typical viewer may be affected by the visibility of the Project, which include:

1. ***Activity*** – the primary type of activity users are engaged in at the resource
2. ***Extent of use*** – the amount of use the resource receives
3. ***Duration of view*** – the extent or exposure to the project
4. ***Remoteness*** – the absence of development or primitive character or experience of the resource

Only 1 of the 9 resources evaluated result in an overall visual effect rating of "Moderate-High" – Little Bay Road.

1. ACTIVITY

Threshold ratings for activity types include the following:

- **Low:** Activities where visual quality and scenery of the landscape are unimportant to the experience. This would include activities such as visiting museums or historic architecture, or ice fishing in a shanty.
- **Moderate:** Activities where visual quality and scenery of the landscape are important but secondary to the experience. This would include activities such as fishing, motorboating, camping, hunting, rafting, and snowmobiling.
- **High:** Activities in which visual quality and scenery of the landscape are central to and significantly affect the experience. This would include activities such as paddling, viewing wildlife or scenery, and hiking.

TABLE 15. ACTIVITY

RESOURCE	PRIMARY ACTIVITIES	RATING
1. Little Bay Road (#45)	Although this is a designated scenic road ,the primary activity that occurs here is through travel - viewing scenery would be secondary	**MODERATE**

2. EXTENT OF USE

Threshold ratings for extent of use are defined by the following:

- **Low:** Access is difficult, limited and/or unclear (e.g. walk-in, portage). Interaction between users is extremely rare, and evidence of other users is negligible. There are no boat launches, campsites, picnic areas or other maintained facilities. Motorized or mechanized use is not permitted or not possible.
- **Moderate:** Access is somewhat evident and available. Interaction between users may be low to moderate. There are boat launches, campsites, picnic areas or other maintained facilities, but they are limited and not always noticeable. Motorized or mechanized use may be possible.
- **High:** Access is quick, obvious, and easy. Interaction between users is moderate to high. There are multiple boat launches, campsites, picnic areas or other maintained facilities, which can accommodate a large number of people (i.e. pavilions, parking lots). Motorized or mechanized use is allowed and evident.

TABLE 16. EXTENT OF USE

RESOURCE	EXTENT OF USE	RATING
1. Little Bay Road (#45)	Locally maintained road that services a multitude of residences and experiences moderate traffic	**HIGH**

3. DURATION OF VIEW

Threshold ratings for duration of view include the following:

- **Low:** Activities whose focus would be away from a project or would be constrained due to limited viewing opportunities (e.g. ice fishing in a shanty; visibility limited to small portion of the resource). Effect may also be low due to limited use of the resource (i.e. as resource activities/visitation decreases the duration of view decreases).
- **Moderate:** Views of a project would be tempered by focusing on the activity (i.e. fisherman focusing on the water), shifting location and altering context and viewpoint (i.e. views are continually changing as in rafting, motorboating or fishing), and access to 360° views. In this situation, the potential effect lessens, because, although views would be present, they would be ever-changing and mitigated by the activity.
- **High:** Activities whose primary focus would be toward a project and fixed on a project. For example, a scenic pull-off with static, unchanging views focused entirely on a project site would have a high potential effect, even though a visitor may only stay at the site for 5 to 10 minutes.

TABLE 17. DURATION OF VIEW

RESOURCE	DURATION OF VIEW	RATING
1. Little Bay Road (#45)	The majority of the road is tree lined with no possible views of the Project – only at the point where the Project meets the road, and two short stretches of road where trees are thin or where there is a farm field will the Project be visible – these views will be filtered or limited by intervening, intermittent trees as well as a speed limit of 30 MPH (i.e. views will not be significant enough to distract a viewer traveling at this rate of speed)	**LOW**

4. REMOTENESS

Threshold ratings for determining remoteness are defined by the following:

- **Low:** Resource is noticeably developed. Interaction between users is moderate to high. There are boat launches, campsites, picnic areas or other maintained facilities, which can accommodate a large number of people (i.e. pavilions, parking lots). Motorized or mechanized use is allowed and evident.
- **Moderate:** Resource appears to maintain its natural quality. Development is present but is not always noticeable by the average person and usually harmonizes with the natural environment. Interaction between users may be low to moderate. There are boat launches, campsites, picnic areas or other maintained facilities, but they are limited and not always noticeable. Motorized or mechanized use may be possible.
- **High:** Resources that are essentially unmodified and pristine. Access is generally difficult and off-the-beaten path. Interaction between users is extremely rare, and evidence of other users is negligible. There are no

boat launches, campsites, picnic areas or other maintained facilities. Motorized or mechanized use is not permitted or not possible.

TABLE 18. REMOTENESS

RESOURCE	REMOTENESS	RATING
1. Little Bay Road (#45)	The road is developed with numerous residences – interaction between other travelers on the road is moderate to high	**LOW**

5. OVERALL VIEWER EFFECT

The ratings for each of the four-abovementioned criteria for the resource are combined to obtain an Overall Viewer Effect rating.[134] The combination of the four criteria provides a good picture of how the Project may affect the typical viewer's experience. Any resource that emerges with a 'Low' to 'Moderate' rating, the effect to the typical viewer is not considered significant. A resource that emerges with a 'Moderate-High' to 'High' Overall Viewer Effect rating may result in a significant change to the typical viewer. The effect to the typical viewer on Little Bay Road is 'Low-Moderate' and therefore not considered significant.

TABLE 19. OVERALL VIEWER EFFECT RATINGS

L = LOW M = MODERATE H = HIGH RESOURCE	ACTIVITY	EXTENT OF USE	DURATION OF VIEW	REMOTENESS	OVERALL VIEWER EFFECT RATING
1. Little Bay Road (#45)	MODERATE	HIGH	LOW	LOW	**LOW-MODERATE**

[134] Rating system:
Each rating is assigned a point value:
Low = 1
Moderate = 2
High = 3
Total points are combined and assigned overall ratings based on the following breakdown:
Low = 5 points or less
Low-Moderate = 6-7 points
Moderate = 8-9 points
Moderate-High = 10-11 points
High = 12 points

5. Overall Conclusion

1. Overview

A complete Project description is provided in Section 3.A. of this report. The primary elements of the Seacoast Reliability Project (SRP) will be comprised of a new 115 kilovolt (kV) transmission line between the existing Madbury and Portsmouth substations to enhance the electric reliability in the seacoast region. The Project is located in the Towns of Madbury, Durham and Newington as well as the City of Portsmouth, in Strafford and Rockingham Counties, New Hampshire, and will run approximately 12.9 miles. The line will be constructed primarily within existing electric and transmission corridors, with minor adjustments to right-of-way widths in several locations. The majority of the SRP will be constructed aboveground on overhead structures between 30 and 105 feet in height. The line will transition to underground in two separate stretches along the route: 0.4 miles in Durham through the UNH campus and approximately 1.4 miles from Durham across Little Bay into Newington. In many locations, the existing distribution line will be co-located on the new structures and the existing distribution structures will be removed. The Project will also require improvements at each of the terminal substations in Madbury and Portsmouth, which will be confined within the substation fence line.

The purpose of this section of the Visual Assessment (*Section 5. Overall Conclusion*) is to complete the assessment with an overall finding relative to the Project's visual effect on applicable scenic resources. This final section of the visual analysis integrates the foregoing work on the identification of scenic resources, their sensitivity and the potential visual effect that the Project may have on those resources and their users, and, ultimately, a "typical viewer." The key steps in the analysis as set forth in this report included:

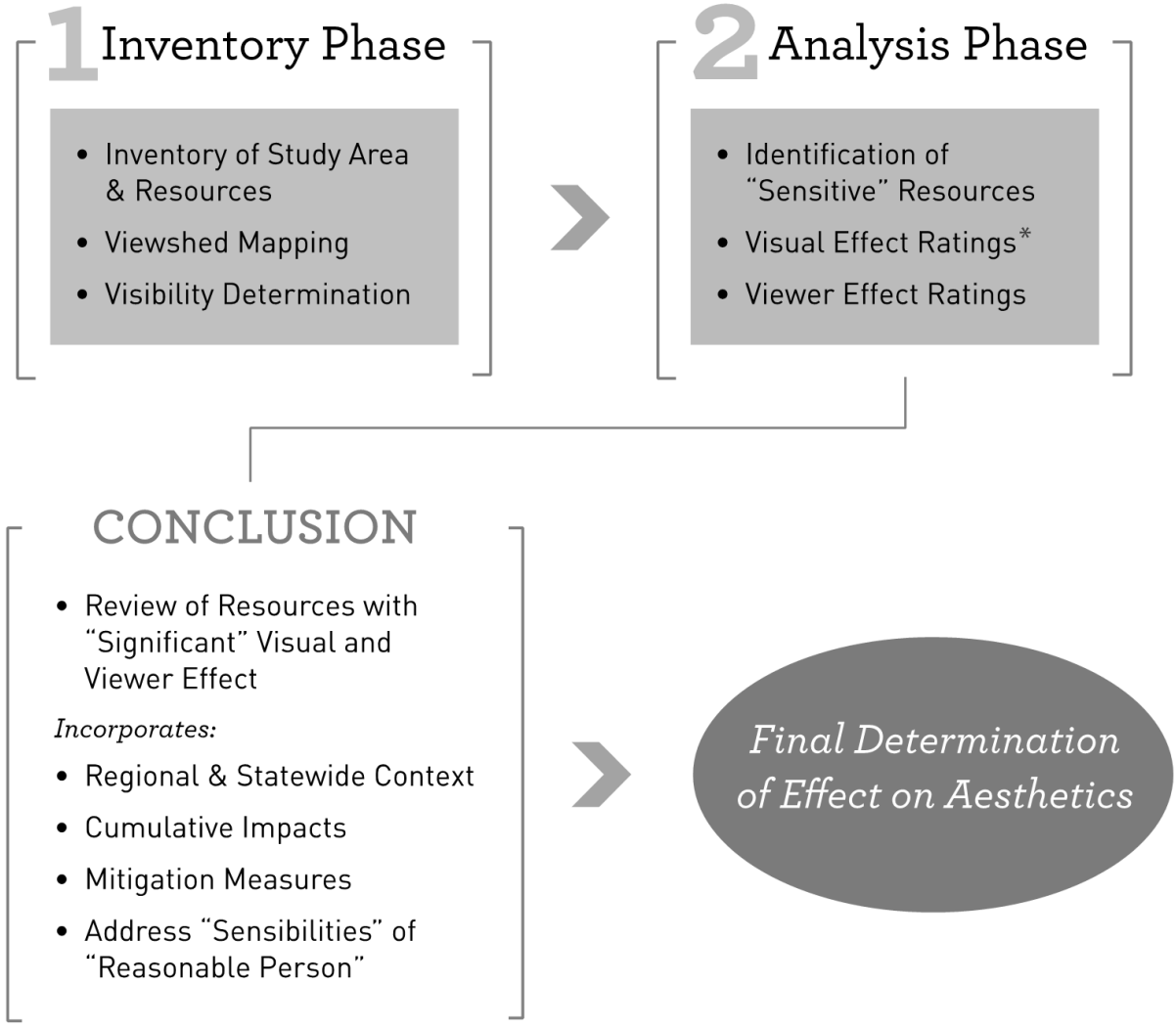
1. An inventory of all applicable scenic resources within the study area and a determination of the visibility and views these resources will have of the proposed Project;
2. Identification of the relative sensitivity of any affected scenic resources;
3. The scope and scale of the change in the landscape visible from the scenic resource; and,
4. The determination of the potential effect the Project may have on typical users of the scenic resources where Project visibility may have an effect.

A number of considerations are factored in to this final analysis in order to determine whether or not the Project will result in an unreasonable adverse effect on aesthetics. These include, but are not limited to: 1) The development and completion (in this section) of a comprehensive, systematic, defensible, visual analysis methodology that integrates qualitative and quantitative considerations; 2) The proposed Project corridor and the related study area and its characteristics in relation to the visual change that will occur if the transmission Project is constructed; 3) Local conditions in the immediate vicinity of the Project and the potential visual effects of the Project within that context; and, 4) The efficacy of mitigation, avoidance, and minimization measures being proposed by PSNH as part of the Project design.

2. The Visual Analysis Methodology

LandWorks has employed a systematic, objective methodology, as set forth in Section 2 of this report that identified all the scenic resources within the study area. As presented in *Section 2. Methodology*, the visual analysis

approach incorporated and integrated several well-established and accepted techniques and processes that experts use for analysis of visual effect. A progression of the analysis allowed independent reviewers on the consultant team to develop a consistent set of conclusions. The methodology comprises 3 basic steps including: 1) Inventory and identification of affected resources - identifying those with potential visibility of the Project and of those, which would have some degree of sensitivity to visual change; 2) Identifying the nature of that visual change through the Visual Effect analysis process; 3) An analysis which addresses the Viewer Effect – that is to say how the Project will be viewed by a typical viewer on a resource by resource basis and followed by an overall conclusion. The conclusion synthesizes the analysis and findings to reach an overall determination for the Project and its effect on scenic resources. It incorporates and addresses overarching issues including regional context, cumulative impacts and mitigation measures. These considerations inform the visual effect analysis and the overall determination of whether the Project does or does not have an unreasonable adverse effect on aesthetics. The chart below provides an overview of the methodology process.



*Designed specifically to address the qualities and characteristics of linear transmission lines and associated facilities.

3. Project Characteristics and the Project Area

For the most part the Project is proposed as a single monopole structure with double circuiting/co-location in many locations. The monopole structure, while is typically higher than an H-frame structure, is visually less obtrusive particularly with the short davit armed design with 3 conductors. The davit arms and conductor locations vary from section to section in the corridor and respond to physical limitations of the ROW and the number of circuits being installed on the structure. Second circuits are typically underbuilt and lower on the structure. There will be several sections that use a two structure design with the higher structure carrying the 115kV and the second, lower structure carrying the 34.5 kV line. This approach has been implemented in at least one location to reduce overall Project height and consequent visibility (a 115kV structure with a 34.5 kV underbuild is typically higher than a single circuit structure without this configuration). There will also be a section in Newington with H-frame structures, and risers on either side of Little Bay where the underwater/underground circuit emerges.

In fact, transmission corridors with structures that reflect the range of heights on this Project – 34 feet at the lowest height to 105 feet for the tallest structure and an average range of 55 to 90 feet - are not at all uncommon in the region given that many lines and circuits are being upgraded with taller structures to carry additional loads necessitated by the very development occurring in communities such as those that are located in the Project area. In this regard, a structure placement or location is much less likely to be shocking or unacceptable even though it may not be a desirable element in the landscape – rather it is a necessary element in the landscape. This fact alone highlights the disconnect of our culture and land use patterns in which the human footprint continues to expand (new construction and new subdivisions are visible throughout the Project area) and thus feeds the consequent demand and load for electrical energy in particular – but the recipients who are driving the need for and readily use the power delivered do not want to look at the means of that delivery. A well-known cultural geographer and author, John Stilgoe, articulates the presence of power lines in the American landscape:

"Electric lines glisten, especially at sunrise and sunset when the low-angled sun bounces from their high-tech metallic covering. Everywhere electric companies abandon the not-quite-waterproof black rubberized covering that protected cables since Edison's time. So even on an overcast day the explorer glances up at silvery wires, the great spider's web slung just above the national landscape. Wood poles carry electric wires, and telephone and cable television lines too. Nothing screams more loudly of the still-developing-nation status of the United States than the creosote-treated poles, all slightly out of perpendicular, marching along almost every road as they once marched across the plains in the hoofprints of the Pony Express."[135]

These ubiquitous utility poles are now getting incrementally taller and are often constructed of steel for transmission (vs. distribution) lines, but the need and purpose remains.

The backdrop for this Project is the specific environment in which the Project is located. The determination of the Project's fit and acceptance into that landscape is addressed by the methodology as it focuses on key considerations such as scale and the "presence" of the Project in the landscape, as well as other characteristics of visibility. The compatibility of the Project in the landscape setting and the heights of the structures and visual characteristics are all taken into account. Thus, the nature of the landscape – the development and land use

[135] p.21, Stilgoe, John, Outside Lies Magic, Walker and Company, New York, 1998.

context, the visual setting, and the ability of the landscape in its current state to "visually absorb" the Project and its components – have all been taken into account.

One key factor is that the Seacoast Reliability Project is a new transmission line that is co-located within an existing utility corridor in the Project area. This is an important starting point in terms of discussing landscape conditions as it indicates that 1) the Project is proposed for a corridor that already exists; and 2) transmission corridors are readily present throughout the Project area and have, in most instances, been well established. In fact, the Bureau of Land Management publication *Best Management Practices for Reducing the Visual Impacts of Renewable Energy Facilities* highlights the importance and value of co-locating linear features such as transmission lines in existing ROWs and corridors. [136]

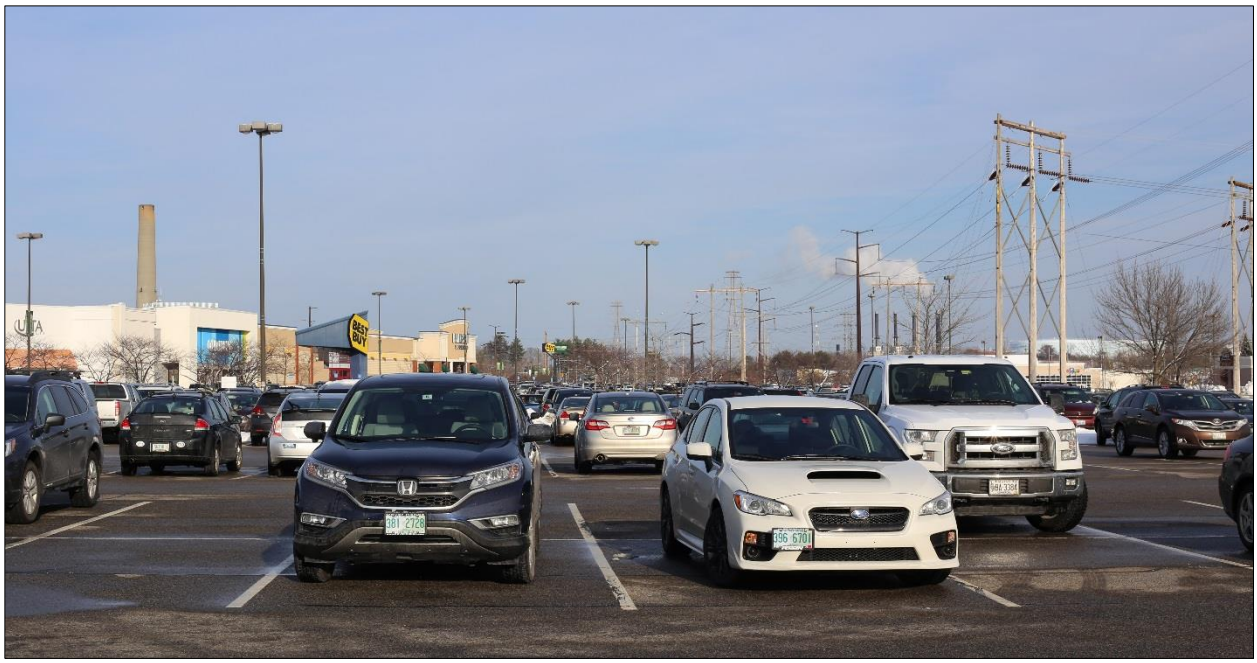
Sections 2 and 3 in this report provide sufficient detail as a basis for understanding both the natural and built environment in the Project area. Specifically, *Exhibit 19: Project Context and Land Use Map* provides a sense of the existing and extensive transportation and utility infrastructure, all of which is indicative of the fact that a densely developed area is less sensitive to the co-location of a new transmission line in an existing corridor and can better absorb such a visual change in a reasonable manner – that is to say, the fit is better and utility infrastructure is a part of the everyday landscape.

The Project area is a densely settled and developed portion of New Hampshire that includes the seacoast – specifically the waterbodies of Little Bay and Great Bay – and the coastal plain. The line begins at the PSNH Substation in Madbury and continues overhead on monopole structures for approximately 1.4 miles south to the University of New Hampshire (UNH) campus. From the Substation to Route 4, the distribution line is co-located adjacent to the new transmission line. From Route 4 to UNH, the monopole contains both the new transmission line and underbuilt distribution line. At UNH, the new line then transitions to underground within the campus for a 0.4 mile section that crosses under Main Street. The line switches back to overhead on a monopole structure with underbuilt distribution south to the Packers Falls Substation at which point it turns east. The line continues on a monopole with underbuilt distribution until the Newmarket Road crossing where a few H-frame structures will be used on either side of the road. The distribution is on separate co-located poles either side of Newmarket Road and continues to Timber Brook Lane. The new line with underbuilt distribution continues to Durham Point Road. The distribution is co-located adjacent to the new line for the last 4 structures before Durham Point Road. The monopole with underbuilt distribution then continues to a transition structure approximately 360 feet from Little Bay. The distance from UNH to the transition structure is 5.6 miles. The new line then continues via buried submarine cable under and across Little Bay, a distance of approximately 1.1 miles, to the easterly shoreline of Little Bay in Newington where it will make landfall. The line will continue underground for approximately 0.3 miles east to the transition structure east of Little Bay Road. From here the new line continues overhead, first on monopole structures for three spans then switching to H-frame structures to and through the Frink Farm and across Nimble Hill Road in Newington. After a corner structure beyond Nimble Hill Road and Hanna Lane, the line continues as a monopole to Fox Point Road. From Little Bay Road to Fox Point Road the existing distribution line will be removed from the corridor. Beyond Fox Point Road the line continues on a monopole with co-located distribution and continues northeasterly to, then along, Spaulding Turnpike. The distribution line leaves the corridor at Spaulding Turnpike. The new line crosses the Turnpike (Routes 4/16) then traverses a large shopping

[136] Best Management Practices for Reducing the Visual Impacts of Renewable Energy Facilities, Bureau of Land Management, Cheyenne Wyoming, 2013, p.157.

center (The Crossing/Fox Run Newington Mall) and then terminates at the Portsmouth Substation. The Overhead portions in Newington and Portsmouth total 4.1 miles in length.

View from Gosling Road just East of the intersection with Woodbury Avenue. Lattice structures are located adjacent to the Portsmouth substation and the Project corridor start location. The Project will cross over Gosling Road beyond the existing visible conductors. This is a highly developed area with a distinct industrial/commercial character with highly visible infrastructure elements.



The Project corridor in this part of Newington will include replacement structures for the existing line and be co-located with other adjacent electric utility infrastructure. It is clear that with the extensive parking areas, large buildings, and smoke stacks in the background, this is not a scenic area.

A view from Madbury Road towards the Project starting point at the existing Madbury Substation. The view will not be altered from this vantage point.

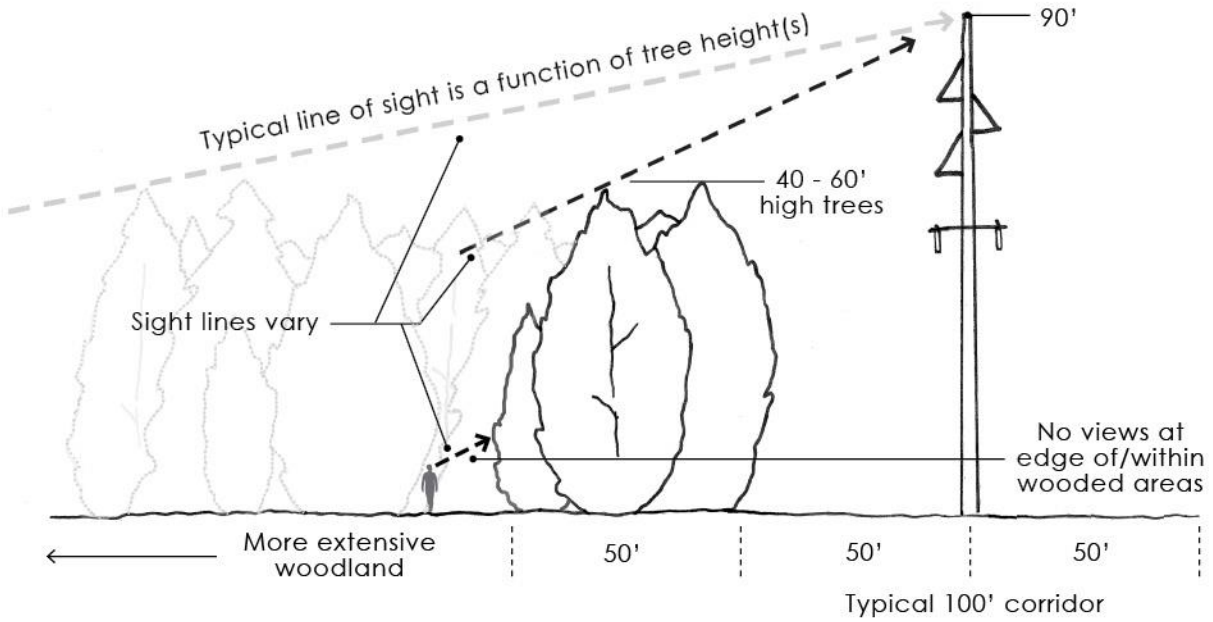
Newington and Durham are older settled towns – Durham having both a compact village area and the adjacent campus of the University of New Hampshire – and Newington more spread out with semi-rural as well as more suburban-like residential landscapes arrayed along the road network of the town.

There are several key points that factor into the analysis and the corresponding overall conclusions for this assessment:

1) Co-location. The corridor upgrade is the least intrusive option for the new line; it is always more desirable to site a new or upgraded transmission line within an existing corridor for many reasons, including no new disruption of land uses with a transmission line and the fact that new or additional clearing can be kept to a minimum. Co-location is often considered to be a means of mitigating/avoiding/minimizing the potential effects of a new development in electrical transmission.
2) Land use patterns and the corridor's current location. As a developed, settled landscape that represents an environment that is extensively built-out, this area is better suited to accommodate a transmission line upgrade within an existing corridor than a more rural, undeveloped landscape without an existing corridor.
3) Lack of overall visibility. Typical Project visibility is limited to crossing points on local roads, and state highways, a few open areas (some in parking lots), and a short section at the UNH campus. Visibility is limited due to the extensive tree cover and woodland landscapes in many sections, with tree heights

typically at 55 to 65 feet. Where a two structure configuration is proposed in Durham neighborhoods north of Longmarsh Road, keeping the 115kV circuit and 34,5 kV circuit separate, the structures and will be at our below the surrounding treelines and wooded areas, except at required road crossings.

4) Lack of unreasonable adverse visual effect on high visibility, high use resources that have been identified and analyzed as part of this Visual Assessment.
5) Mitigation, avoidance, and minimization measures. A number of specific mitigation, avoidance, and minimization measures have been implemented to reduce the visibility of the proposed Project. An example of this approach is demonstrated by the extensive efforts undertaken by Eversource to use structure heights, types and finishes, along with placement variations, to address concerns raised by stakeholders and property owners along the corridor. This has been facilitated by sustained efforts by the company to reach out to and communicated with the constituencies along the corridor route.



Existing tree cover in woodlands and corridor buffers reduces visibility by screening views from potential vantage points near to the Project corridor.

It is also important to note that it has been established that the visual effect and potential impacts from this new transmission line is diminished by the overall Project context:

"In urban areas or other settings which are not regarded as 'natural', power transmission lines do not significantly distract from the aesthetic quality of the scene"[137]

The findings in the study "Public Perceptions of Electric Power Transmission Lines" also reinforces the conclusion that individuals agree that visual features do affect the conclusions with regard to visual impact. Thus, it has been

[137] p. 165, "Assessment of the environmental impact of high voltage transmission lines", Jackson, et.al., *Journal of Environmental Management* 6.

determined that the presence of human development will reduce the prominence of a transmission corridor and its associated structures, as opposed to a more scenic and undeveloped setting.[138]

View from Hilton Park in Dover of a marina located on the Piscataqua River. The Project corridor is located an average of 1.2 miles from this resource. There was no visibility from this vantage point as confirmed through 3D computer modeling and field work due to the height of shoreline vegetation and the flat topography in the study area.

4. Discussion of Sensitive Resources

Only 30 resources are located within the 20-mile area of potential visual impact that will have views of the Project. Of those 30 with visibility, 9 have a rating of Moderate-High or High and are therefore considered sensitive to visual change. Only 1 of the 9 resources evaluated result in an overall visual effect rating of Moderate-High – at the Little Bay Road crossing in Newington. It does not result in a viewer effect rating of Moderate-High or High. This final outcome of the core analysis for this resource eliminates the likelihood that the Project would be considered unacceptable by a typical viewer.

[138] "Public Perceptions of Electric Power Transmission Lines", Furby, et.al., Eugene Research Institute, in *Journal of Environmental Psychology*, 1988, pp. 19-43.

The employment of a comprehensive methodology for the visual assessment, beginning with the inventory of sensitive resources, yielded the conclusion that there were no locations where the proposed Project would exceed a threshold of visual change and effect that would be considered unreasonable. The Project will result in an adverse impact in some sensitive or high use areas where the new structures will initially be more visible and more noticeable – but visibility alone does not translate into an unreasonable effect – rather it is the test of whether that visibility translates into a high rating under both the Visual Effect and Viewer Effect categories, and this is not the case for any resource inventoried and analyzed along the corridor and within the extended Project area addressed in response to recently adopted rules for aesthetic review in New Hampshire. There are a few locations where the visual effect will be noticeable and adverse due to one or more factors including visibility, height of the structure, lack of screening, and the potential number of viewers. Four areas merit discussion (although, as stated previously, only 1 had a visual effect rating of "moderate-high" and thus required the next step of analysis): 1) Little Bay Road, which is a scenic road in Newington, 2) The transition structures at Little Bay shoreline, 3) The Great Bay National Wildlife Refuge, and 4) the crossing of Main Street in Durham at the University of New Hampshire campus. When the Project is considered as a whole, however, over its entire length of 12.9 miles, the lack of highly sensitive areas, coupled with the existing development patterns, yields the result that the new transmission line has surprisingly limited impact to scenic resources. The accompanying photos provide a sense of these patterns and the existing conditions, which are able to readily accommodate the line visually in most locations.

1. NEWINGTON AND LITTLE BAY ROAD

The analysis acknowledges that a number of roads in Newington are considered Scenic Roads. Scenic Road(s) have been designated on the basis of road class – class 5 roads (which are "town maintained") - rather than a specific scenic analysis that incorporated specific road qualities and addressed their true scenic values. To a non-resident or objective viewer, many of the roads designated as scenic lack the aesthetic qualities (long distant views, undeveloped or pristine landscapes, great variations in landform, highly historic landscapes or patterns) that would be considered suitably scenic for special treatment or protection. The unique or significant qualities identified in the list above are typically present for scenic road designation, but are not readily visible in Newington. That is not to say that residents don't or shouldn't appreciate the aesthetic qualities present, but rather that these qualities do not rise to a level that is highly sensitive or cannot accommodate a transmission line upgrade in the few locations where the Project may be visible from Newington's designated roads.

The Project parallels Little Bay Road in Newington, which has scenic designation, but the primary visual access is at the Frink Farm where the existing corridor crosses Nimble Hill Road near to the intersection with Old Post Road. This is also within the Newington Center Historic District. The views are limited due to existing tree cover along adjacent road, but the crossing here is full view. The view is short lived as one travels along the road. This is a view that does encompass however an historic district. Destinations within this district do not have views or have very limited views. It has been determined by Eversource, in consultation with the Town, that utilizing H-frame structures through a 0.7 mile section starting east of Nimble Hill Road in Newington is desirable. This change, which lowers structure heights from those of a monopole configuration, reduces the visibility of the Project and its "visual presence" in this section of Newington. The use of a lower, more natural wood like material helps it blend in with its historic surroundings. Thus, the original monopole structure that was proposed with a distribution line underbuild has now been changed to the H-frame configuration. This results in structures that are up to 18 feet lower, and generally 15 feet lower. The distribution lines have been relocated elsewhere and the open field adjacent to the Frink Farm has also been addressed by eliminating a structure placement in the center of the field, even though this is a resource and a view that is not identified or highlighted for its scenic or recreational

attributes. Overall, the hedgerows along roadsides, wooded nature of the landscape, the long term presence of the existing corridor, and the few road crossing areas all combine to diminish the presence of the proposed upgrade in Newington, and will do so particularly over time as individuals become accustomed to and accommodate the change.

View of the Frink Farm, a conserved property within the Newington Center Historic District, from Little Bay Road in Newington. The Project corridor follows an existing corridor to the north of the farm structures in an adjacent field.

Looking north from Little Bay Road, just east of McIntyre Road, toward the existing corridor. The heights of the proposed structures should be below the treeline for most of the individual structures and at or slightly above the treeline for the highest structures.

2. LITTLE BAY CHANNEL

On the east side of Little Bay in Newington, the Project will transition to underground just east of Little Bay Road, about a half mile from the channel, and will not be readily visible due to intervening vegetation, structures and topography. In Durham, the last structures prior to the underwater transmission line will be set back from the shoreline. Eversource has contracted to secure control of the property on the east side of Little Bay in Durham and this allows the structures to be set back 360 feet from the shoreline. This location diminished the visual presence of the structures and will greatly reduce the potential visual effect when viewed from the waters of Little Bay and Great Bay. Vegetation and shoreline configuration limits the views of the structures from further away. This is primarily a boat navigation area, where boats follow a channel that is almost ½ mile offshore, thereby reducing the apparent scale of the Project for boaters in this area. The simulation presented in Exhibit 5 demonstrates how the surrounding vegetation helps to visually absorb the structures given the similarity of vertical tree elements and the structures' vertical qualities. The backdrop and background also help to accommodate the structures so as to reduce their presence and the tendency for the eye to focus on them. The highest structure in the configuration, a monopole, will not exceed the height of the surrounding trees, also helping to reduce its presence in the landscape. This portion of the shoreline, is "everyday" scenic- not highly unique or serving as a focal point or specific scenic resource and that consideration lessens the potential effect from the upgrade at this location. This "everyday" quality is due to the lack of relief, little variation in color form and visual pattern and the fact that this is not a particularly distinctive landscape on its own.

Primary view looking south into Great Bay from the boat channel in Little Bay, Durham/Newington. The Project corridor is located 90° to the right at this position from the water, at a distance of 0.47 miles. One or two structures set back 360 feet from the shoreline in Durham will potentially be visible from this location. Views of the Project become screened as one moves away from the corridor in either direction due to the corridor location and its surrounding vegetation, which provides effective screening. (See visual simulation *Little Bay, Durham*)

View from Little Bay boat channel looking west at Durham shoreline toward the Project corridor. A monopole and perhaps a portion of a 3-pole wooden structure will potentially be visible. The existing brick structure, a historic element, will be retained in this location.

Looking to the Newington side of Little Bay, across from where the end structures will be located.

3. GREAT BAY NATIONAL WILDLIFE REFUGE

The Great Bay National Wildlife Refuge, despite its national status as a wildlife resource, is not a particularly engaging or high value scenic area – in fact the area was protected for its wildlife values – not scenery, as is typical for the National Wildlife Refuge System.

The primary view from the overlook area of the refuge is of Great Bay, not Little Bay, and looking towards the Project corridor one would only see the very top of 1 or 2 structures (if they can be spotted at all) from a distance of 1.2 miles with the resulting minimal effect on visual or aesthetic qualities (see Exhibit 11). No conductors will be visible. The resource originally was a nuclear weapons depot and this fact is readily visible and a part of the visitor's experience. The shoreline trails in the Refuge are on the Newington side of Little Bay where structures will not be visible, and the primary trail has no potential visibility due to intervening vegetation.

Primary view from the viewing platform is toward Great Bay and away from the Project corridor.

The Great Bay photograph provided in this conclusion indicates that the views and focus for the water based experience are elsewhere – there are more expansive and engaging areas in the Little Bay and Great Bay waterbodies where boaters can find more pleasing scenic qualities. Overall, the collection of photos in this section helps to underline the important fact that the visibility of the Project corridor from sensitive resources and recreational areas are for the most part limited.

4. UNH/ DURHAM CAMPUS

While the UNH Campus is not necessarily considered a scenic resource in and of itself, it is an important resource that has a large population of students and staff/faculty, along with visitors. There are sections of the campus that are indeed aesthetically pleasing and historic and contemporary architecture coupled with mature campus landscaping and open space create a pleasing visual environment. The Project corridor follows an existing and well-established infrastructure corridor (see the diagram entitled "Infrastructure and Development") that includes distribution lines and the railroad ROW that the Seacoast Reliability Project will be co-located with. In consultation with the Town and UNH, Eversource will bury a 0.4 mile section of the transmission line on either side of Main Street. Beyond this section the line will continue as an overhead design as it heads northerly adjacent to an area of extensive parking lot infrastructure on the campus. The burial will remove any structures from the vicinity of the historic train station located adjacent to the ROW on the westerly side.

To either side of the proposed underground section, the campus has a distinctly utilitarian quality in terms of visual character and land use. The addition of structures ranging in height from a median of 88 feet to the highest at 105 feet will result in a change in visibility in this section of the Project. At the same time it is reasonable to expect that a vital existing utility corridor such as this one will change over time with the reconfiguration of existing or the addition of new lines. The existing conditions and visual elements in this area of the campus include a number of surrounding elements that are vertical in nature including smokestacks (one of which is distinctly higher than the proposed new transmission line structures), trees, light poles, tall high-powered light structures at the athletic stadium, and distribution lines. This area of the campus is already well established with University infrastructure and includes physical plant buildings adjacent to it, providing a sense that portions of this area are part of the University's more utilitarian and functional areas – not primary campus focal points or gathering areas. Thus, it is not unexpected to see utility structures, albeit some that are higher than those that are present today. But the scale and height will only be prominent from a very limited set of vantage points, and the primary vantage points from the street and sidewalks along Main Street as well as adjacent areas will not be impacted or altered visually by tall structures in this specific section of the campus. This is a very busy area visually as described, with existing utility lines, tall structures of different types, traffic, buildings, the railroad corridor, etc., and this fact will help accommodate the transition structures that will be placed .15 mile to the north of the Main Street crossing and .25 mile to the south. These structures will not seem overly dominant or overwhelming - or serve as any type of focal point or be viewed as a significant visual intrusion. The structures will be dark colored weathering steel monopole to help them blend in with surrounding buildings and wooded areas. Transition structures are necessary at this location for the undergrounding of the transmission line and do represent a trade-off when implementing this type of mitigation measure.

5. Mitigation Measures

Eversource officials conducted outreach and presentation efforts in order to present the proposed Project to local residents and officials and to solicit feedback and/or the need for revisions to the overall design and layout. Several mitigation, avoidance, and minimization measures that reduce the visibility of the Project have been employed in the planning and design of this Project and they include:

1) The co-location of the new transmission line in an existing corridor, as previously discussed coupled with the use of existing substations. Although the lack of any new substation expansion associated with this Project may not

necessarily be considered an avoidance/minimization measure, this is a factor that should be highlighted nonetheless. Many projects of this type do require additional substation components.

2) The selection of structure types, heights, and placements to reduce visual presence. Higher monopole structures of weathering steel in some locations take the conductors out of the direct eyesight of a potential viewer, and the weathering steel allows the structures to be better assimilated into background elements and vegetation. Skylining is limited due to the lack of distant perspectives from which to view the Project, as seen for example, in most of Durham. Views of these structures will be limited at best in the residential neighborhoods to the east of Route 108.

3) The use of two structures versus a single monopole structure in some locations. Although there is a certain symmetry and lack of clutter when two circuits are co-located onto a single structure, this typically results in higher structures and some increased visibility of the Project. When two structures of different heights are located side by side, this may reduce visual symmetry within the ROW but the key result when this option is exercised as a mitigation measure is the reduction of structure heights and the corresponding decrease in visibility within the viewshed. This option was employed in an area adjacent to neighborhoods where visibility of the ROW itself was limited, but concerns were expressed regarding the visibility of structures above treelines. In fact, outreach efforts with stakeholders and neighbors were conducted to review the Project design, and Eversource made modifications in consultation with local residents to lessen visibility of the Project where appropriate and feasible.

4) Eversource will continue to retain, where possible, vegetative buffers to provide screening at road crossings. The utility will also perform selective vegetative management methods where appropriate - an approach that they are already employing effectively in the Project area. Where existing vegetation may be cleared due to construction activities at road crossings and along the ROW, it has been recommended that vegetation be allowed to grow back – an effective approach as natural re-vegetation has been demonstrated to occur very quickly and provide appropriate buffering and de-emphasis of corridor clearings, structures and associated elements. Any natural re-vegetation will be allowed to occur within established procedures, safety and reliability standards (such as height and proximity limits) and overall applicable vegetation management requirements and protocols.

5) An additional mitigation measure related to aesthetics is the implementation of a post construction review. Eversource will conduct, as is typically done by the utility, a post construction review with individual property owners, as appropriate. This has been a successful approach employed on other transmission projects.

6) The placement of the proposed new transmission line under the waters of Little Bay/Great Bay eliminates Project visibility for boaters navigating this area of the Project.

7) The undergrounding of the Project in Durham in consultation with the Town and UNH. At the point at which the existing ROW crosses Main Street within the UNH campus, 0.4 miles of the Project will be placed underground essentially eliminating the visibility of the Project from the vicinity of Main Street. The use of monopoles of dark weathering steel on either side of the underground portion at Main Street will also help the Project blend in and be less prominent in these areas that are less intensively developed and have a more wooded character in the background.

This photo represents a typical view of the corridor crossings in the Sandy Brook Drive neighborhood, Durham. The Project will replace existing structures with a single co-located structure. Although the Project will require the clearing of the corridor to the full ROW width of 100', selected vegetation that does not affect reliability will again be allowed to grow within the corridor as with the current conditions. This vegetation, as exemplified in this picture, helps to soften the Project elements and reduce the prominence of the corridor.

6. Conclusion

In conclusion, the mitigation, avoidance, and mitigation measures outlined in this review are all reasonable measures that collectively reduce the visibility of the Project. When taken together, the comprehensive approach to the visual assessment, and the detailed analysis and the factors and conclusions set forth in this section yield the unequivocal conclusion that Seacoast Reliability Project, as proposed, will not result in an unreasonable adverse effect on aesthetics resources in the Project area.

6. Bibliography

1. Adamowicz, Joe. *The New Hiking the Monadnock Region.* Hanover, NH: University Press of New England, 2007. Print.

2. *Adams Point Wildlife Management Area*. Hike-NewEngland.com, 2015. Web. http://www.hikenewengland.com/AdamsPointGen1.html

3. *Adams Point WMA*. NH Fish & Game Department Wildlife Management Areas. Web. http://www.wildlife.state.nh.us/Wildlife/WMA_maps/NH_WMA_map_Adams_Point.pdf

4. BLM Handbook H-8410-1, Visual Resource Inventory.

5. Burk, John S. *The Wildlife of New England.* Durham, NH: University of New Hampshire Press, 2011. Print.

6. *College Woods*. UNH College of Life Sciences and Agriculture, 2011. Web. http://colsa.unh.edu/woodlands/properties/collegeWoods

7. *Collins English Dictionary*. HarperCollins. Web. www.collinsdictionary.com

8. *Cultural History: Cultural History of the Great Bay Region*. Great Bay National Estuarine Research Reserve. State of New Hampshire, 2011. Web. http://www.greatbay.org/about/history.htm

9. *Cy and Bobbie Sweet Trail Map & Guide*. The Nature Conservancy. Web. http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/newhampshire/placesweprotect/sweet-trail-map-guide-for-web.pdf

10. *East Foss Farm*. UNH College of Life Sciences and Agriculture, 2013. Web. http://www.colsa.unh.edu/facility/east-foss-farm

11. *East Foss Farm Interpretive Trail Guide*. UNH Cooperative Extension. Web. https://extension.unh.edu/resources/files/Resource000422_Rep444.pdf

12. Eisenhaure, Steve. *College Woods Management Plan*. UNH Office of Woodlands and Natural Areas, 2012. Web. https://colsa.unh.edu/woodlands/sites/colsa.unh.edu.woodlands/files/docs/cwmppdf2014.pdf

13. *Facilities*. Newmarket Recreation, 2014. Web. http://www.newmarketrec.org/facilities/

14. Furby, L., P. Slovic, B. Fischhoff and R. Gregory. 'Public Perceptions of Electric Power Transmission Lines.' *Journal of Environmental Psychology 8*. 1988. 19-43.

15. *Hilton Park at Dover Point.* SeacoastNH.com, 2013. Web. http://www.seacoastnh.com/Travel/Scenic-Walks/hilton-park-at-dover-point

16. Gottman, Jean. *Megalopolis*. Cambridge, MA: MIT Press 1961, 7th ed., 1973. Print.

17. *Great Bay National Wildlife Refuge*. U.S. Fish & Wildlife Service, 2009. Web. http://www.fws.gov/uploadedFiles/Region_5/NWRS/North_Zone/Great_Bay_Complex/Great_Bay/GreatBay Brochure.pdf

18. *Great Bay (New Hampshire)*. Wikipedia, 2015. Web. http://en.wikipedia.org/wiki/Great_Bay_(New_Hampshire)

19. *Great Bay Resource Partnership*. Web. http://www.greatbaypartnership.org/index.html

20. Hayes, John and Alex Wilson. *Quiet Water: New Hampshire & Vermont*. Boston, MA: Appalachian Mountain Club Books, 2nd ed., 2001. Print.

21. Hickoff, Steve and Rhey Plumley. *Flyfisher's Guide to Northern New England*. Belgrade, MT: Wilderness Adventure Press, 1999. Print.

22. *Kingman Farm Madbury Town Hall Trails Map*. Town of Madbury, 2007. Web.

23. http://townofmadbury.com/KingmanFarmMadburyTownHallTrailsMap2007.pdf

24. Loughlin, Kelle. *Great Bay Discovery Center Offers Kayak Tours of Great Bay.* NH Fish and Game, 9 June 2009. Web. http://www.wildlife.state.nh.us/Newsroom/News_2009/News_2009_Q2/kayak_tours_GB_060909.html

25. *Merriam-Webster Dictionary.* Web. www.merriam-webster.com

26. More, Thomas A, Susan Bulmer, Linda Henzel, and Ann E. Mates. *Extending the Recreation Opportunity Spectrum to Nonfederal Lands in the Northeast: An Implementation Guide.* Gen. Tech. Rep. NE-309. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station, 2003. Print.

27. *The National Parks: Index 2009-2011*. U.S. Dept. of the Interior National Park Service, 3 January 2009.

28. *Natural Heritage: The Great Bay Estuary: A Dynamic Meeting Place*. Great Bay National Estuarine Research Reserve. State of New Hampshire, 2011. Web. http://www.greatbay.org/about/heritage.htm

29. NCHRP Report 741: Evaluation of Methodologies for Visual Impact Assessments, Transportation Research Board, Washington D.C., 2013

30. *New Hampshire*. NH Department of Resources and Economic Development. 2015. Web. http://www.visitnh.gov/.

31. *New Hampshire Fish and Game*. NH Fish and Game Dept, 2011. Web. http://www.wildnh.com/marine/coastal_access.html

32. *New State Scenic and Cultural Byways Designated*. NH Department of Transportation, 12 May 2014. Web.

33. http://www.nh.gov/dot/media/2014/pr-2014-05-12-scenic-culteral-byways.htm

34. *Newington, NH.* Town of Newtington, NH. Web. http://www.newington.nh.us

35. *Parks and Playgrounds.* Portsmouth Department of Public Works, 2013. Web. http://www.cityofportsmouth.com/maps/ParksPlaygrounds8x11.pdf

36. *NH Official List of Public Waters Revision Date January 17, 2014*, New Hampshire Department of Environmental Services Water Division Dam Bureau.

37. *NH Weekly Fishing Report – June 2, 2011*. NH Fish and Game, 2 June 2011. Web. http://www.wildlife.state.nh.us/Fishing/Fishing_Reports/2011/060211.html

38. *Outdoor Recreation Sites*. Town of Durham Parks and Recreation. Web. https://www.ci.durham.nh.us/recreation/outdoor-recreation-sites

39. *Oxford English Dictionary.* Oxford University Press. Web. www.oed.com

40. Perron, Christine J. *West Foss Farm Forest Stewardship Plan*. UNH, 2004. Web.

41. https://colsa.unh.edu/woodlands/sites/colsa.unh.edu.woodlands/files/docs/WestFossFarm.pdf

42. Pletcher, Larry. *Hiking New Hampshire.* Guilford, CT: Morris Book Publishing, 2nd ed., 2001. Print.

43. Rogers, Barbara Radcliffe and Stillman Rogers. *Off the Beaten Path New Hampshire*. Guilford, CT: GPP Travel, 8th ed., 2009. Print.

44. Rogol, Josh, Mary Ruoff, Laura V Scheel and Eliot Sloan. *Fodor's Maine, Vermont and New Hampshire.* New York, NY: Fodor's Travel, 2013. Print.

45. Rous, Emma. *North Country, New Hampshire Stories*. 18 November 2013. Web. http://www.northcountrynhstories.org/story_Emma_Rous.html

46. Sheppard, Stephen R J. *Visual Simulation: A User's Guide for Architects, Engineers and Planners.* New York, NY: Van Nostrand Reinhold, 1989. Print.

47. Smardon, Richard C (Ed.) *The Future of Wetlands: Assessing Visual-Cultural Value*. New Jersey: Allanheld, Osmun & Co. Publishers Inc, 1983. 175. Print.

48. Smardon, Richard C, James F Palmer, Alfred Knopt, Kate Grinde. *Visual Resources Assessment Procedure for US Army Corps of Engingeers*. 1988. Print.

49. Smith, Steven D and Gene Daniell. *Southern New Hampshire Trail Guide*. Boston, MA: Appalachian Mountain Club Books, 3rd ed., 2010. Print.

50. Snyder, Ellen. *Doe Farm Stewardship Plan*. Durham Conservation Commission, 2009.

51. http://www.prep.unh.edu/resources/pdf/doe_farm_stewardship-tod-09.pdf

52. Sperduto, Dan and Ben Kimball. *The Nature of New Hampshire*. Lebanon, NH: University Press of New England, 2011. 35-36. Print.

53. *Stratham Bridge*. NH Department of Transportation. Web. http://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents/bridge_book_stratham.pdf

54. Tourville, Jacqueline. *Moon New Hampshire Hiking*. Berkeley, CA: Avalon Travel, 2010. Print.

55. *Transportation Improvement Program*. FHWA, Publication No. FY2015 – FY2018. 2014. Web. http://www.efl.fhwa.dot.gov/files/programs/tip/EFLHD-DRAFT-TIP_FY-2015-2018.pdf

56. Tree, Christina and Christine Hamm. *An Explorer's Guide: New Hampshire*. Woodstock, VT: The Countryman Press, 7th ed., 2010. Print.

57. *Visibility and Visual Impact Assessment, Southern Rhode Island Transmission Project*. Environmental Design & Research, P.C., for The Narragansett Electric Company. Syracuse, NY, October 2005. Print.

58. *Visual Impact Assessment for Highway Projects*, FHWA, Publication No. FHWA-HI-88-054: 97-98.

59. *Virtual Framework for Vulnerability Assessment*. U.S. Department of Transportation Federal Highway Administration. 9 February 2015. Web. http://www.fhwa.dot.gov/environment/climate_change/adaptation/adaptation_framework

60. *Wagon Hill Farm*. Town of Durham Conservation Commission. Web. https://www.ci.durham.nh.us/boc_conservation/wagon-hill-farm

61. Wallace, R Stuart. *New Hampshire History in Brief*. New Hampshire Division of Historical Resources. 2007. 18 November 2013. Web. http://www.nh.gov/nhdhr/markers/brief.html

62. *West Foss Farm*. UNH College of Life Sciences and Agriculture, 2011. Web. http://colsa.unh.edu/woodlands/properties/westFossFarm

EXHIBIT 1: 10-MILE POTENTIAL VIEWSHED MAP TOPO/VEG

SEACOAST RELIABILITY PROJECT

0 0.5 1 2 3 4 5 6

Miles

LEGEND

N

- # Resources with Visual Sensitivity
- Project Route
- 10-Mile Radius
- Town Boundaries

Areas With Potential Visibility*

- Other Areas
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity

*Classifications are based on the MRLC National Land Cover Database dassification system. Most developed areas (low to high intensity) will typically have filtered or no views of the project due to intervening structures.

Viewshed mapping is generated from the top of each structure and accounts only for deciduous, coniferous, and mixed forest cover at an assumed height of 40 feet. This viewshed does not account for the screening effects of buildings, structures, site specific vegetation, actual tree height and density, variations in eyesight, and atmospheric and weather conditions. Not all structures (or portions of structures) will be visible. Therefore, the viewshed map will often overstate potential visibility. It does not and cannot represent actual conditions on the ground. Viewshed mapping is based on best available data at the time from Eversource, NH GRANIT and USGS. Mapping is only as accurate as the original source. LandWorks does not guarantee the accuracy of this information.

Prepared by: LandWorks
Prepared for: Eversource

April 2016

EXHIBIT 2: 3-MILE POTENTIAL VIEWSHED MAP TOPO/VEG

SEACOAST RELIABILITY PROJECT

0 0.5 1 2 3

Miles

LEGEND

N

- # Resources with Visual Sensitivity
- Project Route
- State Byway
- Scenic Drive
- Local Scenic Road
- National Wild and Scenic River
- NH Designated River
- 3-Mile Project Radius
- Town Boundaries

Areas With Potential Visibility*

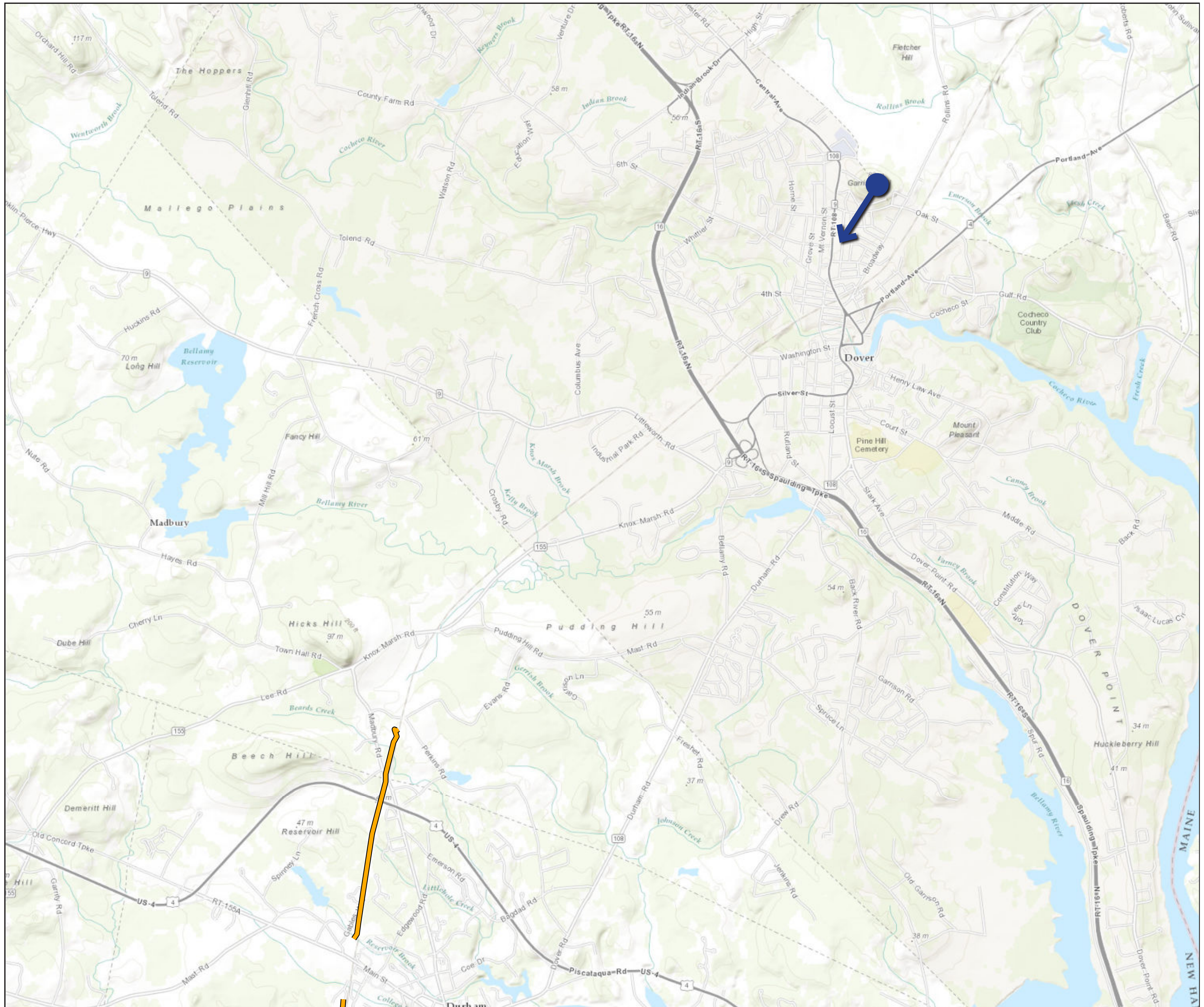
- Other Areas
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity

*Classifications are based on the MRLC National Land Cover Database classification system. Most developed areas (low to high intensity) will typically have filtered or no views of the project due to intervening structures.

Viewshed mapping is generated from the top of each structure and accounts only for deciduous, coniferous, and mixed forest cover at an assumed height of 40 feet. This viewshed does not account for the screening effects of buildings, structures, site specific vegetation, actual tree height and density, variations in eyesight, and atmospheric and weather conditions. Not all structures (or portions of structures) will be visible. Therefore, the viewshed map will often overstate potential visibility. It does not and cannot represent actual conditions on the ground. Viewshed mapping is based on best available data at the time from Eversource, NH GRANIT and USGS. Mapping is only as accurate as the original source. LandWorks does not guarantee the accuracy of this information.

Prepared by: LandWorks
Prepared for: Eversource

April 2016



View Location Map

0' 2000' 4000'

Simulation Information

Base Photograph
Date: 2/6/16
Time: 4:27 pm
Weather conditions: Partly Cloudy
Image Size: 5472 x 3648 pixels

Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 3
Location: Garrison Hill Tower, Dover, NH
Classification: Resource
Orientation: South
Latitude/Longitude: 43.209557°, -70.869619°
Camera elevation above sea level: 375.00' (114.3 m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 10.71 miles (17.24 km)
Distance to furthest visible structure: 10.83 miles (17.43 km)

Proposed Structure Information
Visible structure type: Weathering steel monopole
Visible structure numbers: F107-72 - F107-75, F107-89 - F107-93
Height range of proposed transmission structures (visible): 84' - 98', 84' - 103'
Height range of existing transmission structures (visible): N/A
Right of way width: 130'

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information
Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second

Aerial Context Map

0' 150' 300'

EXHIBIT 3: EXISTING CONDITIONS AT GARRISON HILL TOWER, DOVER (SHEET 2 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

Visible structures

EXHIBIT 3: VISUAL SIMULATION OF PROPOSED CONDITIONS AT GARRISON HILL TOWER, DOVER (SHEET 3 OF 3)

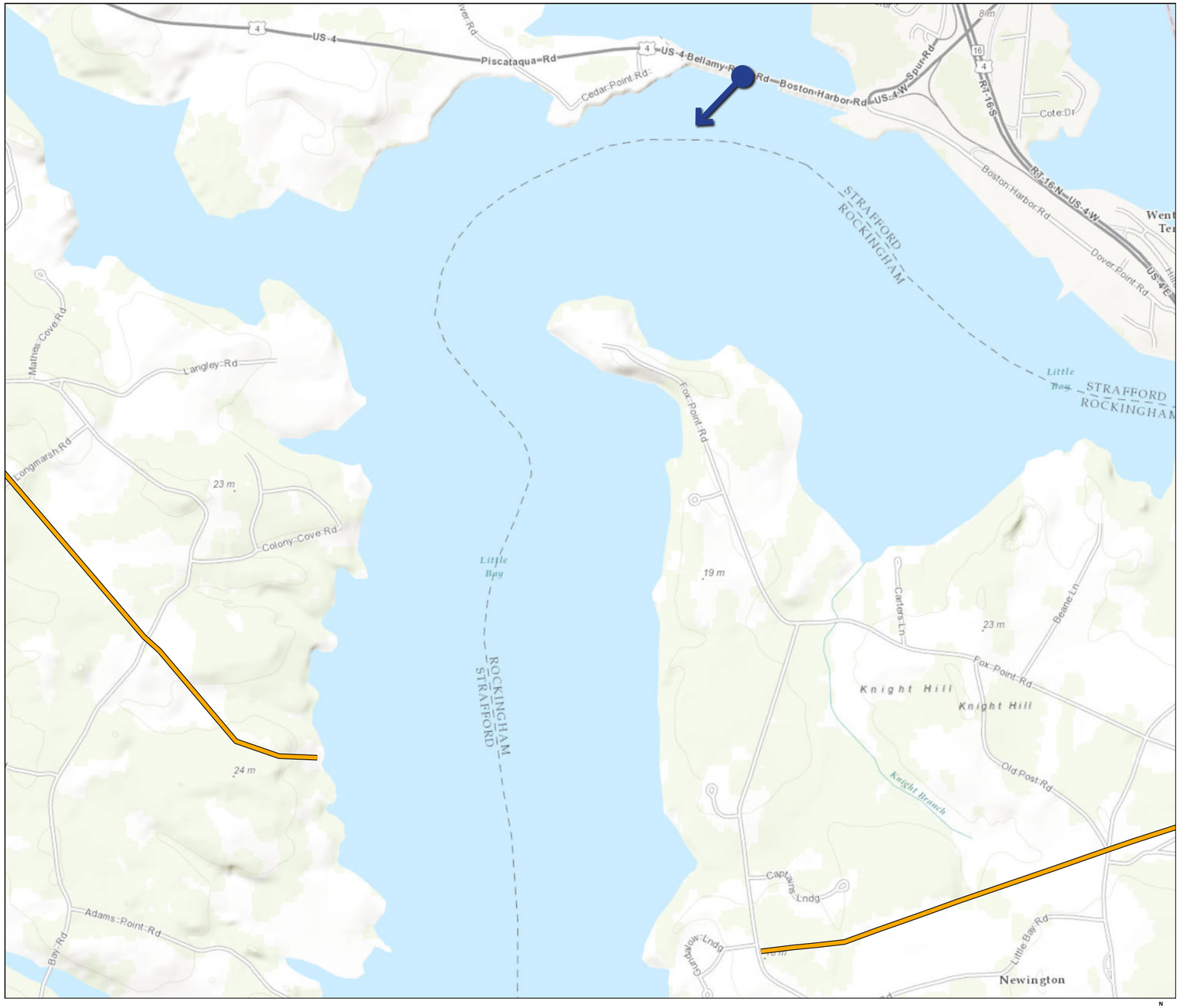
SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 4: SCAMMELL BRIDGE, DURHAM (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016



View Location Map

0' 750' 1500' N

Simulation Information

Base Photograph
Date: 11/20/15
Time: 11:15 pm
Weather conditions: Sunny
Image Size: 5472 x 3648 pixels

Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 4
Location: Scammell Bridge, Durham, NH
Classification: Resource
Orientation: West/Southwest
Latitude/Longitude: 43.129481°, -70.850172°
Camera elevation above sea level: 20.00' (6.10m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 1.99 miles (3.20 km)
Distance to furthest visible structure: 2.01 miles (3.23 km)

Proposed Structure Information
Visible structure type: Weathering steel monopole
Visible structure numbers: F107-89, F107-90
Height range of proposed transmission structures (visible): 88', 103'
Height range of existing transmission structures (visible): N/A
Right of way width: 130'

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information
Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second

Aerial Context Map

0' 150' 300' N

Prepared by **LandWorks**, Middlebury, VT
Prepared for Eversource

EXHIBIT 4: EXISTING CONDITIONS FROM SCAMMELL BRIDGE, DURHAM (SHEET 2 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

Visible structures

EXHIBIT 4: VISUAL SIMULATION OF PROPOSED CONDITIONS FROM SCAMMELL BRIDGE, DURHAM (SHEET 3 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 5: LITTLE BAY, DURHAM (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

0' 750' 1500' N

View Location Map

Simulation Information

Base Photograph
Date: 1/20/15
Time: 4:31 pm
Weather conditions: Sunny
Image Size: 5472 x 3648 pixels

Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 5
Location: Little Bay, Durham, NH
Classification: Resource
Orientation: West/Northwest
Latitude/Longitude: 43.105286°, -70.868028°
Camera elevation above sea level: 3.00' (0.91 m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 0.17 miles (0.27 km)
Distance to furthest visible structure: 0.22 miles (0.35 km)

Proposed Structure Information
Visible structure type: Weathering steel monopole
Visible structure numbers: F107-100, F107-101
Height range of proposed transmission structures (visible): 70', 80'
Height range of existing transmission structures (visible): N/A
Right of way width: 130'

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information
Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second

0' 150' 300' N

Aerial Context Map

Prepared by **LandWorks**, Middlebury, VT
Prepared for Eversource

EXHIBIT 5: EXISTING CONDITIONS AT LITTLE BAY, DURHAM (SHEET 2 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 5: VISUAL SIMULATION OF PROPOSED CONDITIONS AT LITTLE BAY, DURHAM (SHEET 3 OF 3)

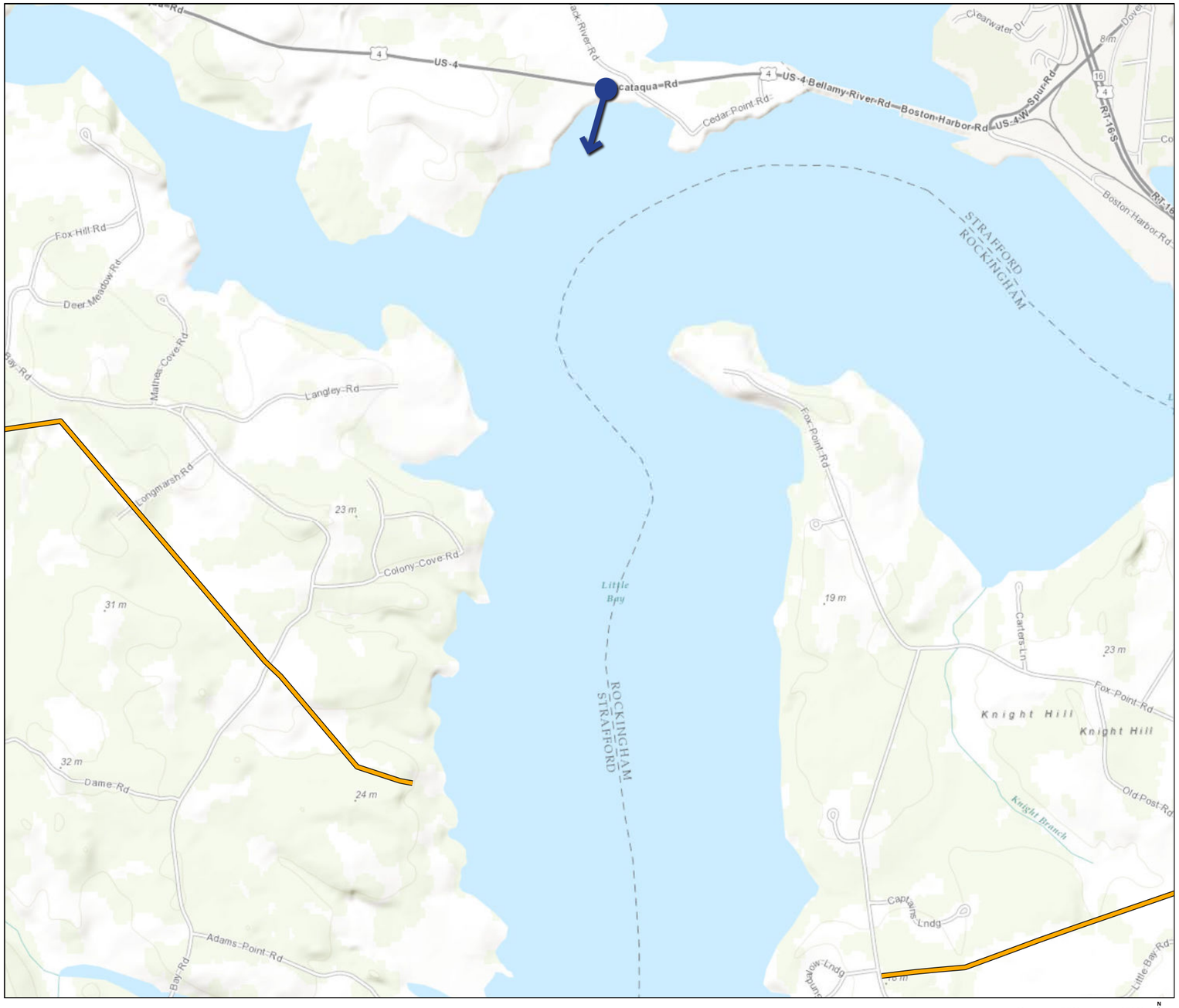
SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 6: ROUTE 4 CEDAR POINT, DURHAM (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016



View Location Map

0' 750' 1500' N

Simulation Information

Base Photograph
Date: 1/20/15
Time: 4:31 pm
Weather conditions: Sunny
Image Size: 5472 x 3648 pixels

Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 6
Location: Route 4 Cedar Point, Durham, NH
Classification: Resource
Orientation: South / Southwest
Latitude/Longitude: 43.12987°, -70.861678°
Camera elevation above sea level: 20.00' (6.10 m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 1.75 miles (2.81 km)
Distance to furthest visible structure: 1.76 miles (2.83 km)

Proposed Structure Information
Visible structure type: Weathering steel monopole
Visible structure numbers: F107-101
Height range of proposed transmission structures (visible): 80'
Height range of existing transmission structures (visible): N/A
Right of way width: 130'

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information
Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second

Aerial Context Map

0' 150 300' N

Prepared by **LandWorks**, Middlebury, VT
Prepared for Eversource

EXHIBIT 6: EXISTING CONDITIONS FROM ROUTE 4 CEDAR POINT, DURHAM (SHEET 2 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

Visible structure

EXHIBIT 6: VISUAL SIMULATION OF PROPOSED CONDITIONS FROM ROUTE 4 CEDAR POINT, DURHAM (SHEET 3 OF 3)

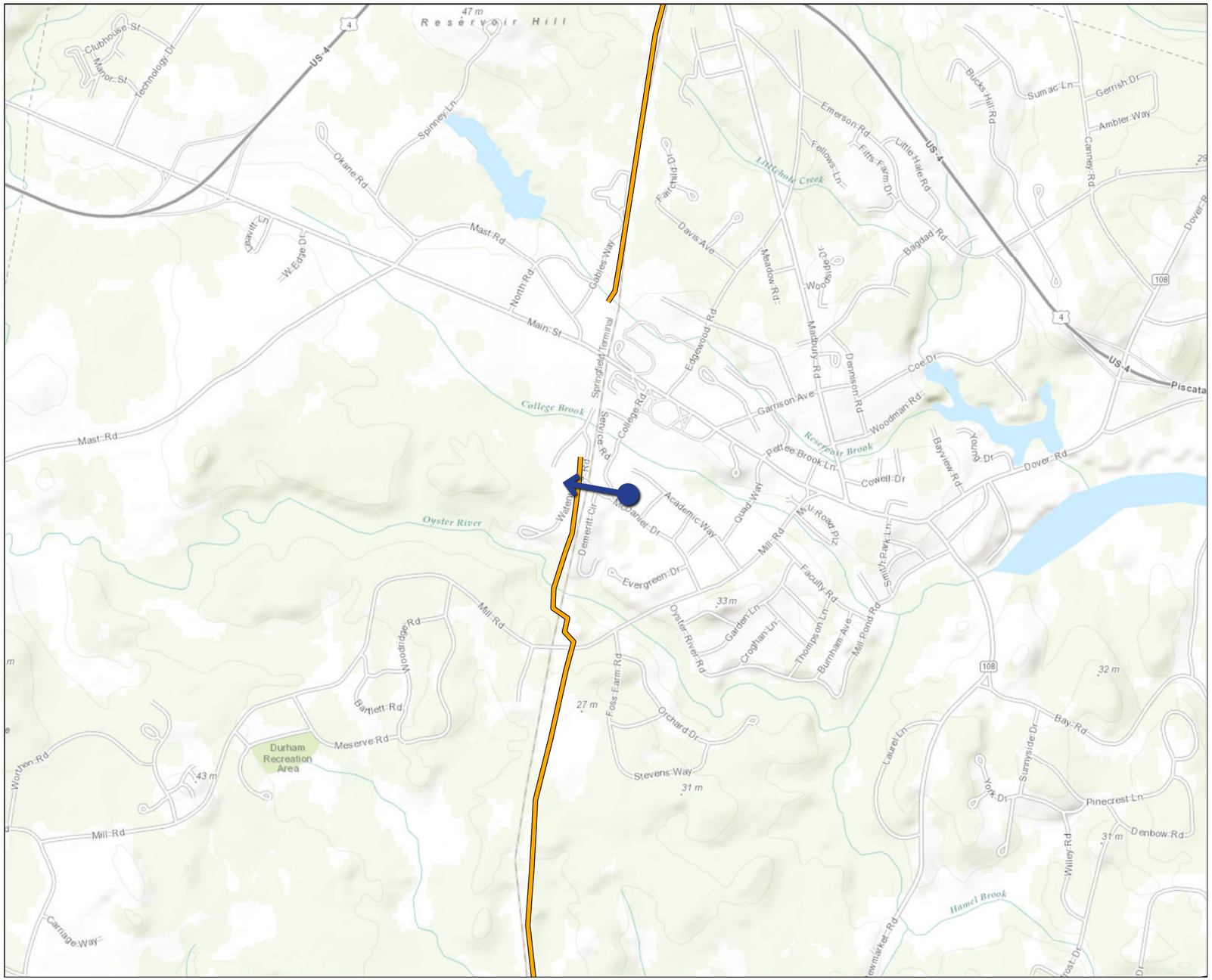
SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 7: KINGSBURY HALL, UNH, DURHAM, NH (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016



View Location Map

0' 750' 1500' N

Simulation Information

Base Photograph
Date: 11/20/14
Time: 1:36 pm
Weather conditions: Partly cloudy
Image Size: 5472 x 3648 pixels

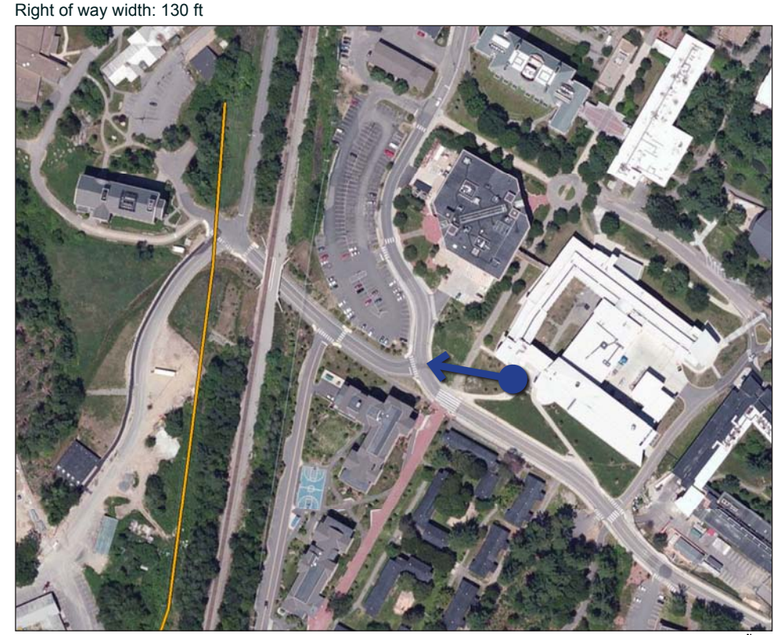
Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 7
Location: Entrance to Kingsbury Hall, UNH, Durham, NH
Classification: Resource
Orientation: West
Latitude/Longitude: 43.133910°, -70.935502°
Camera elevation above sea level: 90.00 ft (27.4m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 0.127 miles (.205 km)
Distance to furthest visible structure: N/A

Proposed Structure Information
Visible structure type: Weathering steel monopole
Visible structure numbers: F107-25
Height range of proposed transmission structures (visible): 95'
Height range of existing transmission structures (visible): N/A
Right of way width: 130 ft

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set and Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. Simulation is based upon a preliminary design. Exact structure height, location and color will be finalized during the detail design and permitting process.
3. Vegetation represented as 3-5 years post installation.

Technical Information
Software: ArcGIS ArcMap 10; Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset 1/3 Arc-Second (NED 1/3)



Aerial Context Map

0' 150' 300' N

Prepared by **LandWorks**, Middlebury, VT
Prepared for Eversource

EXHIBIT 7: EXISTING CONDITIONS FROM KINGSBURY HALL, UNH, NH (SHEET 2 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

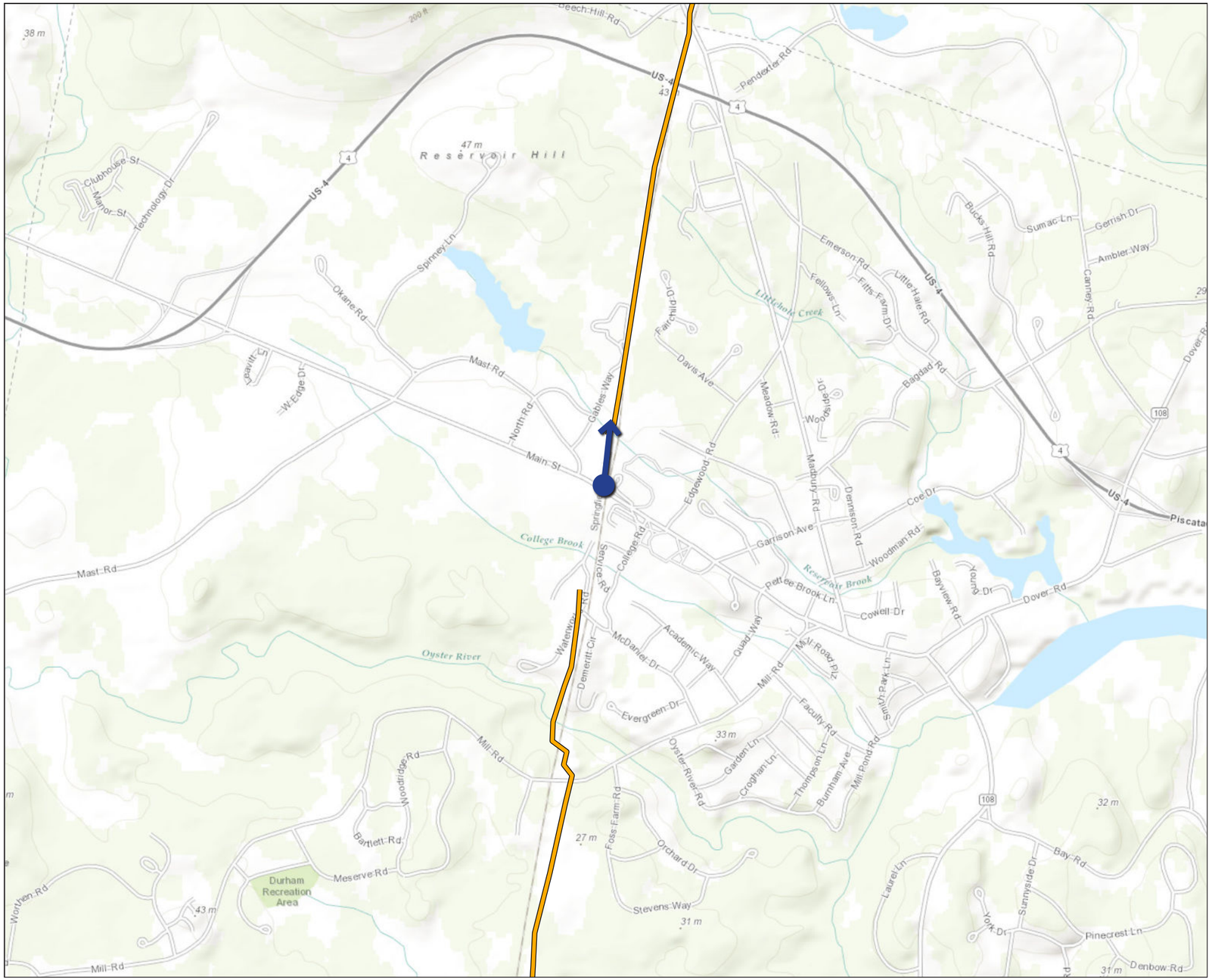
EXHIBIT 7: VISUAL SIMULATION OF PROPOSED CONDITIONS FROM KINGSBURY HALL, UNH, NH (SHEET 3 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 8: DURHAM MAIN STREET/UNH DAIRY BAR, DURHAM, NH (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT — February 2016



View Location Map

0' 750' 1500' N

Simulation Information

Base Photograph
Date: 5/30/14
Time: 12:05 pm
Weather conditions: Partly sunny
Image Size: 5472 x 3648 pixels

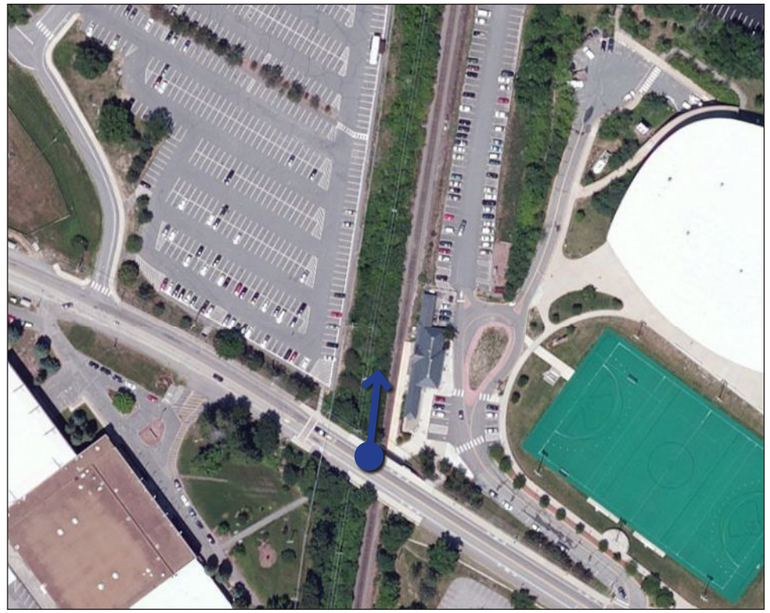
Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 8
Location: Main Street, Durham, NH
Classification: Resource
Orientation: North
Latitude/Longitude: 43.139067°, -70.936427°
Camera elevation above sea level: 127.27 ft (38.8m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: .140 miles (.225 km)
Distance to furthest visible structure: 1.01 miles (1.63 km)

Proposed Structure Information
Proposed structure type: Weathering steel single pole
Visible structure numbers: F107-15 - F107-26
Height range of proposed transmission structures (visible): 80 ft - 95 ft
Height range of existing transmission structures (visible): N/A
Right of way width: 130 ft

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set and Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. Simulation is based upon a preliminary design. Exact structure height, location and color will be finalized during the detail design and permitting process.

Technical Information
Software: ArcGIS ArcMap 10; Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset 1/3 Arc-Second (NED 1/3)



Aerial Context Map

0' 100' 200' N

Prepared by **LandWorks**, Middlebury, VT
Prepared for Eversource

EXHIBIT 8: EXISTING CONDITIONS FROM DURHAM MAIN STREET/UNH DAIRY BAR, DURHAM, NH (SHEET 2 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 8: VISUAL SIMULATION OF PROPOSED CONDITIONS FROM DURHAM MAIN STREET/UNH DAIRY BAR, DURHAM, NH (SHEET 3 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 9: WAGON HILL FARM, DURHAM (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

View Location Map

Simulation Information

Base Photograph
Date: 1/20/15
Time: 4:31 pm
Weather conditions: Sunny
Image Size: 5472 x 3648 pixels

Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 9
Location: Wagon Hill Farm, Durham, NH
Classification: Resource
Orientation: Southwest
Latitude/Longitude: 43.129244°, -70.871244°
Camera elevation above sea level: 66.00’ (20.12m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 1.16 miles (1.87 km)
Distance to furthest visible structure: 1.77 miles (2.85 km)

Proposed Structure Information
Visible structure type: Weathering steel monopole
Visible structure number: F107-81
Height range of proposed transmission structures (visible): 93’
Height range of existing transmission structures (visible): N/A
Right of way width: 130’

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information
Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second

Aerial Context Map

Prepared by **LandWorks**, Middlebury, VT
Prepared for Eversource

EXHIBIT 9: EXISTING CONDITIONS FROM WAGON HILL FARM, DURHAM (SHEET 3 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

Visible structure

EXHIBIT 9: VISUAL SIMULATION OF PROPOSED CONDITIONS FROM WAGON HILL FARM, DURHAM (SHEET 3 OF 3)

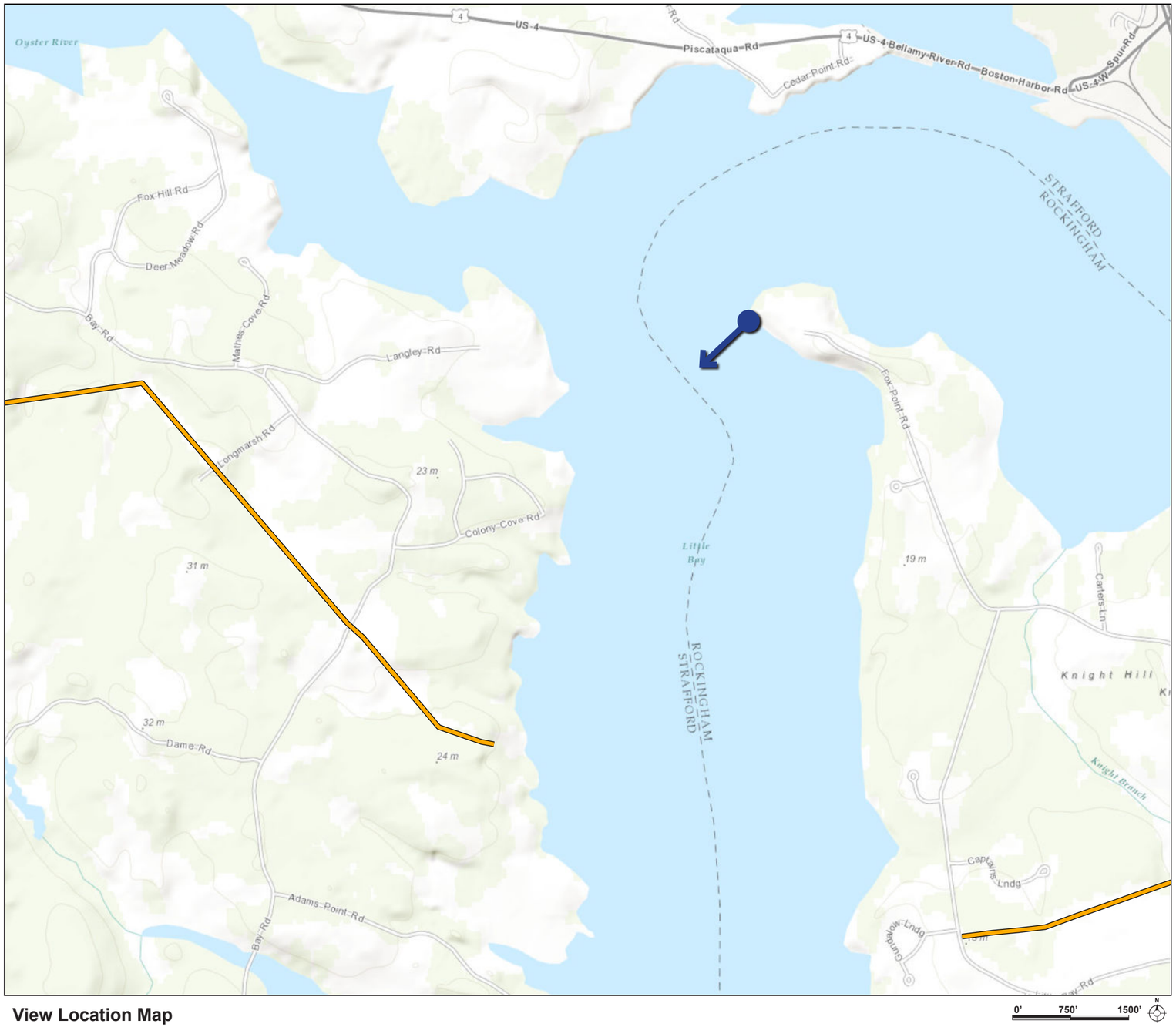
SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 10: FOX POINT, NEWINGTON (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016



View Location Map

Simulation Information

Base Photograph

Date: 8/20/14
Time: 12:09 pm
Weather conditions: Sunny
Image Size: 5472 x 3648 pixels

Camera Properties

Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information

View Location Name: Exhibit 10
Location: Fox Point, Newington, NH
Classification: Resource
Orientation: Southwest
Latitude/Longitude: 43.120399°, -70.85937°
Camera elevation above sea level: 25.00' (7.62m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 1.18 miles (1.88 km)
Distance to furthest visible structure: 1.24 miles (1.99 km)

Proposed Structure Information

Visible structure type: Weathering steel
Visible structure numbers: F107-100, F107-101
Height range of proposed transmission structures (visible): 70', 80'
Height range of existing transmission structures (visible): N/A
Right of way width: 130'

Visual Simulation Notes:

1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information

Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second

Aerial Context Map

Prepared by **LandWorks**, Middlebury, VT
Prepared for Eversource

EXHIBIT 10: EXISTING CONDITIONS AT FOX POINT, NEWINGTON (SHEET 2 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

Visible structures

EXHIBIT 10: VISUAL SIMULATION OF PROPOSED CONDITIONS AT FOX POINT, NEWINGTON (SHEET 3 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 11: GREAT BAY NATIONAL WILDLIFE SANCTUARY, NEWINGTON (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

View Location Map

Simulation Information

Base Photograph
Date: 1/20/15
Time: 4:31 pm
Weather conditions: Sunny
Image Size: 5472 x 3648 pixels

Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 11
Location: Great Bay NWS Platform, Newington, NH
Classification: Resource
Orientation: Northwest
Latitude/Longitude: 43.099747°, -70.834271°
Camera elevation above sea level: 75.00' (22.86 m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 1.18 miles (1.89 km)
Distance to furthest visible structure: 1.2 miles (1.94 km)

Proposed Structure Information
Visible structure type: Weathering steel monopole
Visible structure number: F107-101
Height range of proposed transmission structures (visible): 80'
Height range of existing transmission structures (visible): N/A
Right of way width: 130'

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information
Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second

Aerial Context Map

Prepared by **LandWorks**, Middlebury, VT
Prepared for Eversource

EXHIBIT 11: EXISTING CONDITIONS AT GREAT BAY NATIONAL WILDLIFE SANCTUARY, NEWINGTON (SHEET 2 OF 3)

Visible structure

EXHIBIT 11: VISUAL SIMULATION OF PROPOSED CONDITIONS AT GREAT BAY NATIONAL WILDLIFE SANCTUARY, NEWINGTON (SHEET 3 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 12: LITTLE BAY ROAD (FRINK FARM), NEWINGTON (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

View Location Map

0' 750' 1500' N

Simulation Information

Base Photograph
Date: 1/20/15
Time: 4:31 pm
Weather conditions: Sunny
Image Size: 5472 x 3648 pixels

Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 12
Location: Little Bay Road, Newmarket, NH
Classification: Resource
Orientation: North
Latitude/Longitude: 43.099747°, -70.834271°
Camera elevation above sea level: 85.00' (25.91 m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 0.12 miles (0.19 km)
Distance to furthest visible structure: 0.20 miles (0.33 km)

Proposed Structure Information
Visible structure type: Weathering steel monopole
Visible structure numbers: F107-110, F107-111
Height range of proposed transmission structures (visible): 70' -75'
Height range of existing transmission structures (visible): N/A
Right of way width: 130'

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information
Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second

Aerial Context Map

0' 150' 300' N

Prepared by **LandWorks**, Middlebury, VT
Prepared for Eversource

EXHIBIT 12: EXISTING CONDITIONS AT LITTLE BAY ROAD (FRINK FARM), NEWINGTON (SHEET 2 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 12: VISUAL SIMULATION OF PROPOSED CONDITIONS AT LITTLE BAY ROAD (FRINK FARM), NEWINGTON (SHEET 3 OF 3)

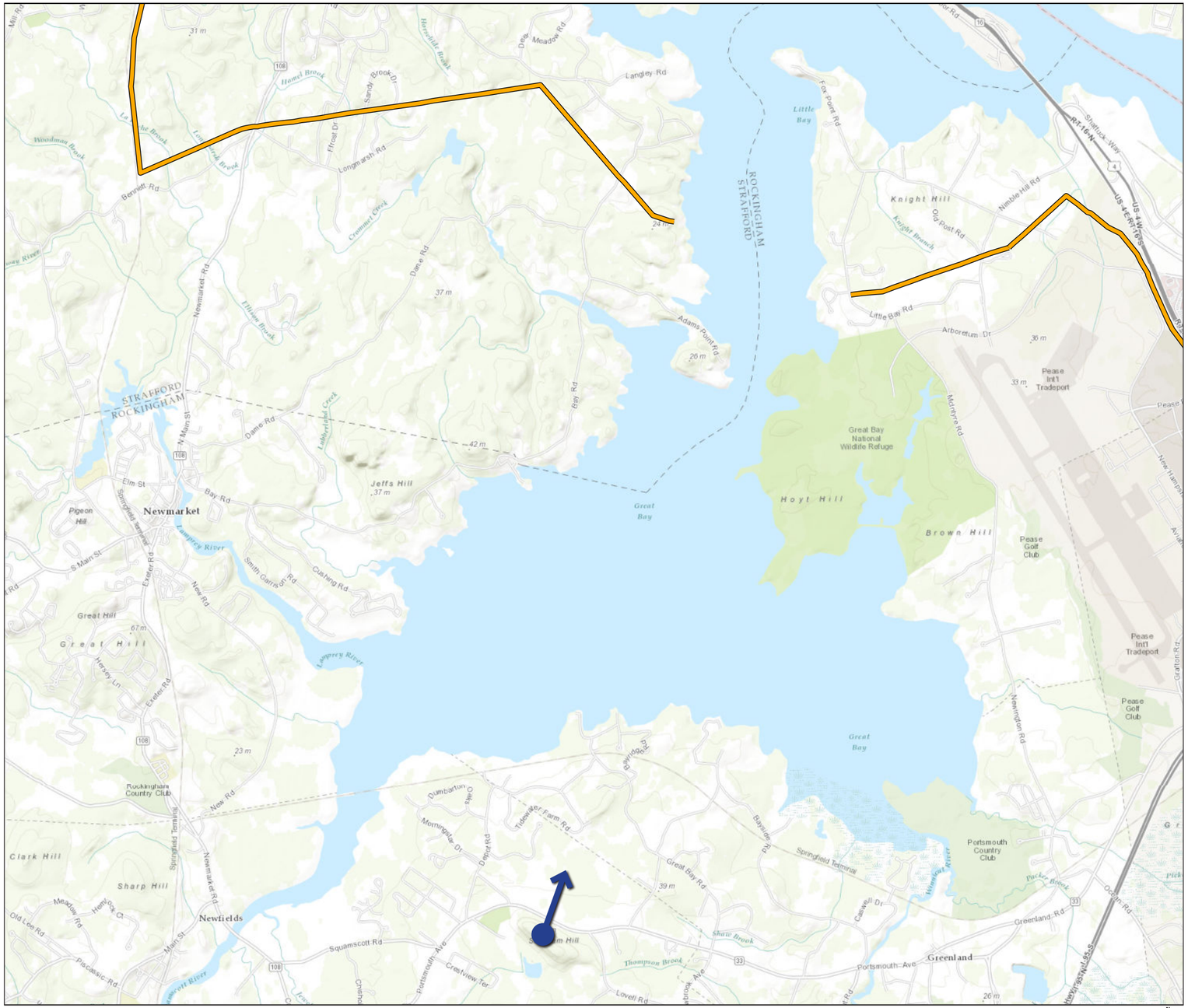
SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 13: STRATHAM HILL PARK, STRATHAM (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016



View Location Map

Simulation Information

Base Photograph
Date: 2/6/16
Time: 1:02 pm
Weather conditions: Partly Cloudy
Image Size: 5472 x 3648 pixels

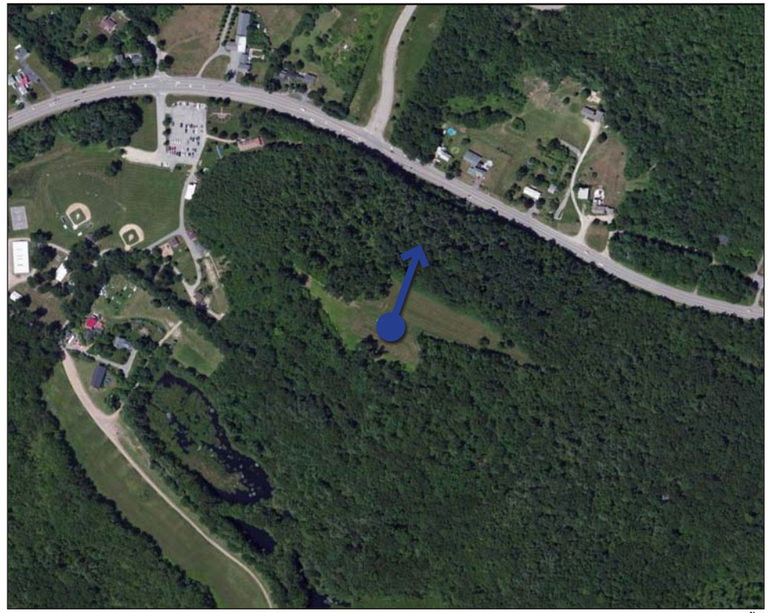
Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 13
Location: Stratham Hill park, Stratham, NH
Classification: Resource
Orientation: North / Northeast
Latitude/Longitude: 43.039483 °, -70.890094°
Camera elevation above sea level: 318.00' (96.93 m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 4.57 miles (7.36 km)
Distance to furthest visible structure: 5.20 miles (8.37 km)

Proposed Structure Information
Visible structure type: Weathering steel and H-Frame
Visible structure numbers: F107-92 - F107-111
Height range of proposed transmission structures (visible): 66' - 98'
Height range of existing transmission structures (visible): N/A
Right of way width: Varies

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information
Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second



Aerial Context Map

Prepared by **LandWorks**, Middlebury, VT
Prepared for Eversource

EXHIBIT 13: EXISTING CONDITIONS AT STRATHAM HILL PARK, STRATHAM (SHEET 2 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

Potential visible structures in this area

Potential visible structures in this area

EXHIBIT 13: VISUAL SIMULATION OF PROPOSED CONDITIONS AT STRATHAM HILL PARK, STRATHAM (SHEET 3 OF 3)

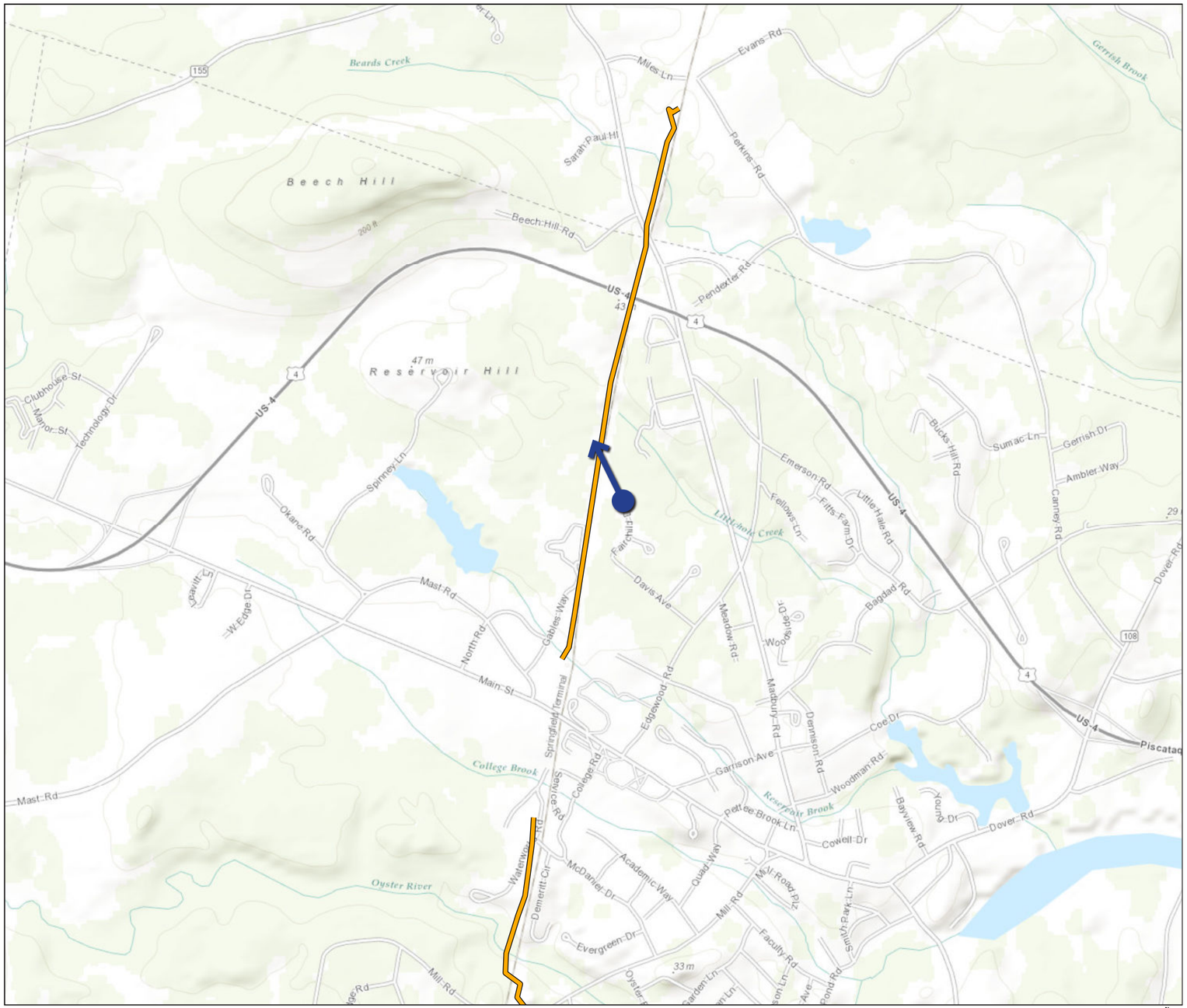
SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 14: FAIRCHILD DRIVE, DURHAM (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016



View Location Map

0' 750' 1500' N

Simulation Information

Base Photograph
Date: 5/29/15
Time: 1:05 pm
Weather conditions: Partly Cloudy
Image Size: 5472 x 3648 pixels

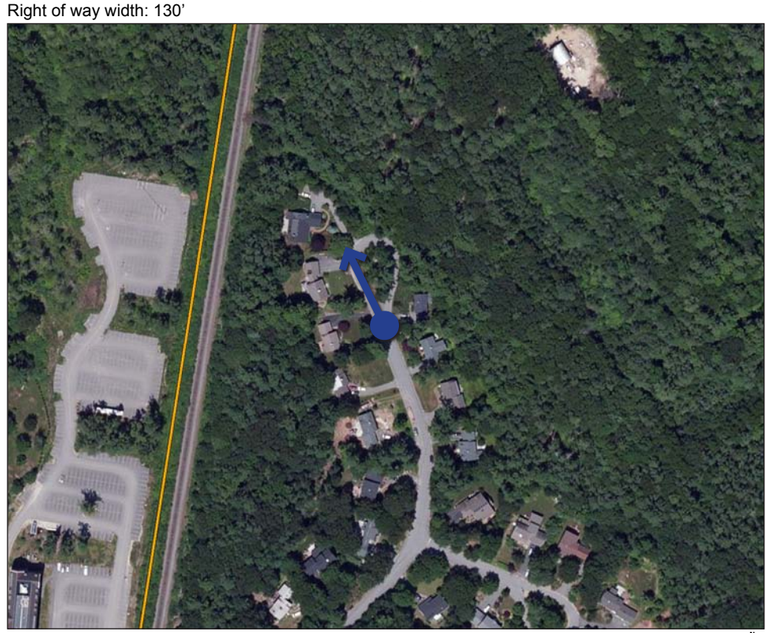
Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 14
Location: Fairchild Drive, Durham, NH
Classification: Private property
Orientation: North / Northwest
Latitude/Longitude: 43.146353°, -70.933311°
Camera elevation above sea level: 112.00' (34.14m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 0.09 miles (0.15 km)
Distance to furthest visible structure: N/A

Proposed Structure Information
Visible structure type: Weathering steel monopole
Visible structure numbers: F107-16
Height range of proposed transmission structures (visible): 93'
Height range of existing transmission structures (visible): N/A
Right of way width: 130'

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information
Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second



Aerial Context Map

0' 150' 300' N

EXHIBIT 14: EXISTING CONDITIONS AT FAIRCHILD DRIVE, DURHAM (SHEET 2 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

Visible structure

EXHIBIT 14: VISUAL SIMULATION OF PROPOSED CONDITIONS AT FAIRCHILD DRIVE, DURHAM (SHEET 3 OF 3)

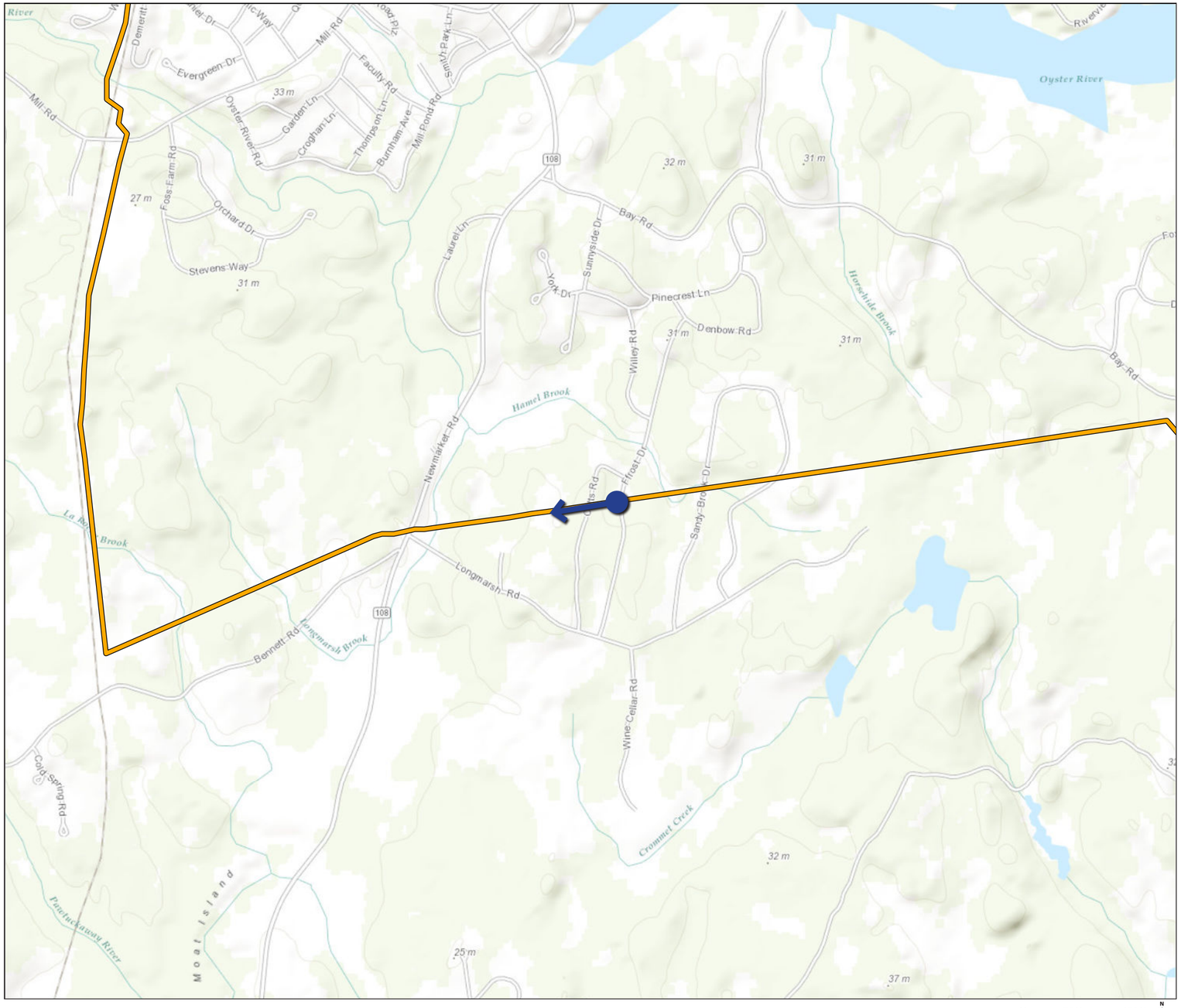
SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 15: FFROST DRIVE, DURHAM (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016



View Location Map

Simulation Information

Base Photograph
Date: 5/29/15
Time: 2:48 pm
Weather conditions: Partly Cloudy
Image Size: 5472 x 3648 pixels

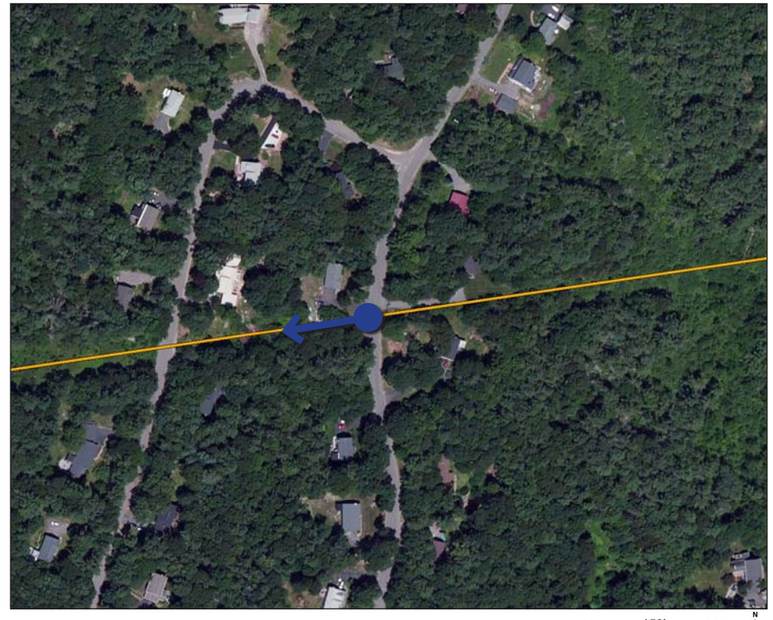
Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 15
Location: Hannah Lane, Newington, NH
Classification: Private property
Orientation: West/Southwest
Latitude/Longitude: 43.11574°, -70.91467°
Camera elevation above sea level: 85.00' (25.91 m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 0.02 miles (0.03 km)
Distance to furthest visible structure: 0.28 miles (0.45 km)

Proposed Structure Information
Visible structure type: Weathering steel monopole
Visible structure numbers: F107-64 - F107-68
Height range of proposed transmission structures (visible): 84' - 98'
Height range of existing transmission structures (visible): N/A
Right of way width: 130'

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information
Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second



Aerial Context Map

Prepared by **LandWorks**, Middlebury, VT
Prepared for Eversource

EXHIBIT 15: EXISTING CONDITIONS AT FFROST DRIVE, DURHAM (SHEET 2 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 15: VISUAL SIMULATION OF PROPOSED CONDITIONS AT FFROST DRIVE, DURHAM (SHEET 3 OF 3)

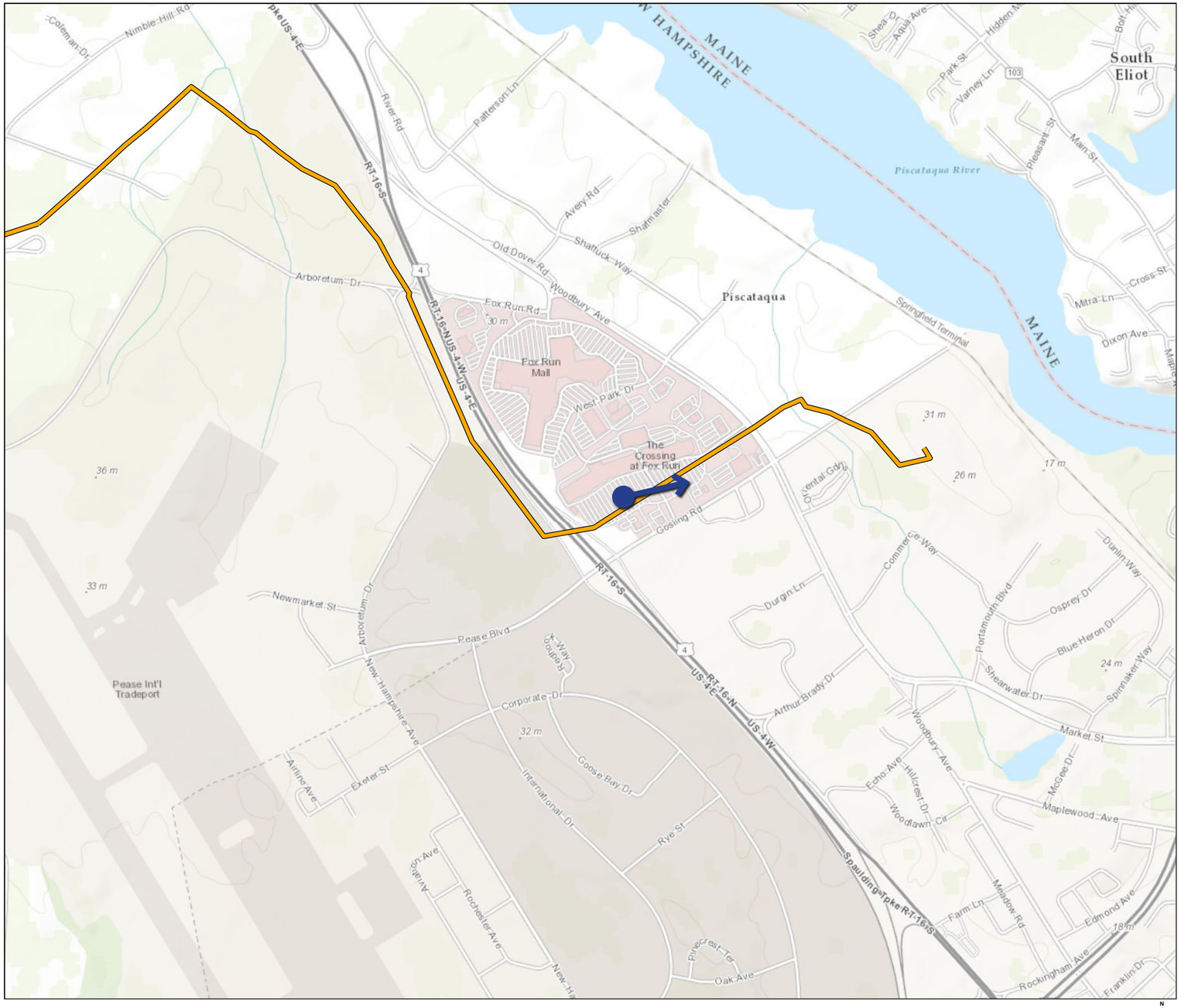
SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 16: NEWINGTON MALL SHOPPING CENTER, NEWINGTON (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016



View Location Map

Simulation Information

Base Photograph
Date: 2/6/16
Time: 3:52 pm
Weather conditions: Partly Cloudy
Image Size: 5472 x 3648 pixels

Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 16
Location: Newington Mall Shopping Center, Newington, NH
Classification: Private property
Orientation: East / Northeast
Latitude/Longitude: 43.092896°, -70.801486°
Camera elevation above sea level: 62.00' (18.90m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 0.06 miles (0.10 km); upgrade: 0.15 miles (0.25 km)
Distance to furthest visible structure: 0.44 miles (0.72 km); upgrade: 0.45 miles (0.72 km)

Proposed Structure Information
Visible structure type: Weathering steel monopole
Visible structure numbers: F107-140 - F107-144; upgrade: E194-7 - E194-4
Height range of proposed transmission structures (visible): 84' - 95'; upgrade: 65' - 95'
Height range of existing transmission structures (visible): N/A
Right of way width: 130'

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information
Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second

Aerial Context Map

Prepared by **LandWorks**, Middlebury, VT
Prepared for Eversource

EXHIBIT 16: EXISTING CONDITIONS AT NEWINGTON MALL SHOPPING CENTER, NEWINGTON (SHEET 2 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 16: VISUAL SIMULATION OF PROPOSED CONDITIONS AT NEWINGTON MALL SHOPPING CENTER, NEWINGTON
SHEET 3 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 17: NIMBLE HILL ROAD, NEWINGTON (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

View Location Map

Simulation Information

Base Photograph
Date: 3/10/15
Time: 2:48 pm
Weather conditions: Partly Cloudy
Image Size: 5472 x 3648 pixels

Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 17
Location: Nimble Hill Road, Newington, NH
Classification: Private property
Orientation: East / Southeast
Latitude/Longitude: 43.107074°, -70.829464°
Camera elevation above sea level: 80.00' (24.38 m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 0.25 miles (0.40 km)
Distance to furthest visible structure: 0.33 miles (0.54 km)

Proposed Structure Information
Visible structure type: Weathering steel monopole
Visible structure numbers: F107-116 - F107-118
Height range of proposed transmission structures (visible): 70' - 75'
Height range of existing transmission structures (visible): N/A
Right of way width: 130'

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information
Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second

Aerial Context Map

Prepared by **LandWorks**, Middlebury, VT
Prepared for Eversource

EXHIBIT 17: EXISTING CONDITIONS AT NIMBLE HILL ROAD, NEWINGTON (SHEET 2 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

EXHIBIT 17: VISUAL SIMULATION OF PROPOSED CONDITIONS AT NIMBLE HILL ROAD, NEWINGTON (SHEET 3 OF 3)

February 2016

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

EXHIBIT 18: OLD POST ROAD, NEWINGTON (SHEET 1 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

View Location Map

0' 750' 1500' N

Simulation Information

Base Photograph
Date: 2/6/16
Time: 3:36 pm
Weather conditions: Partly Cloudy
Image Size: 5472 x 3648 pixels

Camera Properties
Camera Make/Model: Canon EOS 6D
Sensor Dimensions: 35.8mm x 23.9mm
Lens Make/Model: Canon EF 50mm
Lens Focal Length: 50mm
Focal Length (35mm Equivalent): 52mm
Approx. Angle of View: 40° horizontal, 27° vertical
Camera Height: 5 ft (1.5 meters)

View Location Information
View Location Name: Exhibit 18
Location: Old Post Road, Newington, NH
Classification: Private property
Orientation: South / Southeast
Latitude/Longitude: 43.104459°, -70.835979°
Camera elevation above sea level: 72.00' (21.946 m)
Simulation viewing distance: 21.3 in (54.102 cm)
Distance to nearest visible structure: 0.21 miles (0.345 km)
Distance to furthest visible structure: N/A

Proposed Structure Information
Visible structure type: H-Frame
Visible structure number: F107-110
Height range of proposed transmission structures (visible): 61' or
Height range of existing transmission structures (visible): N/A
Right of way width: 130'

Visual Simulation Notes:
1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information
Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second

Aerial Context Map

0' 150' 300' N

Prepared by **LandWorks**, Middlebury, VT
Prepared for Eversource

EXHIBIT 18: EXISTING CONDITIONS AT OLD POST ROAD, NEWINGTON (SHEET 2 OF 3)

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

February 2016

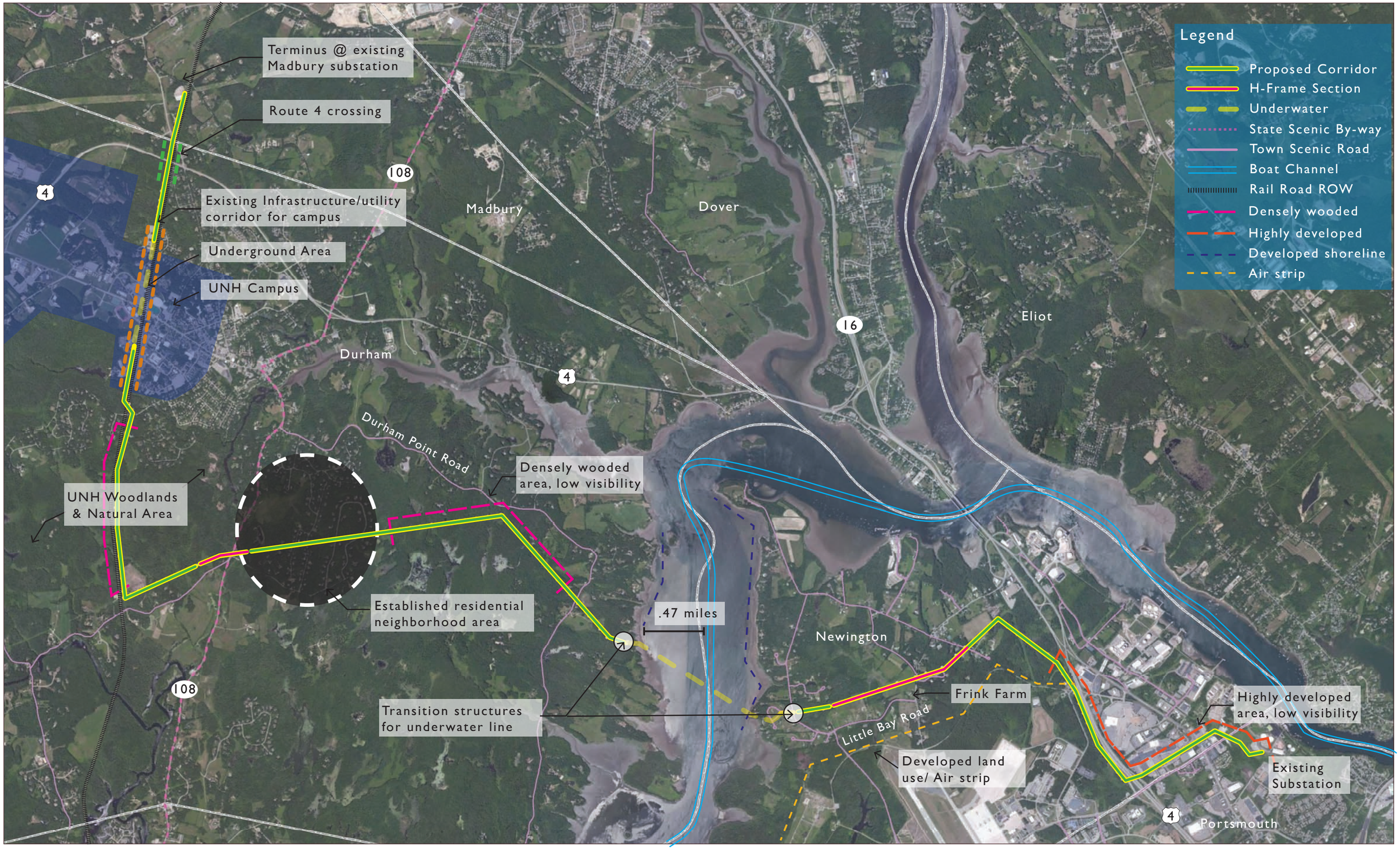
EXHIBIT 18: VISUAL SIMULATION OF PROPOSED CONDITIONS AT OLD POST ROAD, NEWINGTON (SHEET 3 OF 3)

February 2016

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT

EXHIBIT 19: PROJECT CONTEXT AND LAND USE

SEACOAST RELIABILITY PROJECT VISUAL ASSESSMENT



Prepared by LandWorks, Middlebury, VT